

Standard 1: Mission, Goals and Objectives

The institution's mission statement must clearly and appropriately define its principal purposes and priorities and be influential in guiding planning and action within the institution. PMU Mission Statement:		
<i>The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions</i>		
Good Practices Relating to This Standard	Is this true ? Y/No /NA	How well is this done? (enter stars)
1.1 Appropriateness of the Mission The mission statement must be appropriate for the institution in the community in which it is operating.	Y	*****
1.1.1 The mission statement is consistent with the establishment charter of the institution.(including any objectives or purposes in by-laws, company objectives or comparable documents)	Y	*****
1.1.2 The mission statement is appropriate for an institution of its type. (eg a small private college, a research university, a girls college in a regional community, etc.)	Y	*****
1.1.3 The mission statement is consistent with Islamic beliefs and values.	Y	*****
1.1.4 The mission is relevant to needs of the community or communities served by the institution	Y	*****
1.1.5 The mission is consistent with the economic and cultural requirements of the Kingdom of Saudi Arabia.	Y	*****
1.1.6 The appropriateness of the mission is explained to stakeholders in an accompanying statement commenting on significant aspects of the environment within which it operates. (which may relate to local, national or international issues)	Y	*****
Overall Assessment		*****
Comment: PMU mission is an interpretation of the university commitment to the community and its constituents. PMU was founded on a profoundly well defined feasibility study supported by string involvement of all stakeholders of its framing. The stakeholders along with academic partners established all the facets of its mission statement. A vivid evidence of PMU's mission comprehensiveness is the university record of fulfilling and exceeding the expectations of its mission to the Eastern Province community. PMU mission appropriateness to the stakeholders is witnessed through its paramount participation in the growth and improvement of higher education and human development in the Eastern Province and the Kingdom at large.		

Priorities for improvement: 1- PMU is reviewing and preparing its next strategic plan for the period 2011-2015. During the current time, the mission of the institution is reviewed. All stake holders are being involved. Report on the progress on this revision is expected by end of Spring 2012 2- New programs, initiatives and endowments are opening new horizons for PMU commitment to the community. Careful attention is needed to review all these programs regularly to maintain excellent alignment with PMU mission. This is a work in progress and PMU senior administration (Rector's office) is expected to be the responsible party for it. Recurring reviews of the Rector's office by the Deanship of Quality and Accreditation along with Rector's office quality committee teams to observe such alignment.		
Independent Opinion <i>Comment</i> The PMU Mission and Vision statements are well developed and consistent with the standards of NCAAA.		
1.2 Usefulness of the Mission Statement The mission statement must be useful in guiding planning and decision making in the institution.		
1.2.1 The mission statement is sufficiently specific to provide-an effective guide to decision-making and choices among alternative planning strategies.		
1.2.2 The mission statement is relevant to all of the institution's important activities.		
1.2.3 The mission is achievable through effective strategies within the level of resources expected to be available.		
1.2.4 The mission statement is clear enough to provide criteria for evaluation of the institution's progress towards its goals and objectives.		
Overall Assessment		
Comment Priorities for improvement		
Independent Opinion <i>Comment</i> The integration of the Mission and Vision into the internal practices of PMU is established and further practices, such as launching advanced degrees, corporate training programs and expanded research collaboration, are under way to involve other shareholders in realizing the Mission and Vision.		
1.3 Development and Review of the Mission The mission statement must be developed through consultative processes and		

formally adopted and periodically reviewed.		
1.3.1 Major stakeholders within the institution and the communities it serves have been consulted and support the mission.		
1.3.2 The governing body of the institution formally approved the mission statement.		
1.3.3 The governing body periodically reviews the mission statement and confirms or amends it in the light of changing circumstances.		
1.3.4 Stakeholders are kept informed about the mission and any changes in it.		
Overall Assessment		
Comment Priorities for improvement Independent Opinion Comment Review and comment on the Mission and Vision from external stakeholders was sought and is planned as part of the ongoing quality improvement effort. The University Council reports to the Board of Trustees and reviews progress in fulfilling the Mission and Vision several times each year.		
1.4 Use Made of the Mission The mission must be used consistently as a basis for planning and major policy decisions within the institution.		
1.4.1 The mission is used as a basis for a strategic plan over a medium term planning period. (eg. five years)		
1.4.2 The mission is widely publicised, known about and supported by teaching and other staff and students.		
1.4.3 The mission is used consistently as a guide in resource allocations and consideration of major program and project proposals and policy decisions.		
Overall Assessment		
Comment Priorities for improvement		
Independent Opinion Comment PMU is a relatively new institution and this is the first NCAAA institutional		

accreditation. There was a strategic plan developed in 2006-2011 and a second plan developed for the period 2012-2013. This plan is included in the NCAAA accreditation documentation.		
1.5 Relationship Between Mission, Goals and Objectives The mission must be used as a basis for establishment of goals and objectives for development of the institution and organizational units within it.		
1.5.1 Medium and long term goals for the development of the institution and its programs and organizational units are consistent with and support the mission.		
1.5.2 Goals are stated with sufficient clarity to effectively guide planning and decision-making in ways that are consistent with the mission.		
1.5.3 Goals and objectives are periodically reviewed and reaffirmed or modified as necessary in the light of changing circumstances to ensure they continue to support-the mission.		
1.5.4 Specific objectives for total institutional initiatives and for internal organizational units are consistent with the mission and broad goals for development.		
1.5.5 Statements of major objectives are accompanied by specification of clearly defined and measurable indicators that are used to judge the extent to which objectives and the mission are being achieved.		
Overall Assessment		
Comment 		
Priorities for improvement 		
Independent Opinion Comment The Vision and Mission were used to establish strategic goals in the two earlier strategic planning exercises.		
Overall Assessment of Mission, Goals and Objectives		
1.1 Appropriateness of the Mission		
1.2 Usefulness of the Mission Statement		
1.3 Development and Review of the Mission		
1.4 Use Made of the Mission		
1.5.Relationship Between Mission, Goals and Objectives		
Combined Assessment by Independent Opinion The Mission and Vision were well planned in advance of the opening of PMU, stakeholders were and continue to be involved in the process and the Vision and Mission are used to guide strategic planning.		

Standard 2: Governance and Administration

The governing body must provide effective leadership in the interests of the institution as a whole and its clients through policy development and processes for accountability. Senior administrators must lead the activities of the institution effectively within a clearly defined governance structure. Their activities must be consistent with high standards of integrity and ethical practice. If there are separate sections for male and female students' resources must be comparable in both sections, there must be effective communication between them, and full involvement in planning and decision making processes. Planning and management must occur within a framework of sound policies and regulations that ensure financial and administrative accountability, and provide an appropriate balance between coordinated planning and local initiative.

Good Practices Relating to This Standard	Is this true? Y/No/ NA	How well is this done? (enter stars)
2.1 Governing Body The governing body must operate effectively in the interests of the institution as a whole and the communities it serves.	Y	*****
2.1.1 The governing body has as its primary objective the effective development of the institution in the interests of its students and the communities it serves.	Y	*****
2.1.2 Membership of the governing body provides for the range of perspectives and expertise needed to guide the educational policies of the institution	Y	*****
2.1.3 Members of the governing body are familiar with the range of activities within the institution and the needs of the communities it serves.	Y	*****
2.1.4 New members of the governing body are thoroughly inducted into their role with information about the institution and about the role and processes of the governing body itself.	Y	*****
2.1.5 The governing body periodically reviews the mission, goals and objectives of the institution.	Y	*****
2.1.6 The governing body ensures that the mission goals and objectives of the institution are reflected in detailed planning and activities.	Y	*****
2.1.7 The governing body monitors and accepts responsibility for the total operations of the institution, but avoids interference in management or academic affairs.	Y	*****
2.1.8 Sub committees of the governing body (including members of the governing body, senior faculty and staff, and outside persons as appropriate) are established to give detailed consideration to major responsibilities such as finance and budget, staffing policies and remuneration, strategic planning, and facilities.	Y	*****
2.1.9 Responsibilities are defined in such a way that the respective roles and responsibilities of the governing body for overall policy and accountability, the senior administration for management, and the academic decision making structures for academic program development, are clearly differentiated, defined, and followed in practice.	Y	*****
2.1.10 In a private institution the relative responsibilities of the owners or company directors and the governing body are clearly specified and avoid interference in academic matters.	Y	*****

2.1.11 In their role as members of the governing body members who are also members of staff of the institution act in the interests of the institution as a whole rather than as representatives of sectional interests.	Y	*****
2.1.12 The governing body regularly reviews its own effectiveness and develops plans for improvement in the way it operates.	Y	*****
Overall Assessment		*****
Comment _____ _____ Priorities for improvement _____ _____		
Independent Opinion <i>Comment</i> The governing body acts very effectively in promoting the interest of PMU to the community and the Ministry of Higher Education.		
2.2 Leadership		
The institution's administrators must provide effective and responsible leadership for the development and improvement of the institution.	Y	*****
2.2.1 The responsibilities of administrators are clearly defined in position descriptions.	Y	*****
2.2.2 Senior administrators (including the Rector or Dean and others throughout the institution) anticipate emerging issues and opportunities and exercise initiative in response.	Y	*****
2.2.3 Administrators ensure that action needed in their area of responsibility is taken in an effective and timely manner.	Y	***
2.2.4 The levels of supervision and approval for academic affairs provide for monitoring of quality and approval of major changes by senior administrators and the senior academic committee while allowing appropriate flexibility at course and program levels. (eg. to change text and reference lists, modify planned teaching strategies, details of assessment tasks and updating of course content.) (see also section 4.1.3)	Y	*****
2.2.5 Administrators encourage teamwork and cooperation in achievement of institutional goals and objectives within their area of responsibility.	Y	*****
2.2.6 Senior administrators and administrators at all levels in the institution work cooperatively with colleagues in other sections of the institution to ensure effective overall functioning of the total institution.	Y	*****
2.2.7 Administrators at all levels accept responsibility for the quality and effectiveness of activities within their area of responsibility regardless of whether those activities are undertaken by them personally or by others responsible to them.	Y	*****
2.2.8 When responsibilities are delegated to others this is done appropriately within a clearly defined reporting and accountability framework.	Y	*****
2.2.9 Delegations are formally specified in documents signed by the person delegating and the person given delegated authority, and that describe clearly the limits of delegated responsibility and responsibility for reporting on decisions made.	Y	***
2.2.10 Regulations governing delegations of authority are established for the institution and approved by the governing board. These regulations indicate key functions that cannot be delegated, and specify that delegation of authority to another person or	Y	*****

organization does not remove responsibility for consequences of decisions made from the person giving the delegation.		
2.2.11 Administrators provide leadership and encourage and reward initiative on the part of subordinates within clear policy guidelines	Y	*****
2.2.12 Regular and constructive feedback is given on performance of subordinates in a manner that contributes to their personal and professional development	Y	*****
2.2.13 Senior administrators ensure that submissions to the governing body are fully documented and presented in a form that clearly identifies the policy issues for decision and the consequences of alternatives.	Y	*****
Overall Assessment		
Comment_____		

Priorities for improvement_____		

Independent Opinion		
Comment		
Leadership for some Colleges of PMU has been effective. Appointments of some interim leaders to other administrative and academic positions has been a difficulty and should be addressed by accelerating the ongoing process of filling the interim positions with appropriately qualified individuals.		
2.3 Planning Processes		
2.3.1 A comprehensive strategic plan has been developed and provides a planning framework for all sections within the institution should be developed for the institution as a whole.	Y	*****
2.3.1 Planning is strategic, incorporating priorities for development and appropriate sequencing of action to produce the most effective short-term and long term-results.	Y	*****
2.3.2 Plans take full and realistic account of aspects of the external environment affecting development of the institution.	Y	*****
2.3.3 The processes for developing major plans for the institution provide for involvement and understanding with stakeholders throughout the institutional community.	Y	*****
2.3.4 When major planning decisions are announced they are effectively communicated to all concerned with impacts and requirements for different constituencies made clear.	Y	*****
2.3.5 Implementation of plans is monitored in relation to short term and medium term targets and outcomes evaluated.	Y	*****
2.3.6 Plans are reviewed, adapted and modified, and corrective action taken as required in response to operational developments, formative evaluation, and changing circumstances.	Y	*****
2.3.7 Information management systems provide regular feedback on both ongoing routine activities and progress in strategic initiatives through key performance indicators and other information as required..	Y	*****
2.3.8 Risk management is included as an integral component of planning strategies with appropriate mechanisms developed for risk assessment and minimization.	Y	*****
2.3.9 Strategic planning is integrated with annual and longer term budget processes with capacity for medium term adjustments as required.	Y	*****
Overall Assessment		
Comment_____		

Priorities for improvement		
Independent Opinion Comment The overall planning process for PMU has been detailed and outstanding from well before it was opened. All leaders and stakeholders are tasked to develop and execute action plans consistent with strategic goals on a regular basis.		
2.4 Relationship Between Sections for Male and Female Students In institutions with sections for male and female students the leaders of both sections must participate in institutional governance and be fully involved in strategic planning, decision making, and senior management with effective and continuing communication between sections. Strategic planning should ensure equitable distribution of resources and facilities to meet the requirements of program delivery, research, and associated services in each section.		
2.4.1 Male and female sections are adequately represented in the membership of relevant committees and councils through processes that are consistent with bylaws and regulations of the Higher Council of Education.	Y	****
2.4.2 There is effective communication between members of committees and councils and between individuals in the different sections carrying out related activities.	Y	****
2.4.3 Programs, facilities and services are planned and resources provided that ensure comparable standards are achieved in each section, while taking account of variations appropriate for different needs.	Y	*****
2.4.4 Quality indicators, evaluations and reports show results for both sections indicating similarities and differences as well as overall performance.	Y	*****
Overall Assessment Comment Priorities for improvement		
Independent Opinion Comment Coordination between the male and female sections is excellent. Hiring of more and better qualified faculty in both sections is a priority because of heavy workloads due to growth in student enrolment.		
2.5 Integrity The institution must meet high ethical standards of honesty and integrity including avoidance of conflicts of interest and avoidance of plagiarism in its teaching, research and service functions and take action to ensure that these standards are met by staff and students. These standards must be maintained in all of the institution's dealings with its students and teaching and other staff, and its relationships with external agencies including both government and non-government organizations.		
2.5.1 Codes of practice for ethical and responsible behaviour have been developed that require that teaching and other staff and students, and all committees and organizations, act consistently with high standards of ethical conduct and avoidance of plagiarism in the conduct and reporting of research, in teaching, performance evaluation and assessment,	Y	*****

and in the conduct of administrative and service activities.		
2.5.2 The institution regularly reviews and modifies its policies and procedures as necessary to ensure continuing high standards of ethical conduct.	Y	*****
2.5.3 Administrators and others speaking on behalf of the institution represent it honestly and accurately to both internal and external agencies. (Advertising and promotional material is always be truthful, avoids any actual or implied misrepresentations or exaggerated claims, or negative comments about other institutions.)	Y	*****
2.5.4 Regulations are established and are consistently followed dealing with declarations of pecuniary interest or conflict of interest for faculty and staff at all levels of the institution. (The regulations apply to the governing board and to all committees and other decision making bodies in the institution.)	Y	*****
2.5.5 Hiring, disciplinary and dismissal practices are clearly documented and administered in a way that ensures fair treatment for all Saudi Arabian and expatriate teaching and other staff, whether appointed on a full time or part time basis.	Y	*****
Overall Assessment Comment_____ _____ Priorities for improvement_____ _____		
Independent Opinion <i>Comment</i> There is a clear code of conduct for staff and students and for conflict of interest. High standards of professional and ethical integrity are in evidence. Faculty from diverse backgrounds are treated equally and fairly. In addition there are clear policies and procedures for conflict resolution.		
Policies and Regulations The institution must have a comprehensive and widely accessible set of policies and regulations establishing the terms of reference and operating procedures for major committees, administrative units and positions within the institution.		
2.6.1 A policy and procedures manual has been prepared setting out internal regulations and procedures for dealing with major areas of activity within the institution.	Y	*****
2.6.2 Terms of reference or statements of responsibility have been specified for major committees and administrative and academic positions and included in the policy and procedures manual.	Y	*****
2.6.3 Policies and regulations are accessible to teaching and other staff and students including new members of staff, and members of committees, and effective strategies used to ensure they are understood and complied with.	Y	****
2.6.4 Student responsibilities, codes of conduct, and regulations affecting their behaviour are defined and made known to students when they begin studies at the institution.	Y	****
2.6.5 The institution has a program for the periodic review and amendment of all its policies and regulations over specified time periods.	Y	*****
Overall Assessment Comment_____ _____ Priorities for improvement_____ _____		

Independent Opinion Comment Administrative policies and procedures at PMU were developed as part of the TIEC consulting agreement and have been implemented. There is a standing committee to consider any appropriate revisions of the PMU Manual of Policies and Procedures.		
2.7 Organizational Climate The institution must implement systems to maintain a positive organizational climate. (Defined as one that is characterized by a sense of involvement in decision making, capacity to take initiative and pursue career goals, and a belief among teaching and other staff that their contributions are valued.)		
2.7.1 A systematic approach is adopted by senior managers to develop and maintain a positive organizational climate. (Defined as one that is characterized by a sense of involvement in decision making, capacity to take initiative and pursue career goals, and a belief among faculty and staff that their contributions are value.)	Y	*****
2.7.2 Opinions of staff on major initiatives are sought and information is provided on how those opinions have been considered and responded to.	Y	*****
2.7.3 Significant achievements and contributions to the institution and the community by staff or students are recognized and appropriately acknowledged.	Y	*****
2.7.4 Information about issues, plans and developments at the institution are regularly communicated to teaching and other staff through means such as newsletters, internal publications or electronic communications.	Y	*****
2.7.5 Responsibility is given to a senior administrator or central unit to conduct periodic surveys dealing with issues relevant to organizational climate including such matters as job satisfaction, confidence in future development, sense of involvement in planning and development.	Y	*****
Overall Assessment Comment_____ Priorities for improvement_____		
Independent Opinion Comment PMU has a highly developed and detailed organizational structure. Improvement would result from insuring that well qualified candidates are always found for key academic and administrative decision making positions.		
2.8 Associated Companies and Controlled Entities This section applies to any situation in which an institution has established or controls subsidiary corporations or other controlled entities for matters such as service provision, assistance with program delivery, publications, or development of intellectual property. This requirement includes any arrangement where an institution contracts out to another organization the provision of services to students or future students, such as a preparatory year or a preparatory English language program. In such cases the institution contracting out the service must establish supervisory and reporting requirements that ensure that all		

relevant standards are met and will be held responsible for the results.		
If institutions establish or control subsidiary corporations for matters such as service provision, publications, or development of intellectual property the institution must maintain effective policy oversight, accountability and risk management processes.		
2.8.1 The functions of the controlled entities are appropriate for and consistent with the charter and mission of the institution.	Y	*****
2.8.2 The administrative and financial relationship between the controlled entities and the institution are clearly specified.	Y	*****
2.8.3 Reporting mechanisms are established that ensure that the governing body has effective oversight of the purposes, functions, and activities of the controlled entities	Y	*****
2.8.4 Audited financial reports on the financial affairs of the controlled entities are reviewed regularly by the relevant committee of the governing body.	Y	*****
2.8.5 Administrative arrangements and planning mechanisms for activities of the controlled entity should provide for adequate risk assessment including protection for the institution against financial or legal liabilities.	Y	*****
2.8.6 In any arrangement under which an institution contracts out to another organization the provision of services to students or to future students (eg. a preparatory year program) the service contract should include requirements to meet all relevant quality standards. (The institution will be held responsible for ensuring the standards are met.)	Y	*****
Overall Assessment		*****
Comment: This section is related to the English Language Institute (ELI) and Prince Mohammad Bin Fahd Program For Youth Development. ELI is managed by PMU. Please refer to the Appendices of PMU Self Study report for further information. PMU is also associated with Prince Mohammad Bin Fahd Program for Human Development. These programs are managed by PMU Rector and fully integrated with PMU charter. PMU quality standards and arrangements are carried on with these programs since most leadership and execution of their daily activities are delivered by joint resources between PMU and these institutions. Priorities for improvement: ELI report appended to PMU Self Study summarizes the ELI performance. More resources should be added in the coming academic year to boost the utilization of the facilities at the ELI. PMU should increase the visibility of the ELI by putting more resources into promoting the ELI in the greater Dammam area.		
Independent Opinion Comment The management of associated companies and controlled entities of PMU operate under clearly defined protocol and are consistent with the Mission and Vision of the University. Examples include Prince Mohammad Bin Fahd Program for Youth Development and the English Language Institute.		
Overall Assessment of Governance and Administration		
2.1 Governing Body		*****
2.2 Leadership		*****
2.3 Planning Processes		*****

2.4 Relationships Between Sections for Male and Female Students	*****
2.5 Integrity	*****
2.6 Policies and Regulations	*****
2.7. Organizational Climate	*****
2.8 Associated Companies and Controlled Entities	*****
Combined Assessment	*****
Comment: PMU governance and administration is well defined by PMU System Design. PMU operation and performance are constantly adhering to the original system design. The PMU system is reviewed and updated on a regular basis to achieve continuous improvements. NCAAA review team members are invited to review the complete PMU System Design prepared and instituted through PMU partnership with Texas International Educational Consortium of over 32 USA universities. The system design is available for review and is documented in 30 bound volume at PMU.	
Independent Opinion	
Comment The standard for program management is met. Policies for management of the university are clearly stated and provide for efficient operation and ongoing review. <u>Indicators Considered</u> • PMU regular reports on governance and administration goals achievement • PMU reports to the University Board of Trustees • PMU review of strategic goals achieved and the process of planning and review at all levels in the governance and administration • PMU financial planning and annual auditing reports Priorities for Improvement: • PMU to add more resources in administration to improve the processes of daily operation of administration units • PMU to adopt a training and orientation of all staff on PMU policies and operation in the coming academic year (this action already started) • PMU to review Human Resources administration and processes to achieve continuous improvement (A dedicated committee at high level is in place and work on this action has started) • PMU to review Budget and Finance administration and processes to achieve continuous improvement (A dedicated committee at high level is in place and work on this action has started)	

Standard 3: Management of Quality Assurance and Improvement Processes

Quality assurance processes must involve all sections of the institution and be effectively integrated into normal planning and administrative processes. Criteria for assessment of quality must include inputs, processes and outcomes with a particular focus on outcomes. Processes must be established to ensure that teaching and other staff and students are committed to improvement and regularly evaluate their own performance. Quality must be assessed by reference to evidence based on indicators of performance and challenging external benchmarks. Specific requirements in the institution's quality assurance system should be periodically reviewed to ensure that unnecessary requirements are not included and that data that is provided is actually used in an effective way.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard

Is this true?
Y/No/NA

How well is this done?

3.1 Institutional Commitment to Quality Improvement

An institution must be committed to maintaining and improving quality through effective leadership and active involvement of teaching and other staff.

3.1.1 The Rector or Dean strongly supports involvement in quality assurance processes.

☐
☐

3.1.2 Adequate resources are provided for the leadership and management of quality assurance processes, and provision of assistance where it is needed.

☐
☐

3.1.3 All teaching and other staff participate in self-assessments and cooperate with reporting and improvement processes in their sphere of activity.

☐
☐

3.1.4 Creativity and innovation combined with clear guidelines and accountability processes are actively encouraged at all levels.

☐
☐

3.1.5 Mistakes and weaknesses are recognized and used as a basis for planning for improvement.

☐
☐

3.1.6 Improvements in quality are appropriately acknowledged.

3.1.7 Evaluation and planning for quality improvement are integrated into normal administrative processes.

Overall Assessment

Comment: Strengths:

- Input into 5 Year Planning cycle
- PMU Accreditation Strategic Plan

Priorities for improvement:

- More Resources and Training for Quality Teams
- Reward positive contributions and achievements

Independent Opinion

Comment

There is a commitment to quality improvement processes among the administrators and staff. Existing policies provide for quality review in all associated programs at PMU.

3.2 Scope of Quality Assurance Processes

Quality assurance activities that are necessary to ensure good quality must apply to all functions carried out in the institution and involve teaching and other staff in all parts of the institution in performance evaluations and planning for improvement.

☐
☐

3.2.1 All academic and administrative units within the institution (including the governing body,

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☐

and senior management) participate in the processes of quality assurance and improvement.

3.2.2 Regular evaluations are carried out and reports prepared to provide an overview of performance for the institution as a whole, and organizational units and functions within it.

3.2.3 Quality evaluations consider inputs, processes and outcomes, with particular attention to quality of outcomes.

3.2.4 Evaluations are carried out for both routine activities and for strategic priorities for improvement.

	4

3.2.5 Quality assurance processes are designed to ensure both that acceptable standards are met, and that there is continuing improvement in performance.

	4

3.2.6 A program of institutional research on quality issues is carried out to investigate and report to the Rector or Dean and the governing body, and inform the institution as a whole on the quality of the institution's activities and achievement of its objectives.

	4.25

3.2.7 In institutions with sections for male and female students detailed evaluations in relation to all standards should be carried out in a consistent way in both sections and quality reports on those standards should note any significant differences found and make appropriate recommendations for action in response to what is found.

	4.5

Overall Assessment

4

Strengths: High participation rate and consistent reporting processes and documentation between all departments, programs and both campuses.

Independent Opinion

Comment

PMU has been actively involved in developing quality assurance processes well before the NCAAA accreditation process.

3.3 Administration of Quality Assurance Processes

The institution must make adequate arrangements for the leadership and administrative support for quality assurance processes throughout the organization.

3.3.1 A senior member of faculty is assigned responsibility and given a sufficient time allowance to provide guidance and support for the quality processes within the institution.

	4.5

3.3.2 A quality center is established within the institution's central administration and given sufficient staff and resources to operate effectively.

	4

3.3.3 A quality committee is formed with members drawn from all major sections of the institution. As a general guideline this might involve 12 to 15 members and in a large institution might require representatives from groups of Colleges in similar fields rather than from each college.

	3.5

3.3.4 The committee is chaired by a member of the institution's senior administration who works closely with the director of the quality center in guiding and supporting quality initiatives throughout the institution.

	4.5

3.3.5 The roles and responsibilities of the head of the quality centre, the centre itself, and the quality committee are formally defined and their relationship with other planning and administrative units made clear.

	5

3.3.6 If quality assurance functions are managed by more than one organizational unit, the activities of these units are effectively coordinated under the supervision of a senior administrator.

	n/a

3.3.7 The institution's quality assurance system is fully integrated into normal planning and development strategies in a defined cycle of planning, implementation, assessment and review.

	4.25

3.3.8 Evaluations are (i) based on evidence, (ii) linked to appropriate standards, (iii) include consideration of predetermined indicators, and (iv) take account of independent verification of interpretations.

	4

3.3.9 Common forms and survey instruments are prepared for use for similar activities across the institution (eg. programs, courses, libraries etc.) and responses used in independent analyses of results including trends over time. (This does not preclude additional questions relevant to different programs or special instruments dealing with particular functions eg. specialized libraries or student services)

	3.5

3.3.10 Statistical data (including pass rates, progression and completion rates and other data required for indicators) are retained in a central data base and provided routinely and promptly to colleges and departments (normally each semester or at least annually) for their use in preparation of reports on indicators and other tasks in monitoring quality.		4.5
3.3.11 The administrative arrangements and processes used for quality assurance in the institution are evaluated and reported on in a way that is comparable to the quality assurance processes for other functions and organizational units.		4.25
3.3.11 Processes for evaluation of quality should be transparent with criteria for judgments and evidence considered made clear.		4.5
Overall Assessment		4.2

Strengths:

- PMU's initial steps included Independent Evaluations by participants from KFUPM and Aramco in addition to the TIEC Design process and subsequent second TIEC contract. NCAAA has also performed an initial visit in 2007 and a second Developmental visit in 2009 to assist PMU in developing its Quality Assurance Administration Processes.

Priorities for improvement:

- Action Plan Log to capture and monitor opportunities for improvement (ongoing)

Independent Opinion

Comment

The Dean of Quality and Accreditation provides excellent overall administrative oversight of the quality assurance process and compliance for PMU. All Colleges have continuous collaboration with the Dean for mentoring and compliance coordination.

3.4 Use of Indicators and Benchmarks

Specific indicators must be identified for monitoring performance and appropriate benchmarks selected for evaluation of the achievement of goals and objectives and for the quality of major institutional functions.

3.4.1 A limited number of key performance indicators that are capable of objective measurement have been identified and provide clear objective evidence of quality of performance for sections within the institution (including colleges and departments) and for the institution as a whole.		4
3.4.2 Additional indicators that provide clear evidence of quality of performance in achieving their objectives are selected by or for each academic and administrative unit within the institution.		4.25
3.4.3 When functions that are carried out by different organizational units (eg. teaching, research, community service) some common indicators are selected for all such units as measures of quality and to provide for comparisons of performance.		4
3.4.4 Benchmarks for comparing quality of performance (including past performance and at least some comparisons with other institutions) are established and achievements in relation to those benchmarks is regularly monitored.		4.25
3.4.5 Key performance indicators and benchmarks for major organizational units or functions are approved by the appropriate committee or council within the institution (e.g. senior academic committee, university council)		4
3.4.6 The format for indicators and benchmarks is consistent across the institution and provides specific evidence relating to important objectives.		4

Overall Assessment

Strengths:

- NCAAA KPIs, Research and Benchmarking inherent to PMU system due to TIEC and NCAAA guidelines

Priorities for improvement:

- Devise central surveying/statistical data linkage between LRC/HR/SA/Finance by end of Sp, 2012 (DQA to collaborate with reps from each dept named)

Independent Opinion

Comment

PMU Key Performance Indicators, NCAAA Standards and international accreditation standards, such as SACS and ABET, are used to assess quality of performance.

3.5 Independent Verification of Standards

3.5.1 Self-evaluations of quality of performance are checked against related evidence including feedback through user surveys and opinions of stakeholders such as students and teaching staff, graduates and employers.

3.5.2 Interpretations of evidence of quality of performance are verified through independent advice from persons familiar with the type of activity concerned and impartial mechanisms are used to reconcile differing opinions.

3.5.3 Institutional policies and procedures have been established for the verification of standards of achievement by students in relation to other institutions and the requirements of the National Qualifications Framework.

Overall Assessment

Comment _____

Priorities for improvement:

- Implement Industry Advisory Boards in each Academic Department

Independent Opinion

Comment

Quantitative data for PMU include the Key Performance Indicators, surveys and course evaluations for independent verification of standards.

Combined Assessment Independent Opinion:

Management of program quality assurance is well planned and executed. It is expected that quantitative measures of quality achievement will continue to be collected and evaluated in future years.

Overall Assessment of Quality Assurance and Improvement Processes

3.1 Institutional Commitment to Quality Improvement	3.4
3.2 Scope of Quality Assurance Processes	4
3.3 Administration of Quality Assurance Processes	4.2
3.4 Use of Indicators and Benchmarks	4
3.5 Independent Verification of Standards	3.4
Combined Assessment	3.8

Comment _____

Notes for Priorities for Improvement Standard 3: Management of Quality Assurance and Improvement Processes

- **Challenge:** Accreditation Process shows general trend for scheduled meetings *not to be attended* by a rate between 25 – 50%. **Solutions:** More complete staffing of departments, Parties to communicate need to reschedule when priorities change suddenly, more respect for the necessity to work collaboratively.
- **Challenge:** Academic units need dedicated “release time” in order to properly attend to duties such as internal training/monitoring of processes, committee work, document revision, Action Plan follow-up. **Solution:** Readdress issue with PMU management.
- **Challenge:** Administrative Quality Teams require more support and Training and to dedicate time to NCAAA documentation processes. **Solutions:** Administrative Break-out Sessions, Administrative Training, DQA to Provide Hard and Soft Copy models with prescribed formats and document types (Word, Excel, etc).
- **Challenge:** Necessity to streamline document/data gathering processes to facilitate improved analysis writing and prevent breakdowns resulting in gaps in documentation (Exs: Matriculation Rates, Classroom Adequacy). **Solution:** Pre-load linkages between key report generating bodies within PMU (HR, SA, LRC, IT, Finance) – set schedule for common reports to be presented and disseminated in Word and Excel (not PDF), Streamline KPI responsibilities.

Independent Opinion

Comment_____

Indicators Considered_____

Priorities for Improvement

Standard 4: Learning and Teaching

INDEPENDENT OPINION (Comments from Prof. Melvyn C. Branch)

- 4.1 The institution has strong procedures in place to provide oversight of quality of teaching and learning.
- 4.2 Evidence from the initial guidance provided by TIEC and subsequent revisions by PMU, and data from surveys suggests that the student learning objectives meet or exceed the National Qualifications Framework. Consistency will be monitored in the educational programs for future students and new degree programs according to policies already in place.
- 4.3 Course Specifications, Program Specifications Course Portfolios, Field Experience Specifications and associated reports along with student advising protocol indicate that courses taught impart the learning outcomes. As new programs are planned and introduced, they must continue to be monitored for consistency with the learning objectives.
- 4.4 The involvement of PMU in the NCAAA accreditation process and the initiatives to seek other outside program accreditation such as SACS and ABET are indicators of the commitment to periodic program review. These efforts need to be well coordinated to avoid redundancy in compliance review documents and program review protocol.
- 4.5 PMU has an impressive array of assessment tools to provide annual data on achievement of learning outcomes.
- 4.6 PMU has in place many mechanisms for individualized curricular and extracurricular assistance to students in order to accelerate their academic progress. These activities appear to be very important in improving the performance of many students who enter the university in need of academic preparatory assistance.
- 4.7 Course Specifications include a variety of teaching and learning methodologies intended to develop the many learning outcomes. Monitoring the effectiveness of these strategies in future student cohorts will identify weaknesses and suggest needed changes.
- 4.8 The PMU Learning Resource Center was established to assist with faculty professional development and with added preparatory learning for students.
- 4.9 The evidence from review of faculty qualifications is that faculty generally has qualifications for their teaching assignments. PMU has a new faculty orientation program. Additional attention is needed to insure that new faculty continues to receive orientation and support.

4.10 Field experiences are made available to students in a variety of forms. PMU Colleges have meaningful collaboration with surrounding companies to provide internships and to create employment opportunities for students. Faculty collaborate with research departments off campus and training is provided on campus to local employees.

4.11 Although PMU is a relatively new university, there are already strong programs in place to provide outreach and service to the surrounding community and memoranda of understanding with international universities and institutions.

Combined Assessment Overall Opinion:

Numerous mechanisms are in place to monitor the attainment of learning outcomes and collaboration with the KSA and international community are in place.



جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

**National Commission for Academic Accreditation
& Assessment**

Self Evaluation Scales for Higher Education Programs

**COLLEGE OF COMPUTER
ENGINEERING AND SCIENCE**

June 2011

Self Evaluation Scales for Higher Education Programs

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Self Evaluation Scales for Higher Education Programs

Introduction

These self evaluation scales are intended to provide guidance to program administrators and staff in higher education institutions in their planning, self-review, and quality improvement strategies.

Evaluations of quality in post secondary education are made with reference to generally accepted standards of good practice that serve as criteria for evaluative judgments. This document draws attention to practices that are commonly followed in high quality institutions and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia. The scales call for responses to indicate if those practices are followed and if so how well this is done.

The National Commission for Academic Accreditation & Assessment has been established by the Higher Council of Education in Saudi Arabia with responsibility to establish standards and accredit institutions and programs in post secondary education.

The system for quality assurance and accreditation is designed to support continuing quality improvement and to publicly recognize programs and institutions that meet required quality standards. The objective is to ensure good international standards in all post secondary institutions and in all programs offered in Saudi Arabia.

Students, employers, parents and members of the community should be able to have complete confidence that what has been learned by students, the research conducted, and the services provided are equivalent to good international practice. Accreditation of an institution or a program will give public recognition that these standards have been achieved. Saudi Arabian qualifications should be accepted without question anywhere in the world.

This document provides self evaluation scales dealing with standards for higher education programs. The standards apply to all programs in public and private universities and colleges, including those responsible to the Ministry of Higher Education and to any established or regulated by other ministries or agencies. The only exception is for military education which is administered under different arrangements.

The standards and self evaluation scales for programs have been presented in generic terms that are applicable to all programs. Separate documents that draw attention to specific requirements for certain fields of study are in preparation and details of these can be obtained from the NCAAA.

There is considerable variation in the amount of experience that higher education institutions have had with quality assurance processes and the system of higher education is expanding rapidly. In recognition of this the system for accreditation will be introduced progressively over a transition period of several years. During this time institutions that are well advanced with the introduction of quality assurance systems will be considered first, and others will be evaluated and accredited as their internal quality assurance systems are put in place.

The Commission has developed a set of standards for quality assurance and accreditation of higher education institutions in eleven general areas of activity.

1. Mission Goals and Objectives
2. Program Administration
3. Management of Program Quality Assurance
4. Learning and Teaching
5. Student Administration and Support Services
6. Learning Resources
7. Facilities and Equipment
8. Financial Planning and Management
9. Employment Processes
10. Research
11. Relationships With the Community

These standards are based on what is generally accepted as good practice in higher education throughout the world and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia.

The standards are described with several levels of detail. First, there are general descriptions for each of the eleven major areas of activity. Second, these are broken down into sub-standards dealing with requirements within each of the major areas. Third, within each of those sub-standards there are a number of good practices that are carried out in good quality institutions. To evaluate performance in relation to the standards, an institution should investigate whether these good practices are carried out and how well this is done. The self evaluation scales have been prepared to assist in this process. In this document the groups carrying out the evaluations within the institution are asked whether the particular practices are followed, and to rate the quality of these practices in the institution on a five point rating scale. Their judgments of quality MUST be based on appropriate evidence including at least some comparisons with other institutions on important items. The development of internal systems to provide that evidence is an essential requirement for an institution's quality assurance system. Unless adequate sources of evidence are available an institution cannot be considered for accreditation.

To be granted accreditation it is necessary for an institution to provide evidence of good quality performance in relation to all the eleven general standards and with all of the subsections of those standards. There is one exception. A college offering only undergraduate programs is not expected to have any significant involvement in research though teaching staff must have continuing involvement in scholarly activities in their field of study.

It is not expected that an institution or program will achieve a high rating for every "good practice" described within the sub-sections of the standards. They are not a simple check list, and items are not equal in importance. Their importance will vary according to the mission and objectives of the institution and its stage of development. However it is desirable that all are met and some are essential. In the initial stages of the introduction of the quality assurance and accreditation system the Commission will indicate a number of items to which special attention will be given. The judgment about whether accreditation should be granted will be an overall assessment by an experienced peer review panel taking account of the mission, objectives and stage of development of the institution and the priorities identified by the Commission.

A description of the eleven general standards is provided in this document together with some general explanatory notes and comments on possible performance indicators and kinds of evidence that could be considered in determining quality of performance.

Further guidance on the use of the standards for continuing monitoring of performance and preparations for accreditation is given in the *Handbook for Quality Assurance and Accreditation in Saudi Arabia* prepared by the Commission.

Relationships Between Standards for Institutions and Standards for Programs

General standards have been developed for higher education institutions and programs. They cover the same general areas of activity but there are some differences that reflect a total institutional overview on the one hand and the perspective of just one specific program on the other. In addition, some general institutional functions are not considered in a program evaluation.

Activities relating to the standards fall into three categories.

- Those that are institutional and have no impact or only very indirect impact on programs. Examples include the management of extra curricular activities or the attractiveness of buildings and grounds. These are not considered in looking at the application of the standards to programs.
- Those that are general institutional activities with a major impact on programs. Examples would be the provision of learning resources through a library or the processes for employment and promotion of staff. Evaluation of these functions in an institutional evaluation would be broad and consider the quality of management and services provided for the institution as a whole and how effectively they support all programs throughout the institution. In a program evaluation they would be considered from the perspective of the particular program concerned. For example a library might be very good in many ways, but not have the materials to support a particular program. In that case the provision of learning resources might receive a reasonably high rating in

an institutional evaluation but a low rating in an evaluation from the perspective of the program concerned in the program evaluation.

- Those that relate directly to the planning and delivery of programs. Examples would be the appropriateness of intended learning outcomes for students and the quality of teaching in the program. For an institutional evaluation these things should be looked at within all programs, and then a judgment made about strengths and weaknesses in the institution's programs as a whole with the possibility of identifying significant variations between different programs. In an institutional evaluation part of the consideration for teaching and learning should be the effectiveness of processes for ensuring all programs are of good quality, monitoring performance, and supporting improvements in all programs throughout the institution. An evaluation of learning and teaching for an institutional evaluation would normally be done by getting a profile of performance at the level of departments or colleges, and then preparing a report identifying similarities and differences and overall performance for programs in general.

In this document standards have been described dealing with the things that should be considered in relation to evaluation of a program. They include the matters described in the second and third of these categories.

Evidence of Performance

Judgments about quality based on general impressions could be accurate, but they could also be badly distorted for a number of reasons. Consequently general opinions without supporting evidence cannot be relied on in making assessments of quality in relation to specified standards. Because of this it is necessary to consider appropriate forms of evidence whenever a judgment is made about quality of performance in relation to standards.

What is appropriate evidence will vary widely for different things that are evaluated and an important element in any quality assessment is to decide on what kind of evidence is appropriate for the matter being considered.

In many cases several different forms of evidence should be considered to make a reliable judgment, and the evidence will need to be interpreted. For example high average grades in a course could mean that students have achieved very high standards because of excellent teaching. Alternatively they could mean that standards are low and grades have been inflated. To draw valid conclusions it would be necessary to check that tests were sufficiently rigorous and that criteria for allocating grades were appropriate and fairly administered.

Interpretations of evidence can also be unreliable, and to guard against this it is recommended that groups that undertake evaluations in relation to the standards include some people who have been involved in the activity concerned, some who are the recipients of the service provided (eg students, graduates or members of departments who use services provided by central administrative units or centers) and also some who are familiar with that kind of work, but are not directly involved in that service provision. As a further safeguard it is recommended that the final judgments be reviewed and an independent opinion given by someone who has not been involved in the initial evaluation as a check on whether the interpretations seem reasonable in the light of the evidence provided.

Performance Indicators

A wide range of kinds of evidence can be considered. However as part of the evidence to be used decisions should be made about some specific items of information that can be expressed in quantitative terms and used as performance indicators. These should be identified in advance as part of planning processes. For example when major goals or objectives are established specific indicators should be specified so achievement of those goals and objectives can be monitored on a continuing basis. It is also important for an institution to identify some key performance indicators that will be used consistently by departments and colleges throughout the institution to monitor their own performance, provide for comparisons of performance between departments and colleges, and permit university committees and senior administrators to monitor overall institutional quality on a continuing basis.

Data on these indicators should be collected in standard form and retained in a central data base so there can be comparisons within the institution and over time. An evaluation of the effectiveness of these processes

will consider whether appropriate indicators have been identified, whether the data is consistently collected and recorded, and whether the information is used in monitoring and analysing quality of performance.

It is the responsibility of every program to monitor and plan for improvement in relation to its own mission and objectives. However the Commission has also identified certain key performance indicators on which information should be collected in all institutions. This requirement has several important objectives. It provides a common set of statistical data that can be used by institutions and by those responsible for programs for comparisons of performance and benchmarking within their own institution and elsewhere within the country. (The Commission will publish information for groups of similar institutions, but individual institutional data will be confidential to each institution) It assists the Commission and other relevant Ministries and organizations in monitoring the quality of performance of the system of higher education as a whole, and it provides a sample of important information about institutions that makes it possible for the Commission to maintain accreditation of institutions in the interval between major external reviews.

These indicators established by the Commission should be used by institutions and program managers as part of their quality assurance processes, but they are also encouraged to add additional indicators which they select for themselves that relate to their own mission and objectives and their priorities for improvement.

Good Practices Relevant to More than One Standard

Within each standard and sub-standard a number of statements are made about things that should be done if the standard (or sub-standard) is being met. Many of these statements appear in several different places. This should not be regarded as unnecessary duplication, but rather as a result of the fact that a number of practices are relevant to more than one standard. For example, an expectation that teaching staff be involved on a continuing basis with scholarly activities that ensure they remain up to date is relevant to Qualifications and Experience of Teaching Staff (Standard 4. 8) and also to Personal and Career Development (Standard 9.3), and an expectation that standards of learning outcomes should be checked against the National Qualifications Framework and standards at other comparable institutions is relevant to the standard for Management of Quality Assurance and Improvement (Standard 3) and also to the sub-standards for Student Learning Outcomes (Standard 4.1) and Student Assessment (Standard 4. 4).

Application of the Standards to Different Types of Institutions.

The standards are designed for all higher education institutions, that is institutions offering programs described as higher education and leading to higher education qualifications in the National Qualifications Framework.

While the general standards for higher education institutions are the same for all there are some important differences in the circumstances of some types of institutions that affect how the standards should be applied.

- There are some differences in the regulations affecting public and private institutions, including some relating to borrowing, fee payments by students and financial management. Consequently some of the standards specified for these matters are not relevant to some institutions.
- There are expectations for universities relating to involvement in research and post graduate study. These should be reflected in the evaluations in standard 10 dealing with research. Although scholarly activities on the part of faculty should be encouraged in all institutions these requirements for research do not have to be met in private colleges that are not part of universities.
- Some institutions are involved in partnership arrangements with other institutions, either within or outside the Kingdom, under which certain elements of program planning and evaluation are shared. If such arrangements exist processes must be followed that ensure that quality is maintained and the requirements of the Saudi Arabian system are met.
- Some institutions offer programs by distance education. This different form of delivery changes the form of interaction between students and institutions and leads to additional requirements for program delivery and support. The special requirements for distance education programs are set out in a different document.

In the self evaluation scales attention is drawn to some of these differences. If a particular practice is not applicable to the institution concerned the item should simply be marked as not applicable (NA).

Notes on What Constitutes a Program

A program is regarded as an integrated package of courses and activities in an academic or professional field leading to a qualification. However organizational arrangements in institutions differ and there are sometimes questions about what should be considered as a program.

A program includes all of the courses a student is required to take, including courses that are required by an institution or a college as well as those required by a department, and including any general education programs as well as those in a professional or academic field. It includes courses that may be offered as service courses by another department or college.

A program offered on both men's and women's campuses is a single program and should be evaluated as such. However since there may be significant differences in facilities, resources, experience of faculty, employment of graduates or other matters evidence should be obtained about what happens on each campus and any differences noted and considered in planning what should be done in response. Program reports should show both the evaluations for each campus and a combined result.

A program offered on a remote as well as on an institution's main campus should be dealt with in the same way.

A program offered either on-campus or through distance education should also be evaluated in the same way, that is, information collected for each mode of delivery and reported in a way that shows any differences found. However there are a number of additional matters that relate to distance education and these must also be considered using the standards for distance education.

A program may have an early exit point, for example it may be possible for students to complete two years of study and receive an associate degree or to continue for several more years and complete a bachelor degree. If this is done it is essential that the associate degree be planned so that it provides a complete and useful qualification in its own right. For example it might include significantly more practical and applied work in the field than students would normally undertake in the first two years of a bachelor degree program. It is not acceptable for such an award to be granted simply because students fail or drop out after the early parts of a longer program.

The distinction between what is regarded as a single program or a cluster of related programs is difficult to define and may be best explained through examples.

A bachelors degree program to prepare a student as a civil engineer would be regarded as a different program from one to prepare a mechanical engineer, even though there may be some courses that are common to both. Similarly, if a student had completed the bachelors degree program and wished to take a post graduate program leading to a masters degree or a doctorate in the same general field, that would be regarded as a separate program. The test in these examples relates to there being a qualification that is regarded as being complete in itself, and in the case of a professional program, qualifying the person who has taken the program for professional practice in the field. The distinction does not necessarily relate to organization of an institution or college into departments. In the particular example given it is likely that a civil engineering department would offer both the undergraduate and the postgraduate programs. It would also be possible if an institution wished to organize itself in that way for a single department to offer programs in both civil and mechanical engineering.

The title of an academic award is not necessarily a useful guide to what should be regarded as a program. For example general titles such as Bachelor of Arts, or Business, or Science, could include many different programs. In an Arts degree there could be programs in history and or social sciences, in psychology, in social work, or many others. A Business degree could include separate programs for accountants, for economists, or for management and administration, and these would be different programs leading to quite different occupational skills.

The programs that have been used in these examples are separate entities, and will be accredited as such. However this does not prevent groups of related programs being considered together by an external review team in the accreditation process provided it is possible for external review panels to include the necessary expertise. A panel might consider an undergraduate and a post graduate program in the same field at the same time. However the institutions self study and the reports of the review panel will deal separately with each program and it would be possible for one such program to be accredited and not the other.

An equivalent set of standards has been developed for institutions offering post secondary programs in technical education and training. These standards differ from those for higher education institutions because of important differences in the nature of programs and the processes for program development and delivery. The standards for these institutions are set out in another document, *Standards for Accreditation of Technical Education and Training Institutions*.

Using the Self Evaluation Scales

High quality standards can only be achieved by honest evaluation of performance and commitment to improve, and by action planned and taken by those offering the program and providing the services on which it depends. In recognition of this teaching and other staff responsible for various activities should evaluate their own performance in comparison with generally accepted standards of good practice.. Although every effort should be made to form valid and reliable judgments based on evidence, a number of these evaluations will involve subjective judgments and to avoid an illusion of precision and discourage a misleading aggregation of total numbers in a single “quality score” it is recommended that a starring system be used for rating these quality evaluations. It is expected that these self evaluation scales will be used by institutions, and by those responsible for programs in their initial quality assessment, their continuing monitoring of performance, and in their more extensive periodic self studies prior to an accreditation review by the Commission.

In this document information about the standards is presented at two levels. The first is a general statement of the standard as it applies to a broad area of activity and the second is a description of why it is important and the kinds of processes that are expected if the standard is achieved.

This explanatory information is followed for each standard by a number of more specific statements of “good practices” that are typically carried out in a high quality institution with scales to indicate whether and how well the practice is followed.. The scales” are presented in groups that deal with major components or sub-sections of the general standards.

The lists of specific practices are intended primarily as a guide for those responsible for particular activities to draw attention to things that are generally regarded as good practice, and to assist them in their self-evaluations.

Some of these statements are relevant to certain institutions but not to others. Where an item is not applicable it should be simply marked NA, and ignored.

For each individual item two responses are called for. The first is to indicate whether the practice is followed in the institution. The possible responses are:

NA -- the practice is not applicable or relevant for the institution or unit making the response.

Y – yes, the practice is followed; or

N – no, the practice is relevant but not followed.

The second response is called for in cases where the practice is relevant to the institution (i.e. a “Y” or “N” response). It involves the use of a five-point rating scale to evaluate on a how consistently and how well the practice is carried out. Stars, rather than a numeric or alphabetic rating scale, are used for this purpose.

The evaluations relate to:

The extent and consistency with which processes are followed;

The quality of the service or activity as assessed through systematic evaluations;

The effectiveness of what is done in achieving intended outcomes.

Using Stars for Evaluations

Performance should be assessed by allocating from zero to five stars in accordance with the following descriptions:

Improvement Required

No Star – The practice is relevant but not followed at all. A zero should be recorded on the scale.

One Star – The practice is followed occasionally but quality of the activity is poor or not evaluated.

Two Stars -- The practice is usually followed but the quality is less than satisfactory.

Good Performance

Three Stars—The practice is followed most of the time. Evidence of the effectiveness of the activity is usually obtained and indicates that satisfactory standards of performance are normally achieved although there is some room for improvement. Plans for improvement in quality are made and progress in implementation is monitored.

High Quality Performance

Four Stars—The practice is followed consistently. Indicators of quality of performance are established and suggest high quality but with still some room for improvement. Plans for this improvement have been developed and are being implemented, and progress is regularly monitored and reported on.

Five Stars—The practice is followed consistently and at a very high standard, with direct evidence or independent assessments indicating superior quality in relation to other comparable institutions. Despite clear evidence of high standards of performance plans for further improvement exist with realistic strategies and timelines established.

Converting Survey Responses to a Starring System.

In a number of cases the individual items refer to evaluations of quality by students, faculty, or other stakeholders. The wording of survey instruments and items in rating scales can influence results significantly and interpretations of the data and independent verification of conclusions is important. However as a general guide where a five point rating scale is used with possibilities of positive and negative assessments evenly balanced, an overall rating from respondents to a survey might achieve star ratings as follows:

Above 4.5	Five stars
3.6-4.5	Four stars
2.6-3.5	Three stars
1.6-2.5	Two stars
1.5 or below	One star

Combining Ratings on Individual Items to Develop a Broader Evaluation

The quality ratings of specific practices can be combined to guide broader judgments about an institution's performance in relation to the groups of items that are shown as components of each general standard, or to each broad standards as a whole. This can be done by averaging the number of stars, ignoring the items marked NA and counting items where the practice is relevant but not followed as zero.

However the individual items are not necessarily of equal importance and if individual items are combined to form an overall assessment consideration should be given to weighting certain items more heavily than others and adjusting the overall rating accordingly. Space is provided on the forms to note when this kind of adjustment is made.

Aggregating Evaluations to Obtain an Institution-Wide Overview

The rating scales are presented in a form that enables them to be used for individual programs and aggregated to give an overview of the quality of programs for a college or for the institution as a whole. When aggregated in this way the scales should assist in the conduct of an institutional self-study, and provide useful information for

external review panels as they carry out their independent institutional reviews.

It is recommended that programs within a department or college be looked at together noting both similarities and any significant differences between them, and then at a second stage the reports on programs within colleges brought together to give an overall picture for the institution. It is possible in these processes to simply work out an average number of stars for various functions. However if there are significant differences the overall average is much less important than variations between programs or colleges. Consequently these variations should be identified and reported on, and considered carefully when suggestions are made for improvements.

Priorities for Improvement

An important outcome of the self-assessment carried out through the use of the rating scales is to identify areas for improvement. It is rarely possible to do everything at once and priorities have to be established. Space is provided on the forms to indicate particular items that are considered the highest priorities for improvement.

Indicators as Evidence of Performance

As far as possible evaluations should be based on direct evidence that practices are followed, and that desired levels of quality are achieved rather than general post hoc impressions. This consideration of evidence need not be a major undertaking but it does require some advance planning and selection of indicators that will be used as evidence of performance. The performance indicators should be specified in advance and data gathered and considered as part of continuing monitoring processes. (This does not preclude consideration of other evidence that may emerge) The document includes space for the selected performance indicators to be noted.

Expected Standards of Performance

It is not expected that every program will rate at the highest level on all dimensions of activity. That would be unrealistic, and setting up such expectations is not the purpose of the document. Instead it is intended to provide descriptive performance standards in many different forms of activity, so there can be a clearer basis for evaluation in relation to generally accepted standards of good practice. This is intended to help those responsible for programs in their self-evaluations and planning for improvement, and to help the institution as a whole to identify areas of relative strength and weakness, and to work towards improvement in spheres of activity that are considered priorities for development.

While the document is intended primarily to assist in evaluations and planning for improvement within institutions it also establishes levels of performance that are considered necessary for accreditation. For this purpose the basis of judgment will be at the level of the broader standards rather than the precise assessment of performance in relation to each individual practice. In general a one or two star rating on a standard is considered unsatisfactory and three stars is a minimum acceptable level of performance. However as noted above not all functions are of equal importance in accreditation judgments and the particular circumstances of an institution, and its strategies for development, will be taken into account.

Relative Importance of Different Standards

The point about some items in the rating scales being more important than others applies to the broader standards as well, and the relative importance will vary for different institutions. The place of research is a good example of this. In some institutions, particularly universities seeking international recognition the quality and extent of participation in research is vitally important and international ratings of universities give considerable weight to research performance. In others, such as a college concentrating on quality of undergraduate programs, research may be of little significance though it is still important that faculty participate in scholarly activities to ensure that their teaching is up to date with latest developments.

The quality of learning and teaching will always be of primary importance since this is normally the primary function of an educational institution. Satisfactory performance in relation to this standard is essential for accreditation.

Independent Verification of Evaluations

Although direct evidence of quality of performance should be obtained wherever possible, many of the judgments have to involve some subjective opinions. When self evaluations are made by an individual or a group this can mean unduly harsh or overly generous assessments and some action should be taken to correct for

this.

Provision is made in the scales for independent opinions to be given by a person familiar with the type of activity, but independent of those responsible for it, and whose judgment is respected. For many items during annual evaluations these independent opinions could be given by a person nominated by a dean or department head, such as a colleague from another department within the institution. For major judgments on important items, for example in a program self study prior to an external review for re-accreditation of a program, greater independence may be required.

Note on Terminology

The term **governing body** is used as a general descriptive title for the highest policy making body or committee in a post secondary institution. This would be the university council in a public university, or a board of trustees in many private colleges.

The term **rector or dean** is used in this document to refer to the head of an institution. Rector is the title normally used in Saudi Arabia for the head of a public university, and dean is typically used as the administrative head of a smaller institution or a private college. The term dean is also used for the head of a college within a university, and a private university or college may use other terms for the administrative head such as president or director. In this document reference is made to rector or dean, and it should be possible from the context of the reference to avoid confusion with the position of dean of a college within a university.

The term **teaching staff** has been used rather than “faculty” to refer to all individuals responsible for teaching groups of students. It includes faculty or equivalent members of staff as formally defined in Ministry regulations but also anyone else who has been given teaching responsibility. It includes tutors or instructors working with groups of students in a distance education or on-campus program, but does not include laboratory assistants or others who assist with the teaching of classes under the direct supervision of others.

Standard 1: Mission, Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

Main components in this standard:

- 1.1 Appropriateness of the Mission
- 1.2 Usefulness of the Mission Statement
- 1.3 Processes of Development and Review of the Mission
- 1.4 Use Made of the Mission Statement
- 1.5 Relationship Between Mission, Goals and Objectives.

Comment and General Description of Good Practice

Effective and coordinated planning and development normally requires that a program have a succinct mission statement, summarizing in a few sentences what it is trying to achieve as a guide to detailed planning and development.

The mission statement should establish priorities for development and quality improvement and be key element in the quality assurance process. Consequently it should be prepared in a way that generates a sense of ownership on the part of all those involved with the program, be periodically reviewed as a major policy issue, and consistently referred to as a basis for planning and evaluation. It should be consistent with the charter establishing the institution, and realistic in relation to the capacity of the institution in the environment within which it is operating, but at the same time present challenges for development and improvement.

Goals should be thought of as applications of the mission to specific activities. They establish directions for detailed planning though they are usually expressed in general terms.

Objectives should be linked through strategic planning processes to the mission and goals. They should be more specific and include intended results to be achieved within a stated time period.

This standard relates to the way the mission statement has been developed and is expressed, to its effectiveness in guiding the development of the program, and to the relationships between the mission and the goals and objectives.

Evidence and Performance Indicators

Evidence about the quality of the mission could be obtained from examination of the mission statement itself, copies of papers proposing the mission or modifications in it, interviews with teaching and other staff and students to find out how well it is known and supported, and consideration of other reports, proposals and statements to see the extent to which the mission is used as a basis for decisions. Indicators that could be used include responses to questions on surveys to see how well the mission is known and supported, or the proportion of policy decisions that refer to the mission among criteria for the decision made.

Standard 1: Mission, Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA** **How well is this done?
(enter stars)**

1.1 Appropriateness of the Mission

The mission statement must be appropriate for the institution and for a program of its type in Saudi Arabia.

1.1.1 The mission for the program is consistent with the mission of the institution.

Y

1.1.2 The mission establishes directions for the development of the program that are appropriate for a program of its type and for the needs of students in the context for which they are prepared.

Y

1.1.3 The mission is consistent with Islamic beliefs and values.

Y

1.1.4 The appropriateness of the mission is explained in an accompanying statement commenting on significant aspects of the environment within which it operates. (which may relate to local, national or international issues)

Y

Overall Assessment

Comment **ISLAMIC BELIEFS NOT REFERENCED.**

Priorities for improvement _____

Independent Opinion

Comment _____

1.2 Usefulness of the Mission Statement

The mission statement must be useful in guiding planning and decision making for the program.

1.2.1 The mission statement is sufficiently specific to provide an effective guide to decision-making and choices among alternative planning strategies.

Y

1.2.2 The mission is achievable through effective strategies within the level of resources expected to be available.

Y

1.2.3 The mission statement provides clear criteria for evaluation of progress towards the goals and objectives of the program.

Y

Overall Assessment

Comment **THE PROBLEM SHOULD BE CLEARLY ASSESSED WHICH IS NOT DONE YET.
TO BRIEF TO JUDGE ACHIEVABILITY.**

Priorities for improvement _____

Independent Opinion
Comment _____

1.3 Development and Review of the Mission

The mission must be developed through consultative processes and formally adopted and periodically reviewed.

1.3.1 Major stakeholders associated with the program have been consulted and support the mission.

1.3.2 The decision making body responsible for approving the program within the institution formally approved the mission statement.

1.3.3 The mission statement is periodically reaffirmed or amended if necessary in the light of changing circumstances.

1.3.4 Stakeholders are kept informed about the mission and any changes made to it.

Overall Assessment

Comment **THERE ARE CONSULTATIONS WITH UNIVERSITIES IN THE SAME REGION SUCH AS KFUPM. MORE CONSULTATIONS WITH EXTERNAL STAKEHOLDERS BENEFICIAL.**

Priorities for improvement _____

Independent Opinion
Comment _____

1.4 Use Made of the Mission Statement

The mission must be used consistently as a basis for planning and major policy decisions.

1.4.1 The mission statement is used as a basis for a strategic plan for development of the program over a medium term planning period. (normally five to seven years)

1.4.2 The mission statement is known about and supported by teaching and other staff and students.

1.4.3 Consistency with the mission is listed among criteria for consideration of program and project proposals by committees and decision makers.

Overall Assessment

Comment **WE HAVE BEEN HERE LONG ENOUGH TO COMMENT 1.4.1**

Priorities for improvement _____

Independent Opinion
Comment _____

1.5 Relationship Between Mission, Goals and Objectives

The mission must be used to guide the establishment of goals and objectives and strategic plans for the development of the program.

1.5.1 Goals for development of the program are consistent with and support the mission.
 1.5.2 Goals are stated with sufficient clarity to effectively guide planning and decision-making in ways that are consistent with the mission.
 1.5.3 Goals and objectives for the development of the program are reviewed periodically and modified if necessary in response to results achieved and changing circumstances.
 1.5.4 Statements of major objectives should be accompanied by specification of clearly defined and measurable indicators that are used to judge the extent to which objectives are being achieved.

Y	****
Y	****
Y	****
Y	***

Overall Assessment

Comment **POINT 1.5.4 SOUNDS CLEAR SINCE THE MEASURABLE INDICATORS ARE NOT AVAILABLE TO FACULTY.**

Priorities for improvement_____

Independent Opinion

Comment_____

Overall Assessment of Mission Goals and Objectives

1.1 Appropriateness of the Mission	5
1.2 Usefulness of the Mission Statement	4.2
1.3 Processes of Development and Review of the Mission	3.5
1.4 Use Made of Mission Statement	3.3
1.5. Relationship Between Mission, Goals and Objectives	4.0
Combined Assessment	4

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 2: Program Administrations

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

Main Components in this Standard

- 2.1 Leadership
- 2.2 Planning Processes
- 2.3 Relationship Between Sections for Male and Female Students
- 2.4 Institutional Integrity
- 2.5 Internal Policies and Regulations

Comment and General Description of Good Practice

Management arrangements between the program administrators and senior institutional management, and for faculty and staff within the program should provide for appropriate delegations of responsibility with clear guidelines setting out the scope and limits of responsibility, allowing for creativity and innovation within policy guidelines, and with clearly defined mechanisms for accountability.

Mechanisms should exist for effective coordination of planning within the program and for ensuring consistent action by individuals in keeping with the plans that are made. Goals and objectives should be established for the program as a whole, and within the framework of those goals and objectives for planning and delivering individual courses. Plans for courses should include not only the subject matter of each course but plans for teaching that will contribute to the development of the required range of learning outcomes for the program as a whole. Mechanisms for accountability and quality assurance include regular reports on what is done, plans changes that may be needed and follow up action to ensure that planned adjustments are made.

Evidence

Evidence and Performance Indicators

Evidence about effective management could include documents setting out policies, terms of reference and operating procedures for major committees and administrative positions, responses to surveys of teaching and other staff and students about procedures followed, and opinions of senior administrators in the institution to which program administrators are responsible. Evidence of dissemination of integrity expectations should include information on websites, advertisements and awareness of requirements on the part of staff and students in interviews or surveys.

Indicators could be based on responses to surveys by teaching and other staff and students.

Standard 2: Program Administrations

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
2.1 Leadership		
Program administrators must provide effective and responsible leadership for the development and improvement of the program.		
2.1.1 The responsibilities of program administrators are clearly defined in position descriptions	Y	****
2.1.2 There is sufficient flexibility at the level of the department or college offering the program to respond rapidly to course and program evaluations and changes in program learning outcome requirements, (eg. Departments should have authority to change text and reference lists, modify planned teaching strategies, details of assessment tasks and updating of course content.)	N	**
2.1.3 Program administrators anticipate issues and opportunities and exercise initiative in response.	Y	****
2.1.4 Program administrators ensure that when action is needed it is taken in an effective and timely manner.	Y	***
2.1.5 Program administrators have sufficient authority to ensure compliance with formally established or agreed institutional or program policies and procedures.	Y	*****
2.1.6 Program administrators provide leadership, and encourage and reward initiative on the part of teaching and other staff.	Y	***
2.1.7 Program managers accept responsibility for the effectiveness of action taken within their area of responsibility regardless of whether that action is taken by them personally or by others responsible to them.	Y	***
2.1.8 Regular feedback is given on performance of teaching and other staff by the head of the department	Y	****
2.1.9 Delegations of responsibility to program administrators are formally specified in documents signed by the person delegating and the person given delegated authority, that describe clearly the limits of delegated responsibility and responsibility for reporting on decisions made.	Y	**
2.1.10 Regulations governing delegations of authority are established for the institution and approved by the governing board. These regulations should indicate key functions that cannot be delegated, and specify that delegation of authority to another person or organization does not remove responsibility for consequences of decisions made from the person giving the delegation.	Y	***
2.1.11 Advice and support are made available to faculty and staff in a manner that contributes to their personal and professional development	Y	**
2.1.12 Proposals for program developments and recommendations on policy issues are presented to the appropriate decision making body in a form that clearly identifies the issues for decision and the consequences of alternatives.	Y	***

Overall Assessment

Comment **MOST OF THE POINTS ARE NOT ACCESSIBLE THROUGH DOCUMENTATION TO THE FACULTY.**

Priorities for improvement_____		
Independent Opinion		
Comment _____		

2.2 Planning Processes

Planning processes must be managed effectively to achieve the mission and goals of the program through cooperative action by the instructional team and program and course reporting and decision making. Planning must combine coordinated strategic planning with flexibility to adapt to results achieved and changing circumstances.

2.2.1 Planning is strategic, incorporating priorities for development and appropriate sequencing of action to produce the most effective short-term and long term-results.

2.2.2 Plans take full and realistic account of aspects of the external environment affecting demand for graduates and skills required by them.

2.2.3 Planning processes provide for appropriate levels of involvement by teaching and other staff, students and other stakeholders.

2.2.4 Planning has a particular focus on intended learning outcomes for students with course content and teaching and assessment strategies that reflect both the background of students and theory and research on different kinds of learning. (For advice on the planning of new programs and review and documentation of existing programs refer to Section 2.4.7 in *Handbook for Quality Assurance and Accreditation in Saudi Arabia Part 2, Internal Quality Assurance Arrangements*.

2.2.5 Plans are effectively communicated to all concerned with impacts and requirements for different constituencies made clear.

2.2.6 Implementation of plans is monitored with checks made against short term and medium term targets and outcomes evaluated.

2.2.7 Planning provides for reports on key performance indicators to be made on a regular basis to senior management within the institution.

2.2.8 Plans are reviewed, adapted and modified, with corrective action taken as required in response to operational developments, formative evaluation, and changing circumstances.

2.2.9 Risk management is included as an integral component of planning strategies with appropriate mechanisms developed for risk assessment and minimization.

Y	***
Y	*****
Y	***
Y	***
Y	***
Y	**
Y	***
Y	**
N	*

Overall Assessment

Comment **MOST OF THE ISSUES ARE NOT COMMUNICATED TO THE FACULTY. SO THE JUDGMENT SHOULD NOT BE REQUESTED.**

Priorities for improvement <u>SHOULD BE MORE INTERACTION WITH FACULTY.</u>		
Independent Opinion		
Comment _____		

2.3 Relationship Between Sections for Male and Female Students

In programs offered in sections for male and female students the program coordinators and

teaching staff in both sections must participate fully in cooperative planning, decision making and program and course reporting. There must be equitable distribution of resources and facilities to meet the requirements of program delivery, research, and associated services in each section and quality evaluations must consider both performance in each section as well as the program overall.

2.3.1 When programs are offered in both male and female sections resources , facilities and staffing provisions are offered at comparable levels.

2.3.2 Program administrators in both sections and staff teaching the same courses are fully involved in planning and reporting processes and communicate regularly about the program through processes that are consistent with bylaws and regulations of the Higher Council of Education.

2.3.3 Male and female sections are adequately represented in the membership of relevant committees and councils.

2.3.4 Plans for the program and course specifications require the same standards of delivery and are consistent for both sections, subject to any appropriate variations to meet differing needs of students.

2.3.5 Performance indicators and reports on courses and programs show results for each section, and also overall results for the program as a whole.

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

2. Integrity

Teaching and other staff involved with the program must meet high ethical standards of honesty and integrity including avoidance of conflicts of interest and avoidance of plagiarism in their teaching, research, administrative and service functions. These standards must be maintained in all dealings with students, teaching and other staff, and in relationships with other internal and external agencies including both government and non government organizations.

2.4.1 Codes of practice for ethical and responsible behaviour have been developed and are followed dealing with matters such as the conduct and reporting on research, performance evaluation, student assessment, committee decision making, and the conduct of administrative and service activities.

2.4.2 Regulations dealing with declarations of pecuniary interest or conflict of interest for faculty and staff are consistently followed.

2.4.3 Advertising and promotional material are always truthful, avoid any actual or implied misrepresentations or exaggerated claims, or negative comments about other programs or institutions

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

2.5 Internal Policies and Regulations

Policies and regulations must be established that clearly define the major responsibilities and procedures for the administration of the program and for committees and teaching and other staff and students involved.

2.5.1 The terms of reference and operating procedures for major committees and academic and administrative positions associated with the program are clearly specified and included in the policy and procedures manual.

Y

2.5.2 Policies and regulations relating to the program are made accessible to faculty, staff and students, and effective strategies are used to ensure they are understood and complied with.

Y

2.5.3 Decisions made by committees on procedural or academic matters are recorded and referred to when future similar issues are considered.

Y

2.5.4 Guidelines, bylaws or regulations are established for recurring procedural or academic issues.

Y

2.5.5 The policies and regulations for the management of the program are periodically reviewed and amended as required in the light of changing circumstances.

Y

Overall Assessment

Comment **FACULTY DO NOT KNOW ABOUT 2.5.5, 2.5.1.....**

Priorities for improvement_____

Comment_____Independent Opinion

Overall Assessment of Program Administration

2.1 Leadership	3.5
2.2 Planning Processes	2.9
2.3 Relationships Between Sections for Male and Female Students	4.3
2.4 Integrity	3.6
2.5 Internal Policies and Regulations	3.4
Combined Assessment	3.5

Comment _____

Comment _____

Indicators Considered

Priorities for Improvement _____

Standard 3: Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

Main Components in this Standard

- 3.1 Commitment to Quality Improvement in the Program
- 3.2 Scope of Quality Assurance Processes
- 3.3 Administration of Quality Assurance Processes
- 3.4 Use of Indicators and Benchmarks
- 3.5 Independent Verification of Standards

Comment and General Description of Good Practice

The central focus in the evaluation of the quality of a program is the quality and extent of student learning, considered as outcomes--what students understand and can do as a result of their studies, and whether that learning is appropriate to their field. Other services, facilities and activities are evaluated according to the extent that they contribute to that learning.

The management of quality assurance for a program should involve evidence from a number of sources with mechanisms for interpreting that evidence and using the results in planning for improvement. This evidence should include systematic feedback from students about the quality of the program they have participated in, but this must be considered as only one element in a system that also includes independent assessments of what they have learned. Student assessment tasks are a direct measure of learning outcomes, but use of students' results as evidence of program quality must be combined with other evidence such as comparisons with standards at other good quality institutions. Appropriate external benchmarks should be established as a basis for evaluations of program quality.

Quality improvement strategies should be integrated into normal planning processes in a continuing cycle of planning, implementation, evaluation and review. This involves reports on the teaching of each course with information arising from those course reports considered to assess their significance for the program as a whole. The standard for management of quality assurance and improvement includes the use of conclusions arising from evidence in those reports in planning and implementing progressive improvements over time. It also includes an expectation that appropriate performance indicators will be used for purposes of reporting on quality to senior management within the institution.

Evidence and Performance Indicators

Evidence about the quality of management of quality assurance processes can be obtained by looking at the extent of involvement in quality assurance processes by teaching and other staff and the adequacy of responses made to evaluations that are made in program and course reports and other reports prepared. The outcomes of those processes can be assessed by examining trend data to see whether there has been progressive improvement in the planning and administration and the learning outcomes achieved by students.

Evidence about the quality processes followed can be obtained from surveys or discussions with staff or students and the quality of reports prepared by program administrators, including whether the quality evaluations are evidence-based and appropriately benchmarked in relation to external standards.

The key performance indicators identified by the Commission should be used, but additional indicators linked to the particular mission of the institution and the program should also be used when needed. When goals and objectives are established for the development and improvement of the program appropriate performance indicators should be identified as part of that planning process

Standard 3: Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
3.1 Commitment to Quality Improvement in the Program Program administrators and teaching and other staff must be committed to maintaining and improving the quality of the program.		
3.1.1 All teaching and other staff participate in self-assessments and cooperate with reporting and improvement processes in their sphere of activity.	Y	****
3.1.2 Creativity and innovation combined with clear guidelines and accountability processes are actively encouraged.	Y	**
3.1.3 Mistakes and weaknesses are acknowledged, and dealt with constructively, with help given for improvement.	Y	***
3.1.4 Improvements in quality are appropriately acknowledged and outstanding achievements recognized.	Y	***
3.1.5 Evaluation and planning for quality improvement are integrated into normal administrative processes.	Y	****
Overall Assessment		***
Comment _____		

Priorities for improvement _____		

Independent Opinion		
Comment _____		

3.2 Scope of Quality Assurance Processes

Quality assurance activities that are necessary to ensure good quality must apply to all aspects of program planning and delivery including provision of related services, and to all teaching and other staff involved in those processes.

3.2.1 Quality evaluations deal with all aspects of program planning and delivery including student learning outcomes and facilities and services to support that learning whether they are managed by administrators of the program or by others based elsewhere in the institution.	Y	****
3.2.2 Quality evaluations and reports provide an overview of performance for the program as a whole, including both sections if the program is offered in male and female sections, and all courses	Y	****
3.2.3 Evaluations consider inputs, processes, outcomes and processes, with particular attention to learning outcomes for students.	Y	****
3.2.4 Evaluations include both routine activities and strategic priorities for improvement.	Y	***

3.2.5 Processes are designed to ensure both that acceptable standards are met, and that there is continuing improvement in performance.

Y

3.2.6 If the program is offered in sections for male and female students detailed evaluations in relation to all standards are carried out in a consistent way in both sections and quality reports on those standards report on any significant differences found and make appropriate recommendations for action in response to what is found.

Y

**

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

3.3 Administration of Quality Assurance Processes

Quality assurance arrangements for the program must meet any particular requirements for this program as well as the quality assurance arrangements for the institution as a whole.

3.3.1 Quality assurance processes are fully integrated into normal planning and program delivery arrangements.

Y

3.3.2 Evaluations are (i) based on evidence, (ii) linked to appropriate standards, (iii) include predetermined performance indicators, and (iv) take account of independent verification of interpretations.

Y

3.3.3 Quality assurance processes make use of standard forms and survey instruments for use across the institution with any special additional elements added to meet the particular requirements of the program.

Y

3.3.4 Statistical data on indicators, including grade distributions, progression and completion rates are retained in an accessible central data base and regularly reviewed and reported in annual and periodic program reports.

Y

3.3.5 Responsibility is given to a member of the teaching staff to provide leadership and support for the management of quality assurance processes. The responsible person should involve other staff in planning and carrying out the quality assurance processes.

Y

3.3.6 The quality assurance arrangements for the program should be regularly evaluated and improved. As part of these reviews unnecessary requirements should be removed to streamline the system and avoid unnecessary work.

Y

3.3.7 Processes for evaluation of quality should be transparent with criteria for judgments and evidence considered made clear.

Y

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

3.4 Use of Performance Indicators and Benchmarks

Specific indicators must be identified for monitoring performance and appropriate benchmarks selected for comparative evaluation of the achievement of goals and objectives and quality of performance more generally.

3.4.1 Information is provided regularly on key performance indicators that are selected for all programs in the institution.	Y	**
3.4.2 Additional performance indicators relevant to the particular program are also identified, used for program evaluations and regularly reported on.	Y	**
3.4.3 The additional benchmarks for the program are approved by the appropriate senior committee or council within the institution (eg. senior academic committee, university council).	Y	****
3.4.4 Benchmarks for comparing quality of performance (for example with past performance or comparisons with other institutions) are established and achievements in relation to those benchmarks is regularly monitored.	Y	***
3.4.5 The format for indicators and benchmarks is consistent with that adopted for the institution as a whole.	Y	***
Overall Assessment		***
Comment		

Priorities for improvement

Independent Opinion	
Comment	

3.5 Independent Verification of Standards

Evaluations of performance must be based on evidence (including but not restricted to predetermined performance indicators and benchmarks) and conclusions based on that evidence must be independently verified.

3.5.1 Self-evaluations of quality of performance are checked against several related sources evidence including feedback through user surveys and opinions of stakeholders such as students and faculty, graduates and employers.	Y	****
3.5.2 Interpretations of evidence of quality of performance are verified through independent advice from persons familiar with the type of activity concerned and impartial mechanisms are used to reconcile differing opinions.	Y	****
3.5.3 Institutional policies and procedures are adhered to for the verification of standards of achievement by students in relation to other institutions and the requirements of the National Qualifications Framework.	Y	***
Overall Assessment		****
Comment		

Priorities for improvement

Independent Opinion	
Comment	

Overall Assessment of Management of Program Quality Assurance

3.1 Commitment to Quality Improvement in the Program	3.58
3.2 Scope of Quality Assurance Processes	3.3
3.3 Administration of Quality Assurance Processes	3.96
3.4 Use of Performance Indicators and Benchmarks	2.9
3.5 Independent Verification of Standards	3.43
Combined Assessment	3.43

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 4: Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

Main components of this Standard:

- 4.1 Student Learning Outcomes
- 4.2 Program Development Processes
- 4.3 Program Evaluation and Review Processes
- 4.4 Student Assessment
- 4.5 Educational Assistance for Students
- 4.6 Quality of Teaching
- 4.7 Support for Improvements in Quality of Teaching
- 4.8 Qualifications and Experience of Teaching Staff
- 4.9 Field Experience Activities
- 4.10 Partnership Arrangements with Other Institutions

Comment and General Description of Good Practice

The quality of learning and teaching should be central to the institution's planning and quality assurance processes. The focus should be on quality of learning outcomes, which must cover a range of kinds of learning, with knowledge, skills and patterns of behaviour that are assessed within the program, and continue to be reflected in personal and professional lives after graduation.

Different types of learning as described in the Qualifications Framework require different ways of teaching and different forms of student assessment, and these must be used in a systematic way in educational programs. Consequently teaching strategies and methods of assessment that are appropriate for different kinds of learning should be planned and described in program and course specifications. Where an institution has identified any special skills or student attributes that it wants to develop in its students, this adds an additional requirement for planning how those special abilities will be developed in the courses and programs that are taught.

Generic skills such as group participation, capacity for self directed learning, commitment to sound moral and ethical principles, and the effective use of numerical and communication skills should be reinforced and built upon in all courses. Although units of work or specific courses may focus particularly on learning of this kind, all teaching staff include any on part time appointments should be aware of the learning objectives of the program as a whole and contribute to those outcomes in their teaching.

In an institution or program with high standards of teaching and learning a number of sources of evidence are used to assess the quality of students' learning and the effectiveness of the strategies used to develop these abilities. These include such things as student questionnaires about teaching effectiveness, observations of teaching by "critical friends", questionnaires for graduates and employers, and external check assessments of the quality of students' performance on tests and assignments. In most cases these sources of evidence must be interpreted since many factors could influence ratings on surveys and evaluative judgments. Consequently several different sources of evidence are often used, with interpretations of the evidence verified by an independent person.

The delivery of programs and individual courses should be monitored on a continuing basis, with annual reports on what has happened and consideration of any adjustments that may be needed. More extensive reviews of the quality of teaching and learning for each program, and in summary for the institution as a whole, should be undertaken periodically, at least on a seven yearly basis, to coincide with external review

and accreditation processes. These reviews should consider changes in the environment affecting the program, identify strengths and weaknesses and trend data that indicates whether standards and quality of processes and support systems are improving or declining, and develop plans for improvement.

Quality of teaching is vital, and this involves appointment of teaching staff with appropriate levels of knowledge and skill for the programs to be taught, and thorough orientations so the necessary strategies for development of the range of learning outcomes and methods of assessment of those outcomes are understood. In many cases assistance may be needed for faculty to develop expertise in the particular strategies to be used, and students may need to be prepared for ways of teaching and learning that may be unfamiliar to them. Members of teaching staff must have flexibility to draw on their particular strengths, and to respond to the needs of the particular students with whom they work. However they must also see themselves as members of instructional teams who collectively and cooperatively work to develop a wide range of abilities and patterns of behaviour in their students.

Assessment of the adequacy of qualifications and experience of teaching staff involves not only possession of qualifications at appropriate levels, but also the specific knowledge and skill required for particular courses of study. For programs in professional fields this normally includes some teaching by experienced members of those professions, and in courses that involve consideration of recent developments in theory and research, teaching by staff who are themselves active scholars or researchers in the field.

Mechanisms for the support of students' learning include access to teaching staff for counselling and advice, and sufficient high quality equipment and learning materials. The specific requirements vary according to the field of study and the teaching strategies used. The adequacy of provision should be assessed by student evaluations, independent peer reviews, and comparisons with other highly regarded institutions. Individual student progress should be monitored, and those in difficulty identified and assisted.

There are some special considerations that apply to situations where institutions are involved in partnerships with others in the development and delivery of programs. The specification of program content and the description of course outlines is only one small element in the quality of a program. What is critically important is the resources and services available to students in the local environment, the quality of faculty and staff with whom they interact, the experiences in which they are involved, and the quality and relevance of learning that students achieve. A relationship with another institution to provide details of courses or programs, or to provide quality assurance services may add to the effectiveness of local quality assurance mechanisms, but does not replace them.

A second special consideration relates to the quality of teaching and learning provided through distance education or packaged learning materials. Teaching processes through electronic means have developed rapidly and distance education strategies can offer valuable services to students who might not otherwise have access to study opportunities. Packaged materials can also supplement conventional on-campus instruction in a variety of useful ways and increasingly institutions are utilizing these materials in their teaching programs. A separate document is available dealing specifically with the delivery of programs through distance education.

Evidence and Performance Indicators

Evidence about the quality of learning and teaching may be obtained from ratings by students, graduates and employers of the quality of programs, statistics on course and program completions and employment outcomes, ratios of students to teaching staff, and statistics on teaching staff qualifications. Important sources of evidence might include independent expert advice on the appropriateness of teaching strategies and assessments for the different domains of learning in the *National Qualifications Framework*. Evidence should be available about the results of benchmarking of standards of learning outcomes in relation to appropriate external reference points. This could be done in several different ways including check marking of samples of students' work and independent assessments of the standards of test questions and students' responses.

The selection of performance indicators for quality of learning and teaching requires use of data in a form that can be quantified and used in comparisons across the institution, with other institutions, and with past performance.

Standard 4: Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
4.1 Student Learning Outcomes		
Intended student learning outcomes must be consistent with the National Qualifications Framework, and with generally accepted standards for the field of study concerned including requirements for any professions for which students are being prepared.		
4.1.1 Intended learning outcomes are specified after consideration of relevant academic and professional advice.	Y	***
4.1.2 Intended learning outcomes are consistent with the Qualifications Framework. (covering all of the domains of learning at the standards required)	Y	***
4.1.3 Intended learning outcomes are consistent with requirements for professional practice in Saudi Arabia in the fields concerned. (These requirements should include local accreditation requirements and also take account of international accreditation requirements for that field of study, and any Saudi Arabian regulations or special regional needs.)	Y	**
4.1.4 If an institution has identified special attributes to be developed in students graduating from the institution comprehensive strategies are established for these to be developed. (This means that the attributes to be developed in students are clearly defined, strategies for developing them planned and implemented across the program, and mechanisms for assessing and reporting on the extent to which graduating students have developed them, are in place.)	Y	***
4.1.5 Appropriate program evaluation mechanisms including graduating student surveys, employment outcome data, employer feedback and subsequent performance of graduates are used to provide evidence about the appropriateness of intended learning outcomes and the extent to which they are achieved. (see also sections 4.3 and 4.4 dealing with program evaluation processes and verification of standards of student achievement)	Y	***
Overall Assessment		***
Comment _____ _____		
Priorities for improvement _____ _____		
Independent opinion		
Comment _____ _____		

4.2 Program Development Processes

Programs must be planned as coherent packages of learning experiences in which all courses contribute in planned ways to the intended learning outcomes for the program.

4.2.1 Plans for the delivery of programs and for their evaluation are set out in detailed program specifications that include knowledge and skills to be acquired, and strategies for teaching and assessment for the progressive development of learning in all the domains of learning.	Y	***
4.2.2 Plans for courses are set out in course specifications that include knowledge and skills to be acquired and strategies for teaching and assessment for the domains of learning to be addressed in each course.	Y	***
4.2.3 The content and strategies set out in course specifications are coordinated with other courses and followed in practice to ensure effective progressive development of learning for the total program in all the domains of learning.	Y	***
4.2.4 Planning should include any action necessary to ensure that teaching staff are familiar with and are able to use the strategies included in the program and course specifications.	Y	**
4.2.5 The academic and/or professional fields for which students are being prepared are monitored on a continuing basis with necessary adjustments made in programs and in text and reference materials to ensure continuing relevance and quality.	Y	**
4.2.6 In professional programs continuing advisory panels that include leading practitioners from the relevant profession monitor and advise on content and quality of programs.	Y	***
4.2.7 New program proposals are assessed and approved or rejected by the institution's senior academic committee using criteria that ensure thorough and appropriate consultation in planning and capacity for effective implementation.	Y	***

Overall Assessment

Comment_____

Priorities for improvement_____

Independent opinion

Comment_____

4.3 Program Evaluation and Review Processes

The quality of all courses and of the program as a whole must be monitored regularly through appropriate evaluation mechanisms and amended as required, with more extensive quality reviews conducted periodically.

4.3.1 Courses and programs are evaluated and reported on annually with information about the effectiveness of planned strategies and the extent to which intended learning outcomes are being achieved.	Y	***
4.3.2 When changes are made as a result of evaluations details of those changes and the reasons for them should be retained in course and program portfolios.	Y	***
4.3.3 Quality indicators that include learning outcome measures are identified and used for all courses and the program as a whole.	Y	***
4.3.4 Records of student completion rates in all courses and the program as a whole are kept and used as quality indicators.	Y	***
4.3.5 Annual reports including quality assurance data are provided and reviewed by senior administrators and quality committees.	Y	***
4.3.6 Course completion, program progression and completion rates, and student course and program evaluations, are retained in central records in a form that can be readily accessed by the department and college, and analysed centrally with summaries and comparative data distributed automatically to departments, colleges, senior administrators and relevant committees at least once each year.	Y	***

4.3.7 If problems are found through program evaluations appropriate action is taken to make improvements	Y	***
4.3.8 In addition to annual evaluations a comprehensive reassessment of the program should be conducted at least once every five years. Procedures for conducting these reassessments should be consistent with policies and procedures established for the institution.	Y	***
4.3.9 Program reviews conducted within the institution involve experienced people from relevant industries and professions, and experienced teaching staff from other institutions.	Y	***
4.3.10 Procedures are followed that ensure that in program reviews information about the appropriateness of learning outcomes sought and the extent to which they are achieved is sought from students and graduates through surveys and interviews, discussions with teaching staff, and other stakeholders such as employers.	Y	***
4.3.11 If the program is offered in sections for male and female students evaluations should provide data for each section as well as for the program as a whole, and any deficiencies in one or the other section dealt with appropriately in recommendations for action.	Y	***

Overall Assessment		***
Comment		
Priorities for improvement		
Independent opinion		
Comment		

4.4 Student Assessment

Student assessment processes must be appropriate for the intended learning outcomes and effectively and fairly administered with independent verification of standards achieved.

4.4.1 Student assessment mechanisms are appropriate for the forms of learning sought.	Y	***
4.4.2 Assessment processes are clearly communicated to students at the beginning of courses.	Y	***
4.4.3 Appropriate valid and reliable mechanisms are used for verifying standards of student achievement in relation to relevant internal and external benchmarks. The standard of work required for different grades should be consistent over time, comparable in courses offered within a program and college and the institution as a whole, and in comparison with other highly regarded institutions. (Arrangements may include measures such as check marking of random samples of student work by faculty at other institutions, and independent comparisons of standards achieved with other comparable institutions within Saudi Arabia, and internationally.)	Y	***
4.4.4 Grading of students tests, assignments and projects is assisted by the use of matrices or other means to ensure that the planned range of domains of student learning outcomes are addressed.	Y	***
4.4.5 Arrangements should be made within the institution for training of teaching staff in the theory and practice of student assessment.	Y	***
4.4.6 Appropriate procedures have been established and are followed to deal with situations where standards of student achievement are inadequate or inconsistently assessed.	Y	***
4.4.7 Effective procedures are followed that ensure that work submitted by students is actually done by the students concerned.	Y	***
4.4.8 Feedback on performance and results of assessments are given promptly to students and accompanied by mechanisms for assistance if required.	Y	***
4.4.9 Assessments of student work should be conducted fairly and objectively.	Y	***
4.4.10 Criteria and processes for academic appeals should be made known to students and administered equitably (see also item 5.3)	Y	***

Overall Assessment	***

Comment_____

Priorities for improvement_____

Comment_____

Independent opinion

4.5 Educational Assistance for Students

Effective systems must be in place for assisting student learning through academic advice, study facilities, monitoring student progress, encouraging high performing students and provision of assistance when needed by individuals.

4.5.1 Teaching staff are available at sufficient scheduled times for consultation and advice to students. (This must be confirmed, not assumed because times have been scheduled)	Y	***
4.5.2 Teaching resources (including staffing, learning resources and equipment, and clinical or other field placements) are sufficient to ensure achievement of the intended learning outcomes	Y	***
4.5.3 If arrangements for student academic counselling and advice include electronic communications through email or other means the effectiveness of those processes is evaluated through processes such as analysis of response times and student evaluations.	Y	***
4.5.4 Adequate tutorial assistance is provided to ensure understanding and ability to apply learning.	Y	***
4.5.5 Appropriate preparatory and orientation mechanisms are provided to prepare students for study in a higher education environment. Particular attention is given to preparation for the language of instruction, self-directed learning, and bridging programs if necessary for students transferring to the institution with credit for previous studies. Preparatory studies must not be counted within the credit hour requirements for programs.	Y	***
4.5.6 If the language of instruction in the program is English, action is taken to ensure that language skills are adequate for instruction in that language when students begin their studies. (This may be done through language training prior to admission to the program. Language skills expected on entry should be benchmarked against other highly regarded institutions with the objective of skills at least comparable to minimum requirements for admission of international students in universities in English speaking countries. The benchmarking process should involve testing of at least a representative sample of students on major recognized English language tests)	Y	***
4.5.7 If preparatory programs are outsourced to other providers the institution accepts responsibility for ensuring the necessary standards are met and entry requirements to the program are maintained.	Y	***
4.5.8 Systems are in place within the program for monitoring and coordinating student workload.	Y	***
4.5.9 The progress of individual students is monitored and assistance and/or counselling provided to those facing difficulties.	Y	***
4.5.10 Year to year progression rates and program completion rates are monitored, and action taken to help any categories or types of students needing help.	Y	***
4.5.11 Feedback on performance by students and results of assessments is given promptly to students and accompanied by mechanisms for providing assistance if needed.	Y	**
4.5.12 Adequate facilities are provided for private study with access to computer terminals and other necessary equipment.	Y	***
4.5.13 Teaching staff are familiar with the support services available in the institution for students, and refer them to appropriate sources of assistance when required.	Y	***
4.5.14 The adequacy of arrangements for assistance to students are periodically assessed through processes that include, but are not restricted to, feedback from students.	Y	***

Overall Assessment

Comment_____

Priorities for improvement_____

Independent opinion
Comment_____

4.6 Quality of Teaching

Teaching must be of high quality with appropriate strategies used for different categories of learning outcomes.

4.6.1 Effective orientation and training programs are provided for new, short term and part time teaching staff. (To be effective these programs should ensure that teaching staff are fully briefed on required learning outcomes, on planned teaching and assessment strategies, and the contribution of their course to the program as a whole.)

4.6.2 Appropriate strategies of teaching are planned and used for the different kinds of learning outcomes the program is intended to develop.

4.6.3 The strategies of teaching and assessment set out in program and course specifications are followed by teaching staff with flexibility to respond to the needs of different groups of students.

4.6.4 Students are fully informed about course requirements in advance through course descriptions that include knowledge and skills to be developed, work requirements and assessment processes.

4.6.5 The conduct of courses is consistent with the outlines provided to students and with the course specifications.

4.6.6 Textbooks and reference material are up to date and incorporate the latest developments in the field of study.

4.6.7 Textbooks and other required materials are available in sufficient quantities before classes commence.

4.6.8 Attendance requirements are made clear to students and compliance with these requirements is monitored and enforced.

4.6.9 Effective systems are used for evaluation of courses and of teaching.

4.6.10 The effectiveness of different planned teaching strategies in achieving learning outcomes in different domains of learning is regularly reviewed and adjustments are made in response to evidence about their effectiveness.

4.6.11 Reports are provided to program administrators on the delivery of each course and these include details if any planned content could not be dealt with and any difficulties found in using the planned strategies

4.6.12 Appropriate adjustments are made in plans for teaching if needed after consideration of course reports.

Overall Assessment
Comment_____

Priorities for improvement_____

Independent Opinion
Comment_____

4.7 Support for Improvements in Quality of Teaching

Appropriate strategies must be used by the program administrators and teaching staff to support continuing improvement in quality of teaching.

4.7.1 Training programs in teaching skills are provided within the institution for both new and continuing teaching staff including those with part time teaching responsibilities.	N	*
4.7.2 Training programs in teaching include effective use of new and emerging technology.	N	*
4.7.3 The extent to which teaching staff are involved in professional development to improve quality of teaching is monitored.	N	*
4.7.4 Opportunities are provided for the professional and academic development of teaching staff with special assistance given to any who are facing difficulties.	N	*
4.7.5 Teaching staff are encouraged to develop strategies for improvement of their own teaching and maintain a portfolio of evidence of evaluations and strategies for improvement.	N	*
4.7.6 Formal recognition is given to outstanding teaching, with encouragement given for innovation and creativity.	Y	**
4.7.7 Strategies for improving quality of teaching include improving the quality of learning materials and the teaching strategies incorporated in them.	N	*
.	Y	***

Overall Assessment

Comment_____

*

Priorities for improvement_____

Independent opinion

Comment_____

4.8 Qualifications and Experience of Teaching Staff

Teaching staff must have qualifications and experience necessary for teaching the courses they teach, and keep up to date with academic and/or professional developments in their field.

4.8.1 Teaching staff have appropriate qualifications and experience for the courses they teach. (For undergraduate and masters degree programs this would normally require academic qualifications in their specific teaching area at least one level above that of the program in which they teach.)	Y	***
4.8.2 If part time teaching staff are appointed (for example in a professional program where current industry experience may be sought) there is an appropriate mix of full time and part time teaching staff. (As a general guideline at least 75 % of faculty should be employed on a full time basis.)	Y	***
4.8.3 All teaching staff are involved on a continuing basis in scholarly activities that ensure they remain up to date with the latest developments in their field and can involve their students in learning that incorporates those developments.	N	**
4.8.4 Full time staff teaching in post-graduate courses, are themselves active in scholarship and research in the fields of study they teach.	N	*
4.8.5 In professional programs teaching teams include some experienced and highly skilled professionals in the field.	N	**

Overall Assessment

Comment_____

**

Priorities for improvement_____

Comment_____

Independent opinion

4.9 Field Experience Activities

In programs that include field experience activities, the field experience activities must be planned and administered as fully integrated components of the program, with learning outcomes specified, supervising staff considered as members of teaching teams, and appropriate evaluation and course improvement strategies carried out. (Field experience includes any work based activity such as internships, cooperative training, practicums, clinical placements or other activities in a work or clinical setting under the supervision of staff employed in that work or professional setting)

4.9.1 In programs that include field experience activities the student learning to be developed through that experience is clearly specified and appropriate steps taken to ensure that those learning outcomes and expected experiences to develop that learning are understood by students and supervising staff in the field setting.

4.9.2 Supervising staff in field locations are thoroughly briefed on their role and the relationship of the field experience to the program as a whole.

4.9.3 Teaching staff from the program visit the field setting for observations and consultations with students and field supervisors often enough to provide proper oversight and support. (Normally at least twice during a field experience activity)

4.9.4 Students are thoroughly prepared through briefings and descriptive material for participation in the field experience.

4.9.5 Follow up meetings or classes are organized in which students can reflect on and generalize from their experience.

4.9.6 Field experience placements are selected because of their capacity to develop the learning outcomes sought and their effectiveness in doing so is evaluated.

4.9.7 In situations where the supervisors in the field setting and faculty from the institution are both involved in student assessments, criteria for assessment are clearly specified and explained, and procedures established for reconciling differing opinions.

4.9.8 Provision is made for evaluations of the field experience activity by students, by supervising staff in the field setting, and by faculty of the post secondary institution, and results of those evaluations considered in subsequent planning.

4.9.9 Preparation for the field experience includes thorough risk assessment for all parties involved, and planning to minimize and deal with those risks.

Overall Assessment

Comment_____

Priorities for improvement_____

Comment_____

Independent opinion

4.10 Partnership Arrangements With Other Institutions

In situations in which local institutions deliver programs through cooperative arrangements with another institution these arrangements must be clearly specified, enforceable under Saudi Arabian law, and all requirements for programs in the Kingdom of Saudi Arabia must

be fully complied with.

Educational programs or courses offered by international organizations including on line or other distance education programs or courses, must not be used unless they have been accredited or otherwise quality assured and approved by the relevant government authorized educational quality assurance agency in the country of origin. Any such programs must be adapted as needed to suit the needs of students in this country, and must meet all Saudi Arabian requirements regardless of where and by whom materials are developed.

If an institution delivers programs using materials developed by another institution, the institution granting the academic award must accept full responsibility for the quality of the program including the materials used and the teaching and other services provided.

An institution based in another country and delivering programs in Saudi Arabia through a Saudi Arabian agent or local institution, and for which it grants an academic award, must meet all Saudi Arabian requirements for standards of educational provision and for cross border provision of education into the country.

4.10.1 Responsibilities of the local institution and the partner are clearly defined in formal agreements enforceable under the laws of Saudi Arabia.

4.10.2 The effectiveness of the arrangements is regularly evaluated..

4.10.3 Briefings and consultations on course requirements are adequate, with mechanisms available for ongoing consultation on emerging issues.

4.10.4 Teaching staff who are familiar with the content of courses visit regularly for consultation about course details and standards of assessments.

4.10.5 If arrangements involve assessment of student work by the partner in addition to assessments within the institution, final assessments are completed promptly and results made available to students within the time specified for reporting of student results under Saudi Arabian regulations..

4.10.6 If programs are based on those of partner institutions, courses, assignments and examinations are adapted to the local environment, avoiding colloquial expressions, and using examples and illustrations relevant to the setting where the programs are to be offered.

4.10.7 Programs and courses are consistent with the requirements of the Qualifications Framework for Saudi Arabia, and in professional programs, include regulations and conventions relevant to the Saudi environment.

4.10.8 If courses or a programs developed by a partner institution are delivered in Saudi Arabia adequate processes are followed to ensure that standards of student achievement are at least equal to those achieved elsewhere by the partner institution as well as by other appropriate institutions selected for benchmarking purposes.

4.10.9 If an international institution or other organization is invited to provide programs, or to assist in the development of programs for use in Saudi Arabia full information is provided in advance about relevant Ministry regulations and NCAAA requirements for the National Qualifications Framework and requirements for program and course specifications and reports.

Overall Assessment

Comment_____

Priorities for improvement_____

Independent opinion

Comment_____

Overall Assessment of Learning and Teaching

4.1 Student Learning Outcomes	2.8
4.2 Program Development Processes	2.93
4.3 Program Evaluation and Review Processes	3
4.4 Student Assessment	
4.5 Educational Assistance for Students	2.9
4.6 Quality of Teaching	2.83
4.7 Support for Improvements in Teaching	2.33
4.8 Qualifications and Experience of Faculty	1.9
4.9 Field Experience Activities	2.53
4.10 Partnership Arrangements	2.67

Combined Assessment	2.65
Comment _____	

Independent Opinion	
Comment _____	

Indicators Considered _____

Priorities for Improvement _____

Standard 5: Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

Main Components of this Standard

Student Admissions

Student Records

Student Management

Student Advising and Counseling Services

Comment and General Description of Good Practice

The standard for student administration and support services as it relates to educational programs deals with matters that directly relate to the administration of the program or that are the responsibility of program managers and staff in the program. These include provision of information and advice about the program for prospective students and mechanisms for dealing with disputes and appeals. Provision of advisory services in relation to careers in the field of study may be provided by staff within the program or within a central career advisory unit within the institution. However even where the service is provided centrally faculty involved in the program should be able to assist in relation to requirements in their professional field.

Evidence and Performance Indicators

Evidence about the quality of student administration and support services can be obtained from surveys of students about the quality and responsiveness of services provided, usage rates for particular services, response times for communicating decisions on admissions and results and the frequency and results of discipline procedures. Performance indicators can be based directly on this information, but additional evidence in a review might include such things as visits to facilities and discussions with students and staff.

Standard 5: Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this true?
Y/No/NA

How well is this done?
(enter stars)

5.1 Student Admissions

Student admission processes must be reliable, efficient and simple for students to use.

5.1.1 Admission requirements are consistently and fairly applied for all students.

Y
Y

5.1.2 If programs or courses include components offered by distance education, or use of e-learning in blended programs, information is provided before enrolment about any special skills or resources needed to study in these modes. (For distance education programs a separate set of standards that include requirements for that mode of program delivery are set out in a different document, *Standards for Quality Assurance and Accreditation of Higher Education Programs Offered by Distance Education*)

5.1.3 Student advisors familiar with details of course requirements are available to provide assistance prior to and during the student registration process.

Y
Y

5.1.4 Rules governing admission with credit for previous studies are clearly specified.

5.1.5 Decisions on credit for previous studies are made known to students by qualified teaching or other authorized staff before classes commence.

Y
Y

5.1.6 Complete information about the program, including the range of courses, program requirements, costs, services and other relevant information is publicly available to potential students and families prior to applications for admission.

5.1.7 A comprehensive orientation program is available for commencing students to ensure thorough understanding of program requirements and reasons for them, the range of services and facilities available to them, and of their obligations and responsibilities.

Y

Overall Assessment

Comment _____

Priorities for improvement _____

Independent Opinion

Comment _____

5.2 Student Records

Student records must be maintained in a secure and confidential location. Statistical data needed for quality indicators and internal and external reporting requirements and generation of reports on student progress and achievements must be readily available through automated processes that protect the confidentiality of individual student information.

5.2.1 Automated procedures are in place for monitoring student progress throughout their programs.

Y

5.2.2 The student record system regularly provides aggregated statistical data required for planning, reporting and quality assurance.

Y

5.2.3 Clear rules are established and maintained governing privacy of information and controlling access to individual student records.

Y

5.2.4 Eligibility for graduation is formally verified in relation to program and course requirements.

Y

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

5.3 Student Management

Policies and regulations must be established for fair and consistent processes of student management, with effective safeguards for independent consideration of disputes and appeals.

5.3.1 Attendance requirements are made clear to students, monitored and enforced.

Y

5.3.2 Student appeal and grievance procedures are specified in regulations, published, and made widely known within the institution. The regulations make clear the grounds on which academic appeals may be based, the criteria for decisions, and the remedies available.

Y

5.3.3 Appeal and grievance procedures protect against time wasting on trivial issues, but still provide adequate opportunity for matters of concern to students to be fairly dealt with and supported by student counselling provisions.

Y

5.3.4 Appeal and grievance procedures guarantee impartial consideration by persons or committees independent of the parties involved in the issue, or who made a decision or imposed a penalty that is being appealed against.

Y

5.3.5 Procedures have been developed to ensure that students are protected against subsequent punitive action or discrimination following consideration of a grievance or appeal.

Y

5.3.6 Appropriate policies and procedures are in place to deal with academic misconduct, including plagiarism and other forms of cheating.

Y

**

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

5.4 Student Advising and Counseling Services

Adequate provision must be made for academic advising and counselling services to assist

students in planning their participation in the program and in seeking subsequent employment.

5.4.1 Provision is made for academic counselling and for career planning and employment advice within the college, department or another appropriate location within the institution.

Y

5.4.2 Adequate protection is provided, and supported by regulations or a codes of conduct, to protect the confidentiality of academic or personal issues discussed with teaching or other staff or students.

Y

5.4.3 Effective mechanisms are established for follow up to ensure student welfare and to evaluate quality of service.

Y

5.4.4 An effective student support system is available to identify students in difficulty and provide help with personal, study related, financial, family, psychological or health problems

Y

Overall Assessment

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

Overall Assessment of Student Administration and Support Services

5.1 Student Admissions

3

5.2 Student Records

3

5.3 Student Management

2.73

5.4 Student Advising and Counseling Services

3

Combined Assessment**2.93**

Comment _____

Comment _____

Independent Opinion

Indicators Considered _____

Priorities for Improvement _____

Standard 6: Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

Main Components of this Standard as Applied to Educational Programs

Planning and Evaluation
Organization
Support for Users
Resources and Facilities

Comment and General Description of Good Practice

Adequate library and other learning resources and services for the needs of the program are essential requirements, and are particularly important in programs designed to develop capacity for independent learning and creative application of ideas. Collections must be up to date and regularly enhanced as new material becomes available, and there must be ready access to information located elsewhere.

Basic collections should be adequate for the program, but go well beyond the immediate needs to provide access to research reports, data bases and journal and internet publications that capture the latest thinking in related areas of inquiry. If the program is postgraduate there must be adequate resources for research by students and by faculty in this and related fields.

Orientation programs should be available to ensure that new students know how to make proper use of library and resource center facilities. Ongoing assistance should be available to help students as they use these resources for studies in the program.

Requirements for library services are changing in keeping with the rapid development of information technology and developments in flexible delivery of courses. Libraries are recognized as being not simply collections of books and periodicals, but gateways to information required for research and investigation in an international context. Evaluation of a program includes the availability of the range of services and materials that are needed to support it.

The provision of services should be planned cooperatively between program developers, other faculty, and resource centre staff, so that the resources and services provided are matched to the requirements for teaching and learning and associated research and investigations. Proposals for new or substantially modified courses and programs should include an independent statement from the library or resource centre indicating cost and availability of the information resources required. .

Evidence and Performance Indicators

Evidence about the quality of learning resource provision and performance indicators derived from this evidence can be obtained from user satisfaction surveys, success rates for students in accessing course reference material, documents describing processes for identifying and responding to course requirements, and details of times when facilities are available for use by students and teaching staff. Information should be available about provision of orientation programs for new students and other users, and responsiveness to requests from groups of stakeholders. The institution should be able to provide information about comparisons of level of provision through books, periodicals and web-based resources with comparable institutions offering similar programs and an appropriate performance indicator would be whether that level of provision was equalled or exceeded.

Standard 6: Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA**

**How well is
this done?
(enter stars)**

6.1 Planning and Evaluation

Policies and procedures must be in place to ensure that resource materials and services needed to support student learning are adequate and appropriate for the program, regularly evaluated, and kept up to date as required.

6.1.1 Teaching staff responsible for the program and for courses within it regularly provide advice on materials required to support teaching and learning.

Y

6.1.2 Teaching staff and students participate in user surveys dealing with adequacy of resources and services, extent of usage, consistency with requirements for teaching and learning

Y

6.1.3 Data on the extent of usage of learning resources for the program are used in evaluations of learning and teaching in the program.

Y

6.1.4 In addition to participation in surveys program representatives have opportunities to provide input to evaluations of forward planning for provision of resources and services.

Y

**

6.1.5 Teaching staff provide regular advice on material that should be held in reserve to ensure access to necessary materials and this advice is responded to.

Y

Overall Assessment

Comment _____

Priorities for Improvement _____

Independent Opinion

Comment _____

6.2 Organization

The library or resource center must be managed in a way that meets the requirements of the program for student access and availability of resources and services.

Y

6.2.1 Library and resource centers and associated facilities and services are available for sufficient extended hours to ensure access when required by users in the program.

Y

*

6.2.2 Heavy demand and required reading materials needed in the program are held in reserve collections.

6.2.3 Ready access to on-line data-bases and research and journal material relevant to the program is provided for.

Y

Overall Assessment	**
Comment_____	

Priorities for improvement_____	

Independent Opinion	
Comment_____	

6.3 Support for Users

Adequate support must be provided to assist students and teaching staff to make effective use of library services and resources.

6.3.1 Orientation and training programs are provided for new students in the program to prepare them to access facilities and services.	Y	***
6.3.2 Assistance is available to assist faculty and students in the program in conducting searches and locating and using information.	Y	***
6.3.3 A reference service is available through which in-depth questions are answered by qualified librarians.	Y	***
6.3.4 Electronic and/or other automated systems with search facilities are available to assist in locating resources within the institution and in other collections.	Y	***
6.3.5 Teaching staff and students in the program are kept informed of library developments such as acquisition of new materials, training programs, or changes in services or opening hours.	Y	***

Overall Assessment	***
Comment_____	

Priorities for improvement_____	

Independent Opinion	
Comment_____	

6.4 Resources and Facilities

Adequate reference material for the program must be available and facilities in the library or resource center must be appropriate for the needs of the program,

6.4.1 Adequate books journals and other reference material including on line resources are available to meet program requirements.	Y	***
6.4.2 Up to date computer equipment and software is available on a sufficient scale to meet program requirements to support electronic access to resources and reference material.	Y	**
6.4.3 Books and journals and other materials are available in Arabic and English (or other languages) as required for the program and associated research.	Y	***
6.4.4 Sufficient facilities are provided for both individual and small group study and research as required for the program.	Y	***
Overall Assessment		***

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

☐

Overall Assessment of Learning Resources

6.1 Planning and Evaluation	2.86
6.2 Organization	2.33
6.3 Support for Users	2.93
6.4 Resources and Facilities	2.5
Combined Assessment	2.65

Comment _____

Comment _____	Independent Opinion	

Indicators Considered _____

Priorities for Improvement _____

Standard 7: Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

Main components of this Standard:

Policy and Planning
Quality of and Adequacy of Facilities
Management and Administration
Research Equipment
Information Technology

Comment and General Description of Good Practice

Facilities should always provide an attractive, safe and healthy environment for faculty, staff and students, meet normal building and planning requirements, and the requirements for high quality teaching and learning in the program.

The use of facilities should be monitored and there should be processes to ensure that underutilized facilities are made available for alternative uses, subject to necessary arrangements for protection of expensive and easy to damage equipment.

In programs that require laboratory or other technical equipment including computing facilities, maintenance provisions should be effective and include routine maintenance schedules. Necessary technical support should be available and there should be an immediate response capacity in case of equipment breakdowns.

For all classrooms media needed for effective instruction should be provided with appropriate technical support available.

Evidence and Performance Indicators

Evidence about the quality of provision of facilities and equipment can be obtained from planning documents, user satisfaction surveys, comparisons of provision with comparable institutions offering similar programs and direct observations by independent evaluators.

Condition assessments and maintenance schedules provide information about the quality and maintenance of facilities and major equipment. Regulations and codes of practice relating to the use of facilities and expensive equipment provide evidence of sound management practices and security arrangements. Performance indicators could include such things as ratings on surveys of user satisfaction, statistics on equipment breakdowns, comparisons of provision in relation to other institutions.

Standard 7: Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
7.1 Policy and Planning		
Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.		
7.1.1 Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution.	Y	***
7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met.	N	*
7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule.	Y	**
Overall Assessment		**
Comment _____		

Priorities for Improvement _____		

Independent Opinion		
Comment _____		

7.2 Quality and Adequacy of Facilities and Equipment		
Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.		
7.2.1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.	Y	***
7.2.2 Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.	Y	***
7.2.3 Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, access to computing facilities and associated software, private study facilities, and research equipment.	Y	***
7.2.4 Adequate facilities are available for confidential consultations between faculty and students)	Y	***
7.2.5 Provision is made for students, faculty and staff with physical disabilities or	N	**

other special needs.

Overall Assessment
Comment_____

Priorities for improvement_____

Independent Opinion
Comment_____

7.3 Management and Administration

Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.

7.3.1 A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.

Y

7.3.2 Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively carried out.

Y

7.3.3 Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.

Y

7.3.4 Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.

N

**

7.3.5 Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.

Y

7.3.6 Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.

Y

Overall Assessment
Comment_____

Priorities for improvement_____

Independent Opinion
Comment_____

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed.

Y

7.4.2 Institutional policies governing the use of personal computers by students are complied with.

Y

7.4.3 Technical support is available for teaching staff and students using information and communications technology.

Y

7.4.4 Opportunities are available for teaching staff input into plans for acquisition and

N

*

replacement of IT equipment for use in the program.

7.4.5 Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses.

N

**

7.4.6 Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately.

Y

7.4.7 Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration.

N

*

Overall Assessment

**

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

2.11

7.2 Quality of and Adequacy of Facilities

2.67

7.3 Management and Administration

3

7.4 Information Technology

2.16

Combined Assessment**2.48**

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 8: Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

Main components of this Standard:

Financial Planning and Budgeting
Financial Management

Comment and General Description of Good Practice

Sufficient financial resources must be available to support the effective delivery of the program. This means both maintenance of routine and continuing activities and at least some provision for new initiatives to develop the program and improve its quality. Funds are not unlimited and resources must be effectively managed to avoid waste and adjust allocations when necessary from low priority to high priority items if required, or if possible to seek alternative supplementary funding opportunities. Some guide to adequacy can be obtained by considering funding levels for comparable programs in other similar institutions. However if this is done any such comparisons must take into account any variations in circumstances that may affect funding requirements.

This standard relates not only to the adequacy of funding but also to the efficiency and flexibility of financial management by program managers. To provide for this flexibility and for appropriate accountability, delegations should provide for specified levels of expenditure to be authorized by the program manager subject to reporting and accountability requirements. Regular management reports should be provided to the program manager from the financial accounting system to permit monitoring of expenditure in relation to budget projections.

Evidence

Evidence about the quality of financial planning and management can be obtained from budget statements and audit reports. Faculty surveys can provide information about whether resources considered by them to be necessary for the program are available. Comparisons of funding provisions with similar programs elsewhere can provide useful evidence of adequacy of provision provided care is taken to take account of any differences in the management of financial systems. Reports on risk assessment should be available together with strategies for risk minimization.

Standard 8: Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA**

**How well is
this done?
(enter stars)**

8.1 Financial Planning and Budgeting

Funding must be adequate for program requirements and planning must involve full cost estimates and both short and medium term cost projections. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

8.1.1 Proposals for new programs, major program changes or other activities, equipment or facilities are accompanied by business plans, which include independently verified cost estimates and cost impacts on other services and activities.

NA

*

8.1.2 If new projects or activities are cross-subsidized from existing funding sources the cost sharing strategy is made clear and intermediate and long term costs and benefits are assessed.

NA

**

8.1.3 Financial resources available for the program are sufficient for good quality program provision and benchmarked against costs of equivalent programs at other similar institutions.

NA

**

8.1.4 The program coordinator (or department chair or dean) submits annual budget proposals setting out detailed program requirements and follows up as necessary to make adjustments after those proposals have been considered.

NA

**

8.1.5 Budget proposals support strategic priorities for program development and quality improvement and consider possibilities for possible savings or alternative revenue sources as well as seeking additional funding if necessary.

NA

**

Overall Assessment

Comment _____

**

Priorities for Improvement _____

Independent Opinion

Comment _____

8.2 Financial Management

Financial affairs must be effectively managed with a proper balance between flexibility for the cost center manager and institutional accountability and responsibility.

NA

*

8.2.1 Sufficient delegation of spending authority is given to the program manager (or department chair) for effective program administration

NA

**

8.2.2 Delegations of spending authority are accompanied by appropriate accountability and reporting processes.

8.2.3 The program manager/head of department is involved in the budget planning process, and is held accountable for expenditure within the approved budget.
 8.2.4 The accounting system provides for accurate and continuing monitoring by the program manager of expenditure and commitments against budgets.
 8.2.5 Where possibilities of conflict of interest exist, either actual or perceived, the persons concerned declare their interest and refrain from participation in decisions.
 8.2.6 Financial carry-forward provisions are sufficiently flexible to avoid rushed end of year expenditure or disincentives for long term planning.

NA
NA
NA
NA

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**

Overall Assessment

**

Comment **NOT SURE OF QUESTIONS 8.2.1 AND 8.2.3 BECAUSE THE AUTHORITIES ARE KNOWN FROM THE FACULTY.**

Priorities for Improvement_____

Independent Opinion

Comment_____

Overall Assessment of Financial Planning and Management

8.1 Financial Planning and Budgeting

4.8

8.2 Financial Management

4.5

Combined Assessment

4.7

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for improvement _____

Standard 9: Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

Main components of this Standard:

Recruitment
Personal and Career Development

Comment and General Description of Good Practice

Faculty must be appropriately qualified and must have the detailed knowledge and experience necessary for their particular teaching responsibilities. Relevant professional experience is particularly important in professional programs. Qualifications and experience must be verified before appointments are made.

Faculty should be recruited for particular roles in the program and should be given detailed information about the program and their role as a member of a teaching team. This should also be done before appointment with further detailed orientation given by the program coordinator/manager before they begin their work. They should see themselves as members of a teaching team within a carefully planned and delivered comprehensive program, not just as instructors in a discrete subject specialty.

For all faculty and staff associated with the program feedback on performance should be provided in a constructive and supportive way and assistance given for improvements in both teaching skills and knowledge of their field.

Evidence and Performance Indicators

Evidence about quality of employment processes can be obtained from documents setting out employment and promotion processes and criteria, descriptions of orientation programs for new teaching and other staff, and procedures for performance evaluation and support for improvement. Records of assessments of quality of teaching, and teaching and other staff participation in professional development activities relevant to their employment can provide valuable evidence, particularly when they include ratios of participation and assessments of the value of those activities by the participants. Data on faculty turnover in parts of the institution can be used to indicate stability or instability in staffing. Regulations on dispute resolution combined with records of the incidence and outcomes of disputes can provide evidence about the effectiveness of those processes.

Performance indicators almost always include student/teaching staff ratios and proportions of teaching staff with levels of qualifications. However a number of others that can also be readily quantified are important such as participation ratios in professional development and scholarly activities. Some others such as rates of turnover of teaching and other staff might be selected if there are problems in the institution that need to be monitored.

Standard 9: Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
9.1 Recruitment		
Recruitment processes must be designed to ensure that capable and appropriately qualified teaching and other staff are available for all teaching and administrative functions, administered fairly, and that new staff are thoroughly prepared for their responsibilities.		
9.1.1 Recruitment processes ensure that teaching staff have the specific areas of expertise, and the personal qualities, experience and skill to meet teaching requirements.	Y	*****
9.1.2 Candidates for employment are provided with full position descriptions and conditions of employment, together with specific information about expectations for contributing to the program as part of the teaching team. (The information provided should include details of employment expectations, indicators of performance, and processes of performance evaluation.)	Y	****
9.1.3 References are checked, and claims of experience and qualifications verified before appointments are made.	N	**
9.1.4 Assessment of qualifications includes verification of the standing and reputation of the institutions from which they were obtained, taking account of recognition of qualifications by the Ministry of Higher Education.	Y	****
9.1.5 In professional programs there are sufficient teaching staff with successful experience in the relevant profession to provide practical advice and guidance to students about work place requirements.	Y	**
9.1.6 New teaching staff are given an effective orientation to the institution to ensure familiarity with the institution and its operating procedures, services and priorities for development.	Y	***
9.1.7 New teaching staff are given a thorough orientation to the program to ensure they have a thorough understanding of the program as a whole, of the contributions to be made to it through the courses they teach, and of the expectations for coordinated planning and delivery of courses and evaluation and reporting requirements.	Y	***
9.1.8 The level of provision of teaching staff (i.e. the ratio of students per teaching staff member calculated as full time equivalents) is adequate for the program and benchmarked against comparable student/teaching staff ratios at good quality Saudi Arabian and international institutions.	Y	****

Overall Assessment

Comment **THE EXPECTATIONS AND JOB DESCRIPTION ARE NOT WELL GIVEN(SECTION 9.1.1)**

9.1.3 NOT BEFORE, 9.1.5 NOT ENOUGH INDUSTRIAL EXPERIENCE.

Priorities for Improvement **GIVE EXTRA WEIGHT TO INDUSTRIAL BACKGROUND IN STAFF EVALUATION.**

	Independent Opinion	
Comment		

9.2 Personal and Career Development

Processes for personal and professional development must be fair to all teaching and other staff, designed to encourage and support improvements in performance and recognize outstanding achievements.

9.2.1 Criteria for performance evaluation are clearly specified in advance and made known to teaching and other staff.

N	**

9.2.2 Consultations about work performance are confidential and supportive, and occur on a formal basis at least once each year.

N	**

9.2.3 If performance is considered less than satisfactory clear requirements are established for improvement.

N	**

9.2.4 Formal performance assessments of teaching and other staff are kept confidential but are documented and retained. Faculty and staff have the opportunity to include on file their own comments relating to these assessments, including points of disagreement.

N	**

9.2.5 Outstanding academic or administrative performance is recognized and rewarded.

N	**

9.2.6 All teaching and other staff are given appropriate and fair opportunities for personal and career development.

N	*

9.2.7 Junior teaching and other staff with leadership potential are identified and given a range of experiences to prepare them for future career development.

N	*

9.2.8 Assistance is given in arranging professional development activities to improve skills and upgrade qualifications.

N	*

9.2.9 Appropriate professional development activities are provided to assist with new programs or policy initiatives.

N	**

9.2.10 Teaching staff are expected to participate in activities that ensure they keep up to date with developments in their field and the extent to which they do so is monitored.

N	**

	Overall Assessment	**
Comment		

Priorities for Improvement

	Independent Opinion	
Comment		

Overall Assessment of Employment Processes

9.1 Recruitment

2.1

9.2 Personal and Career Development

1.7

Combined Assessment

1.9

Comment _____

Independent Opinion

Evaluators Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 10: Research

A research strategy that is consistent with the nature and mission of the institution should be developed. All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in post graduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

Main components of this Standard as Applied to Educational Programs:

Teaching Staff and Student Involvement in Research
Facilities and Equipment

Comment and General Description of Good Practice in Research

Expectations for research involvement vary with the nature of an institution and the kind of program. Universities are expected to have substantial involvement in research and scholarship and their prestige in the international environment will depend on this to a major extent. There is also a separate expectation for research and scholarship relating to the teaching of post-graduate programs, particularly those with a significant research component, since the quality of teaching and learning in those programs is directly affected by the extent to which faculty have current research involvement. It is important that faculty involved in teaching post-graduate research students or supervising their research projects are themselves active scholars and researchers in their field.

At other institutions offering undergraduate programs there are lesser expectations for research. However faculty must still be familiar with the latest developments in their field and the institution should expect them to be involved in appropriate forms of scholarly activity. It should provide an environment in which this is encouraged, and monitor the extent to which it occurs.

If there is a research expectation for faculty or students in the program, either because of the nature of the institution or the particular program concerned there must be an adequate research infrastructure. This will include library and internet communication facilities, laboratories, equipment, and other research facilities relevant to the program. These resources provided must be available for postgraduate research students and faculty as part of normal basic provision.

Faculty should be encouraged to establish links with other institutions both locally and internationally, and, depending on the nature of the program, with industry and appropriate community agencies for cooperative research and development.

In all higher education programs faculty should be encouraged to pursue research interests, and be recognized for having done so even when additional resources cannot be provided to assist them. Regular reports of the research activities of faculty should be prepared, provided to the governing board, and made generally available in the institution..

Evidence and Performance Indicators

Evaluations of the quality of research should include a review of the research strategy for the department or the college, and other supporting documents including details of the extent and quality of research output by staff associated with the program. Evidence about involvement in research can be obtained from staff and from departmental research reports and staff evaluation and promotion criteria. Further evidence can be obtained by consideration of agreements for cooperative research and for shared use of major equipment items. Staff and student surveys can provide evidence about the adequacy of provisions for research facilities and equipment.

Performance indicators for research are commonly based on statistics on the volume of research publications per faculty member, the proportions of research-active teaching staff (a term that needs to be defined) and numbers of research citations—These figures should be compared with those at other comparable institutions and departments. In institutions with a commitment to research comparisons may

include the extent to which research and scholarly activities are translated into applications within the academic or professional field concerned.

Standard 10: Research

A research strategy that is consistent with the nature and mission of the institution should be developed. All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in postgraduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
10.1 Teaching Staff and Student Involvement in Research		
Expectations for teaching staff involvement in research and scholarly activities must be made clear and provide for widespread participation. Encouragement and support must be provided to encourage research activity by junior teaching staff and postgraduate students.		
10.1.1 Expectations for teaching staff involvement in research and scholarly activities are clearly specified and considered in performance evaluation and promotion criteria. (For universities criteria require at least some research and/or appropriate scholarly activity of all full time teaching staff).	Y	***
10.1.2 Clear policies are established in the institution for defining what is recognized as research, consistent with international standards and established norms in the field of study of the program. (This normally includes both self-generated and commissioned activity but requires creative original work, independently validated by peers, and published in media recognized internationally in the field of study)	Y	***
10.1.3 Support is provided for junior staff in the development of their research programs through mechanisms such as mentoring by senior colleagues, inclusion in project teams, assistance in developing research proposals, and seed funding.	Y	*
10.1.4 Postgraduate research students are given opportunities for participation in joint research projects.	Y	**
10.1.5 When research students are involved in joint research projects their contributions are appropriately acknowledged. When a significant contribution has been made reports and publications carry joint authorship.	Y	**
10.1.6 Assistance is available for teaching staff to develop collaborative research arrangements with colleagues in other institutions and in the international community.	Y	**
10.1.7 Research and scholarly activities of teaching staff that are relevant to courses they teach are reflected in their teaching together with other significant research developments in the field.	Y	**
10.1.8 Strategies are developed for identifying and capitalizing on the expertise of faculty and postgraduate students in providing research and development services to the community and generating financial returns to the institution.	Y	**
Overall Assessment		**

Comment **POINT 10.1.4 IS NOT APPLICABLE YET.**

Priorities for Improvement _____

Comment _____

Independent Opinion

10.2 Research Facilities and Equipment

Adequate facilities and equipment appropriate for research in the program field of study must be available for use by teaching staff and postgraduate students. Clear policies must be established for ownership and care for specialized facilities and equipment obtained through research grants or cooperation with industry.

10.2.1 Adequate laboratory space and equipment, library and information systems resources are available to support the research activities of faculty and students in the field in which the program is offered.

Y

**

10.2.2 Security systems are established that ensure safety for researchers and their activities, the institutional community and the surrounding region.

Y

**

10.2.3 Policies are established to make clear the ownership and responsibility for maintenance of equipment obtained through faculty research grants, commissioned research or other external sources.

Y

10.2.4 Adequate budget and facilities for the conduct of research at a level consistent with institutional, program and departmental policies should be provided.

Y

**

Overall Assessment

**

Comment_____

Priorities for Improvement_____

Independent Opinion

Comment_____

Overall Assessment of Research

10.1 Teaching Staff and Student Involvement in Research

3.4

10.2 Research Facilities and Equipment

3.4

Combined Assessment

3.4

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 11: Relationships with the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

For the purposes of this standard contributions to the community should include services and activities to assist individuals, organizations or communities outside the institution (i.e. they would not include such things as financial assistance or extra curricular activities for enrolled students or the provision of academic programs leading to qualifications) but could include participation in research or development projects, and community education programs provided either with or without charge.

Main Components of this Standard

Institutional Policies on Community Relationships
Interactions with the Community

Comment and General Description of Good Practice

As influential members of the community institutions should recognize an obligation shared with other community members to cooperate for mutual benefit. However the responsibility of post secondary institutions goes well beyond that general obligation. By their nature they are service organizations whose central responsibility is to provide educational services that are required. In most cases they are established or approved to operate because that service is recognized as being needed in the community. Many receive substantial government support, which is a community contribution to their activities, either directly or through financial support for students.

The mission of an institution should make clear the nature of its contribution to the communities it is intended to serve and should be developed following an analysis of the needs of those communities and the capacity of the institution to respond.

Higher education institutions have special capacity to contribute because of the skills of their faculty in a number of different occupational or professional fields and academic disciplines, and because of the facilities they have for teaching, research and cultural activities. As a result it is common for them to provide for community access to cultural activities, to establish clinics or services for the benefit of the community, to develop research or consultancy programs focusing on requirements of local communities, and to encourage staff to take an active role in aspects of community life that are relevant to their special expertise. The role of higher education institutions in providing assistance and support to other education institutions including schools can be extremely important to those other institutions, as well as providing benefits to the higher education institution itself by improving its capacity to attract high quality students.

A post secondary institution should clearly identify its potential contributions to the community, provide for those contributions in appropriate ways in its mission, develop institutional policies and strategies for response, and monitor and report on what is done.

While the geographic region surrounding an institution is particularly significant, the concept of community should be interpreted broadly, to include the academic and professional communities with which it interacts, locally, nationally, and internationally. Contributions to these communities are all important, and as is the case for the local general community, effective interaction has significant benefits for the institution as well.

Institutions should ensure that their activities and services are widely publicized and understood and valued by the community, and that their reputation is enhanced. The reputation of the institution is a vital factor in attracting and retaining high quality students and staff, seeking endowments, attracting research projects

and funding, and in ensuring community support. It is also important in establishing and maintaining the public credibility of the qualifications that students receive.

Evidence and Performance Indicators

Evidence about quality of community relationships can be obtained from documents describing policies on service to the community, criteria for staff evaluation and promotion that include community contributions, and guidelines and processes for community media releases and other public comments on behalf of the institution. Reports on community relationships that include such matters as community use of institutional facilities, participation of staff on community committees or development projects and interactions with schools and other agencies can provide relevant information. The extent of community service activity, including formal courses and other services provided by the department or individuals within it should be documented and reported so records can be retained in a central data system. Community views about the quality of the institution and its standing as a respected member of the community can be obtained from surveys.

A number of these forms of evidence include ratings that can be used directly as performance indicators. However in this area in particular the mission of the institution and the community within which it operates is important in deciding what aspects of performance should be closely monitored.

Standard 11: Relationships with the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
11.1 Policies on Community Relationships		
11.1 The service commitment of the program should be defined in a way that reflects the community or communities within which the institution operates, and the skills and abilities of staff teaching in the program.	Y	***
11.1.2 The contributions to the community made by staff teaching in the program are recorded and reported upon on an annual basis.	Y	***
11.1.3 Promotion criteria and faculty assessments include contributions made to the community.	Y	***
11.1.4 Departmental or program initiatives in working with the community should be coordinated with responsible units in the institution to avoid duplication and possible confusion.	Y	**
Overall Assessment		***
Comment _____		

Priorities for Improvement _____		

Independent Opinion		
Comment _____		

11.2 Interactions With the Community

Relationships should be established with the community to provide needed services and draw on community expertise to support the program.

11.2.1 Staff are encouraged to participate in forums in which significant community issues are discussed.	Y	***
11.2.2 In a professional program relationships are established with local industries and employers to participate on advisory committees and assist program delivery. (These may include, for example, placement of students for work-study programs, part time employment opportunities, and identification of issues for analysis in student project activities.)	N	**
11.2.3 Local employers and members of professions are invited to join appropriate advisory committees.	N	**
11.2.4 Contacts are established with schools in the region offering assistance and support in areas of specialization, providing information about the program and subsequent career opportunities for graduates, and arranging enrichment activities for	Y	***

students at the schools. (If a section within the institution has responsibility for coordinating these relationships these contacts are arranged in consultation with that section.)

11.2.5 Regular contact is maintained with alumni, keeping them informed about institutional developments, inviting their participation in activities, and encouraging their financial and other support for new initiatives.

11.2.6 Opportunities are taken in cooperation with institutional administrators to seek funding support from individuals and organizations in the community for research and other developments associated with the program.

11.2.7 Records are maintained of community services undertaken by individuals and centers or other organizations within the department and provided regularly for recording in a central data base within the institution.

N

**

N

**

N

**

Overall Assessment

**

Comment_____

Priorities for Improvement_____

Independent Opinion

Comment_____

Overall Assessment of Relationships with the Community

11.1 Institutional Policies on Community Relationships

2.75

11.2 Interactions With the Community

1.38

Combined Assessment

2.06

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Prince Mohammad Bin Fahd University



**The National Commission for
Academic Accreditation & Assessment**

NCAAA Quality Assurance Accreditation Exercise 2011

**KPI Analysis for
College of Computer Engineering & Science**

Prepared by

***Dr J Alghazo
Dr L Alzubaidi
Dr A Elhassan***

June 2011

1. Soft copy of your college strategic plan

This is a summary of the college's strategic plan for the period from Sep 2009 .

<i>ID</i>	<i>Task Name</i>	<i>Start</i>	<i>Finish</i>	<i>Duration</i>	<i>Resource Names</i>
1	IEEE Chapter	5/31/2010	11/30/2010	132d	VZ
2	ACM Chapter	6/1/2010	12/1/2010	132d	MS
3	Equivalent Course Lists	6/1/2010	12/1/2010	132d	AEH + LZ
4	New Elective Courses	6/1/2010	12/1/2010	132d	MS + LZ
5	Double-Majors Program	9/1/2010	2/1/2011	110d	AEH + LZ
6	MSc in Image Processing	9/1/2010	2/1/2011	110d	VZ
7	MSc Computer Science	9/1/2010	2/1/2011	110d	VZ
8	MSc Networking	9/1/2010	2/1/2011	110d	LZ + MS
9	Research with Aramco	9/1/2010	2/1/2011	110d	VZ
10	BSc SE	12/1/2010	3/1/2011	65d	LZ + JA
11	CE Study Plan Review	12/1/2010	5/30/2011	129d	CC(4)
12	IT Study Plan Review	12/1/2010	5/30/2011	129d	CC(4)
13	Web-Based Course Spec (QA)	12/1/2010	5/30/2011	129d	Web Committee
14	Web-Based Course Report (QA)	12/1/2010	5/30/2011	129d	Web Committee
15	CISCO Academy	12/1/2010	5/30/2011	129d	Zafar
16	IT Academy	12/1/2010	5/30/2011	129d	Zafar

2. Level of alignment of college strategy with PMU strategic plan. Need to show a map of your strategy with PMU strategic plan. Use diagrams.

The alignment of the college mission statement with those of the institute is a critical factor in the laying down of the road map for the college in order to guide it to achieve its mission. This has made the first phases of the program a lot smoother and has jump-started the program. Add to this the fact that the goals, objectives, policy and performance benchmark are all allied in terms of final targets and what we have is a much higher chance of success for this standard. For further info please refer to As in section G_1 of the Periodic Self-Study document.

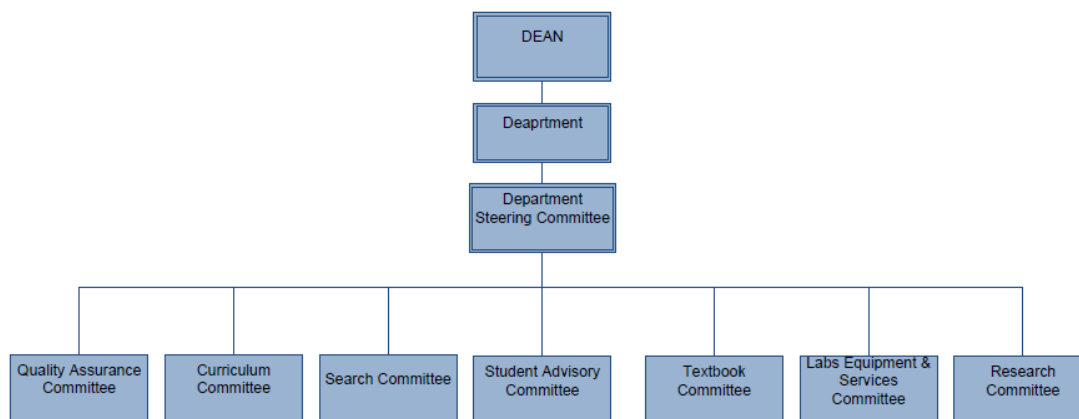
3. Report on your unit's implementation of PMU guiding principles, core values, strategic goals and strategic initiatives

The College of Computer Engineering & Science has always been implementing and following the PMU guiding principles of encouraging students to be lifetime learners, continuously enhancing the quality of faculty, administrators and staff, and serving the external constituencies of the university. This is evident with the quality of students we have graduated with students being employed in reputable companies such as ARAMCO and SABIC among others. The 6 core values are also strictly followed and abided by the CCES. Where ever applicable the college takes into consideration implementing the strategic goals and strategic initiatives. The CCES college in particular has proven that quality is their main concern and quality includes the implementation of the PMU guiding principles, core values, strategic goals and strategic initiatives.

4. Report on level of engagement of faculty and staff in preparing plans for your unit

As in section of the Self Study documentation, we have all of our faculty participating in a minimum of 2 committees each, some are listed here:

The Dept Organization chart is as follows:



There are seven committees concerned with Quality Management Program all under the supervision of a Steering Committee, as in the schematic diagram explaining this structure shown above. Each committee is responsible for one or more of the eleven quality standards presented in the Report on the periodic Program self study.

For the Self Study program documentation, the CCES college team consisting of 6 members of faculty was formed.

Team membership as follows:

- Dr A Elhassan – Chair
- Dr Richard Min
- Dr Alessandro Agostini
- Ms Reem Naqla
- Mrs. Wesal Ali
- Ms Rana Abou Khamis

This team was then provided with the documentation from the institute and college, such as mission statement, objectives and typical performance indicators. The documentations was sourced from

- QA manuals,
- College literature – Questionnaires (Students/Graduates & Staff)
- Supporting documents & statistics from Student Affairs and Registry
- Institute literature/Activities (Workshops/Seminars)
- TIEC Documentation
- IEEE/ACM online documentation

Information in this report was formulated based on annual program report, course reports, questionnaires (students, graduates and employees), workshops and other official documents and books concerning Prince Mohammad Bin Fahd University, College of Computer Engineering and Science.

In addition to the Quality Assurance Team (above), other committees and groups within IT are as follows:

Steering Committee:

Members:

Dr. Loay Alzubaidi (A/Chair- male side)
Dr. A Elhassan (QA Coordinator)

Tasks:

- To supervise the implementation of the various actions plans decreed through different programs and sub-committees.
- Prepare the mission, vision and the objectives of the Program.
- Oversee the work that relates to Academic Accreditation in the college according to the standards of the National Commission (NCAAA).
- Prepare the visual display of the Department and the Directory of the college.

Curriculum Committee

Members:

Dr. Loay Alzubaidi
Dr. Vesna Zeljkovic
Dr. Ammar El Hassan
Dr. Naya Nagy

Tasks:

- Supervision, follow-up, preparation and collection (program specification, program report, course specification and course report).
- Submit a periodic report on the degree of completion of requirements for academic accreditation.
- develop the current curriculum of the college using the ACM/IEEE standard
- Supervise the preparation of examination forms and answer models of the program courses.

Student Advisory Committee

Members:

Dr. Loay Alzubaidi
Dr. Muhammad Shahabuddin
Dr. Alessandro Agostini
Dr Khalida Ghanem

Tasks:

- To spread awareness of the importance of the Academic Accreditation of the college programs via guidance meetings.
- To maximize the concept of Academic Guidance and the role of the academic guide in directing the student towards his future educational planning.
- To prepare, distribute and collect the necessary questionnaires for the Academic Accreditation pertaining to the Academic Guidance. The Committee is to analyse the results upon which it offers advice to the Program.
- To deepen trust between students and Faculty members.
- To receive and reply to the students' suggestions and complaints.
- To acquaint students with the support services and activities offered by the College and the University and to follow up the availability of study books and means of learning.

Textbook Committee

Members:

Dr A Elhassan - Chair
 Dr Richard Min – Member
 Dr Alessandro Agostini - Member
 Mrs Wesal Ali - Member

Tasks:

- To ensure the availability of the latest editions of designated textbooks in the university bookstore as per the TEIC guidance in each of the modules' syllabi. This also applies to all laboratory handbooks and manuals.
- To work in partnership with the Curriculum committee to make sure that any changes to the study plans of the college are accompanied by contingencies for the prompt supply of the correct textbooks to newly.
- To receive, sort, study, evaluate, prioritize and approve (or deny) faculty requests for changes to designated module textbooks based on College guidelines for textbook amendment/change and raise any approved changes to the College council and then to the appropriate University board/committee.

Laboratories, Equipment and Services Committee

Members:

Mr Bashir Kassim
Mr Zafar Kazimi
Mrs Wesal Ali

Tasks:

- To ensure the availability of all laboratory equipments and students services specific to the Program.
- To ensure the availability of maintenance plans for the laboratories, equipments and students services.
- To submit a periodic report to the Chairman of the Department at the end of each academic year to perform the required repairs/modifications.
- To supervise the availability of Security and Safety Procedures in the laboratories and lecture halls before teaching starts and to submit its report to the Chairman of the department.
- To spread awareness, prepare and distribute guiding publications to the students concerning Security and Safety Procedures pertaining to different risks at the beginning of the academic year.
- To put up signs for Security and Safety Procedures along with emergency telephone numbers at a prominent place in each laboratory and lecture hall.

The Higher Studies and Research Committee

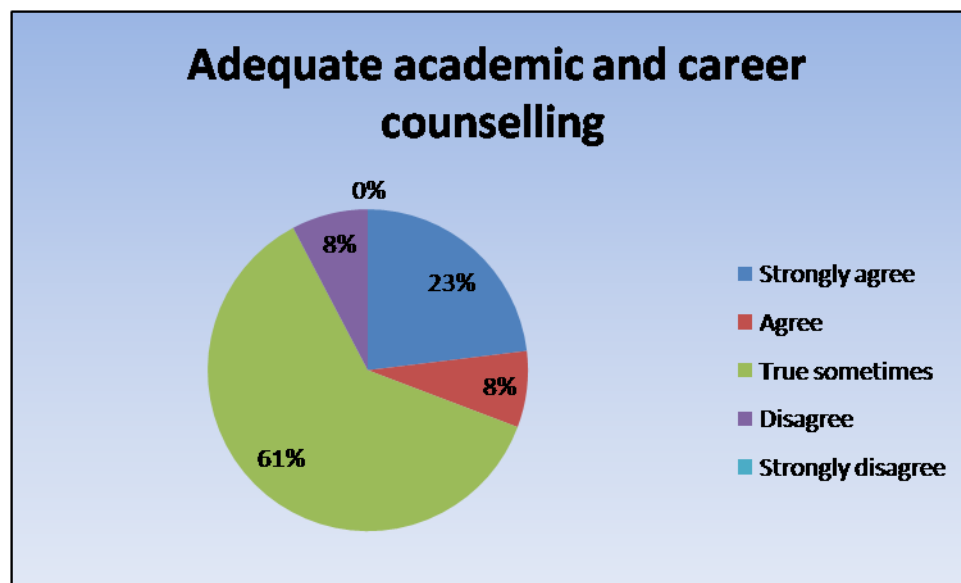
Members:

Dr. Vesna Zeljkovic
Dr. Naya Nagi
Dr. Richard Min
Dr. Ammar El Hassan

Tasks:

- To set a system for the observation, documentation and propagation of scientific research data and the participation in conferences.
- To establish and update a data base for research papers and projects published by Faculty members in the Department.
- To announce a list of the research papers of Faculty members on the department website and updating it annually.
- To register the present research projects and those already finalized in the department and the announcement of their titles on the department website and their return on the community service.
- To list the names of the supervisors of the theses among the Faculty members and their numbers while observing the world ratios in this regard.

5. Program Evaluation Survey (PES). Do not leave any final year student. Need analysis of PES in a report and percentage of participants from total final year students. Plot your PES outcome.



This is a sample chart of many from the PES surveys, the rest are attached in Appendix A. As can be seen in the figure, 61% of the surveyed students strongly agree that there is adequate academic and career counseling at PMU.

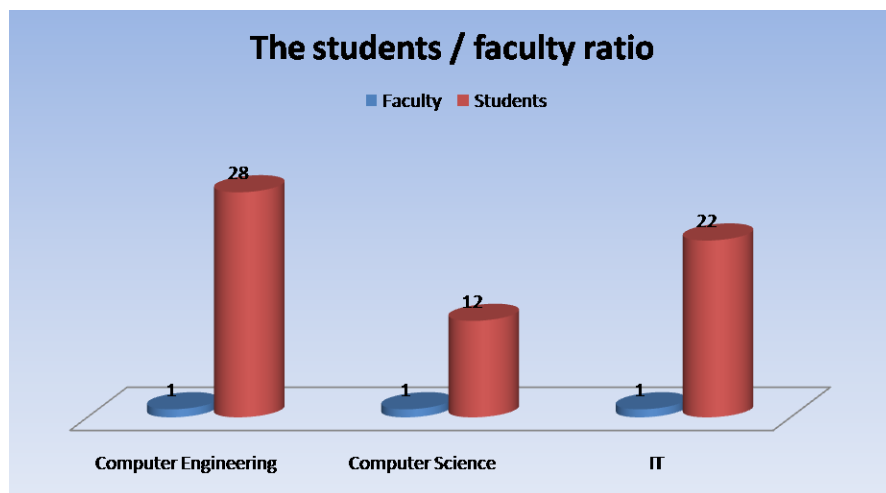
6. Number of full time faculty who received national or international awards as a percentage of the total number of full time faculty in the college

ZERO

7. Students to full time teaching staff ratio in the college

The students / faculty ratio is as follows

Program	Faculty	Students	Ratio
Computer Engineering	6	170	1:28
Computer Science	7	83	1:12
IT	6	134	1:22



The CCES college maintains internationally accepted student to faculty ratios in accordance and compliance with national and international accreditation agencies.

8. Total number of full time teaching staff in the college

Currently, the College faculty team numbers 20, but we are in the process of expanding to cope with the expected increment of student registration for nex

9. Number of full time faculty in the college with verifiable doctoral degree

Faculty Members:

Professors who hold Ph.D. degrees in their respective majors have graduated from American and European well-reputed universities.

- 1) Dr. Jaafar Al-Ghazo
- 2) Dr. Loay Alzubaidi
- 3) Dr. Alessandro Agostini
- 4) Dr. Nazeeruddin Mohammad
- 5) Dr. Ammar El-Hassan
- 6) Dr. Richard Min
- 7) Dr. Shahabbudin Muhammad
- 8) Dr. Marius Nagy
- 9) Dr. Vesna Zeljkovic
- 10) Dr. Khalida Ghanem
- 11) Dr. Naya Nagy
- 12) Dr. Dilek Dustegor

10. Percentage of undergraduate students enrolled in the college who successfully pass the freshman year

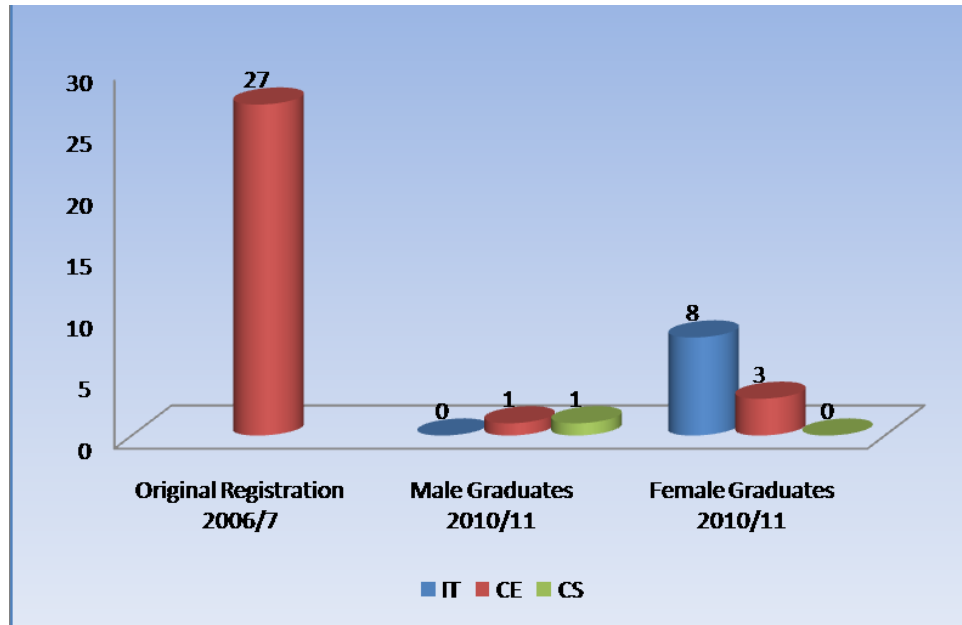
The number of students started n year 1 and continued to start in Year 2 :
M 84% & F 51%

11. Percentage of undergraduate students enrolled in the college who complete their degree within 4 academic years

In 2006 - 07 we had 27 students (Males + Females) as follows:

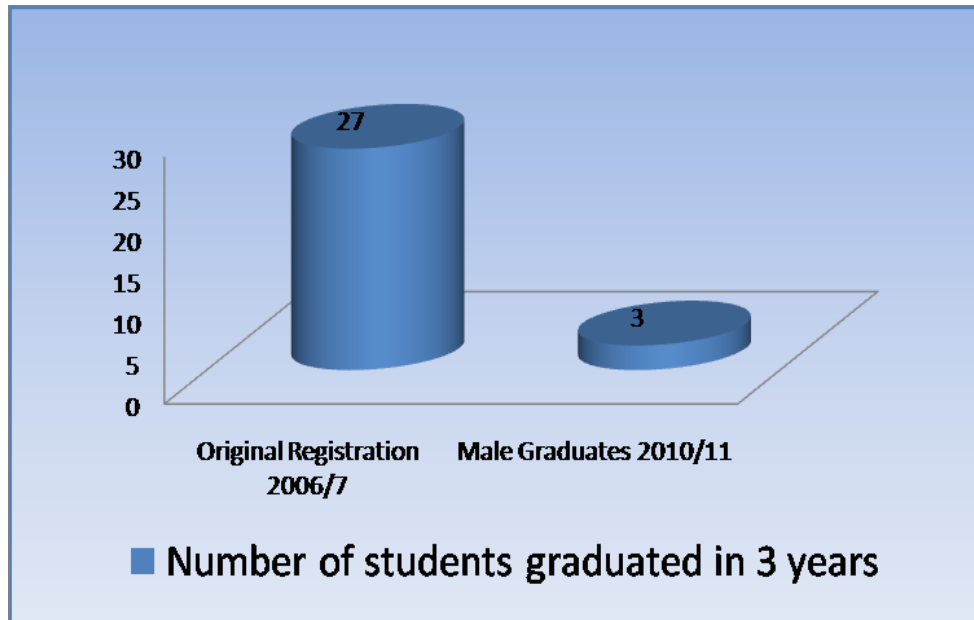
Program	Original Registration 2006/7	Male Graduates 2010/11	Female Graduates 2010/11
IT	27	0	8
CE		1	3
CS		1	0

Of those, 13 graduated in 2010-11, thus we have a 50% rate of graduation. This information is only available for one group.

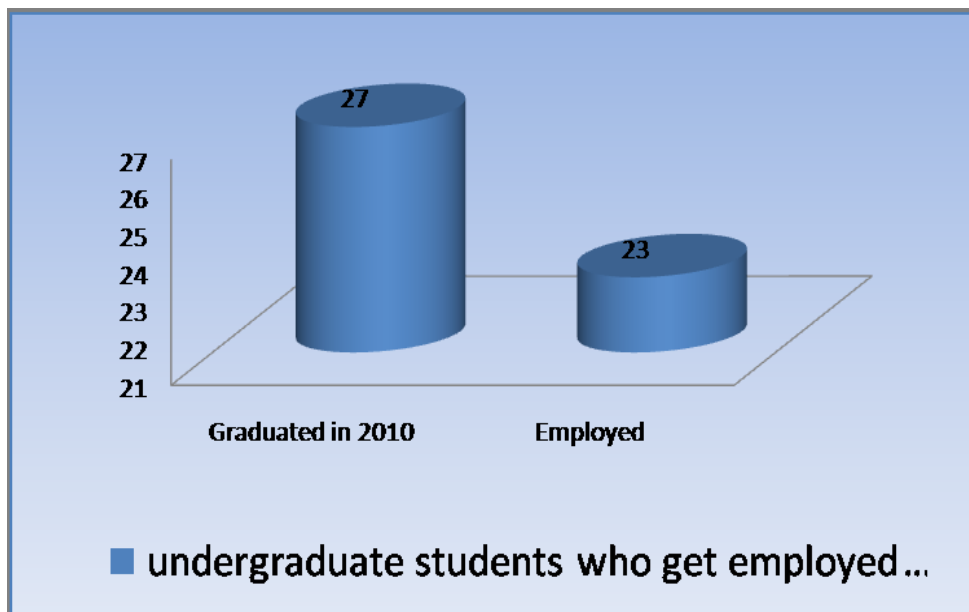


This does not include 4 students who graduated in 2009/10, who originally Credit-Transferred to CCES.

- 12. The number of students who start at the institution and graduate before the end of 4 academic years is ZERO,**
however, we have 3 students who graduated in 3 years, those are transferred students from other institutions whose period of study at the original institution is not counted towards the minimum at PMU. The percentage is 3 out of 27, ie 12%



13. Percentage of undergraduate students who get employed within 6 months of graduation



This is equal to 80%. The is a fairly high percentage and is proof of the quality of Education within the College and service departments.

14. Percentage of undergraduate students who enroll in graduate studies

20%. This number is due to increase as this is only the first cohort to graduate from the CCES college.

15. Percentage of undergraduate students who get employed in professions closely related to their field of study

90% (of the 80% in 13 above). The College is very proud of the fact that some of its graduates got employment in reputable companies such as ARAMCO and SABIC.

16. Percentage of College Programs meeting the NCAAA 11 program standards relative to total number of departments

Although we have not got the NCAAA accreditation approval as yet, we believe that all (3) of our programs within the college are (80%+) ready for the process including the following documents:

- I. Course Specifications
- II. Course Reports
- III. Self-Study Reports
- IV. PES & SES
- V. Course Evaluations
- VI. Annual Reports
- VII. Field Experience Specifications & Reports
- VIII. Program Specification

17. Breakdown of fulltime faculty in terms of academic ranking of TA, Instructor, Assistant, Associate and Full Professor

No.	Faculty Name	Position	Department
1	Dr. Vesna Zelkovic	Associate Professor	Computer Engineering
2	Dr. Khalida Ghanem	Assistant Professor	Computer Engineering
3	Dr. Dilek Dustegor	Assistant Professor	Computer Engineering

4	Ms. Hafsa Nadia	Lab Instructor	Computer Engineering
5	Mr. Abbas Al Mahdi	Lab Instructor	Computer Engineering
6	Dr. Marius Nagy	Assistant Professor	Computer Science
7	Dr. Shahabuddin Muhammad	Assistant Professor	Computer Science
8	Dr. Naya Nagy	Assistant Professor	Computer Science
9	Mr. Bashir Kassim	Instructor	Computer Science
10	Mr. Zafar Kazimi	Instructor/Coordinator	Computer Science
11	Mr. Mohammad Zikria	Lab Instructor	Computer Science
12	Dr. Loay Alzubaidi	Chair -, CCES Asst. Professor	Computer Science and Computer Engineering
13	Dr. Jaafar Alghazo	Dean, CCES	Dean, CCES
14	Dr. Ammar Elhassan	Assistant Professor	Information Technology
15	Dr. Alessandro Agostini	Associate Professor	Information Technology
16	Dr. Richard Min	Assistant Professor	Information Technology
17	Ms. Wesal Ali	Lecturer/Female Lab Coordinator	Information Technology
18	Ms. Reem Naqla	Lab Instructor	Information Technology
19	Ms. Rana Abou Khamis	Lab Instructor	Information Technology
20	Dr. Nazeeruddin Mohammad	Assistant Professor	Computer Science

18. College retention of students (Dropout rate) over the past 4 years

College	Major	STUDENTS DROP OUT										
		Fall 2009/2010		Spring 2009/2010		Fall 2010/2011		Spring 2010/2011		Total		Percent age (%)
		M	F	M	F	M	F	M	F	M	F	
CCES	IT	3	2	8	3	2	2	5	2	18	9	4.35%
	CE	3	2	5	1	7	7	7	2	22	12	5.48%

	CS	0	4	1	3	3	3	2	2	6	12	2.90%

19. Graduate student enrollment as percentage of total enrollment

Currently, our first MSc program (Network Engineering) is towards its final stages of development, there are other programs as well, however, we presently have no enrolled graduate students.

20. National (Saudi) awards received by college, college faculty or staff in the past 4 years

Amal Al-Ghamdi (IT student) received Prince Mohammad Award for Excellence in 2010

21. International recognition/awards received by the college, college faculty or staff in the past 4 years

Noor Al-Shamas (CE Student) received recognition for her paper at the Women's Conference on Alternative Energy in Dubai 2011

Fatimah Al-Bahr(CE Student) also received recognition for her paper at the Women's Conference on Alternative Energy in Dubai 2011

22. Total number of student-faculty interaction hours per week other than class time. The number of interaction hours is enhanced by Student Support Centers as well as office hours and workshops and seminars. It is difficult to put an accurate figure on this, however, we aim to have 6-8 hours of support/interaction per faculty per week.

23. Report on the adequacy of classrooms, facilities and labs within college.

In terms of classrooms, we use the generally available classroom that all other colleges utilize. These are equipped with Smartboard, Teachers Computers and Overhead Projectors in addition to the traditional whiteboards. However, we use program-specific labs as follows:

23.1 NETWORK LAB

The laboratory component of this course consists of a weekly series of activities spanning a period of three hours. The laboratory activities involve demonstrations and practical assignments. The lab facilitates the students with the following practical experience

- A. Coax and twisted pair cabling
- B. Hubs and local area networks (LANs)
- C. Isolated LANs
- D. Isolated wireless LANs
- E. Hubs versus routers

- F. Basic router set up and configuration
- G. Static and dynamic IP addressing
- H. Bus versus star topologies
- I. Internet connectivity of LANs and wireless LANs
- J. Multiple hot spots and portable wireless computing
- K. Performance analysis in wired and wireless LANs
- L. Audio and video streaming
- M. Distributed computing

NETWORK LAB	ROOM NO.
MALE CAMPUS	S-040
FEMALE CAMPUS	G-046

The Lab Equipment consists of the following students

Equipment	Number of items
Dell 760N Desktop	15
Cisco 2800 series Router	2
Cisco 2960 Switch	2
Hp laser jet printer	1
Linksys Router	4
Net gear Wireless NIC Card	4
Cat- 5 and Cat-6 Cables	1 Box Each

Ratio

Desktops to students = 1:1.

23.2 SUN LAB

The SUN LAB is used to provide students with a learning UNIX environment. The Unix Lab has a SPARC T2000 Server and Unix Workstation. The Lab facilitates the students with the following software

1. Sun Solaris 10 OS
2. Bash Shell
3. Java studio
4. Oracle 10

SUNLAB	ROOM NO.
MALE CAMPUS	F-054
FEMALE CAMPUS	G-047

The Lab Equipments consist of the following

Equipment	Number of items
Sun Workstation	17
SPARC T2000 Server	1

Ratio

Desktops to students = 1:1.

23.3 PROGRAMMING LAB

The Programming Lab is used for the purpose of teaching students Object oriented programming. The Lab Consist of thin client's computer from WYSE which is connected to the Citrix Server.

The software provided in the Citrix lab

1. Microsoft Visual Studio 2005
2. Microsoft Office
3. Microsoft Visio
4. Microsoft Project Management

PROGRAMMING LAB	ROOM NO.
MALE CAMPUS	F-086 & F-057
FEMALE CAMPUS	F-142 & F-143

The Lab Equipments consist of the following

Equipment	Number of items
WYSE thin Client F-086	19
WYSE thinClients F-057	16

Ratio

Desktops to students = 1:1.

23.4 GENERAL PURPOSE LAB

The General Purpose lab is built according to TIEC Specification. The Lab is used by students for practicing and installing any software for projects and it consists of the following software

1. Windows XP and Windows 7
2. Microsoft Visual Studio 2005
3. Microsoft Office 2007

GENERAL PURPOSE LAB	ROOM NO.
MALE CAMPUS	S-051

The Lab Equipments consist of the following

Equipment	Number of items
Dell 760N	15

Ratio

Desktops to students = 1:1.

24. Number of computers accessible by students per student in the college

164 Workstations / 400 Students = Approx (1:2)

25. Did you survey your teaching staff on adequacy equipment and facilities in your college? If not, please consider doing so

This is part of our plan for the coming semester Fall 2011/12. It will be supervised by the College Council and implemented by a committee under the admin of the chairs

26. Number of publications per full time teaching staff excluding conference presentations in each year of the past four years

27. Number of citations in referred journals per full time teaching staff in the past 4 years

28. Number of full time teaching staff in the college with at least one referred journal publication as a percentage of total full time teaching staff

All faculty of Ph.D. rank are authors of at least one published paper in a journal, hence this ratio is
100%

29. Total number of papers, reports and academic presentations in the past year per full time teaching staff in the college

Faculty Name	Number of Papers
Dr. Vesna Zelkovic	Computer Engineering
Dr. Khalida Ghanem	Computer Engineering
Dr. Dilek Dustegor	Computer Engineering
Dr. Marius Nagy	Computer Science
Dr. Shahabuddin Muhammad	Computer Science
Dr. Naya Nagy	Computer Science
Dr. Loay Alzubaidi	Computer Science and Computer Engineering
Dr. Jaafar Alghazo	Dean, CCES
Dr. Ammar Elhassan	2
Dr. Alessandro Agostini	Information Technology
Dr. Richard Min	Information Technology
Dr. Nazeeruddin Mohammad	Computer Science

30. Income from research grants to the college per full time teaching staff in the college (SR/Faculty)

ZERO

31. Ratio of SR spent of research to the total operating expenditure of the college. Need to show trend over the past three years or more

The finance department can show exactly total of SR spent on faculty registration and attendance in national and international reputable conferences.

32. Number of published articles produced from students master theses as percentage of total number of graduate students who completed master degree

Our MSc program will start next spring 2012/13 and we expect the first dissertation to be published circa Sept 2013

33. Number of graduate students work that received national or international awards

None, pls see KPI 32

34. SR funds available internally within PMU for research and projects per full time teaching staff in the college

This is something that institute is working on, and we hope to have access to funds for research, initially from outside PMU (KACST) but later from PMU itself. Currently PMU has a large budget for faculty registration and attendance of national and international conferences.

35. SR funds available externally for research and projects per full time teaching staff in the college

The faculty members along with the Deanship of Graduate Studies and Research are working on proposals for external funding for research. Currently we have a 6 million SR endowment from Saudi Aramco for the Saudi Aramco Endowed Chair of Technology and Information Management.

36. Percentage of full time teaching faculty who received internal research/project funds as a proportion to total number of teaching staff in the college

ZERO

37. Percentage of full time teaching faculty who received external research/project funds as a proportion to total number of teaching staff in the college

ZERO

38. Percentage of research published or used on the national or international level as proportion to total number of research published by college

All research published by our faculty is in international journals/conferences. We aim to improve our participation in national events over the next academic year.

39. Number of research projects that was published as patents nationally or internationally per full time teaching staff in the college in the past 5 years

ZERO

40. Percentage of refereed publications that were cited per full time teaching staff (see 27)

0%

41. Faculty members who are active in research and are qualified as thesis advisors for graduate students

100%. All of our Ph.D. faculty are qualified for this task, see item 29 above

42. Extent to which research equipment and facilities are adequate to conduct research in the college. Report in details.

For the research based on theory of computing or related to programming languages and databases, the facilities are adequate, we do have requirements for special software and hardware e.g., XILINX, MATLAB, LabView, Multi-Core machines . Many of these requirements are being addressed with new labs and software, however, some are still to be addressed over the next academic year hopefully.

43. Percentage of full time teaching staff who were active in community service programs over the past 2 years. Please show trend.

Currently, due to the fact that most of our faculty are new in Saudi Arabia, and due to the shortage of staff which leads to high teaching loads for all staff, this has been a lacking area within the college for the past 2 years, even though there have been some services offered by a few faculty members, e.g., participation in Aramco workshops on Cloud Computing & Quality Assurance as well as involvement in Continuing Education Center locally. However, with the recruitment drive that is currently taking place, we are positive that this can be addressed and improved.

The College recently finished one program under MAHER 12/12 in partnership with Microsoft and HRDF in which 100 students were trained and certified in Microsoft.

44. Number of continuing education programs offered to community per number of programs in the college.

One at this stage, new developments coming in including for instance CISCO academy, please see College Strategic Plan.

45. Number of service/design/consultation projects offered as a response to needs of external customers of the college as a proportion to total number of faculty in the college

ZERO

46. Number of nationally or internationally designated/recognized centers in the college

ZERO

47. Detailed report on student field experience showing numbers of students participating and overall report from employers on student performance during the past two academic calendar years

There was a large number of students that did the field experience in Summer of 2010. They did internships in renowned companies such as ARAMCO, Schlumberger, etc. We received excellent feedback for all the students in CCES who did the field experience.

48. Number of graduating students who were evaluated internally by members of

PMU faculty other than Assessment III instructor during final year as a percentage of total number of final year students among the past two cohorts.

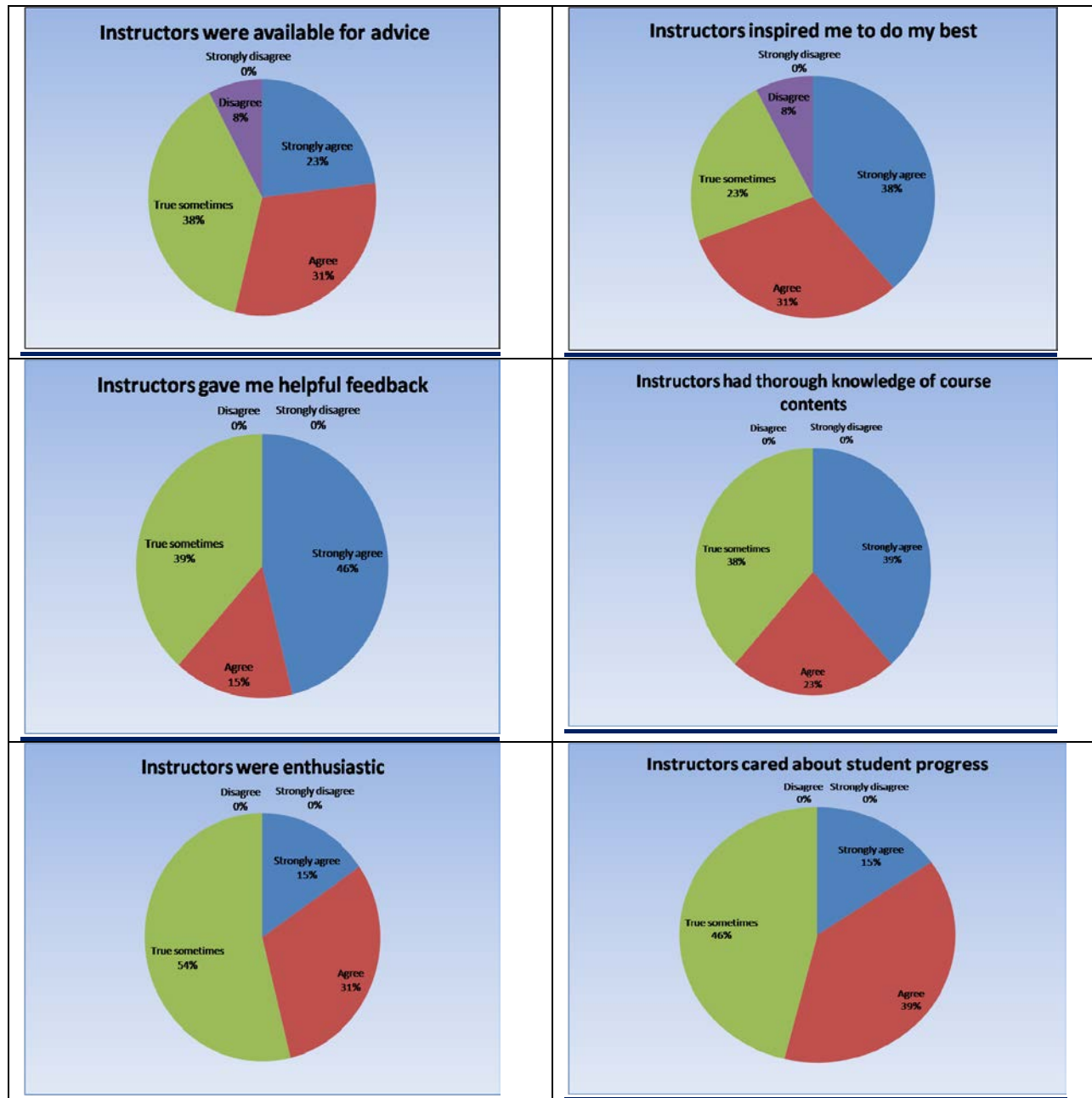
Around 20% of our students get a NON-CCES faculty member on their evaluation committee for Assessment III, however, for other modules, there is no involvement in project evaluations of this type.

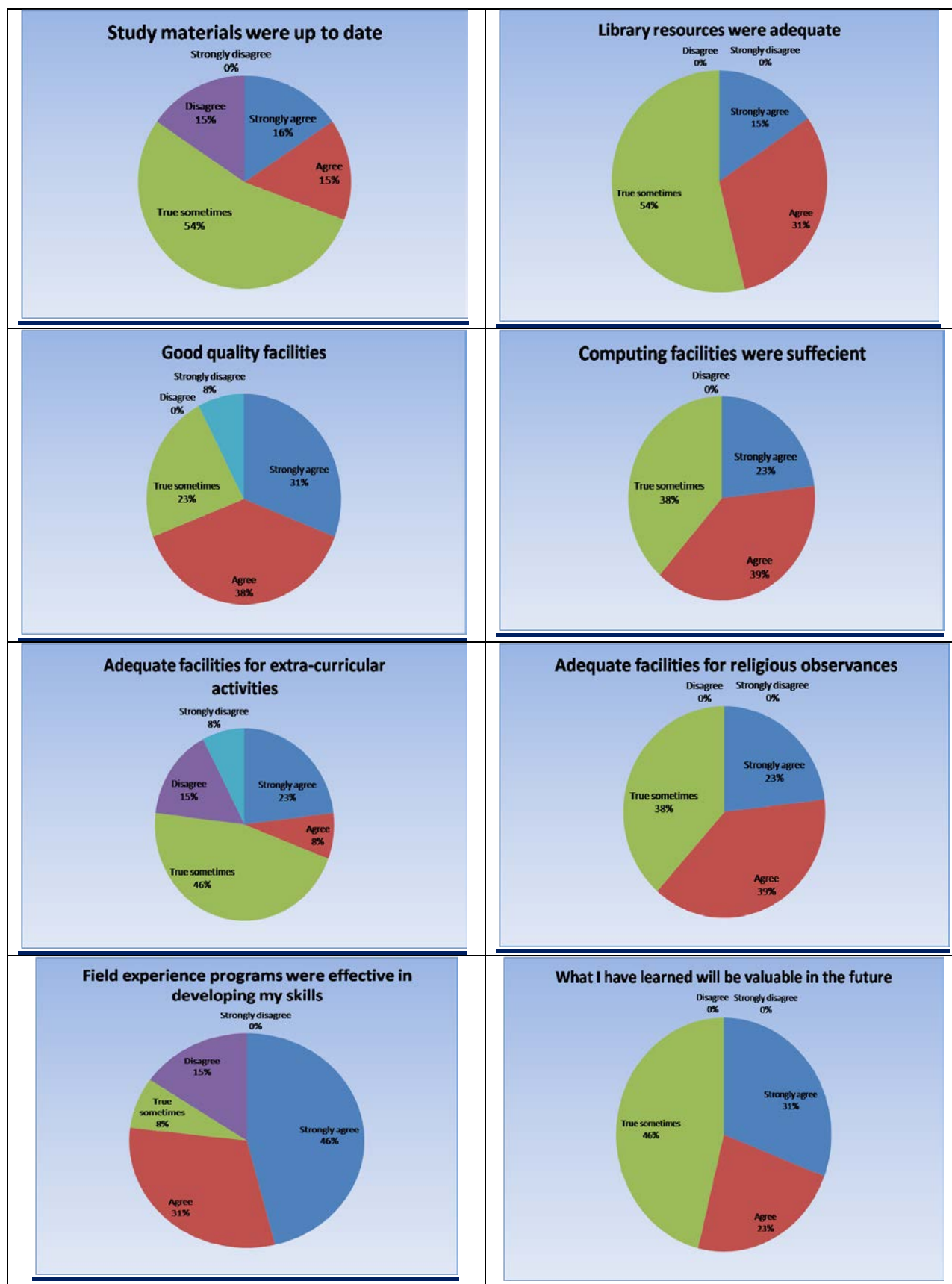
49. Number of graduating students who were evaluation externally by non-members of PMU faculty during final year Assessment III as a percentage of total number of final year students among the past two cohorts

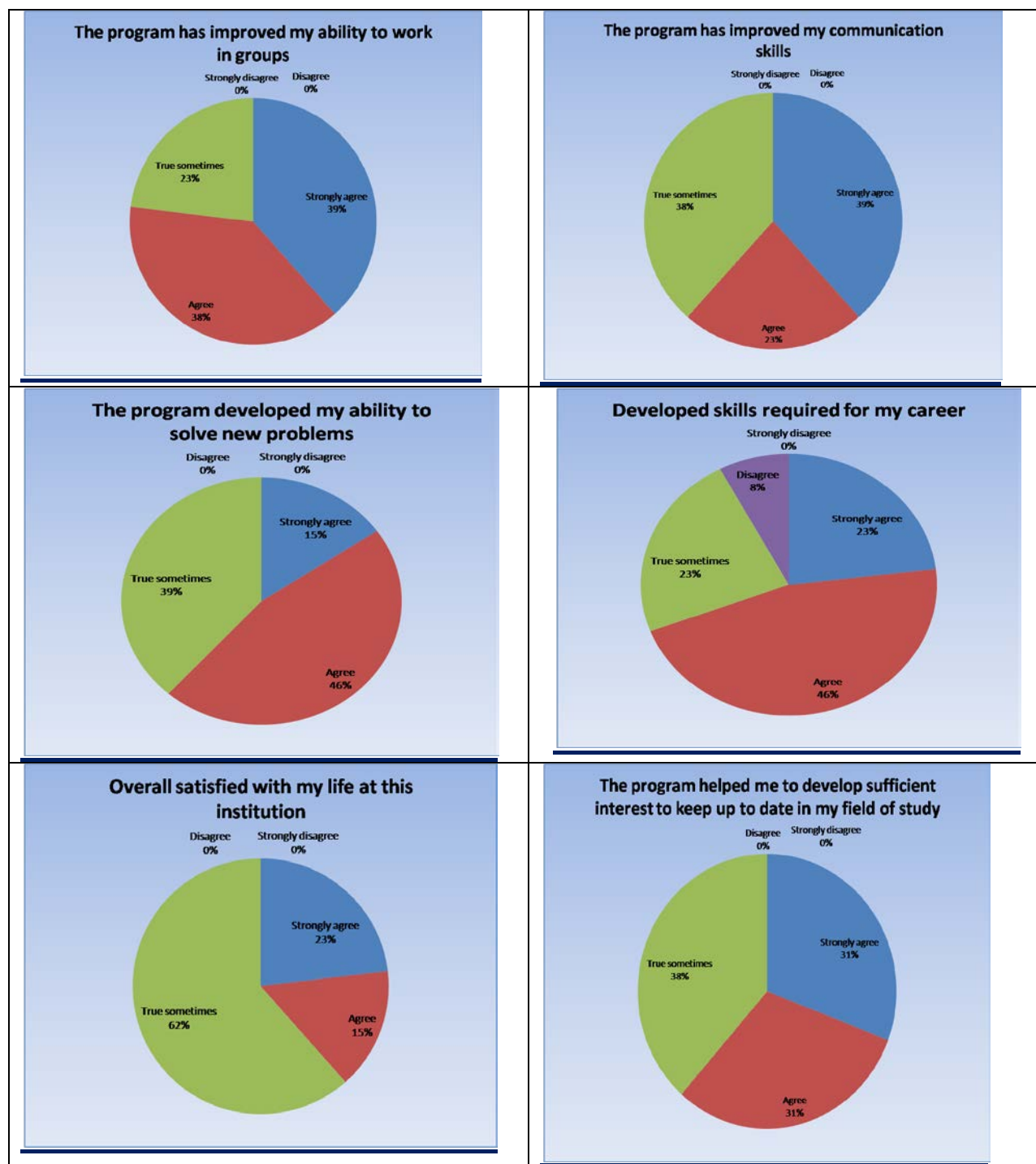
Our college does not have a system of external evaluations for students of Assessment III, as these projects tend to be internally managed by the department and relevant to taught courses rather than targeting specific industrial domains. We plan to involve external evaluation committees within our MSc programs, please refer to the College Strategic Plan document.

50. The success level of CCES in realizing its learning outcomes in its graduates. This KPI was added after NCAAA September 2012 visit and plans to collect data from graduates in the work place are being established. PMU is establishing an Alumni Quality Office under DQA to provide performance data on this KPI for all colleges.

Appendix A PES Survey Charts 2010

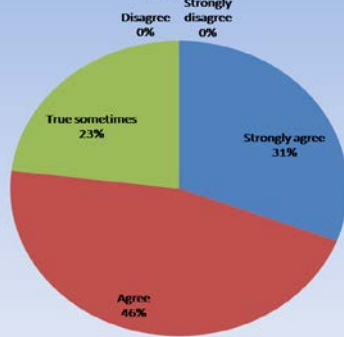






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جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

**National Commission for Academic Accreditation
& Assessment**

Self Evaluation Scales for Higher Education Programs

**COLLEGE OF BUSINESS
ADMINISTRATION**

**June 2011
Rev. Feb 2012 (DC)**

Self Evaluation Scales for Higher Education Programs

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Self Evaluation Scales for Higher Education Programs

Introduction

These self evaluation scales are intended to provide guidance to program administrators and staff in higher education institutions in their planning, self-review, and quality improvement strategies.

Evaluations of quality in post secondary education are made with reference to generally accepted standards of good practice that serve as criteria for evaluative judgments. This document draws attention to practices that are commonly followed in high quality institutions and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia. The scales call for responses to indicate if those practices are followed and if so how well this is done.

The National Commission for Academic Accreditation & Assessment has been established by the Higher Council of Education in Saudi Arabia with responsibility to establish standards and accredit institutions and programs in post secondary education.

The system for quality assurance and accreditation is designed to support continuing quality improvement and to publicly recognize programs and institutions that meet required quality standards. The objective is to ensure good international standards in all post secondary institutions and in all programs offered in Saudi Arabia.

Students, employers, parents and members of the community should be able to have complete confidence that what has been learned by students, the research conducted, and the services provided are equivalent to good international practice. Accreditation of an institution or a program will give public recognition that these standards have been achieved. Saudi Arabian qualifications should be accepted without question anywhere in the world.

This document provides self evaluation scales dealing with standards for higher education programs. The standards apply to all programs in public and private universities and colleges, including those responsible to the Ministry of Higher Education and to any established or regulated by other ministries or agencies. The only exception is for military education which is administered under different arrangements.

The standards and self evaluation scales for programs have been presented in generic terms that are applicable to all programs. Separate documents that draw attention to specific requirements for certain fields of study are in preparation and details of these can be obtained from the NCAAA.

There is considerable variation in the amount of experience that higher education institutions have had with quality assurance processes and the system of higher education is expanding rapidly. In recognition of this the system for accreditation will be introduced progressively over a transition period of several years. During this time institutions that are well advanced with the introduction of quality assurance systems will be considered first, and others will be evaluated and accredited as their internal quality assurance systems are put in place.

The Commission has developed a set of standards for quality assurance and accreditation of higher education institutions in eleven general areas of activity.

1. Mission Goals and Objectives
2. Program Administration
3. Management of Program Quality Assurance
4. Learning and Teaching
5. Student Administration and Support Services
6. Learning Resources
7. Facilities and Equipment
8. Financial Planning and Management
9. Employment Processes
10. Research
11. Relationships With the Community

These standards are based on what is generally accepted as good practice in higher education throughout the world and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia.

The standards are described with several levels of detail. First, there are general descriptions for each of the eleven major areas of activity. Second, these are broken down into sub-standards dealing with requirements within each of the major areas. Third, within each of those sub-standards there are a number of good practices that are carried out in good quality institutions. To evaluate performance in relation to the standards, an institution should investigate whether these good practices are carried out and how well this is done. The self evaluation scales have been prepared to assist in this process. In this document the groups carrying out the evaluations within the institution are asked whether the particular practices are followed, and to rate the quality of these practices in the institution on a five point rating scale. Their judgments of quality MUST be based on appropriate evidence including at least some comparisons with other institutions on important items. The development of internal systems to provide that evidence is an essential requirement for an institution's quality assurance system. Unless adequate sources of evidence are available an institution cannot be considered for accreditation.

To be granted accreditation it is necessary for an institution to provide evidence of good quality performance in relation to all the eleven general standards and with all of the subsections of those standards. There is one exception. A college offering only undergraduate programs is not expected to have any significant involvement in research though teaching staff must have continuing involvement in scholarly activities in their field of study.

It is not expected that an institution or program will achieve a high rating for every "good practice" described within the sub-sections of the standards. They are not a simple check list, and items are not equal in importance. Their importance will vary according to the mission and objectives of the institution and its stage of development. However it is desirable that all are met and some are essential. In the initial stages of the introduction of the quality assurance and accreditation system the Commission will indicate a number of items to which special attention will be given. The judgment about whether accreditation should be granted will be an overall assessment by an experienced peer review panel taking account of the mission, objectives and stage of development of the institution and the priorities identified by the Commission.

A description of the eleven general standards is provided in this document together with some general explanatory notes and comments on possible performance indicators and kinds of evidence that could be considered in determining quality of performance.

Further guidance on the use of the standards for continuing monitoring of performance and preparations for accreditation is given in the *Handbook for Quality Assurance and Accreditation in Saudi Arabia* prepared by the Commission.

Relationships Between Standards for Institutions and Standards for Programs

General standards have been developed for higher education institutions and programs. They cover the same general areas of activity but there are some differences that reflect a total institutional overview on the one hand and the perspective of just one specific program on the other. In addition, some general institutional functions are not considered in a program evaluation.

Activities relating to the standards fall into three categories.

- Those that are institutional and have no impact or only very indirect impact on programs. Examples include the management of extra curricular activities or the attractiveness of buildings and grounds. These are not considered in looking at the application of the standards to programs.
- Those that are general institutional activities with a major impact on programs. Examples would be the provision of learning resources through a library or the processes for employment and promotion of staff. Evaluation of these functions in an institutional evaluation would be broad and consider the quality of management and services provided for the institution as a whole and how effectively they support all programs throughout the institution. In a program evaluation they would be considered from the perspective of the particular program concerned. For example a library might be very good in many ways, but not have the materials to support a particular program. In that case the provision of learning resources might receive a reasonably high rating in

an institutional evaluation but a low rating in an evaluation from the perspective of the program concerned in the program evaluation.

- Those that relate directly to the planning and delivery of programs. Examples would be the appropriateness of intended learning outcomes for students and the quality of teaching in the program. For an institutional evaluation these things should be looked at within all programs, and then a judgment made about strengths and weaknesses in the institution's programs as a whole with the possibility of identifying significant variations between different programs. In an institutional evaluation part of the consideration for teaching and learning should be the effectiveness of processes for ensuring all programs are of good quality, monitoring performance, and supporting improvements in all programs throughout the institution. An evaluation of learning and teaching for an institutional evaluation would normally be done by getting a profile of performance at the level of departments or colleges, and then preparing a report identifying similarities and differences and overall performance for programs in general.

In this document standards have been described dealing with the things that should be considered in relation to evaluation of a program. They include the matters described in the second and third of these categories.

Evidence of Performance

Judgments about quality based on general impressions could be accurate, but they could also be badly distorted for a number of reasons. Consequently general opinions without supporting evidence cannot be relied on in making assessments of quality in relation to specified standards. Because of this it is necessary to consider appropriate forms of evidence whenever a judgment is made about quality of performance in relation to standards.

What is appropriate evidence will vary widely for different things that are evaluated and an important element in any quality assessment is to decide on what kind of evidence is appropriate for the matter being considered.

In many cases several different forms of evidence should be considered to make a reliable judgment, and the evidence will need to be interpreted. For example high average grades in a course could mean that students have achieved very high standards because of excellent teaching. Alternatively they could mean that standards are low and grades have been inflated. To draw valid conclusions it would be necessary to check that tests were sufficiently rigorous and that criteria for allocating grades were appropriate and fairly administered.

Interpretations of evidence can also be unreliable, and to guard against this it is recommended that groups that undertake evaluations in relation to the standards include some people who have been involved in the activity concerned, some who are the recipients of the service provided (eg students, graduates or members of departments who use services provided by central administrative units or centers) and also some who are familiar with that kind of work, but are not directly involved in that service provision. As a further safeguard it is recommended that the final judgments be reviewed and an independent opinion given by someone who has not been involved in the initial evaluation as a check on whether the interpretations seem reasonable in the light of the evidence provided.

Performance Indicators

A wide range of kinds of evidence can be considered. However as part of the evidence to be used decisions should be made about some specific items of information that can be expressed in quantitative terms and used as performance indicators. These should be identified in advance as part of planning processes. For example when major goals or objectives are established specific indicators should be specified so achievement of those goals and objectives can be monitored on a continuing basis. It is also important for an institution to identify some key performance indicators that will be used consistently by departments and colleges throughout the institution to monitor their own performance, provide for comparisons of performance between departments and colleges, and permit university committees and senior administrators to monitor overall institutional quality on a continuing basis.

Data on these indicators should be collected in standard form and retained in a central data base so there can be comparisons within the institution and over time. An evaluation of the effectiveness of these processes

will consider whether appropriate indicators have been identified, whether the data is consistently collected and recorded, and whether the information is used in monitoring and analysing quality of performance.

It is the responsibility of every program to monitor and plan for improvement in relation to its own mission and objectives. However the Commission has also identified certain key performance indicators on which information should be collected in all institutions. This requirement has several important objectives. It provides a common set of statistical data that can be used by institutions and by those responsible for programs for comparisons of performance and benchmarking within their own institution and elsewhere within the country. (The Commission will publish information for groups of similar institutions, but individual institutional data will be confidential to each institution) It assists the Commission and other relevant Ministries and organizations in monitoring the quality of performance of the system of higher education as a whole, and it provides a sample of important information about institutions that makes it possible for the Commission to maintain accreditation of institutions in the interval between major external reviews.

These indicators established by the Commission should be used by institutions and program managers as part of their quality assurance processes, but they are also encouraged to add additional indicators which they select for themselves that relate to their own mission and objectives and their priorities for improvement.

Good Practices Relevant to More than One Standard

Within each standard and sub-standard a number of statements are made about things that should be done if the standard (or sub-standard) is being met. Many of these statements appear in several different places. This should not be regarded as unnecessary duplication, but rather as a result of the fact that a number of practices are relevant to more than one standard. For example, an expectation that teaching staff be involved on a continuing basis with scholarly activities that ensure they remain up to date is relevant to Qualifications and Experience of Teaching Staff (Standard 4. 8) and also to Personal and Career Development (Standard 9.3), and an expectation that standards of learning outcomes should be checked against the National Qualifications Framework and standards at other comparable institutions is relevant to the standard for Management of Quality Assurance and Improvement (Standard 3) and also to the sub-standards for Student Learning Outcomes (Standard 4.1) and Student Assessment (Standard 4. 4).

Application of the Standards to Different Types of Institutions.

The standards are designed for all higher education institutions, that is institutions offering programs described as higher education and leading to higher education qualifications in the National Qualifications Framework.

While the general standards for higher education institutions are the same for all there are some important differences in the circumstances of some types of institutions that affect how the standards should be applied.

- There are some differences in the regulations affecting public and private institutions, including some relating to borrowing, fee payments by students and financial management. Consequently some of the standards specified for these matters are not relevant to some institutions.
- There are expectations for universities relating to involvement in research and post graduate study. These should be reflected in the evaluations in standard 10 dealing with research. Although scholarly activities on the part of faculty should be encouraged in all institutions these requirements for research do not have to be met in private colleges that are not part of universities.
- Some institutions are involved in partnership arrangements with other institutions, either within or outside the Kingdom, under which certain elements of program planning and evaluation are shared. If such arrangements exist processes must be followed that ensure that quality is maintained and the requirements of the Saudi Arabian system are met.
- Some institutions offer programs by distance education. This different form of delivery changes the form of interaction between students and institutions and leads to additional requirements for program delivery and support. The special requirements for distance education programs are set out in a different document.

In the self evaluation scales attention is drawn to some of these differences. If a particular practice is not applicable to the institution concerned the item should simply be marked as not applicable (NA).

Notes on What Constitutes a Program

A program is regarded as an integrated package of courses and activities in an academic or professional field leading to a qualification. However organizational arrangements in institutions differ and there are sometimes questions about what should be considered as a program.

A program includes all of the courses a student is required to take, including courses that are required by an institution or a college as well as those required by a department, and including any general education programs as well as those in a professional or academic field. It includes courses that may be offered as service courses by another department or college.

A program offered on both men's and women's campuses' is a single program and should be evaluated as such. However since there may be significant differences in facilities, resources, experience of faculty, employment of graduates or other matters evidence should be obtained about what happens on each campus and any differences noted and considered in planning what should be done in response. Program reports should show both the evaluations for each campus and a combined result.

A program offered on a remote as well as on an institution's main campus should be dealt with in the same way.

A program offered either on-campus or through distance education should also be evaluated in the same way, that is, information collected for each mode of delivery and reported in a way that shows any differences found. However there are a number of additional matters that relate to distance education and these must also be considered using the standards for distance education.

A program may have an early exit point, for example it may be possible for students to complete two years of study and receive an associate degree or to continue for several more years and complete a bachelor degree. If this is done it is essential that the associate degree be planned so that it provides a complete and useful qualification in its own right. For example it might include significantly more practical and applied work in the field than students would normally undertake in the first two years of a bachelor degree program. It is not acceptable for such an award to be granted simply because students fail or drop out after the early parts of a longer program.

The distinction between what is regarded as a single program or a cluster of related programs is difficult to define and may be best explained through examples.

A bachelors degree program to prepare a student as a civil engineer would be regarded as a different program from one to prepare a mechanical engineer, even though there may be some courses that are common to both. Similarly, if a student had completed the bachelors degree program and wished to take a post graduate program leading to a masters degree or a doctorate in the same general field, that would be regarded as a separate program. The test in these examples relates to there being a qualification that is regarded as being complete in itself, and in the case of a professional program, qualifying the person who has taken the program for professional practice in the field. The distinction does not necessarily relate to organization of an institution or college into departments. In the particular example given it is likely that a civil engineering department would offer both the undergraduate and the postgraduate programs. It would also be possible if an institution wished to organize itself in that way for a single department to offer programs in both civil and mechanical engineering.

The title of an academic award is not necessarily a useful guide to what should be regarded as a program. For example general titles such as Bachelor of Arts, or Business, or Science, could include many different programs. In an Arts degree there could be programs in history and or social sciences, in psychology, in social work, or many others. A Business degree could include separate programs for accountants, for economists, or for management and administration, and these would be different programs leading to quite different occupational skills.

The programs that have been used in these examples are separate entities, and will be accredited as such. However this does not prevent groups of related programs being considered together by an external review team in the accreditation process provided it is possible for external review panels to include the necessary expertise. A panel might consider an undergraduate and a post graduate program in the same field at the same time. However the institutions self study and the reports of the review panel will deal separately with each program and it would be possible for one such program to be accredited and not the other.

An equivalent set of standards has been developed for institutions offering post secondary programs in technical education and training. These standards differ from those for higher education institutions because of important differences in the nature of programs and the processes for program development and delivery. The standards for these institutions are set out in another document, *Standards for Accreditation of Technical Education and Training Institutions*.

Using the Self Evaluation Scales

High quality standards can only be achieved by honest evaluation of performance and commitment to improve, and by action planned and taken by those offering the program and providing the services on which it depends. In recognition of this teaching and other staff responsible for various activities should evaluate their own performance in comparison with generally accepted standards of good practice.. Although every effort should be made to form valid and reliable judgments based on evidence, a number of these evaluations will involve subjective judgments and to avoid an illusion of precision and discourage a misleading aggregation of total numbers in a single “quality score” it is recommended that a starring system be used for rating these quality evaluations. It is expected that these self evaluation scales will be used by institutions, and by those responsible for programs in their initial quality assessment, their continuing monitoring of performance, and in their more extensive periodic self studies prior to an accreditation review by the Commission.

In this document information about the standards is presented at two levels. The first is a general statement of the standard as it applies to a broad area of activity and the second is a description of why it is important and the kinds of processes that are expected if the standard is achieved.

This explanatory information is followed for each standard by a number of more specific statements of “good practices” that are typically carried out in a high quality institution with scales to indicate whether and how well the practice is followed.. The scales” are presented in groups that deal with major components or sub-sections of the general standards.

The lists of specific practices are intended primarily as a guide for those responsible for particular activities to draw attention to things that are generally regarded as good practice, and to assist them in their self-evaluations.

Some of these statements are relevant to certain institutions but not to others. Where an item is not applicable it should be simply marked NA, and ignored.

For each individual item two responses are called for. The first is to indicate whether the practice is followed in the institution. The possible responses are:

NA -- the practice is not applicable or relevant for the institution or unit making the response.

Y – yes, the practice is followed; or

N – no, the practice is relevant but not followed.

The second response is called for in cases where the practice is relevant to the institution (i.e. a “Y” or “N” response). It involves the use of a five-point rating scale to evaluate on a how consistently and how well the practice is carried out. Stars, rather than a numeric or alphabetic rating scale, are used for this purpose.

The evaluations relate to:

The extent and consistency with which processes are followed;

The quality of the service or activity as assessed through systematic evaluations;

The effectiveness of what is done in achieving intended outcomes.

Using Stars for Evaluations

Performance should be assessed by allocating from zero to five stars in accordance with the following descriptions:

Improvement Required

No Star – The practice is relevant but not followed at all. A zero should be recorded on the scale.

One Star – The practice is followed occasionally but quality of the activity is poor or not evaluated.

Two Stars -- The practice is usually followed but the quality is less than satisfactory.

Good Performance

Three Stars—The practice is followed most of the time. Evidence of the effectiveness of the activity is usually obtained and indicates that satisfactory standards of performance are normally achieved although there is some room for improvement. Plans for improvement in quality are made and progress in implementation is monitored.

High Quality Performance

Four Stars—The practice is followed consistently. Indicators of quality of performance are established and suggest high quality but with still some room for improvement. Plans for this improvement have been developed and are being implemented, and progress is regularly monitored and reported on.

Five Stars—The practice is followed consistently and at a very high standard, with direct evidence or independent assessments indicating superior quality in relation to other comparable institutions. Despite clear evidence of high standards of performance plans for further improvement exist with realistic strategies and timelines established.

Converting Survey Responses to a Starring System.

In a number of cases the individual items refer to evaluations of quality by students, faculty, or other stakeholders. The wording of survey instruments and items in rating scales can influence results significantly and interpretations of the data and independent verification of conclusions is important. However as a general guide where a five point rating scale is used with possibilities of positive and negative assessments evenly balanced, an overall rating from respondents to a survey might achieve star ratings as follows:

Above 4.5	Five stars
3.6-4.5	Four stars
2.6-3.5	Three stars
1.6-2.5	Two stars
1.5 or below	One star

Combining Ratings on Individual Items to Develop a Broader Evaluation

The quality ratings of specific practices can be combined to guide broader judgments about an institution's performance in relation to the groups of items that are shown as components of each general standard, or to each broad standards as a whole. This can be done by averaging the number of stars, ignoring the items marked NA and counting items where the practice is relevant but not followed as zero.

However the individual items are not necessarily of equal importance and if individual items are combined to form an overall assessment consideration should be given to weighting certain items more heavily than others and adjusting the overall rating accordingly. Space is provided on the forms to note when this kind of adjustment is made.

Aggregating Evaluations to Obtain an Institution-Wide Overview

The rating scales are presented in a form that enables them to be used for individual programs and aggregated to give an overview of the quality of programs for a college or for the institution as a whole. When aggregated in this way the scales should assist in the conduct of an institutional self-study, and provide useful information for

external review panels as they carry out their independent institutional reviews.

It is recommended that programs within a department or college be looked at together noting both similarities and any significant differences between them, and then at a second stage the reports on programs within colleges brought together to give an overall picture for the institution. It is possible in these processes to simply work out an average number of stars for various functions. However if there are significant differences the overall average is much less important than variations between programs or colleges. Consequently these variations should be identified and reported on, and considered carefully when suggestions are made for improvements.

Priorities for Improvement

An important outcome of the self-assessment carried out through the use of the rating scales is to identify areas for improvement. It is rarely possible to do everything at once and priorities have to be established. Space is provided on the forms to indicate particular items that are considered the highest priorities for improvement.

Indicators as Evidence of Performance

As far as possible evaluations should be based on direct evidence that practices are followed, and that desired levels of quality are achieved rather than general post hoc impressions. This consideration of evidence need not be a major undertaking but it does require some advance planning and selection of indicators that will be used as evidence of performance. The performance indicators should be specified in advance and data gathered and considered as part of continuing monitoring processes. (This does not preclude consideration of other evidence that may emerge) The document includes space for the selected performance indicators to be noted.

Expected Standards of Performance

It is not expected that every program will rate at the highest level on all dimensions of activity. That would be unrealistic, and setting up such expectations is not the purpose of the document. Instead it is intended to provide descriptive performance standards in many different forms of activity, so there can be a clearer basis for evaluation in relation to generally accepted standards of good practice. This is intended to help those responsible for programs in their self-evaluations and planning for improvement, and to help the institution as a whole to identify areas of relative strength and weakness, and to work towards improvement in spheres of activity that are considered priorities for development.

While the document is intended primarily to assist in evaluations and planning for improvement within institutions it also establishes levels of performance that are considered necessary for accreditation. For this purpose the basis of judgment will be at the level of the broader standards rather than the precise assessment of performance in relation to each individual practice. In general a one or two star rating on a standard is considered unsatisfactory and three stars is a minimum acceptable level of performance. However as noted above not all functions are of equal importance in accreditation judgments and the particular circumstances of an institution, and its strategies for development, will be taken into account.

Relative Importance of Different Standards

The point about some items in the rating scales being more important than others applies to the broader standards as well, and the relative importance will vary for different institutions. The place of research is a good example of this. In some institutions, particularly universities seeking international recognition the quality and extent of participation in research is vitally important and international ratings of universities give considerable weight to research performance. In others, such as a college concentrating on quality of undergraduate programs, research may be of little significance though it is still important that faculty participate in scholarly activities to ensure that their teaching is up to date with latest developments.

The quality of learning and teaching will always be of primary importance since this is normally the primary function of an educational institution. Satisfactory performance in relation to this standard is essential for accreditation.

Independent Verification of Evaluations

Although direct evidence of quality of performance should be obtained wherever possible, many of the judgments have to involve some subjective opinions. When self evaluations are made by an individual or a group this can mean unduly harsh or overly generous assessments and some action should be taken to correct for

this.

Provision is made in the scales for independent opinions to be given by a person familiar with the type of activity, but independent of those responsible for it, and whose judgment is respected. For many items during annual evaluations these independent opinions could be given by a person nominated by a dean or department head, such as a colleague from another department within the institution. For major judgments on important items, for example in a program self study prior to an external review for re-accreditation of a program, greater independence may be required.

Note on Terminology

The term **governing body** is used as a general descriptive title for the highest policy making body or committee in a post secondary institution. This would be the university council in a public university, or a board of trustees in many private colleges.

The term **rector or dean** is used in this document to refer to the head of an institution. Rector is the title normally used in Saudi Arabia for the head of a public university, and dean is typically used as the administrative head of a smaller institution or a private college. The term dean is also used for the head of a college within a university, and a private university or college may use other terms for the administrative head such as president or director. In this document reference is made to rector or dean, and it should be possible from the context of the reference to avoid confusion with the position of dean of a college within a university.

The term **teaching staff** has been used rather than “faculty” to refer to all individuals responsible for teaching groups of students. It includes faculty or equivalent members of staff as formally defined in Ministry regulations but also anyone else who has been given teaching responsibility. It includes tutors or instructors working with groups of students in a distance education or on-campus program, but does not include laboratory assistants or others who assist with the teaching of classes under the direct supervision of others.

Standard 1: Mission, Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

Main components in this standard:

- 1.1 Appropriateness of the Mission
- 1.2 Usefulness of the Mission Statement
- 1.3 Processes of Development and Review of the Mission
- 1.4 Use Made of the Mission Statement
- 1.5 Relationship Between Mission, Goals and Objectives.

Comment and General Description of Good Practice

Effective and coordinated planning and development normally requires that a program have a succinct mission statement, summarizing in a few sentences what it is trying to achieve as a guide to detailed planning and development.

The mission statement should establish priorities for development and quality improvement and be key element in the quality assurance process. Consequently it should be prepared in a way that generates a sense of ownership on the part of all those involved with the program, be periodically reviewed as a major policy issue, and consistently referred to as a basis for planning and evaluation. It should be consistent with the charter establishing the institution, and realistic in relation to the capacity of the institution in the environment within which it is operating, but at the same time present challenges for development and improvement.

Goals should be thought of as applications of the mission to specific activities. They establish directions for detailed planning though they are usually expressed in general terms.

Objectives should be linked through strategic planning processes to the mission and goals. They should be more specific and include intended results to be achieved within a stated time period.

This standard relates to the way the mission statement has been developed and is expressed, to its effectiveness in guiding the development of the program, and to the relationships between the mission and the goals and objectives.

Evidence and Performance Indicators

Evidence about the quality of the mission could be obtained from examination of the mission statement itself, copies of papers proposing the mission or modifications in it, interviews with teaching and other staff and students to find out how well it is known and supported, and consideration of other reports, proposals and statements to see the extent to which the mission is used as a basis for decisions. Indicators that could be used include responses to questions on surveys to see how well the mission is known and supported, or the proportion of policy decisions that refer to the mission among criteria for the decision made.

Standard 1: Mission, Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA** **How well is this done?
(enter stars)**

1.1 Appropriateness of the Mission

The mission statement must be appropriate for the institution and for a program of its type in Saudi Arabia.

- 1.1.1 The mission for the program is consistent with the mission of the institution.
- 1.1.2 The mission establishes directions for the development of the program that are appropriate for a program of its type and for the needs of students in the context for which they are prepared.
- 1.1.3 The mission is consistent with Islamic beliefs and values.
- 1.1.4 The appropriateness of the mission is explained in an accompanying statement commenting on significant aspects of the environment within which it operates. (which may relate to local, national or international issues)

Y	5
Y	4
Y	3
Y	5

Overall Assessment

4

Comment – Both the Prince Mohammad Bin Fahd University (PMU) and the College of Business Administration (COBA) Mission Statement were formulated by Texas International Education Corporation (TIEC) and has not changed since implementation. At this time the University and College did not have the full list stakeholders or student body. It is therefore the goal of COBA to review the Mission and Vision of COBA and seek the feedback from all of COBA / University stakeholders to organically modify the Mission / Vision while yet staying consistent with the overall Mission of University and best practices as outlined in both domestic and international accreditation boards.

Priorities for improvement – the priority of COBA are the education and information transfer of best practices / standards within the College. Changing our “Lifestyle” that includes these practices and seeking consistent feedback for our stakeholders. In this way COBA can continue to focus on supporting the local – NCAAA accreditation and diligently work toward the AACSB accreditation.

Independent Opinion

Comment - _____

Y	3
Y	3
Y	3

1.2 Usefulness of the Mission Statement

The mission statement must be useful in guiding planning and decision making for the program.

- 1.2.1 The mission statement is sufficiently specific to provide an effective guide to decision-making and choices among alternative planning strategies.
- 1.2.2 The mission is achievable through effective strategies within the level of resources expected to be available.
- 1.2.3 The mission statement provides clear criteria for evaluation of progress towards the goals and objectives of the program.

3

Overall Assessment

Comment – To reiterate both the University and the College Mission was formulated by TIEC and has not changed since implementation. At this time the University and College did not have the full list stakeholders or student body. It is therefore the goal of COBA to review the Mission and Vision statements of COBA and seek the feedback from all of COBA / University stakeholders to organically modify the Mission / Vision while yet staying consistent with the overall Mission of University and best practices as outlined in both domestic and international accreditation boards. By reviewing and modifying the Mission COBA will increase the usefulness of the Mission and pertinent focuses that are incorporating the community, region and international current considerations.

Priorities for improvement – the priority of COBA are the education and information transfer of best practices / standards within the College and to all stakeholders of the College. Changing our “Lifestyle” that includes the “best” practices and seeking consistent feedback from our stakeholders. In this way COBA can continue to grow, increase our effectiveness and contribution to our stakeholders. COBA will focus simultaneously and in coordination to support the local – NCAAA accreditation and diligently work toward the AACSB accreditation.

Independent Opinion

Comment _____

1.3 Development and Review of the Mission

The mission must be developed through consultative processes and formally adopted and periodically reviewed.

1.3.1 Major stakeholders associated with the program have been consulted and support the mission.

1.3.2 The decision making body responsible for approving the program within the institution formally approved the mission statement.

1.3.3 The mission statement is periodically reaffirmed or amended if necessary in the light of changing circumstances.

1.3.4 Stakeholders are kept informed about the mission and any changes made to it.

Overall Assessment

Comment – To reiterate both the University and the College Mission was formulated by TIEC and has not changed since implementation. At this time the University and College did not have the full list stakeholders or student body. It is therefore the goal of COBA to review the Mission and Vision statements of COBA and seek the feedback from all of COBA / University stakeholders to organically modify the Mission / Vision while yet staying consistent with the overall Mission of University and best practices as outlined in both domestic and international accreditation boards. By reviewing and modifying the Mission COBA will increase the usefulness of the Mission and pertinent focuses that are incorporating the community, region and international current considerations.

Priorities for improvement – the priority of COBA are the education and information transfer of best practices / standards within the College and to all stakeholders of the College. Changing our “Lifestyle” that includes the “best” practices and seeking consistent feedback from our stakeholders. In this way COBA can continue to grow, increase our effectiveness and contribution to our stakeholders. COBA will focus simultaneously and in coordination to support the local – NCAAA accreditation and diligently work toward the AACSB accreditation.

Independent Opinion

Comment _____

1.4 Use Made of the Mission Statement

The mission must be used consistently as a basis for planning and major policy decisions.

- 1.4.1 The mission statement is used as a basis for a strategic plan for development of the program over a medium term planning period. (normally five to seven years)
- 1.4.2 The mission statement is known about and supported by teaching and other staff and students.
- 1.4.3 Consistency with the mission is listed among criteria for consideration of program and project proposals by committees and decision makers.

Y

3

Y

3

Y

3

Overall Assessment

3

Comment – To reiterate both the University and the College Mission was formulated by TIEC and has not changed since implementation. At this time the University and College did not have the full list stakeholders or student body. It is therefore the goal of COBA to review the Mission and Vision statements of COBA and seek the feedback from all of COBA / University Stakeholders to organically modify the Mission / Vision while yet staying consistent with the overall Mission of University and best practices as outlined in both domestic and international accreditation boards. By reviewing and modifying the Mission COBA will increase the usefulness of the Mission and pertinent focuses that are incorporating the community, region and international current considerations.

Priorities for improvement – the priority of COBA are the education and information transfer of best practices / standards within the College and to all Stakeholders of the College. Changing our “Lifestyle” that includes the “best” practices and seeking consistent feedback from our stakeholders. In this way COBA can continue to grow, increase our effectiveness and contribution to our stakeholders. COBA will focus simultaneously and in coordination to support the local – NCAAA accreditation and diligently work toward the AACSB accreditation. COBA has initiated an information campaign to increase the awareness of Mission to all stakeholders.

Independent Opinion

Comment _____

1.5 Relationship Between Mission, Goals and Objectives

The mission must be used to guide the establishment of goals and objectives and strategic plans for the development of the program.

- 1.5.1 Goals for development of the program are consistent with and support the mission.
- 1.5.2 Goals are stated with sufficient clarity to effectively guide planning and decision-making in ways that are consistent with the mission.
- 1.5.3 Goals and objectives for the development of the program are reviewed periodically and modified if necessary in response to results achieved and changing circumstances.
- 1.5.4 Statements of major objectives should be accompanied by specification of clearly defined and measurable indicators that are used to judge the extent to which objectives are being achieved.

Y

4

Y

4

Y

3

Y

4

Overall Assessment

4

Comment – Overall relationship of COBA goals and objectives from the university have been mapped accurately, reviewed by the college and initiated through each department.

Priorities for improvement – COBA will strive to organically review and change / update where needed the syllabi and text books originally and currently in use.

Comment _____

Overall Assessment of Mission Goals and Objectives

1.1 Appropriateness of the Mission	4
1.2 Usefulness of the Mission Statement	3
1.3 Processes of Development and Review of the Mission	2
1.4 Use Made of Mission Statement	3
1.5. Relationship Between Mission, Goals and Objectives	4
Combined Assessment	4

Comment – To reiterate both the University and the College Mission was formulated by TIEC and has not changed since implementation. At this time the university and College did not have the full list Stakeholders or student body. It is therefore the goal of COBA to review the Mission and Vision statements of COBA and seek the feedback from all of COBA / University stakeholders to organically modify the Mission / Vision while yet staying consistent with the overall Mission of University and best practices as outlined in both domestic and international accreditation boards. By reviewing and modifying the Mission COBA will increase the usefulness of the Mission and pertinent focuses that are incorporating the stakeholders of community, region, and international current considerations.

Overall relationship of COBA goals and objectives from the University have been mapped accurately, reviewed by the college and initiated through each department.

Priorities for improvement – the priority of COBA are the education and information transfer of best practices / standards within the College and to all stakeholders of the College. Changing our “Lifestyle” that includes the “best” practices and seeking consistent feedback from our stakeholders. In this way COBA can continue to grow, increase our efficiency and effectiveness and contribution to our stakeholders. COBA will focus simultaneously and in coordination to support the local – NCAAA accreditation and diligently work toward the AACSB accreditation. COBA has initiated and information campaign to increase the awareness of Mission to all stakeholders.

COBA will strive to organically review and change / update where needed the syllabi and text books originally and currently in use.

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 2: Program Administration

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

Main Components in this Standard

- 2.1 Leadership
- 2.2 Planning Processes
- 2.3 Relationship Between Sections for Male and Female Students
- 2.4 Institutional Integrity
- 2.5 Internal Policies and Regulations

Comment and General Description of Good Practice

Management arrangements between the program administrators and senior institutional management, and for faculty and staff within the program should provide for appropriate delegations of responsibility with clear guidelines setting out the scope and limits of responsibility, allowing for creativity and innovation within policy guidelines, and with clearly defined mechanisms for accountability.

Mechanisms should exist for effective coordination of planning within the program and for ensuring consistent action by individuals in keeping with the plans that are made. Goals and objectives should be established for the program as a whole, and within the framework of those goals and objectives for planning and delivering individual courses. Plans for courses should include not only the subject matter of each course but plans for teaching that will contribute to the development of the required range of learning outcomes for the program as a whole. Mechanisms for accountability and quality assurance include regular reports on what is done, plans changes that may be needed and follow up action to ensure that planned adjustments are made.

Evidence

Evidence and Performance Indicators

Evidence about effective management could include documents setting out policies, terms of reference and operating procedures for major committees and administrative positions, responses to surveys of teaching and other staff and students about procedures followed, and opinions of senior administrators in the institution to which program administrators are responsible. Evidence of dissemination of integrity expectations should include information on websites, advertisements and awareness of requirements on the part of staff and students in interviews or surveys.

Indicators could be based on responses to surveys by teaching and other staff and students.

Standard 2: Program Administration

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
2.1 Leadership		
Program administrators must provide effective and responsible leadership for the development and improvement of the program.		
2.1.1 The responsibilities of program administrators are clearly defined in position descriptions	Y	3
2.1.2 There is sufficient flexibility at the level of the department or college offering the program to respond rapidly to course and program evaluations and changes in program learning outcome requirements, (eg. Departments should have authority to change text and reference lists, modify planned teaching strategies, details of assessment tasks and updating of course content.)	N	2
2.1.3 Program administrators anticipate issues and opportunities and exercise initiative in response.	N	2
2.1.4 Program administrators ensure that when action is needed it is taken in an effective and timely manner.	Y	3
2.1.5 Program administrators have sufficient authority to ensure compliance with formally established or agreed institutional or program policies and procedures.	Y	3
2.1.6 Program administrators provide leadership, and encourage and reward initiative on the part of teaching and other staff.	Y	3
2.1.7 Program managers accept responsibility for the effectiveness of action taken within their area of responsibility regardless of whether that action is taken by them personally or by others responsible to them.	Y	3
2.1.8 Regular feedback is given on performance of teaching and other staff by the head of the department	Y	3
2.1.9 Delegations of responsibility to program administrators are formally specified in documents signed by the person delegating and the person given delegated authority, that describe clearly the limits of delegated responsibility and responsibility for reporting on decisions made.	Y	4
2.1.10 Regulations governing delegations of authority are established for the institution and approved by the governing board. These regulations should indicate key functions that cannot be delegated, and specify that delegation of authority to another person or organization does not remove responsibility for consequences of decisions made from the person giving the delegation.	Y	3
2.1.11 Advice and support are made available to faculty and staff in a manner that contributes to their personal and professional development	Y	4
2.1.12 Proposals for program developments and recommendations on policy issues are presented to the appropriate decision making body in a form that clearly identifies the issues for decision and the consequences of alternatives.	N	2
Overall Assessment		3

Comment – Due to shortages in manpower, leadership is stretched and overloaded, which caused challenges for development and creates a scenario of maintenance, not improvement. Though the lines of leadership are defined the challenges for new programs and innovation are limited. As new instructors are hired the leadership will have more time and flexibility to become proactive and provide meaningful feedback to faculty and staff.

Priorities for improvement – Hire new faculty, all three departments need to increase the number of qualified faculty, instructors to meet the growing need of our students and all other stakeholders.

	Independent Opinion	
Comment _____		

2.2 Planning Processes

Planning processes must be managed effectively to achieve the mission and goals of the program through cooperative action by the instructional team and program and course reporting and decision making. Planning must combine coordinated strategic planning with flexibility to adapt to results achieved and changing circumstances.

2.2.1 Planning is strategic, incorporating priorities for development and appropriate sequencing of action to produce the most effective short-term and long term-results.	Y	3
2.2.2 Plans take full and realistic account of aspects of the external environment affecting demand for graduates and skills required by them.	Y	3
2.2.3 Planning processes provide for appropriate levels of involvement by teaching and other staff, students and other stakeholders.	N	2
2.2.4 Planning has a particular focus on intended learning outcomes for students with course content and teaching and assessment strategies that reflect both the background of students and theory and research on different kinds of learning. (For advice on the planning of new programs and review and documentation of existing programs refer to Section 2.4.7 in <i>Handbook for Quality Assurance and Accreditation in Saudi Arabia Part 2, Internal Quality Assurance Arrangements</i> .	Y	4
2.2.5 Plans are effectively communicated to all concerned with impacts and requirements for different constituencies made clear.	Y	3
2.2.6 Implementation of plans is monitored with checks made against short term and medium term targets and outcomes evaluated.	Y	3
2.2.7 Planning provides for reports on key performance indicators to be made on a regular basis to senior management within the institution.	Y	3
2.2.8 Plans are reviewed, adapted and modified, with corrective action taken as required in response to operational developments, formative evaluation, and changing circumstances.	Y	3
2.2.9 Risk management is included as an integral component of planning strategies with appropriate mechanisms developed for risk assessment and minimization.	N	2
Overall Assessment		3

Comment – Currently planning flows top down and horizontally. Committee's are encouraged to support the planning of the College and do focus on the priorities of the organization. Other than the committees involvement by faculty is limited. Leadership does a good job of communicating the plan and strategies, but due to overload in teaching the participation by this stakeholder is again a consideration for improvement.

Priorities for improvement - Hire new faculty, all three departments need to increase the number of qualified faculty, instructors to meet the growing need of our student stakeholders. Hire faculty that have experience in accredited universities so that their knowledge can be used to support the overall process of the college.

	Independent Opinion	
Comment _____		

2.3 Relationship Between Sections for Male and Female Students

In programs offered in sections for male and female students the program coordinators and teaching staff in both sections must participate fully in cooperative planning, decision making and program and course reporting. There must be equitable distribution of resources and facilities to meet the requirements of program delivery, research, and associated services in each section and quality evaluations must consider both performance in each section as well as the program overall.

2.3.1 When programs are offered in both male and female sections resources , facilities and staffing provisions are offered at comparable levels.	Y	4
2.3.2 Program administrators in both sections and staff teaching the same courses are fully involved in planning and reporting processes and communicate regularly about the program through processes that are consistent with bylaws and regulations of the Higher Council of Education.	Y	3
2.3.3 Male and female sections are adequately represented in the membership of relevant committees and councils.	Y	3
2.3.4 Plans for the program and course specifications require the same standards of delivery and are consistent for both sections, subject to any appropriate variations to meet differing needs of students.	Y	3
2.3.5 Performance indicators and reports on courses and programs show results for each section, and also overall results for the program as a whole.	Y	3
2.3.6		
Overall Assessment		3

Comment – Great strides are made to equally support and solicit feedback from both male and female campuses. Staffing challenges for qualified female faculty; as female faculty are not as readily available for hire in this region. As well efforts are made to consistently have representation from both sides.

Priorities for improvement- Hire new female faculty in all three departments to increase the number of instructors who can meet the growing demand of our female student stakeholders. Nominate a female faculty as a COBA coordinator who can act as a liaison, support and communicator for the college. Maintain monthly faculty meetings where communication can pass both ways and any challenges that may arise can be discussed and the college as a whole can become proactive in its dealing.

Independent Opinion		
Comment		

2. Integrity

Teaching and other staff involved with the program must meet high ethical standards of honesty and integrity including avoidance of conflicts of interest and avoidance of plagiarism in their teaching, research, administrative and service functions. These standards must be maintained in all dealings with students, teaching and other staff, and in relationships with other internal and external agencies including both government and non government organizations.

2.4.1 Codes of practice for ethical and responsible behaviour have been developed and are followed dealing with matters such as the conduct and reporting on research, performance evaluation, student assessment, committee decision making, and the conduct of administrative and service activities.	Y	4
2.4.2 Regulations dealing with declarations of pecuniary interest or conflict of interest for faculty and staff are consistently followed.	Y	4
2.4.3 Advertising and promotional material are always truthful, avoid any actual or implied misrepresentations or exaggerated claims, or negative comments about other programs or institutions	Y	4

Overall Assessment

Comment – COBA has accepted a “Lead by Example” format where faculty uses ethical and responsible actions in and out of the classroom. This includes all aspects of dealing with our student stakeholders as well as all of the universities stakeholders. Includes research, papers, conferences and any or all outside activities that represents the university and college.

4

Priorities for improvement – Lead by Example needs to happen at all levels and thus our priorities for improving and maintaining ethical standards will come with accurate communications, feedback, training, support from all administration, faculty, staff, student and community stakeholders.

Independent Opinion

Comment _____

2.5 Internal Policies and Regulations

Policies and regulations must be established that clearly define the major responsibilities and procedures for the administration of the program and for committees and teaching and other staff and students involved.

2.5.1 The terms of reference and operating procedures for major committees and academic and administrative positions associated with the program are clearly specified and included in the policy and procedures manual.

Y

4

2.5.2 Policies and regulations relating to the program are made accessible to faculty, staff and students, and effective strategies are used to ensure they are understood and complied with.

Y

4

2.5.3 Decisions made by committees on procedural or academic matters are recorded and referred to when future similar issues are considered.

Y

4

2.5.4 Guidelines, bylaws or regulations are established for recurring procedural or academic issues.

Y

4

2.5.5 The policies and regulations for the management of the program are periodically reviewed and amended as required in the light of changing circumstances.

Y

3

Overall Assessment

4

Comment – COBA faculty has access to university policies and regulations both on the university web site, through training, and as part of the Faculty Handbook of which each faculty member receives. Along with the access to the university Policies and Regulation each faculty has a written copy of the COBA Policies and Procedures within the Faculty Handbook; as added; and pertinent information within the handbook, including degree plans, country, regional, and local information is shared. At the end of the Faculty Handbook information specific to living arrangements, contact information, and a folder to be used for updates/copies, and conference details.

Priorities for improvement – COBA needs to proactively review and organically modify policies that are outdated, or no longer are needed. As the world, region and country changes; so should the policies be improved from study and reflection.

Independent Opinion

Comment _____

Overall Assessment of Program Administration

2.1 Leadership	3
2.2 Planning Processes	3
2.3 Relationships Between Sections for Male and Female Students	3
2.4 Integrity	4
2.5 Internal Policies and Regulations	4
Combined Assessment	3

Comment - Leadership is stretched and overloaded which caused challenges for Development, and creates a scenario of maintenance, not improvement. Though the lines of leadership are defined; the challenges for new programs and innovation are limited, and need openness for change.

Planning flows are top down and horizontal. Committee's are encouraged to support the planning of the COBA, and do focus on the priorities of our organization. Other than the committees; involvement by faculty is encouraged.

Great strides are made to equally support and solicit feedback from both the male and female campuses. Staffing challenges for qualified female faculty; as female faculty are not as readily available for hire in this region. Efforts are made to consistently have representation from both the male and female campuses.

COBA has accepted a "Lead by Example" format where faculty uses ethical and responsible actions in and out of the classroom. This includes all aspects of dealing with our student stakeholders as well as all of the universities stakeholders. Including: research, papers, conferences, and any outside activities, that represents the university and college.

COBA faculty has access to university policies and regulations both on the university web site and as part of the Faculty Handbook of which each faculty member receive and acknowledge. Along with the access to the university Policies and Regulation each faculty has a written copy of the COBA Policies and Procedures: within the Faculty Handbook. As added, pertinent information within the handbook: degree plans, country, regional and local information are included. At the end of the Faculty Handbook; information specific to living arrangements, contact information, and a folder to be used for copies/ papers, and conference details.

Independent Opinion	
Comment _____	

Indicators Considered

Priorities for Improvement

Standard 3: Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

Main Components in this Standard

- 3.1 Commitment to Quality Improvement in the Program
- 3.2 Scope of Quality Assurance Processes
- 3.3 Administration of Quality Assurance Processes
- 3.4 Use of Indicators and Benchmarks
- 3.5 Independent Verification of Standards

Comment and General Description of Good Practice

The central focus in the evaluation of the quality of a program is the quality and extent of student learning, considered as outcomes--what students understand and can do as a result of their studies, and whether that learning is appropriate to their field. Other services, facilities and activities are evaluated according to the extent that they contribute to that learning.

The management of quality assurance for a program should involve evidence from a number of sources with mechanisms for interpreting that evidence and using the results in planning for improvement. This evidence should include systematic feedback from students about the quality of the program they have participated in, but this must be considered as only one element in a system that also includes independent assessments of what they have learned. Student assessment tasks are a direct measure of learning outcomes, but use of students' results as evidence of program quality must be combined with other evidence such as comparisons with standards at other good quality institutions. Appropriate external benchmarks should be established as a basis for evaluations of program quality.

Quality improvement strategies should be integrated into normal planning processes in a continuing cycle of planning, implementation, evaluation and review. This involves reports on the teaching of each course with information arising from those course reports considered to assess their significance for the program as a whole. The standard for management of quality assurance and improvement includes the use of conclusions arising from evidence in those reports in planning and implementing progressive improvements over time. It also includes an expectation that appropriate performance indicators will be used for purposes of reporting on quality to senior management within the institution.

Evidence and Performance Indicators

Evidence about the quality of management of quality assurance processes can be obtained by looking at the extent of involvement in quality assurance processes by teaching and other staff and the adequacy of responses made to evaluations that are made in program and course reports and other reports prepared. The outcomes of those processes can be assessed by examining trend data to see whether there has been progressive improvement in the planning and administration and the learning outcomes achieved by students.

Evidence about the quality processes followed can be obtained from surveys or discussions with staff or students and the quality of reports prepared by program administrators, including whether the quality evaluations are evidence-based and appropriately benchmarked in relation to external standards.

The key performance indicators identified by the Commission should be used, but additional indicators linked to the particular mission of the institution and the program should also be used when needed. When goals and objectives are established for the development and improvement of the program appropriate performance indicators should be identified as part of that planning process

Standard 3: Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
3.1 Commitment to Quality Improvement in the Program		
Program administrators and teaching and other staff must be committed to maintaining and improving the quality of the program.		
3.1.1 All teaching and other staff participate in self-assessments and cooperate with reporting and improvement processes in their sphere of activity.	Y	3
3.1.2 Creativity and innovation combined with clear guidelines and accountability processes are actively encouraged.	Y	3
3.1.3 Mistakes and weaknesses are acknowledged, and dealt with constructively, with help given for improvement.	Y	3
3.1.4 Improvements in quality are appropriately acknowledged and outstanding achievements recognized.	Y	3
3.1.5 Evaluation and planning for quality improvement are integrated into normal administrative processes.	Y	3
Overall Assessment		3
Comment – All faculty, perform a self-assessment starting at the conclusion of their first year of service. Each course; has an associated syllabi, which include detail learning outcomes. Evaluation of performance is also performed in the classroom where Department chairs will evaluate and provide feedback. Priorities for improvement –Mid year evaluation for faculty as well as review of group and college milestone to check status of college accomplishments, or areas needing improvement.		
Independent Opinion		

Comment _____

3.2 Scope of Quality Assurance Processes

Quality assurance activities that are necessary to ensure good quality must apply to all aspects of program planning and delivery including provision of related services, and to all teaching and other staff involved in those processes.

3.2.1 Quality evaluations deal with all aspects of program planning and delivery including student learning outcomes and facilities and services to support that learning whether they are managed by administrators of the program or by others based elsewhere in the institution.	Y	3
3.2.2 Quality evaluations and reports provide an overview of performance for the program as a whole, including both sections if the program is offered in male and female sections, and all courses	Y	3
3.2.3 Evaluations consider inputs, processes, outcomes and processes, with particular attention to	Y	3

learning outcomes for students.

3.2.4 Evaluations include both routine activities and strategic priorities for improvement.

Y

3

3.2.5 Processes are designed to ensure both that acceptable standards are met, and that there is continuing improvement in performance.

Y

3

3.2.6 If the program is offered in sections for male and female students detailed evaluations in relation to all standards are carried out in a consistent way in both sections and quality reports on those standards report on any significant differences found and make appropriate recommendations for action in response to what is found.

Y

3

Overall Assessment

3

Comment – Using TIEC programs as an outline and working on improvement, and cultural specifics to modify, COBA has several evaluation processes designed to ensure standards are being met; and consistent application in applied, within both the male and female campus's.

Priorities for improvement – COBA's priority continues to strive for best practices and quality evaluations, of the practices, that are non-gender bias, and recommendations are clear, and supportive.

Independent Opinion

Comment _____

3.3 Administration of Quality Assurance Processes

Quality assurance arrangements for the program must meet any particular requirements for this program as well as the quality assurance arrangements for the institution as a whole.

Y

3

3.3.1 Quality assurance processes are fully integrated into normal planning and program delivery arrangements.

Y

3

3.3.2 Evaluations are (i) based on evidence, (ii) linked to appropriate standards, (iii) include predetermined performance indicators, and (iv) take account of independent verification of interpretations.

Y

3

3.3.3 Quality assurance processes make use of standard forms and survey instruments for use across the institution with any special additional elements added to meet the particular requirements of the program.

Y

3

3.3.4 Statistical data on indicators, including grade distributions, progression and completion rates are retained in an accessible central data base and regularly reviewed and reported in annual and periodic program reports.

Y

3

3.3.5 Responsibility is given to a member of the teaching staff to provide leadership and support for the management of quality assurance processes. The responsible person should involve other staff in planning and carrying out the quality assurance processes.

Y

3

3.3.6 The quality assurance arrangements for the program should be regularly evaluated and improved. As part of these reviews unnecessary requirements should be removed to streamline the system and avoid unnecessary work.

Y

3

3.3.7 Processes for evaluation of quality should be transparent with criteria for judgments and evidence considered made clear.

Overall Assessment

3

Comment – As stated previously; by using the original TIEC programs as an outline and working on improvement and cultural specifics, COBA has several quality evaluation processes designed to ensure standards are being met and consistent in both the male and female campus's. These evaluations such as Student and Program evaluations support the overall assessment.

Priorities for improvement – COBA's priority continues to strive for best practices and quality evaluations of the practices that are non-gender bias and recommendations are clear and supportive.

Independent Opinion	
Comment_____	

3.4 Use of Performance Indicators and Benchmarks

Specific indicators must be identified for monitoring performance and appropriate benchmarks selected for comparative evaluation of the achievement of goals and objectives and quality of performance more generally.

3.4.1 Information is provided regularly on key performance indicators that are selected for all programs in the institution.	Y	3
3.4.2 Additional performance indicators relevant to the particular program are also identified, used for program evaluations and regularly reported on.	Y	3
3.4.3 The additional benchmarks for the program are approved by the appropriate senior committee or council within the institution (eg. senior academic committee, university council).	Y	3
3.4.4 Benchmarks for comparing quality of performance (for example with past performance or comparisons with other institutions) are established and achievements in relation to those benchmarks is regularly monitored.	Y	3
3.4.5 The format for indicators and benchmarks is consistent with that adopted for the institution as a whole.	Y	3

Overall Assessment

3

Comment – The university Quality Center supported the COBA in identifying the overall Key Performance Indicators (KPI's) for the College to review and process. COBA reviewed and completed 44 KPI's. Within these KPI's several benchmark indications were used to provide general guidance and direction.

Priorities for improvement – Provide additional education for faculty to better understand and thus support the review and processing of the College KPI's.

Independent Opinion	
Comment_____	

3.5 Independent Verification of Standards

Evaluations of performance must be based on evidence (including but not restricted to predetermined performance indicators and benchmarks) and conclusions based on that evidence must be independently verified.

3.5.1 Self-evaluations of quality of performance are checked against several related sources evidence including feedback through user surveys and opinions of stakeholders such as students and faculty, graduates and employers.	Y	3
3.5.2 Interpretations of evidence of quality of performance are verified through independent advice from persons familiar with the type of activity concerned and impartial mechanisms are used to reconcile differing opinions.	Y	3
3.5.3 Institutional policies and procedures are adhered to for the verification of standards of achievement by students in relation to other institutions and the requirements of the National Qualifications Framework.	Y	3

Overall Assessment

3

Comment – As previously mentioned the university Quality Center supported the COB in identifying the overall KPI's for the College to review and process. COBA reviewed and completed 44 KPI's. Within these KPI's several benchmark indications were used to provide general guidance and direction. Overview of Student and Program surveys and faculty evaluations are all part of the information and evidence used to support and verify standards.

Priorities for improvement – COBA will continue to improve the gathering of evidence, transferring of information as it pertains to key performance and benchmarking of other and

similar universities.

Independent Opinion

Comment _____

Overall Assessment of Management of Program Quality Assurance

3.1 Commitment to Quality Improvement in the Program

3.2 Scope of Quality Assurance Processes

3.3 Administration of Quality Assurance Processes

3.4 Use of Performance Indicators and Benchmarks

3.5 Independent Verification of Standards

Combined Assessment

Comment – The university and COBA have several reporting mechanisms that support and ensure program quality; as an example: course reports, student evaluations of the program, and instructor are reviewed and assessed for corrective action. As well the university Quality Center supported the COB in identifying the overall KPI's for the College to review and process. COBA reviewed and completed 44 KPI's. Within these KPI's, several benchmark indications were used to provide general guidance and direction. Overview of Student and Program, surveys and faculty evaluations are all part of the information and evidence used to support and verify standards.

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement

Standard 4: Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

Main components of this Standard:

- 4.1 Student Learning Outcomes
- 4.2 Program Development Processes
- 4.3 Program Evaluation and Review Processes
- 4.4 Student Assessment
- 4.5 Educational Assistance for Students
- 4.6 Quality of Teaching
- 4.7 Support for Improvements in Quality of Teaching
- 4.8 Qualifications and Experience of Teaching Staff
- 4.9 Field Experience Activities
- 4.10 Partnership Arrangements with Other Institutions

Comment and General Description of Good Practice

The quality of learning and teaching should be central to the institution's planning and quality assurance processes. The focus should be on quality of learning outcomes, which must cover a range of kinds of learning, with knowledge, skills and patterns of behaviour that are assessed within the program, and continue to be reflected in personal and professional lives after graduation.

Different types of learning as described in the Qualifications Framework require different ways of teaching and different forms of student assessment, and these must be used in a systematic way in educational programs. Consequently teaching strategies and methods of assessment that are appropriate for different kinds of learning should be planned and described in program and course specifications. Where an institution has identified any special skills or student attributes that it wants to develop in its students, this adds an additional requirement for planning how those special abilities will be developed in the courses and programs that are taught.

Generic skills such as group participation, capacity for self directed learning, commitment to sound moral and ethical principles, and the effective use of numerical and communication skills should be reinforced and built upon in all courses. Although units of work or specific courses may focus particularly on learning of this kind, all teaching staff include any on part time appointments should be aware of the learning objectives of the program as a whole and contribute to those outcomes in their teaching.

In an institution or program with high standards of teaching and learning a number of sources of evidence are used to assess the quality of students' learning and the effectiveness of the strategies used to develop these abilities. These include such things as student questionnaires about teaching effectiveness, observations of teaching by "critical friends", questionnaires for graduates and employers, and external check assessments of the quality of students' performance on tests and assignments. In most cases these sources of evidence must be interpreted since many factors could influence ratings on surveys and evaluative judgments. Consequently several different sources of evidence are often used, with interpretations of the evidence verified by an independent person.

The delivery of programs and individual courses should be monitored on a continuing basis, with annual reports on what has happened and consideration of any adjustments that may be needed. More extensive reviews of the quality of teaching and learning for each program, and in summary for the institution as a whole, should be undertaken periodically, at least on a seven yearly basis, to coincide with external review

and accreditation processes. These reviews should consider changes in the environment affecting the program, identify strengths and weaknesses and trend data that indicates whether standards and quality of processes and support systems are improving or declining, and develop plans for improvement.

Quality of teaching is vital, and this involves appointment of teaching staff with appropriate levels of knowledge and skill for the programs to be taught, and thorough orientations so the necessary strategies for development of the range of learning outcomes and methods of assessment of those outcomes are understood. In many cases assistance may be needed for faculty to develop expertise in the particular strategies to be used, and students may need to be prepared for ways of teaching and learning that may be unfamiliar to them. Members of teaching staff must have flexibility to draw on their particular strengths, and to respond to the needs of the particular students with whom they work. However they must also see themselves as members of instructional teams who collectively and cooperatively work to develop a wide range of abilities and patterns of behaviour in their students.

Assessment of the adequacy of qualifications and experience of teaching staff involves not only possession of qualifications at appropriate levels, but also the specific knowledge and skill required for particular courses of study. For programs in professional fields this normally includes some teaching by experienced members of those professions, and in courses that involve consideration of recent developments in theory and research, teaching by staff who are themselves active scholars or researchers in the field.

Mechanisms for the support of students' learning include access to teaching staff for counselling and advice, and sufficient high quality equipment and learning materials. The specific requirements vary according to the field of study and the teaching strategies used. The adequacy of provision should be assessed by student evaluations, independent peer reviews, and comparisons with other highly regarded institutions. Individual student progress should be monitored, and those in difficulty identified and assisted.

There are some special considerations that apply to situations where institutions are involved in partnerships with others in the development and delivery of programs. The specification of program content and the description of course outlines is only one small element in the quality of a program. What is critically important is the resources and services available to students in the local environment, the quality of faculty and staff with whom they interact, the experiences in which they are involved, and the quality and relevance of learning that students achieve. A relationship with another institution to provide details of courses or programs, or to provide quality assurance services may add to the effectiveness of local quality assurance mechanisms, but does not replace them.

A second special consideration relates to the quality of teaching and learning provided through distance education or packaged learning materials. Teaching processes through electronic means have developed rapidly and distance education strategies can offer valuable services to students who might not otherwise have access to study opportunities. Packaged materials can also supplement conventional on-campus instruction in a variety of useful ways and increasingly institutions are utilizing these materials in their teaching programs. A separate document is available dealing specifically with the delivery of programs through distance education.

Evidence and Performance Indicators

Evidence about the quality of learning and teaching may be obtained from ratings by students, graduates and employers of the quality of programs, statistics on course and program completions and employment outcomes, ratios of students to teaching staff, and statistics on teaching staff qualifications. Important sources of evidence might include independent expert advice on the appropriateness of teaching strategies and assessments for the different domains of learning in the *National Qualifications Framework*. Evidence should be available about the results of benchmarking of standards of learning outcomes in relation to appropriate external reference points. This could be done in several different ways including check marking of samples of students' work and independent assessments of the standards of test questions and students' responses.

The selection of performance indicators for quality of learning and teaching requires use of data in a form that can be quantified and used in comparisons across the institution, with other institutions, and with past performance.

Standard 4: Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
4.1 Student Learning Outcomes		
Intended student learning outcomes must be consistent with the National Qualifications Framework, and with generally accepted standards for the field of study concerned including requirements for any professions for which students are being prepared.		
4.1.1 Intended learning outcomes are specified after consideration of relevant academic and professional advice.	Y	3
4.1.2 Intended learning outcomes are consistent with the Qualifications Framework. (covering all of the domains of learning at the standards required)	Y	3
4.1.3 Intended learning outcomes are consistent with requirements for professional practice in Saudi Arabia in the fields concerned. (These requirements should include local accreditation requirements and also take account of international accreditation requirements for that field of study, and any Saudi Arabian regulations or special regional needs.)	Y	3
4.1.4 If an institution has identified special attributes to be developed in students graduating from the institution comprehensive strategies are established for these to be developed. (This means that the attributes to be developed in students are clearly defined, strategies for developing them planned and implemented across the program, and mechanisms for assessing and reporting on the extent to which graduating students have developed them, are in place.)	Y	3
4.1.5 Appropriate program evaluation mechanisms including graduating student surveys, employment outcome data, employer feedback and subsequent performance of graduates are used to provide evidence about the appropriateness of intended learning outcomes and the extent to which they are achieved. (see also sections 4.3 and 4.4 dealing with program evaluation processes and verification of standards of student achievement)	Y	3
Overall Assessment		3
Comment – With the foundation of COBA with the mentorship of the TIEC model; flows international and domestic best practices; which include the requirements for the fields of study for the student. Learning outcomes are introduced in each syllabus. Priorities for improvement – As the university is new, and the first graduating class was within one year of this report; the priority was to gather information from this graduating class, solicit feedback from faculty, and assess feedback from employers and other stakeholders.		
Independent opinion		
Comment _____		

4.2 Program Development Processes

Programs must be planned as coherent packages of learning experiences in which all courses contribute in planned ways to the intended learning outcomes for the program.

4.2.1 Plans for the delivery of programs and for their evaluation are set out in detailed program specifications that include knowledge and skills to be acquired, and strategies for teaching and assessment for the progressive development of learning in all the domains of learning.	Y	3
4.2.2 Plans for courses are set out in course specifications that include knowledge and skills to be acquired and strategies for teaching and assessment for the domains of learning to be addressed in each course.	Y	3
4.2.3 The content and strategies set out in course specifications are coordinated with other courses and followed in practice to ensure effective progressive development of learning for the total program in all the domains of learning.	Y	3
4.2.4 Planning should include any action necessary to ensure that teaching staff are familiar with and are able to use the strategies included in the program and course specifications.	Y	3
4.2.5 The academic and/or professional fields for which students are being prepared are monitored on a continuing basis with necessary adjustments made in programs and in text and reference materials to ensure continuing relevance and quality.	Y	3
4.2.6 In professional programs continuing advisory panels that include leading practitioners from the relevant profession monitor and advise on content and quality of programs.	Y	3
4.2.7 New program proposals are assessed and approved or rejected by the institution's senior academic committee using criteria that ensure thorough and appropriate consultation in planning and capacity for effective implementation.	Y	2

Overall Assessment

3

Comment – COBA plans are based on the TIEC model. As well using the Student Advising Center, COBA Faculty can properly assist students in planning and course selection. In each syllabus, the course specifications are outlined; including the knowledge and skills that will be acquired. COBA has well developed study plans for each major offered.

Priorities for improvement – Proper introduction of new programs, and qualified advisors are utilized to review, and advice is rendered on the quality and content of any new programs introduced.

Independent opinion

Comment _____

4.3 Program Evaluation and Review Processes

The quality of all courses and of the program as a whole must be monitored regularly through appropriate evaluation mechanisms and amended as required, with more extensive quality reviews conducted periodically.

4.3.1 Courses and programs are evaluated and reported on annually with information about the effectiveness of planned strategies and the extent to which intended learning outcomes are being achieved.	Y	4
4.3.2 When changes are made as a result of evaluations details of those changes and the reasons for them should be retained in course and program portfolios.	Y	3
4.3.3 Quality indicators that include learning outcome measures are identified and used for all courses and the program as a whole.	Y	3
4.3.4 Records of student completion rates in all courses and the program as a whole are kept and used as quality indicators.	Y	4
4.3.5 Annual reports including quality assurance data are provided and reviewed by senior administrators and quality committees.	Y	4
4.3.6 Course completion, program progression and completion rates, and student course and	Y	3

program evaluations, are retained in central records in a form that can be readily accessed by the department and college, and analysed centrally with summaries and comparative data distributed automatically to departments, colleges, senior administrators and relevant committees at least once each year.

4.3.7 If problems are found through program evaluations appropriate action is taken to make improvements

Y

2

4.3.8 In addition to annual evaluations a comprehensive reassessment of the program should be conducted at least once every five years. Procedures for conducting these reassessments should be consistent with policies and procedures established for the institution.

Y

3

4.3.9 Program reviews conducted within the institution involve experienced people from relevant industries and professions, and experienced teaching staff from other institutions.

Y

3

4.3.10 Procedures are followed that ensure that in program reviews information about the appropriateness of learning outcomes sought and the extent to which they are achieved is sought from students and graduates through surveys and interviews, discussions with teaching staff, and other stakeholders such as employers.

Y

3

4.3.11 If the program is offered in sections for male and female students evaluations should provide data for each section as well as for the program as a whole, and any deficiencies in one or the other section dealt with appropriately in recommendations for action.

Y

3

Overall Assessment

3

Comment – As mentioned COBA uses the TIEC model. With this said TIEC is involved in review of each course syllabus and text to assure quality and pertinence of the materials. In each syllabus the course specifications are outlined including the knowledge and skills that will be acquired. COBA works hand in hand with Student Affairs to track specific outcomes of courses, student looking for trends and evaluating appropriateness of each program.

Priorities for improvement – Define a more detailed and consistent process for evaluation of programs.

Independent opinion

Comment _____

4.4 Student Assessment

Student assessment processes must be appropriate for the intended learning outcomes and effectively and fairly administered with independent verification of standards achieved.

4.4.1 Student assessment mechanisms are appropriate for the forms of learning sought.

Y

4

4.4.2 Assessment processes are clearly communicated to students at the beginning of courses

Y

4

4.4.3 Appropriate valid and reliable mechanisms are used for verifying standards of student achievement in relation to relevant internal and external benchmarks. The standard of work required for different grades should be consistent over time, comparable in courses offered within a program and college and the institution as a whole, and in comparison with other highly regarded institutions. (Arrangements may include measures such as check marking of random samples of student work by faculty at other institutions, and independent comparisons of standards achieved with other comparable institutions within Saudi Arabia, and internationally.)

Y

4

4.4.4 Grading of students tests, assignments and projects is assisted by the use of matrices or other means to ensure that the planned range of domains of student learning outcomes are addressed.

Y

4

4.4.5 Arrangements should be made within the institution for training of teaching staff in the theory and practice of student assessment.

Y

4

4.4.6 Appropriate procedures have been established and are followed to deal with situations where standards of student achievement are inadequate or inconsistently assessed.

Y

3

4.4.7 Effective procedures are followed that ensure that work submitted by students is actually done by the students concerned.

Y

4

4.4.8 Feedback on performance and results of assessments are given promptly to students

Y

4

Y

4

and accompanied by mechanisms for assistance if required.

4.4.9 Assessments of student work should be conducted fairly and objectively.

4.4.10 Criteria and processes for academic appeals should be made known to students and administered equitably (see also item 5.3)

Y

3

Overall Assessment

4

Comment – COBA's assessment of student has many facets and examples, such as: exams, group case analysis, learning logs, presentations, papers and participation in projects. These assessment process are clearly communicated to the students at the beginning each semester as each course syllabi included the assessment process.

Priorities for improvement – Need more benchmarking of other universities; for comparison and consistency in the industry.

Independent opinion

Comment

4.5 Educational Assistance for Students

Effective systems must be in place for assisting student learning through academic advice, study facilities, monitoring student progress, encouraging high performing students and provision of assistance when needed by individuals.

4.5.1 Teaching staff are available at sufficient scheduled times for consultation and advice to students. (This must be confirmed, not assumed because times have been scheduled)

Y

4

4.5.2 Teaching resources (including staffing, learning resources and equipment, and clinical or other field placements) are sufficient to ensure achievement of the intended learning outcomes

Y

4

4.5.3 If arrangements for student academic counselling and advice include electronic communications through email or other means the effectiveness of those processes is evaluated through processes such as analysis of response times and student evaluations.

Y

3

4.5.4 Adequate tutorial assistance is provided to ensure understanding and ability to apply learning.

Y

2

4.5.5 Appropriate preparatory and orientation mechanisms are provided to prepare students for study in a higher education environment. Particular attention is given to preparation for the language of instruction, self-directed learning, and bridging programs if necessary for students transferring to the institution with credit for previous studies. Preparatory studies must not be counted within the credit hour requirements for programs.

Y

2

4.5.6 If the language of instruction in the program is English, action is taken to ensure that language skills are adequate for instruction in that language when students begin their studies. (This may be done through language training prior to admission to the program. Language skills expected on entry should be benchmarked against other highly regarded institutions with the objective of skills at least comparable to minimum requirements for admission of international students in universities in English speaking countries. The benchmarking process should involve testing of at least a representative sample of students on major recognized English language tests)

Y

2

4.5.7 If preparatory programs are outsourced to other providers the institution accepts responsibility for ensuring the necessary standards are met and entry requirements to the program are maintained.

Y

2

4.5.8 Systems are in place within the program for monitoring and coordinating student workload.

Y

3

4.5.9 The progress of individual students is monitored and assistance and/or counselling provided to those facing difficulties.

Y

4

4.5.10 Year to year progression rates and program completion rates are monitored, and action taken to help any categories or types of students needing help.

Y

4

4.5.11 Feedback on performance by students and results of assessments is given promptly to students and accompanied by mechanisms for providing assistance if needed.

Y

4

4.5.12 Adequate facilities are provided for private study with access to computer terminals and other necessary equipment.

Y

4

4.5.13 Teaching staff are familiar with the support services available in the institution for students, and refer them to appropriate sources of assistance when required.

Y

4

4.5.14 The adequacy of the arrangement for assistance to students are periodically assessed through processes that include, but are not restricted to; feedback from students.

Y

3

Overall Assessment

3

Comment – All COBA faculty provides a minimum of 4 hours per week to office hours, as well as 2 hours per week at the Academic Support Center and by appointment. All enrolling student attend orientation; and all students in COBA attend information sessions at the beginning of each academic year.

Priorities for improvement – At risk students: early detection and a formulated plan of action to support these students need to be initiated.

Independent opinion

Comment _____

4.6 Quality of Teaching

Teaching must be of high quality with appropriate strategies used for different categories of learning outcomes.

4.6.1 Effective orientation and training programs are provided for new, short term and part time teaching staff. (To be effective these programs should ensure that teaching staff are fully briefed on required learning outcomes, on planned teaching and assessment strategies, and the contribution of their course to the program as a whole.)

Y

3

4.6.2 Appropriate strategies of teaching are planned and used for the different kinds of learning outcomes the program is intended to develop.

Y

3

4.6.3 The strategies of teaching and assessment set out in program and course specifications are followed by teaching staff with flexibility to respond to the needs of different groups of students.

Y

3

4.6.4 Students are fully informed about course requirements in advance through course descriptions that include knowledge and skills to be developed, work requirements and assessment processes.

Y

3

4.6.5 The conduct of courses is consistent with the outlines provided to students and with the course specifications.

Y

3

4.6.6 Textbooks and reference material are up to date and incorporate the latest developments in the field of study.

Y

3

4.6.7 Textbooks and other required materials are available in sufficient quantities before classes commence.

Y

3

4.6.8 Attendance requirements are made clear to students and compliance with these requirements is monitored and enforced.

Y

3

4.6.9 Effective systems are used for evaluation of courses and of teaching.

Y

3

4.6.10 The effectiveness of different planned teaching strategies in achieving learning outcomes in different domains of learning is regularly reviewed and adjustments are made in response to evidence about their effectiveness.

Y

3

4.6.11 Reports are provided to program administrators on the delivery of each course and these include details if any planned content could not be dealt with and any difficulties found in using the planned strategies

Y

3

4.6.12 Appropriate adjustments are made in plans for teaching if needed after consideration of course reports.

Y

3

Overall Assessment

3

Comment – As mentioned: COBA has a well-developed strategy of teaching and communication with students based on the TIEC model. Evaluation of the course, instructor, and students are all documented, and provide evidence. Learning outcomes are stated in each syllabus; and again can be measure via the class documentation and

assessments. Each faculty has opportunity for professional development, and faculty is encouraged to improve teaching quality, methodologies, and techniques.

Priorities for improvement – Separation of Accounting and Finance into either separate departments or Accounting as a minor. Similar situation for Economics.

Independent Opinion

Comment _____

4.7 Support for Improvements in Quality of Teaching

Appropriate strategies must be used by the program administrators and teaching staff to support continuing improvement in quality of teaching.

4.7.1 Training programs in teaching skills are provided within the institution for both new and continuing teaching staff including those with part time teaching responsibilities.	Y	3
4.7.2 Training programs in teaching include effective use of new and emerging technology.	Y	3
4.7.3 The extent to which teaching staff are involved in professional development to improve quality of teaching is monitored.		
4.7.4 Opportunities are provided for the professional and academic development of teaching staff with special assistance given to any who are facing difficulties.	Y	4
4.7.5 Teaching staff are encouraged to develop strategies for improvement of their own teaching and maintain a portfolio of evidence of evaluations and strategies for improvement.	Y	4
4.7.6 Formal recognition is given to outstanding teaching, with encouragement given for innovation and creativity.	Y	2
4.7.7 Strategies for improving quality of teaching include improving the quality of learning materials and the teaching strategies incorporated in them.	Y	3

Overall Assessment

Comment – The Learning Resource Center arrange professional development on a consistent basis. Training sessions are normally taught by fellow academicians from PMU, with expertise or training in specific areas.

3

Priorities for improvement – A more formal or systematic way of recognition for outstanding teaching and contribution to the students and college needs to be implemented.

Independent opinion

Comment _____

4.8 Qualifications and Experience of Teaching Staff

Teaching staff must have qualifications and experience necessary for teaching the courses they teach, and keep up to date with academic and/or professional developments in their field.

4.8.1 Teaching staff have appropriate qualifications and experience for the courses they teach. (For undergraduate and masters degree programs this would normally require academic qualifications in their specific teaching area at least one level above that of the program in which they teach.)	Y	3
4.8.2 If part time teaching staff are appointed (for example in a professional program where current industry experience may be sought) there is an appropriate mix of full time and part time teaching staff. (As a general guideline at least 75 % of faculty should be employed on a full time basis.)	N	NA
4.8.3 All teaching staff are involved on a continuing basis in scholarly activities that ensure they remain up to date with the latest developments in their field and can involve their students in learning that incorporates those developments.	Y	3
4.8.4 Full time staff teaching in post-graduate courses are themselves active in	Y	3

scholarship and research in the fields of study they teach.

4.8.5 In professional programs teaching teams include some experienced and highly skilled professionals in the field.

Y

3

Overall Assessment

3

Comment – COBA seeks faculty who are both academically and professionally qualified in all programs and disciplines.

Priorities for improvement – Continuing the hire of qualified doctorate level instructors. Increase the number of female qualified with doctorate or masters degree as instructors. Stronger retention plan of action is desired by faculty and will save the university: resource wise, by reputation, and economically.

Independent opinion

Comment

4.9 Field Experience Activities

In programs that include field experience activities, the field experience activities must be planned and administered as fully integrated components of the program, with learning outcomes specified, supervising staff considered as members of teaching teams, and appropriate evaluation and course improvement strategies carried out. (Field experience includes any work based activity such as internships, cooperative training, practicums, clinical placements or other activities in a work or clinical setting under the supervision of staff employed in that work or professional setting)

4.9.1 In programs that include field experience activities the student learning to be developed through that experience is clearly specified and appropriate steps taken to ensure that those learning outcomes and expected experiences to develop that learning are understood by students and supervising staff in the field setting.

Y

3

4.9.2 Supervising staff in field locations are thoroughly briefed on their role and the relationship of the field experience to the program as a whole.

Y

3

4.9.3 Teaching staff from the program visit the field setting for observations and consultations with students and field supervisors often enough to provide proper oversight and support. (Normally at least twice during a field experience activity)

Y

3

4.9.4 Students are thoroughly prepared through briefings and descriptive material for participation in the field experience.

Y

3

4.9.5 Follow up meetings or classes are organized in which students can reflect on and generalize from their experience.

4.9.6 Field experience placements are selected because of their capacity to develop the learning outcomes sought and their effectiveness in doing so is evaluated.

Y

3

4.9.7 In situations where the supervisors in the field setting and faculty from the institution are both involved in student assessments, criteria for assessment are clearly specified and explained, and procedures established for reconciling differing opinions.

Y

3

4.9.8 Provision is made for evaluations of the field experience activity by students, by supervising staff in the field setting, and by faculty of the post secondary institution, and results of those evaluations considered in subsequent planning.

Y

3

4.9.9 Preparation for the field experience includes thorough risk assessment for all parties involved, and planning to minimize and deal with those risks.

Y

3

Overall Assessment

3

Comment – All graduating seniors are required to participate in the internship program. With the cooperation of local companies and government agencies students earn three credit hours, and experience, by successfully completed the requirements of the program.

Priorities for improvement – Establishment of an individual strategic business unit as a committee for student internships at each college, to establish more participation with: local, regional, and international companies.

Comment	Independent opinion	

4.10 Partnership Arrangements With Other Institutions

In situations in which local institutions deliver programs through cooperative arrangements with another institution these arrangements must be clearly specified, enforceable under Saudi Arabian law, and all requirements for programs in the Kingdom of Saudi Arabia must be fully complied with.

Educational programs or courses offered by international organizations including on line or other distance education programs or courses, must not be used unless they have been accredited or otherwise quality assured and approved by the relevant government authorized educational quality assurance agency in the country of origin. Any such programs must be adapted as needed to suit the needs of students in this country, and must meet all Saudi Arabian requirements regardless of where and by whom materials are developed.

If an institution delivers programs using materials developed by another institution, the institution granting the academic award must accept full responsibility for the quality of the program including the materials used and the teaching and other services provided.

An institution based in another country and delivering programs in Saudi Arabia through a Saudi Arabian agent or local institution, and for which it grants an academic award, must meet all Saudi Arabian requirements for standards of educational provision and for cross border provision of education into the country.

4.10.1 Responsibilities of the local institution and the partner are clearly defined in formal agreements enforceable under the laws of Saudi Arabia.

N	2

4.10.2 The effectiveness of the arrangements is regularly evaluated..

N	2

4.10.3 Briefings and consultations on course requirements are adequate, with mechanisms available for ongoing consultation on emerging issues.

N	2

4.10.4 Teaching staff who are familiar with the content of courses visit regularly for consultation about course details and standards of assessments.

N	2

4.10.5 If arrangements involve assessment of student work by the partner in addition to assessments within the institution, final assessments are completed promptly and results made available to students within the time specified for reporting of student results under Saudi Arabian regulations..

N	2

4.10.6 If programs are based on those of partner institutions, courses, assignments and examinations are adapted to the local environment, avoiding colloquial expressions, and using examples and illustrations relevant to the setting where the programs are to be offered.

N	2

4.10.7 Programs and courses are consistent with the requirements of the Qualifications Framework for Saudi Arabia, and in professional programs, include regulations and conventions relevant to the Saudi environment.

N	2

4.10.8 If courses or a programs developed by a partner institution are delivered in Saudi Arabia adequate processes are followed to ensure that standards of student achievement are at least equal to those achieved elsewhere by the partner institution as well as by other appropriate institutions selected for benchmarking purposes.

N	2

4.10.9 If an international institution or other organization is invited to provide programs, or to assist in the development of programs for use in Saudi Arabia full information is provided in advance about relevant Ministry regulations and NCAAA requirements for the National Qualifications Framework and requirements for program and course specifications and reports.

N	2

Overall Assessment

Comment – Some communication is on going with other universities and institution, but no successful and formal arrangement has been established; therefore even though discussions are in play; no formal program has been implemented. Some department such as the MIS department has established relationships with outside organizations, such as: Microsoft.

2

Priorities for improvement – establish formal arrangements with outside business entities, governmental institutions, and universities.

Independent opinion

Comment_____

Overall Assessment of Learning and Teaching

4.1 Student Learning Outcomes	3
4.2 Program Development Processes	3
4.3 Program Evaluation and Review Processes	3
4.4 Student Assessment	
4.5 Educational Assistance for Students	4
4.6 Quality of Teaching	3
4.7 Support for Improvements in Teaching	3
4.8 Qualifications and Experience of Faculty	3
4.9 Field Experience Activities	3
4.10 Partnership Arrangements	2

Combined Assessment

3

Comment - With the foundation of the college based on the TIEC model: COBA acknowledges and follows international and domestic best practices; in which, with participative business interaction; develop and fulfil stakeholder needs and wants as requirements for the fields of study for the student. Learning outcomes are stated in each syllabus.

Priorities for improvement – With the contacts hours of faculty at risk student can gain the needed support and assistance. COBA support the consistent and periodical training of its faculty. As well maintains a strong Field experience for the students. The needed program is a more formal process of partnerships and relationship with other universities and institutions.

Independent Opinion

Comment_____

Indicators Considered

Priorities for Improvement

Standard 5: Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

Main Components of this Standard

Student Admissions

Student Records

Student Management

Student Advising and Counseling Services

Comment and General Description of Good Practice

The standard for student administration and support services as it relates to educational programs deals with matters that directly relate to the administration of the program or that are the responsibility of program managers and staff in the program. These include provision of information and advice about the program for prospective students and mechanisms for dealing with disputes and appeals. Provision of advisory services in relation to careers in the field of study may be provided by staff within the program or within a central career advisory unit within the institution. However even where the service is provided centrally faculty involved in the program should be able to assist in relation to requirements in their professional field.

Evidence and Performance Indicators

Evidence about the quality of student administration and support services can be obtained from surveys of students about the quality and responsiveness of services provided, usage rates for particular services, response times for communicating decisions on admissions and results and the frequency and results of discipline procedures. Performance indicators can be based directly on this information, but additional evidence in a review might include such things as visits to facilities and discussions with students and staff.

Standard 5: Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this
true?
Y/No/NA

How well is
this done?
(enter stars)

5.1 Student Admissions

Student admission processes must be reliable, efficient and simple for students to use.

5.1.1 Admission requirements are consistently and fairly applied for all students.

5.1.2 If programs or courses include components offered by distance education, or use of e-learning in blended programs, information is provided before enrolment about any special skills or resources needed to study in these modes. (For distance education programs a separate set of standards that include requirements for that mode of program delivery are set out in a different document, *Standards for Quality Assurance and Accreditation of Higher Education Programs Offered by Distance Education*)

5.1.3 Student advisors familiar with details of course requirements are available to provide assistance prior to and during the student registration process.

5.1.4 Rules governing admission with credit for previous studies are clearly specified.

5.1.5 Decisions on credit for previous studies are made known to students by qualified teaching or other authorized staff before classes commence.

5.1.6 Complete information about the program, including the range of courses, program requirements, costs, services and other relevant information is publicly available to potential students and families prior to applications for admission.

5.1.7 A comprehensive orientation program is available for commencing students to ensure thorough understanding of program requirements and reasons for them, the range of services and facilities available to them, and of their obligations and responsibilities.

Y

N

3

NA

Y

Y

Y

Y

Y

3

3

3

3

Overall Assessment

Comment – COBA has a clearly defined study plan for each major.

3

Priorities for improvement – COBA entrance exams. Stakeholder evaluations need to be conducted to determine the needs and wants of future employers for internships and employment.

Independent Opinion

Comment _____

5.2 Student Records

Student records must be maintained in a secure and confidential location. Statistical data needed for quality indicators and internal and external reporting requirements and generation of reports on student progress and achievements must be readily available through automated processes that protect the confidentiality of individual student information.

5.2.1 Automated procedures are in place for monitoring student progress throughout their programs.

5.2.2 The student record system regularly provides aggregated statistical data required for planning, reporting and quality assurance.

5.2.3 Clear rules are established and maintained governing privacy of information and controlling access to individual student records.

Y

Y

Y

Y

4

3

4

5.2.4 Eligibility for graduation is formally verified in relation to program and course requirements.

3

Overall Assessment

3

Comment – With the use of Blackboard student records are securely maintained and when properly accessed can provide full documentation and statistical data.

Priorities for improvement – Additional training program for both faculty and student on Blackboard usage.

Independent Opinion

Comment _____

5.3 Student Management

Policies and regulations must be established for fair and consistent processes of student management, with effective safeguards for independent consideration of disputes and appeals.

5.3.1 Attendance requirements are made clear to students, monitored and enforced.

Y

3

5.3.2 Student appeal and grievance procedures are specified in regulations, published, and made widely known within the institution. The regulations make clear the grounds on which academic appeals may be based, the criteria for decisions, and the remedies available.

Y

3

5.3.3 Appeal and grievance procedures protect against time wasting on trivial issues, but still provide adequate opportunity for matters of concern to students to be fairly dealt with and supported by student counselling provisions.

Y

3

5.3.4 Appeal and grievance procedures guarantee impartial consideration by persons or committees independent of the parties involved in the issue, or who made a decision or imposed a penalty that is being appealed against.

Y

3

5.3.5 Procedures have been developed to ensure that students are protected against subsequent punitive action or discrimination following consideration of a grievance or appeal.

Y

3

5.3.6 Appropriate policies and procedures are in place to deal with academic misconduct, including plagiarism and other forms of cheating.

Y

3

Overall Assessment

3

Comment – COBA has in place Policies and Procedures as well as PMU has Student Policies and Procedures.

Priorities for improvement – A better and systematic process for 5% / 10% and 15% warning letters. Faculty and students need to attend orientation and sign off on orientation of Policies and Procedures training and receipt of Policy and Procedure Handbooks.

Independent Opinion

Comment _____

5.4 Student Advising and Counseling Services

Adequate provision must be made for academic advising and counselling services to assist students in planning their participation in the program and in seeking subsequent employment.

5.4.1 Provision is made for academic counselling and for career planning and employment advice within the college, department or another appropriate location within the institution.

Y

3

5.4.2 Adequate protection is provided, and supported by regulations or a codes of conduct, to protect the confidentiality of academic or personal issues discussed with

Y

3

teaching or other staff or students.

5.4.3 Effective mechanisms are established for follow up to ensure student welfare and to evaluate quality of service.

Y

3

5.4.4 An effective student support system is available to identify students in difficulty and provide help with personal, study related, financial, family, psychological or health problems

Y

3

Overall Assessment

3

Comment – COBA has the Advising Center where each students needs to visit for consulting on career planning and advice. All information is kept confidential.

Priorities for improvement – Establish greater awareness of the support system available to students. Each student should visit the center and meet with an Academic Advisor with any grade below “B-”.

Independent Opinion

Comment_____

Overall Assessment of Student Administration and Support Services

5.1 Student Admissions

3

5.2 Student Records

3

5.3 Student Management

3

5.4 Student Advising and Counseling Services

3

Combined Assessment

3

Comment – COBA has established administration and support services, an Advising Center, and Admission and Records relationships.

Priorities for improvement – Administration and support services, the Advising Center, and Admission and Records, need to have meetings, where information is shared for enhancement or improvement of all services to the students.

Independent Opinion

Comment_____

Indicators Considered

Priorities for Improvement

Standard 6: Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

Main Components of this Standard as Applied to Educational Programs

Planning and Evaluation
Organization
Support for Users
Resources and Facilities

Comment and General Description of Good Practice

Adequate library and other learning resources and services for the needs of the program are essential requirements, and are particularly important in programs designed to develop capacity for independent learning and creative application of ideas. Collections must be up to date and regularly enhanced as new material becomes available, and there must be ready access to information located elsewhere.

Basic collections should be adequate for the program, but go well beyond the immediate needs to provide access to research reports, data bases and journal and internet publications that capture the latest thinking in related areas of inquiry. If the program is postgraduate there must be adequate resources for research by students and by faculty in this and related fields.

Orientation programs should be available to ensure that new students know how to make proper use of library and resource center facilities. Ongoing assistance should be available to help students as they use these resources for studies in the program.

Requirements for library services are changing in keeping with the rapid development of information technology and developments in flexible delivery of courses. Libraries are recognized as being not simply collections of books and periodicals, but gateways to information required for research and investigation in an international context. Evaluation of a program includes the availability of the range of services and materials that are needed to support it.

The provision of services should be planned cooperatively between program developers, other faculty, and resource centre staff, so that the resources and services provided are matched to the requirements for teaching and learning and associated research and investigations. Proposals for new or substantially modified courses and programs should include an independent statement from the library or resource centre indicating cost and availability of the information resources required. .

Evidence and Performance Indicators

Evidence about the quality of learning resource provision and performance indicators derived from this evidence can be obtained from user satisfaction surveys, success rates for students in accessing course reference material, documents describing processes for identifying and responding to course requirements, and details of times when facilities are available for use by students and teaching staff. Information should be available about provision of orientation programs for new students and other users, and responsiveness to requests from groups of stakeholders. The institution should be able to provide information about comparisons of level of provision through books, periodicals and web-based resources with comparable institutions offering similar programs and an appropriate performance indicator would be whether that level of provision was equalled or exceeded.

Standard 6: Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA**

**How well is
this done?
(enter stars)**

6.1 Planning and Evaluation

Policies and procedures must be in place to ensure that resource materials and services needed to support student learning are adequate and appropriate for the program, regularly evaluated, and kept up to date as required.

6.1.1 Teaching staff responsible for the program and for courses within it regularly provide advice on materials required to support teaching and learning.

6.1.2 Teaching staff and students participate in user surveys dealing with adequacy of resources and services, extent of usage, consistency with requirements for teaching and learning

6.1.3 Data on the extent of usage of learning resources for the program are used in evaluations of learning and teaching in the program.

6.1.4 In addition to participation in surveys program representatives have opportunities to provide input to evaluations of forward planning for provision of resources and services.

6.1.5 Teaching staff provide regular advice on material that should be held in reserve to ensure access to necessary materials and this advice is responded to.

Y

3

Y

3

Y

3

Y

3

Y

3

Overall Assessment

3

Comment- PMU has a state of the art Learning Resource Center, (LRC), dedicated student Academic Center and all classrooms are "Smart Classrooms" where digital data can be shared.

Priorities for Improvement – Adjustment of classroom layouts. Need to increase the number of electronic journals in the LRC. Instructors need to be orientated to the utilization and interface of the "Smart Classroom". Information Technology (IT) needs to check operation of equipment and "Smart Classroom" accessories.

Independent Opinion

Comment_____

6.2 Organization

The library or resource center must be managed in a way that meets the requirements of the program for student access and availability of resources and services.

6.2.1 Library and resource centers and associated facilities and services are available for sufficient extended hours to ensure access when required by users in the program.

6.2.2 Heavy demand and required reading materials needed in the program are held in reserve collections.

6.2.3 Ready access to on-line data-bases and research and journal material relevant to the program is provided for.

Y

3

Y

3

Y

3

3

Overall Assessment

Comment – Classrooms are functional, safe, and clean.

Priorities for improvement – Need to improve internet speed and access in the classroom and campus.

Independent Opinion

Comment_____

6.3 Support for Users

Adequate support must be provided to assist students and teaching staff to make effective use of library services and resources.

6.3.1 Orientation and training programs are provided for new students in the program to prepare them to access facilities and services.

6.3.2 Assistance is available to assist faculty and students in the program in conducting searches and locating and using information.

6.3.3 A reference service is available through which in-depth questions are answered by qualified librarians.

6.3.4 Electronic and/or other automated systems with search facilities are available to assist in locating resources within the institution and in other collections.

6.3.5 Teaching staff and students in the program are kept informed of library developments such as acquisition of new materials, training programs, or changes in services or opening hours.

Overall Assessment

Comment – The LRC offer consistent training and support.

Priorities for improvement – Additional resources and journals as well as training for access for faculty and students. For example: How can ProQuest, EbscoHost be accessed for research.

Independent Opinion

Comment_____

6.4 Resources and Facilities

Adequate reference material for the program must be available and facilities in the library or resource center must be appropriate for the needs of the program,

6.4.1 Adequate books journals and other reference material including on line resources are available to meet program requirements.

6.4.2 Up to date computer equipment and software is available on a sufficient scale to meet program requirements to support electronic access to resources and reference material.

6.4.3 Books and journals and other materials are available in Arabic and English (or other languages) as required for the program and associated research.

6.4.4 Sufficient facilities are provided for both individual and small group study and research as required for the program.

Overall Assessment

Comment – LRC provides an adequate amount of resources.

Priorities for improvement – Additional Journals and student orientation to the LRC.

Independent Opinion

Comment_____

Overall Assessment of Learning Resources

6.1 Planning and Evaluation

3

6.2 Organization

3

6.3 Support for Users

3

6.4 Resources and Facilities

3

Combined Assessment

3

Comment - the LRC is providing an adequate amount of service and resources.

Independent Opinion

Comment _____

Indicators Considered _____Priorities for Improvement _____

Standard 7: Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

Main components of this Standard:

Policy and Planning
Quality of and Adequacy of Facilities
Management and Administration
Research Equipment
Information Technology

Comment and General Description of Good Practice

Facilities should always provide an attractive, safe and healthy environment for faculty, staff and students, meet normal building and planning requirements, and the requirements for high quality teaching and learning in the program.

The use of facilities should be monitored and there should be processes to ensure that underutilized facilities are made available for alternative uses, subject to necessary arrangements for protection of expensive and easy to damage equipment.

In programs that require laboratory or other technical equipment including computing facilities, maintenance provisions should be effective and include routine maintenance schedules. Necessary technical support should be available and there should be an immediate response capacity in case of equipment breakdowns.

For all classrooms media needed for effective instruction should be provided with appropriate technical support available.

Evidence and Performance Indicators

Evidence about the quality of provision of facilities and equipment can be obtained from planning documents, user satisfaction surveys, comparisons of provision with comparable institutions offering similar programs and direct observations by independent evaluators.

Condition assessments and maintenance schedules provide information about the quality and maintenance of facilities and major equipment. Regulations and codes of practice relating to the use of facilities and expensive equipment provide evidence of sound management practices and security arrangements. Performance indicators could include such things as ratings on surveys of user satisfaction, statistics on equipment breakdowns, comparisons of provision in relation to other institutions.

Standard 7: Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this true?
Y/No/NA

How well is
this done?
(enter stars)

7.1 Policy and Planning

Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.

7.1.1 Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution.

Y

3

7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met.

Y

3

7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule.

Y

3

Overall Assessment

Comment – Classrooms are adequate.

3

Priorities for Improvement – Consistent maintenance and support.

Independent Opinion

Comment _____

7.2 Quality and Adequacy of Facilities and Equipment

Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.

7.2.1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.

7.2.2 Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.

7.2.3 Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, access to computing facilities and associated software, private study facilities, and research equipment.

Y

3

7.2.4 Adequate facilities are available for confidential consultations between faculty and students)

Y

3

Y

3

7.2.5 Provision is made for students, faculty and staff with physical disabilities or other special needs.

Y

3

Y

3

Overall Assessment

3

Comment: Campus well designed - with emergency signs and directional maps at several locations.

Priorities for improvement – more training need for all faculty member including staff and administration. Safety plan (e.g. fire plan) needs to be developed and training implemented.

Independent Opinion

Comment _____

7.3 Management and Administration

Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.

7.3.1 A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.	Y	3
7.3.2 Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively carried out.	Y	3
7.3.3 Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.	Y	3
7.3.4 Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.	Y	3
7.3.5 Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.	Y	3
7.3.6 Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.	Y	3

Overall Assessment

Comment – Campus is maintained well, clean and pleasant for both students and faculty; an overall sense of security and safety.

Priorities for improvement – Air condition control need to be regulated more accurately in faculty offices and in the classrooms. Faculty needs to sign off on safety plan for electrical plug ins not authorized by university policy.

Independent Opinion

Comment _____

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed.	Y	3
7.4.2 Institutional policies governing the use of personal computers by students are complied with.	Y	3
7.4.3 Technical support is available for teaching staff and students using information and communications technology.	Y	3
7.4.4 Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.	Y	3
7.4.5 Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses.	Y	3

7.4.6 Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately.

Y

3

7.4.7 Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration.

Y

3

Overall Assessment

3

Comment – Classrooms are functional and adequate.

Priorities for improvement – Consistency in repairs of computer equipment. Adequate maintenance program where each classroom is monitored and supported.

Independent Opinion

Comment _____

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

3

7.2 Quality of and Adequacy of Facilities

3

7.3 Management and Administration

3

7.4 Information Technology

3

Combined Assessment

3

Comment – Classrooms and campus well maintained.

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement

Standard 8: Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

Main components of this Standard:

Financial Planning and Budgeting
Financial Management

Comment and General Description of Good Practice

Sufficient financial resources must be available to support the effective delivery of the program. This means both maintenance of routine and continuing activities and at least some provision for new initiatives to develop the program and improve its quality. Funds are not unlimited and resources must be effectively managed to avoid waste and adjust allocations when necessary from low priority to high priority items if required, or if possible to seek alternative supplementary funding opportunities. Some guide to adequacy can be obtained by considering funding levels for comparable programs in other similar institutions. However if this is done any such comparisons must take into account any variations in circumstances that may affect funding requirements.

This standard relates not only to the adequacy of funding but also to the efficiency and flexibility of financial management by program managers. To provide for this flexibility and for appropriate accountability, delegations should provide for specified levels of expenditure to be authorized by the program manager subject to reporting and accountability requirements. Regular management reports should be provided to the program manager from the financial accounting system to permit monitoring of expenditure in relation to budget projections.

Evidence

Evidence about the quality of financial planning and management can be obtained from budget statements and audit reports. Faculty surveys can provide information about whether resources considered by them to be necessary for the program are available. Comparisons of funding provisions with similar programs elsewhere can provide useful evidence of adequacy of provision provided care is taken to take account of any differences in the management of financial systems. Reports on risk assessment should be available together with strategies for risk minimization.

Standard 8: Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA**

**How well is
this done?
(enter stars)**

8.1 Financial Planning and Budgeting

Funding must be adequate for program requirements and planning must involve full cost estimates and both short and medium term cost projections. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

8.1.1 Proposals for new programs, major program changes or other activities, equipment or facilities are accompanied by business plans, which include independently verified cost estimates and cost impacts on other services and activities.

N

0

8.1.2 If new projects or activities are cross-subsidized from existing funding sources the cost sharing strategy is made clear and intermediate and long term costs and benefits are assessed.

N

0

8.1.3 Financial resources available for the program are sufficient for good quality program provision and benchmarked against costs of equivalent programs at other similar institutions.

N

0

8.1.4 The program coordinator (or department chair or dean) submits annual budget proposals setting out detailed program requirements and follows up as necessary to make adjustments after those proposals have been considered.

N

0

8.1.5 Budget proposals support strategic priorities for program development and quality improvement and consider possibilities for possible savings or alternative revenue sources as well as seeking additional funding if necessary.

N

0

Overall Assessment

Comment – Financial information is not available for review or use.

0 /
NA

Priorities for Improvement – Transparency in university and college budgets helps stakeholders improve effectiveness and efficiency of the university.

Independent Opinion

Comment _____

8.2 Financial Management

Financial affairs must be effectively managed with a proper balance between flexibility for the cost center manager and institutional accountability and responsibility.

8.2.1 Sufficient delegation of spending authority is given to the program manager (or department chair) for effective program administration

N

0

8.2.2 Delegations of spending authority are accompanied by appropriate accountability and reporting processes.

N

0

8.2.3 The program manager/head of department is involved in the budget planning process, and is held accountable for expenditure within the approved budget.

N

0

8.2.4 The accounting system provides for accurate and continuing monitoring by the

N

0

N

0

program manager of expenditure and commitments against budgets.

8.2.5 Where possibilities of conflict of interest exist, either actual or perceived, the persons concerned declare their interest and refrain from participation in decisions.

8.2.6 Financial carry-forward provisions are sufficiently flexible to avoid rushed end of year expenditure or disincentives for long term planning.

N

0

Overall Assessment

0 /
NA

Comment – No financial information available.

Priorities for Improvement – Transparency in university and college budgets.

Independent Opinion

Comment _____

Overall Assessment of Financial Planning and Management

8.1 Financial Planning and Budgeting

0

8.2 Financial Management

0

Combined Assessment

0 / NA

Comment - Need transparency in financial budgets for both the university and college.

Independent Opinion

Comment _____

Indicators Considered: _____

Priorities for improvement: _____

Standard 9: Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

Main components of this Standard:

Recruitment
Personal and Career Development

Comment and General Description of Good Practice

Faculty must be appropriately qualified and must have the detailed knowledge and experience necessary for their particular teaching responsibilities. Relevant professional experience is particularly important in professional programs. Qualifications and experience must be verified before appointments are made.

Faculty should be recruited for particular roles in the program and should be given detailed information about the program and their role as a member of a teaching team. This should also be done before appointment with further detailed orientation given by the program coordinator/manager before they begin their work. They should see themselves as members of a teaching team within a carefully planned and delivered comprehensive program, not just as instructors in a discrete subject specialty.

For all faculty and staff associated with the program feedback on performance should be provided in a constructive and supportive way and assistance given for improvements in both teaching skills and knowledge of their field.

Evidence and Performance Indicators

Evidence about quality of employment processes can be obtained from documents setting out employment and promotion processes and criteria, descriptions of orientation programs for new teaching and other staff, and procedures for performance evaluation and support for improvement. Records of assessments of quality of teaching, and teaching and other staff participation in professional development activities relevant to their employment can provide valuable evidence, particularly when they include ratios of participation and assessments of the value of those activities by the participants. Data on faculty turnover in parts of the institution can be used to indicate stability or instability in staffing. Regulations on dispute resolution combined with records of the incidence and outcomes of disputes can provide evidence about the effectiveness of those processes.

Performance indicators almost always include student/teaching staff ratios and proportions of teaching staff with levels of qualifications. However a number of others that can also be readily quantified are important such as participation ratios in professional development and scholarly activities. Some others such as rates of turnover of teaching and other staff might be selected if there are problems in the institution that need to be monitored.

Standard 9: Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
9.1 Recruitment		
Recruitment processes must be designed to ensure that capable and appropriately qualified teaching and other staff are available for all teaching and administrative functions, administered fairly, and that new staff are thoroughly prepared for their responsibilities.		
9.1.1 Recruitment processes ensure that teaching staff have the specific areas of expertise, and the personal qualities, experience and skill to meet teaching requirements.	Y	3
9.1.2 Candidates for employment are provided with full position descriptions and conditions of employment, together with specific information about expectations for contributing to the program as part of the teaching team. (The information provided should include details of employment expectations, indicators of performance, and processes of performance evaluation.)	Y	3
9.1.3 References are checked, and claims of experience and qualifications verified before appointments are made.	Y	3
9.1.4 Assessment of qualifications includes verification of the standing and reputation of the institutions from which they were obtained, taking account of recognition of qualifications by the Ministry of Higher Education.	Y	3
9.1.5 In professional programs there are sufficient teaching staff with successful experience in the relevant profession to provide practical advice and guidance to students about work place requirements.	Y	3
9.1.6 New teaching staff are given an effective orientation to the institution to ensure familiarity with the institution and its operating procedures, services and priorities for development.	Y	3
9.1.7 New teaching staff are given a thorough orientation to the program to ensure they have a thorough understanding of the program as a whole, of the contributions to be made to it through the courses they teach, and of the expectations for coordinated planning and delivery of courses and evaluation and reporting requirements.	Y	3
9.1.8 The level of provision of teaching staff (i.e. the ratio of students per teaching staff member calculated as full time equivalents) is adequate for the program and benchmarked against comparable student/teaching staff ratios at good quality Saudi Arabian and international institutions.	Y	3

Overall Assessment

Comment – Recruitment process is getting better; starting to set expectation at a realistic level and attracting qualified and specialize faculty.

3

Priorities for Improvement – A new faculty folder should be designed and delivered to each new faculty member. Faculty should receive an orientation of: culture, university practices, department orientation; and an orientation on safety, grocery stores, and taxi's.

VISA process is difficult, COBA should not bring in faculty on visitor VISA's, only

work or employment Visa. Set expectations at a realistic level. Teacher to student relation is very high, about double when benchmarked to accredited universities.

Independent Opinion

Comment _____

9.2 Personal and Career Development

Processes for personal and professional development must be fair to all teaching and other staff, designed to encourage and support improvements in performance and recognize outstanding achievements.

9.2.1 Criteria for performance evaluation are clearly specified in advance and made known to teaching and other staff.

9.2.2 Consultations about work performance are confidential and supportive, and occur on a formal basis at least once each year.

9.2.3 If performance is considered less than satisfactory clear requirements are established for improvement.

9.2.4 Formal performance assessments of teaching and other staff are kept confidential but are documented and retained. Faculty and staff have the opportunity to include on file their own comments relating to these assessments, including points of disagreement.

9.2.5 Outstanding academic or administrative performance is recognized and rewarded.

9.2.6 All teaching and other staff are given appropriate and fair opportunities for personal and career development.

9.2.7 Junior teaching and other staff with leadership potential are identified and given a range of experiences to prepare them for future career development.

9.2.8 Assistance is given in arranging professional development activities to improve skills and upgrade qualifications.

9.2.9 Appropriate professional development activities are provided to assist with new programs or policy initiatives.

9.2.10 Teaching staff are expected to participate in activities that ensure they keep up to date with developments in their field and the extent to which they do so is monitored.

Overall Assessment

Comment - COBA has established criteria's and processes for performance evaluations.

Priorities for Improvement – Greater assistance in research and conferences attendance. Need to better distribute workloads fairly and evenly.

Independent Opinion

Comment _____

Overall Assessment of Employment Processes

9.1 Recruitment

3

9.2 Personal and Career Development

3

Combined Assessment

3

Comment COBA has great improved over the last year in recruitment and orientation of new faculty. This has greatly supported the growth and challenges mostly on the female campus which is 60% of the student body.

Independent Opinion

Evaluators Comment _____

Indicators Considered

Priorities for Improvement

Standard 10: Research

A research strategy that is consistent with the nature and mission of the institution should be developed. All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in post graduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

Main components of this Standard as Applied to Educational Programs:

Teaching Staff and Student Involvement in Research
Facilities and Equipment

Comment and General Description of Good Practice in Research

Expectations for research involvement vary with the nature of an institution and the kind of program. Universities are expected to have substantial involvement in research and scholarship and their prestige in the international environment will depend on this to a major extent. There is also a separate expectation for research and scholarship relating to the teaching of post-graduate programs, particularly those with a significant research component, since the quality of teaching and learning in those programs is directly affected by the extent to which faculty have current research involvement. It is important that faculty involved in teaching post-graduate research students or supervising their research projects are themselves active scholars and researchers in their field.

At other institutions offering undergraduate programs there are lesser expectations for research. However faculty must still be familiar with the latest developments in their field and the institution should expect them to be involved in appropriate forms of scholarly activity. It should provide an environment in which this is encouraged, and monitor the extent to which it occurs.

If there is a research expectation for faculty or students in the program, either because of the nature of the institution or the particular program concerned there must be an adequate research infrastructure. This will include library and internet communication facilities, laboratories, equipment, and other research facilities relevant to the program. These resources provided must be available for postgraduate research students and faculty as part of normal basic provision.

Faculty should be encouraged to establish links with other institutions both locally and internationally, and, depending on the nature of the program, with industry and appropriate community agencies for cooperative research and development.

In all higher education programs faculty should be encouraged to pursue research interests, and be recognized for having done so even when additional resources cannot be provided to assist them. Regular reports of the research activities of faculty should be prepared, provided to the governing board, and made generally available in the institution..

Evidence and Performance Indicators

Evaluations of the quality of research should include a review of the research strategy for the department or the college, and other supporting documents including details of the extent and quality of research output by staff associated with the program. Evidence about involvement in research can be obtained from staff and from departmental research reports and staff evaluation and promotion criteria. Further evidence can be obtained by consideration of agreements for cooperative research and for shared use of major equipment items. Staff and student surveys can provide evidence about the adequacy of provisions for research facilities and equipment.

Performance indicators for research are commonly based on statistics on the volume of research publications per faculty member, the proportions of research-active teaching staff (a term that needs to be defined) and numbers of research citations—These figures should be compared with those at other comparable institutions and departments. In institutions with a commitment to research comparisons may

include the extent to which research and scholarly activities are translated into applications within the academic or professional field concerned.

Standard 10: Research

A research strategy that is consistent with the nature and mission of the institution should be developed All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in post graduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
10.1 Teaching Staff and Student Involvement in Research Expectations for teaching staff involvement in research and scholarly activities must be made clear and provide for widespread participation. Encouragement and support must be provided to encourage research activity by junior teaching staff and postgraduate students.		
10.1.1 Expectations for teaching staff involvement in research and scholarly activities are clearly specified and considered in performance evaluation and promotion criteria. (For universities criteria require at least some research and/or appropriate scholarly activity of all full time teaching staff).	Y	3
10.1.2 Clear policies are established in the institution for defining what is recognized as research, consistent with international standards and established norms in the field of study of the program. (This normally includes both self-generated and commissioned activity but requires creative original work, independently validated by peers, and published in media recognized internationally in the field of study)	Y	3
10.1.3 Support is provided for junior staff in the development of their research programs through mechanisms such as mentoring by senior colleagues, inclusion in project teams, assistance in developing research proposals, and seed funding.	Y	2
10.1.4 Postgraduate research students are given opportunities for participation in joint research projects.	N	NA
10.1.5 When research students are involved in joint research projects their contributions are appropriately acknowledged. When a significant contribution has been made reports and publications carry joint authorship.	N	NA
10.1.6 Assistance is available for teaching staff to develop collaborative research arrangements with colleagues in other institutions and in the international community.	Y	2
10.1.7 Research and scholarly activities of teaching staff that are relevant to courses they teach are reflected in their teaching together with other significant research developments in the field.	Y	3
10.1.8 Strategies are developed for identifying and capitalizing on the expertise of faculty and postgraduate students in providing research and development services to the community and generating financial returns to the institution.	Y	4

Overall Assessment

Comment – COBA has established policies for research and research committees. Senior faculty mentor and support junior faculty members in peer reviewed research, and paper preparation and submissions.

Priorities for Improvement – Overload has caused challenges for faculty. Time should be allocated for peer reviewed research. Committees within the department need to meet and discuss in open form: topics of research, team orientation for research and

paper preparation, editing, and submission.

Independent Opinion

Comment _____

10.2 Research Facilities and Equipment

Adequate facilities and equipment appropriate for research in the program field of study must be available for use by teaching staff and postgraduate students. Clear policies must be established for ownership and care for specialized facilities and equipment obtained through research grants or cooperation with industry.

10.2.1 Adequate laboratory space and equipment, library and information systems resources are available to support the research activities of faculty and students in the field in which the program is offered.

10.2.2 Security systems are established that ensure safety for researchers and their activities, the institutional community and the surrounding region.

10.2.3 Policies are established to make clear the ownership and responsibility for maintenance of equipment obtained through faculty research grants, commissioned research or other external sources.

10.2.4 Adequate budget and facilities for the conduct of research at a level consistent with institutional, program and departmental policies should be provided.

Y	3
Y	3
Y	3
Y	3

Overall Assessment

3

Comment – Research facilities are adequate.

Priorities for Improvement – Need to establish a stronger budget for research. Faculty should be allowed to order books at the universities expense. Budget needs to be established for research. The university will benefit significantly as faculty publishes.

Independent Opinion

Comment _____

Overall Assessment of Research

10.1 Teaching Staff and Student Involvement in Research

3

10.2 Research Facilities and Equipment

3

Combined Assessment

3

Comment - Research within COBA is getting stronger with the hiring of many research focused faculty and growing support from administration.

Priorities for Improvement – Faculty should be allowed to order books at the universities expense. Budget needs to be established for research. The university will benefit significantly as faculty publishes.

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 11: Relationships With the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

For the purposes of this standard contributions to the community should include services and activities to assist individuals, organizations or communities outside the institution (i.e. they would not include such things as financial assistance or extra curricular activities for enrolled students or the provision of academic programs leading to qualifications) but could include participation in research or development projects, and community education programs provided either with or without charge.

Main Components of this Standard

Institutional Policies on Community Relationships
Interactions with the Community

Comment and General Description of Good Practice

As influential members of the community institutions should recognize an obligation shared with other community members to cooperate for mutual benefit. However the responsibility of post secondary institutions goes well beyond that general obligation. By their nature they are service organizations whose central responsibility is to provide educational services that are required. In most cases they are established or approved to operate because that service is recognized as being needed in the community. Many receive substantial government support, which is a community contribution to their activities, either directly or through financial support for students.

The mission of an institution should make clear the nature of its contribution to the communities it is intended to serve and should be developed following an analysis of the needs of those communities and the capacity of the institution to respond.

Higher education institutions have special capacity to contribute because of the skills of their faculty in a number of different occupational or professional fields and academic disciplines, and because of the facilities they have for teaching, research and cultural activities. As a result it is common for them to provide for community access to cultural activities, to establish clinics or services for the benefit of the community, to develop research or consultancy programs focusing on requirements of local communities, and to encourage staff to take an active role in aspects of community life that are relevant to their special expertise. The role of higher education institutions in providing assistance and support to other education institutions including schools can be extremely important to those other institutions, as well as providing benefits to the higher education institution itself by improving its capacity to attract high quality students.

A post secondary institution should clearly identify its potential contributions to the community, provide for those contributions in appropriate ways in its mission, develop institutional policies and strategies for response, and monitor and report on what is done.

While the geographic region surrounding an institution is particularly significant, the concept of community should be interpreted broadly, to include the academic and professional communities with which it interacts, locally, nationally, and internationally. Contributions to these communities are all important, and as is the case for the local general community, effective interaction has significant benefits for the institution as well.

Institutions should ensure that their activities and services are widely publicized and understood and valued by the community, and that their reputation is enhanced. The reputation of the institution is a vital factor in attracting and retaining high quality students and staff, seeking endowments, attracting research projects

and funding, and in ensuring community support. It is also important in establishing and maintaining the public credibility of the qualifications that students receive.

Evidence and Performance Indicators

Evidence about quality of community relationships can be obtained from documents describing policies on service to the community, criteria for staff evaluation and promotion that include community contributions, and guidelines and processes for community media releases and other public comments on behalf of the institution. Reports on community relationships that include such matters as community use of institutional facilities, participation of staff on community committees or development projects and interactions with schools and other agencies can provide relevant information. The extent of community service activity, including formal courses and other services provided by the department or individuals within it should be documented and reported so records can be retained in a central data system. Community views about the quality of the institution and its standing as a respected member of the community can be obtained from surveys.

A number of these forms of evidence include ratings that can be used directly as performance indicators. However in this area in particular the mission of the institution and the community within which it operates is important in deciding what aspects of performance should be closely monitored.

Standard 11: Relationships with the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
11.1 Policies on Community Relationships		
11.1 The service commitment of the program should be defined in a way that reflects the community or communities within which the institution operates, and the skills and abilities of staff teaching in the program.	Y	2
11.1.2 The contributions to the community made by staff teaching in the program are recorded and reported upon on an annual basis.	Y	2
11.1.3 Promotion criteria and faculty assessments include contributions made to the community.	Y	2
11.1.4 Departmental or program initiatives in working with the community should be coordinated with responsible units in the institution to avoid duplication and possible confusion.	Y	2
Overall Assessment		2
Comment – Community service within COBA has been accomplished predominantly be committee work. No major or consistent efforts have been made in this area. Priorities for Improvement – COBA will establish community focused programs whereas faculty can participate and expand service with the local area / region. Outside business and governmental representative should be invited to the COBA to attend and form a practical action committee (PAC), where society, business, and government can address the needs and wants of all stakeholders, so that programs within COBA can be improved or created, and students can enter internships with those PAC members.		
Independent Opinion		
Comment _____ _____		
11.2 Interactions With the Community		
Relationships should be established with the community to provide needed services and draw on community expertise to support the program.	Y	2
11.2.1 Staff are encouraged to participate in forums in which significant community issues are discussed.	Y	2
11.2.2 In a professional program relationships are established with local industries and employers to participate on advisory committees and assist program delivery. (These may include, for example, placement of students for work-study programs, part time employment opportunities, and identification of issues for analysis in student project activities.)	Y	2
11.2.3 Local employers and members of professions are invited to join appropriate advisory committees.	Y	2

11.2.4 Contacts are established with schools in the region offering assistance and support in areas of specialization, providing information about the program and subsequent career opportunities for graduates, and arranging enrichment activities for students at the schools. (If a section within the institution has responsibility for coordinating these relationships these contacts are arranged in consultation with that section.)

11.2.5 Regular contact is maintained with alumni, keeping them informed about institutional developments, inviting their participation in activities, and encouraging their financial and other support for new initiatives.

11.2.6 Opportunities are taken in cooperation with institutional administrators to seek funding support from individuals and organizations in the community for research and other developments associated with the program.

11.2.7 Records are maintained of community services undertaken by individuals and centers or other organizations within the department and provided regularly for recording in a central data base within the institution.

N

0

Y

2

Y

2

Overall Assessment

2

Comment - Similar to previous section Community Service within COBA has predominantly be committee work. No major or consistent efforts have been made in this area. Outside of the internship program, faculty have little exposure to community.

Priorities for Improvement – COBA will establish community focused programs whereas faculty can participate and expand service with the local area / region. COBA will establish community focused programs whereas faculty can participate and expand service with the local area / region.

Outside business and governmental representative should be invited to the COBA to attend and form a practical action committee (PAC), where society, business, and government can address the needs and wants of all stakeholders, so that programs within COBA can be improved or created, and students can enter internships with those PAC members.

Independent Opinion

Comment _____

Overall Assessment of Relationships with the Community

11.1 Institutional Policies on Community Relationships

2

11.2 Interactions With the Community

2

Combined Assessment

2

Comment - Community service within COBA has predominantly be committee work. No major or consistent efforts have been made in this area. Outside of the internship Programs, faculty have little exposure to community.

Priorities for Improvement – COBA will establish community focused programs whereas faculty can participate and expand service with the local area / region.
COBA will establish community focused programs whereas faculty can participate and expand service with the local area / region.

Outside business and governmental representative should be invited to the COBA to attend and form a practical action committee (PAC), where society, business, and government can address the needs and wants of all stakeholders, so that programs within COBA can be improved or created, and students can enter internships with those PAC members.

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement



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KEY PERFORMANCE INDICATOR

College of Business Administration



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

4. Engagement of Faculty

Action Plan:

COBA engages faculty consistently in the following venues:

1. Monthly College Faculty meetings – Conducted by Dean
2. Monthly Departmental meetings – Conducted by Chairs
3. 6 committees;
 - a. Chair's Council – meeting one a week
 - b. Undergraduate Committee
 - c. Grade Appeal Committee
 - d. Health & Safety Committee
 - e. Graduate Committee
 - f. Continues Training Committee
4. Community Service
 - a. High School Visitations
 - b. "Coffee Talk" – Open discussion forum with students at local coffee shops
 - c. Lecture series for student body
 - d. Faculty providing sports venues for local community

Time Frame:

Engagement of Faculty is an ongoing process. Activities may change but engagement is a consistent forum for the college.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

5. Program Evaluation Survey - (PES)

Action Plan:

Surveys are taken each semester to review and measure the program;

- a. Help and support in learning
- b. Resources to support learning
- c. Evaluation of learning
- d. Overall evaluation

Faculty is encouraged to support student compliance with the survey. Creative ideas and class time are used to engage students and support.

Time Frame:

PES Surveys are done each semester.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

6. Number of full time faculty who received national or international awards as a percentage of the total number of full time faculty in the college.

Action Plan

Recruitment practices for upper level performers. Previously the university has been focusing and operating as a teaching university. Currently the university has become more focused on the hiring of PhD instructors who have published and/or experience in publications and participation in international events. These instructions will be given less load to promote their studies and research and participation in both national and international events.

Time Frame

Currently in action the recruitment process is focusing on PhD instructors with Western education with extensive experience in research and conferences.

Recruitment has been consistent for all of 2011. This practice and consistency will continue forward in to 2012.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

7. Students to full time teaching staff ratio in the college

The KPI for the end of 2010/2011 school year is calculated in the table below.

Number of full time teaching staff	29
Number of students	820
Students to full time teaching staff ratio	28.3

The ratio of the KPI means that there are 28.3 students per one of the College's instructor or professor. This ratio when compared / benchmarked to other AACSB certified universities is not considered adequate. See below benchmarked universities;

Action Plan:

When benchmarked with other universities the student to teaching staff ratio varies;

- Rutgers University in Newark
Student/Faculty Ratio: 13:1
- Columbia College
Day Campus - 14:1
Evening Campus and Extended Campuses - 16:1
- Cornell University
Student-Faculty Ratio 12:1

Consistent recruitment has been undertaken for all of 2011 it is expected the number of new instructors added to the program will effectively decrease the ratio between faculty and students.

For 2011 / 2012 we are projected to hire 14 new faculty, 13 female and 1 male faculty. 2012 / 2013 COB will hire an additional 12 faculty based on this projection. Our ratio in 2012 / 2013 is expected to meet the standard of 15:1 Student to Faculty ratio which is an acceptable standard.

Time Frame:

Ongoing will be reviewed after the 2012 / 2013 school year.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

8. Total Number of full time teaching staff in the college

College of Business: 29 Faculty

Accounting and Finance Department:

Number of Assistant Professors: 4 (60%)

Number of Instructors: 3 (40%)

Business Administration:

Number of Assistant Professors: 7 (40%)

Number of Instructors: 10 (60%)

Management Information System:

Number of Assistant Professors: 5 (100%)

Number of Instructors: 0 (%)

Action Plan:

For 2011 / 2012 we are projected to hire 14 new faculty; 13 female and 1 male faculty. 2012 / 2013 COB is estimating to hire an additional 12 faculty based on student projects projections and the need to reduce the Faculty to Student ratio.

Time Frame:

Ongoing and will be reviewed during the 2012 school year



NCAAA – Key Performance Indicators

Data and Narrative Needs:

9. Number of full time faculty in the college with verifiable doctoral degrees

The College of Business Administration has 18 full-time faculty members out of 29 (62%), who have doctoral degrees verified by the Saudi Arabia Ministry of Cultural Affairs (MCA) in the home country of faculty member. The MCA requires each faculty member submit an original diploma and the registrar's office of their university send official transcripts directly to the MCA. Because of the scrutiny of the MCA on behalf of the Kingdom, an independently verified doctoral degree by the COBA is not necessary.

Although, all faculty members have doctoral degrees from qualified western institutions and maintain their qualifications through academic publications and continuing education activities when they are also professionally qualified, it is recommended that the COBA also receive letters of recommendation from their former institution.

Action Plan:

Beginning with the recruitment season for the academic year 2012-13 (spring 2012), it is recommended that a selection committee of the COBA solicit and receive favorable letters of recommendation before an applicant is advanced in the hiring process.

The chairs will appoint a hiring committee to develop a comprehensive approach to recommending faculty for employment on or before January 15, 2012.

For 2011 / 2012 we are projected to hire 14 new faculty, 13 female and 1 male faculty. 2012 / 2013 COB will hire an additional 12 faculty based on this projection.

Time Frame:

Ongoing into the 2012 school year



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

10. Percentage of undergraduate students enrolled in the college who successfully pass the freshman year.

Currently, the calculation of this KPI cannot be carried out because of the data absence. With an aim to enable it the following actions are supposed to be performed in the 2011/2012 school year:

Action Plan

1. With an assistance of Student Affairs and the university's IT department the evaluation of the Registrar office' student database will be carried out with a goal to evaluate the possibility to automate the query procedures.
2. Provided that College clearly explains what information is needed, the IT department will use programming language to write a query that will enable acquisition of data, required for the KPI calculation.
3. Every year the KPI will be calculated. In the calculations the data received from the automated query processing will be used.

Time Frame

Ongoing, COB is working with Student Affairs, HR and the IT Department to collect this data.



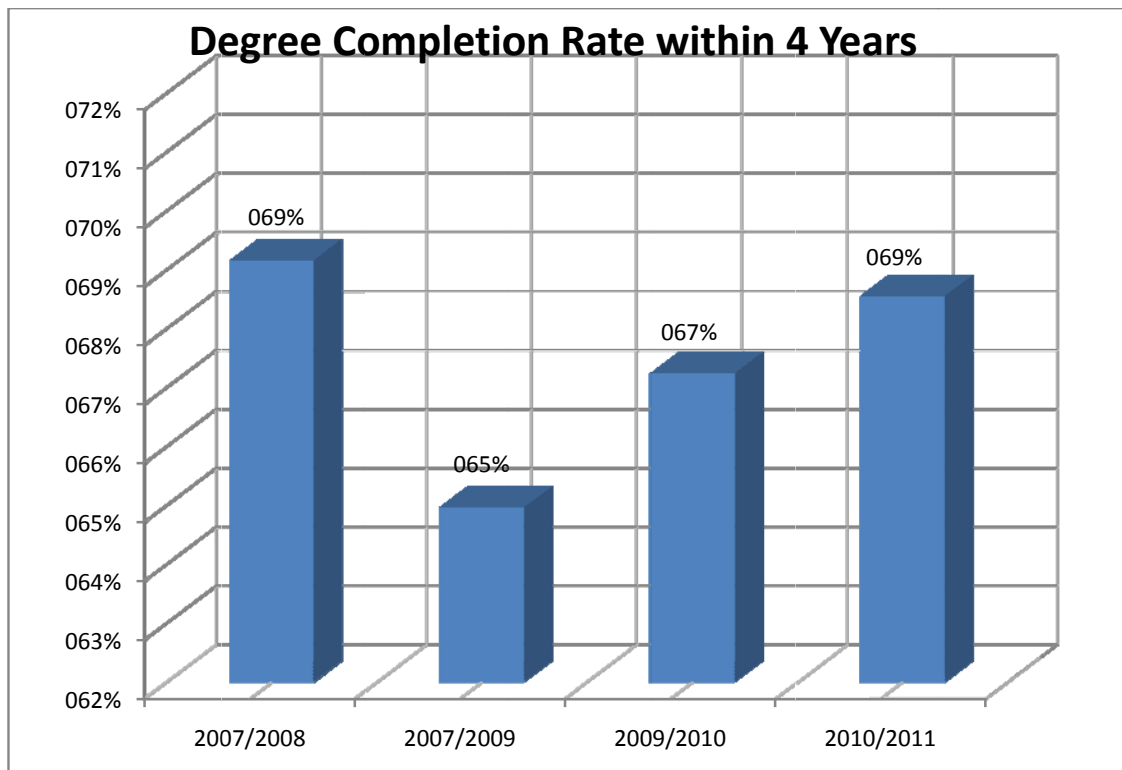
NCAAA – Key Performance Indicators

Data and Narrative Needs:

11. Percentage of undergraduate students enrolled in the college who complete their degree within 4 academic years

The results of the KPI calculation are showed on the graph below.

Action Plan



The KPI's values vary in a narrow range of 65-70% that can be considered as a good result.

Time Frame

Degree completion rates are measured yearly.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

12. Percentage of graduate students who complete their degree in the minimum time

Currently, the calculation of this KPI cannot be carried out because of the data absence. With an aim to enable it the following actions are supposed to be performed in the 2011/2012 school year:

Action Plan

COB will seek the assistance of Student Affairs and the Registrar office for evaluation of the enrollment report and detailed information need to evaluate the above KPI.

Time Frame

Ongoing, COB is working with Student Affairs to collect this data. Every year the KPI will be calculated.



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

13. Percentage of undergraduate students who get employed within 6 months of graduation

Currently, the College doesn't monitor the employment of its graduates and has no data that could allow calculating this indicator.

Action Plan:

Starting from the 2011/2012 school year the College is planning to maintain better contact with the graduates. Among other benefits that such contact can provide, the KPI under consideration will be possible to calculate by performing the following systematic actions:

1. Upon graduation every graduate will be asked to provide his or her contact details (e-mail, cell phone, etc.). The contact data will be kept in a special data base maintained either by the College, Student services department or Students council.
2. Annually, a survey with a goal to evaluate the employment rate of the previous year graduates will be organized via e-mail, or phone. Taking into the account the size of the population (annual number of graduates) the sample size of 50-60 persons can be considered as adequate.

Time Frame:

Ongoing - each year the value of this KPI will be calculated, basing on the results of the carried out survey.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

14. Percentage of undergraduate students who enroll in graduate studies

0% - The first graduating class was June of 2011 and therefore no enrollment information is available.

Action Plan:

COB will work with the Resistors Office as well as Student Affairs to cumulate the statistics for this KPI.

Time Frame;

We will review this KPI as at September 2012.



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

15. Percentage of undergraduate students who got employed in professions closely related to their field of study

The first graduating class was June of 2011 and therefore no enrollment information is available.

Action Plan:

COB will work with the Resistors Office as well as Student Affairs to cumulate the statistics for this KPI.

Time Frame;

We will review this KPI as at September 2012.



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NCAAA – Key Performance Indicators

Data and Narrative Needs:

16. Percentage of College Programs meeting the NCAAA 11 program standards relative to total number of departments

Action Plan:

As this is our initial application for NCAAA accreditation each department;

- Business Administration
- Finance and Accounting
- MIS

Our above programs are presently being reviewed to meet the standard of the NCAAA; each department is working in unison with the college to educate the faculty and increase the awareness of each standard. An accreditation committee has been established including members of each department to support the knowledge transfer. KPI's for the College have been discussed and supported to fulfill the measurement of where each department stands per standard.

Submittal of all COBA materials will be through the Quality Center.

Time Frame:

Ongoing process, to be reviewed periodically in line with the standards set, present review as at December 24, 2011



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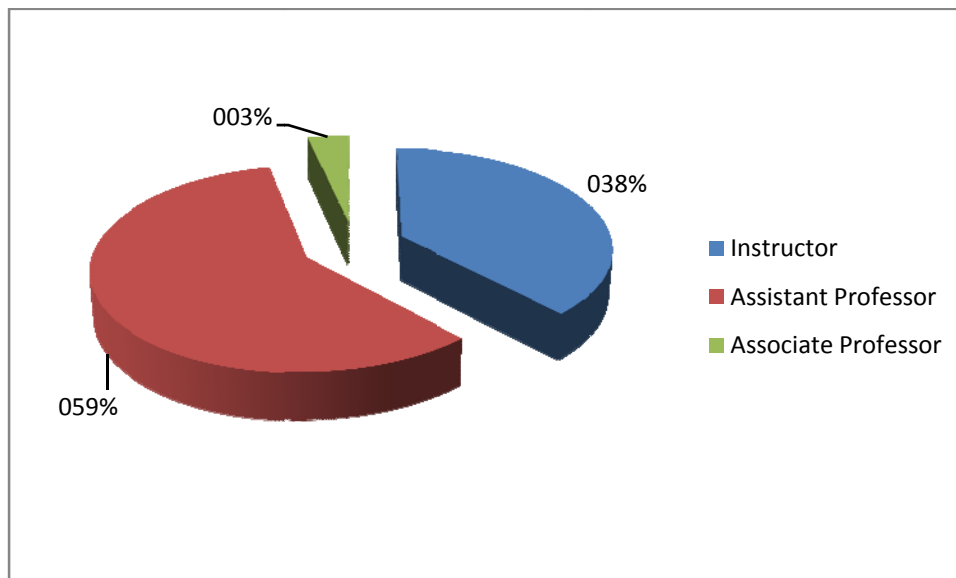
NCAAA – Key Performance Indicators

Data and Narrative Needs:

17. Breakdown of full time faculty in terms of academic ranking of Teaching Assistants, Instructor, Assistant, Associate and Full professor

The total number of fulltime faculty is 29 (one Associate Professor, 17 Assistant Professors and 11 Instructors). The breakthrough of fulltime faculty in terms of academic rankings is provided on the graph below.

Action Plan:



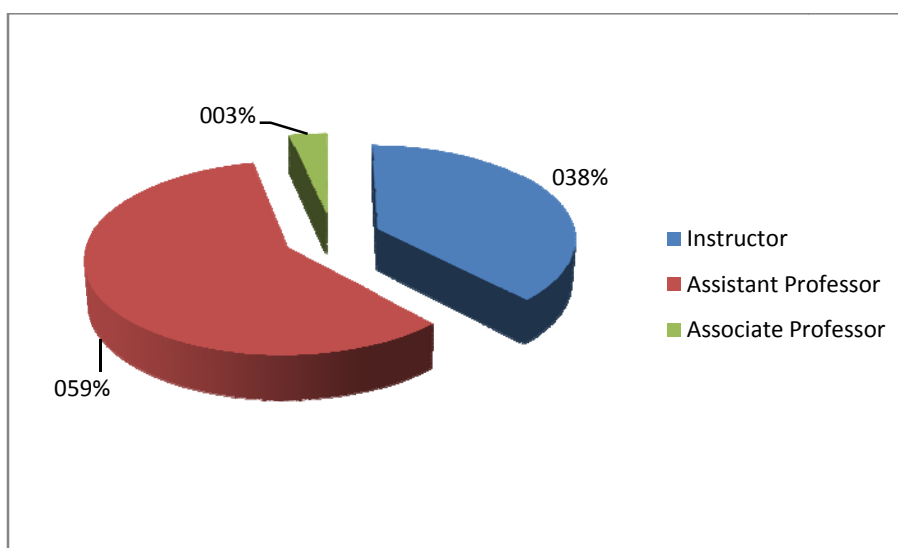
As it can be seen on the graph, more than 60% of fulltime faculty is represented by PhD holders, which provides the College with good research potential.

Time Frame:

Ongoing

KPI 17 (Breakdown of fulltime faculty in terms of academic ranking: Instructor, Assistant, Associate and Full Professor)

The total number of fulltime faculty is 29 (one Associate Professor, 17 Assistant Professors and 11 Instructors). The breakdown of fulltime faculty in terms of academic rankings is provided on the graph below.



As it can be seen on the graph, more than 60% of fulltime faculty is represented by PhD holders, which provides the College with good research potential. However, there are no Full Professors and only one Associate Professor, which can be considered as deviation from the norm [what are the benchmarking?], then....

Action plan:

**College of Business Administration Faculty
Departmental Allocation**

Name	Academic Rank	Department
Dr. Hesham Magd (M)	Associate Professor, Dean	Business Administration
Dr. Ilya Bystrov (M)	Assistant Professor	Business Administration
Dr. Imad Jabir (M)	Assistant Professor	Business Administration
Dr. Kimanthi Thompson (M)	Assistant Professor	Business Administration
Dr. Muhammad Khalid (M)	Assistant Professor	Business Administration
Dr. Shaikh Arifusalam (M)	Assistant Professor	Business Administration
Dr. Sofyan Azaizeh (M)	Assistant Professor	Business Administration
Dr. Syed Jamal Haider (M)	Assistant Professor	Business Administration
Mr. John Ondish (M)	Instructor	Business Administration
Mr. Chris Miller (M)	Instructor	Business Administration
Mr. Douglas Cisneros (M)	Instructor	Business Administration
Mr. Mohammad Ali Mirza (M)	Instructor	Business Administration
Mr. Mohammad B. Abdul-Rahim (M)	Instructor	Business Administration
Mr. Nihad Sakallah (M)	Instructor	Business Administration
Mrs. Kumarashvari Subramaniam (F)	Instructor	Business Administration
Ms. Lee Collins (F)	Instructor	Business Administration
Ms. Rania Mohy El Din Nafie (F)	Instructor	Business Administration
Dr. Malik Saleh (M)	Assistant Professor, Chair	Management Info Systems
Dr. Samer Al Imamy (M)	Assistant Professor	Management Info Systems
Dr. Mohammad Khatib (M)	Assistant Professor	Management Info Systems
Dr. Valentina Korzhova (M)	Instructor	Management Info Systems
Dr. James Wood, CPA (M)	Assistant Professor, Chair	Accounting & Finance
Dr. Dawood Ashraf, CFA (M)	Assistant Professor	Accounting & Finance
Dr. Emmanuel Okey Ntui (M)	Assistant Professor	Accounting & Finance
Dr. Muneer Abbad (M)	Assistant Professor	Finance and Accounting
Dr. Shah Chowdhury (M)	Assistant Professor	Accounting & Finance
Mr. Kan Lam (M)	Instructor	Accounting & Finance
Mr. Mark McCoy (M)	Instructor	Accounting & Finance



جامعة الأمير محمد بن فهد الأهلية

PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

18. College retention of students (Dropout rate) over the past 4 years

	2009/2010		2010/2011	
	Male/Female	Total	Male/Female	Total
• Business Administration:	36 / 39 =	75	20 / 27 =	47
• Finance:	28 / 24 =	52	60 / 48 =	108
• Accounting:	6 / 4 =	10	9 / 11 =	20
• Information Management Systems:	6 / 14 =	20	14 / 9 =	23

College of Business Administration	Business Administration	15	20	21	19	13	15	7	12	56	66	19.68%
	Finance	15	15	13	9	18	10	7	7	53	41	15.16%
	Accounting	1	3	5	1	1	1	1	3	8	8	2.58%
	Management Information Systems	2	9	4	5	6	6	8	3	20	23	6.94%

Action Plan:

1. Increase student academic advisor counseling time
2. Reduce number of learner per advisor ratio
3. Focus on retaining contracted faculty beyond their initial contract for tenure continuity and to increase learner/faculty continuing relationship building

Time Frame:

Ongoing – COB will maintain communication with Student Affairs to track any downward trend in order to proactively assess and act.

Date : March 21, 2011

College	Major	STUDENTS DROP OUT											
		Fall 2009/2010		Spring 2009/2010		Fall 2010/2011		Spring 2010/2011		Total		Percentage (%)	
		M	F	M	F	M	F	M	F	M	F		
College of Computer Engineering and Sciences	Information Technology	3	2	8	3	2	2	5	2	18	9	4.35%	
	Computer Engineering	3	2	5	1	7	7	7	2	22	12	5.48%	
	Computer Science	0	4	1	3	3	3	2	2	6	12	2.90%	
College of Engineering	Mechanical Engineering	34	0	30	0	34	0	34	0	132	0	21.29%	
	Electrical Engineering	24	0	14	0	20	0	14	0	72	0	11.61%	
	Civil Engineering	4	0	5	0	3	0	7	0	19	0	3.06%	
	Interior Design	0	13	0	12	0	8	0	10	0	43	6.94%	
College of Business Administration	Business Administration	15	20	21	19	13	15	7	12	56	66	19.68%	
	Finance	15	15	13	9	18	10	7	7	53	41	15.16%	
	Accounting	1	3	5	1	1	1	1	3	8	8	2.58%	
	Management Information Systems	2	9	4	5	6	6	8	3	20	23	6.94%	
Total Per Semester M/F		101	68	106	53	107	52	92	41				
OVERALL TOTAL				620									

CCES 13.00 %

COE 43.00 %

COBA 44.00 %

Based on the different types of student status namely:

Academic Dismissal, Complete Withdrawal, No Show, Leave of Absence, Deceased, Delay Admittance and Admission Cancelled



جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

19. Graduate student enrollment as percentage of total enrollment

Table:

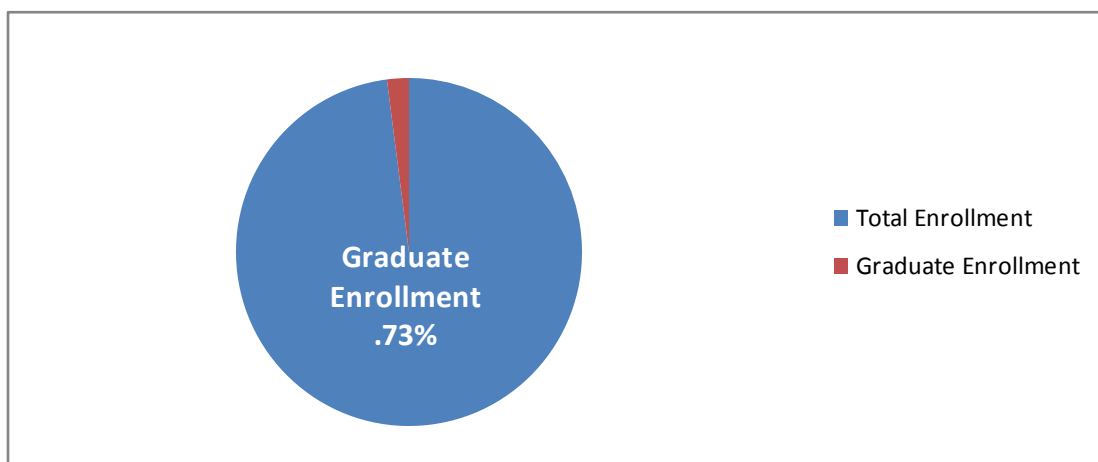
Per Registrar's Statistics 2011-12

Action Plan:

Regular MBA program is currently being proposed for 2012/2013 to improve on this percentage. The Executive Masters Program as it relates to this KPI is as follows:

Total Enrollment COBA	Graduate Enrollment EMBA	Graduate %
820	17	2.07%

Graduate Students As Percentage of Total Enrollment



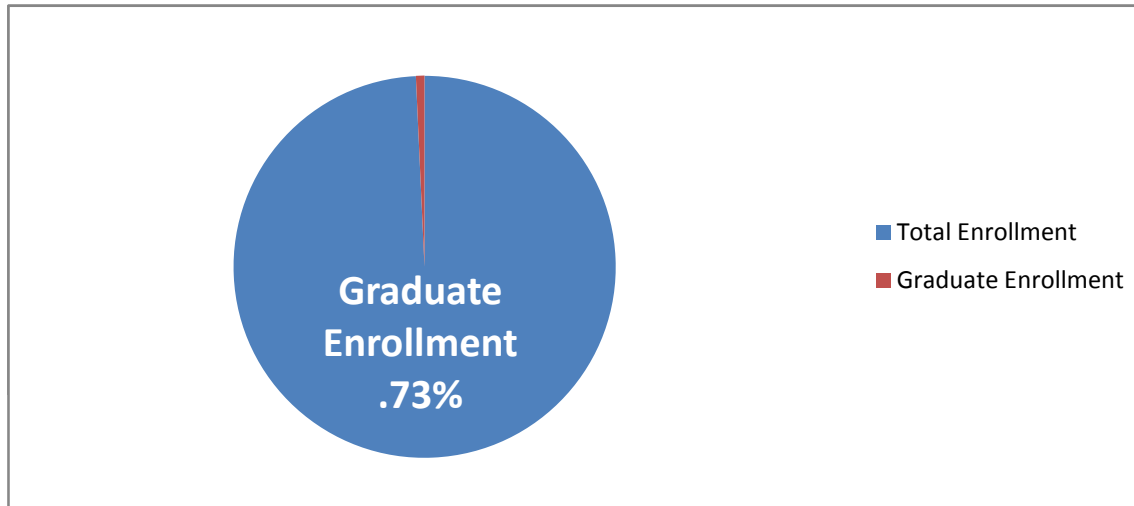
Time Frame:

The enrollment statistics are generated each intake – currently there are

Total Enrollment
2344

Graduate Enrollment
17

Graduate Students As Percentage of Total Enrollment





جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

20. National (Saudi) awards received by college, college faculty or staff in the past 4 years:

The COB has 0% award at a National level.

Action Plan

A recruitment practice for upper level performers has been optimized with effect from September 2011.

Currently the university has refocused on hiring of PhD instructors who have experience in publications and participation in international events with emphasizes on Saudis indigents as faculty members equipped with western style education on a 50/50% basis through graduate assistantship program. We will work hand in hand with the dean of research to maintain awareness of the availability of National awards.

Time Frame

Ongoing, this KPI will be reviewed in 2012/2013 school year.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

21. International recognition awards received by college, college faculty or staff in the past 4 years

The COB has 0% award at an International level.

Action Plan

A recruitment practice for upper level performers has been optimized with effect from September 2011. Currently the university has refocused on hiring of PhD instructors who have experience in publications and participation in international events. These instructions will be given less load to promote their studies and research and participation in both national and international events. We will work together with the dean of research to keep aware of international awards and recognitions.

Time Frame

Ongoing, this KPI will be reviewed in 2012/2013 school year.



جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

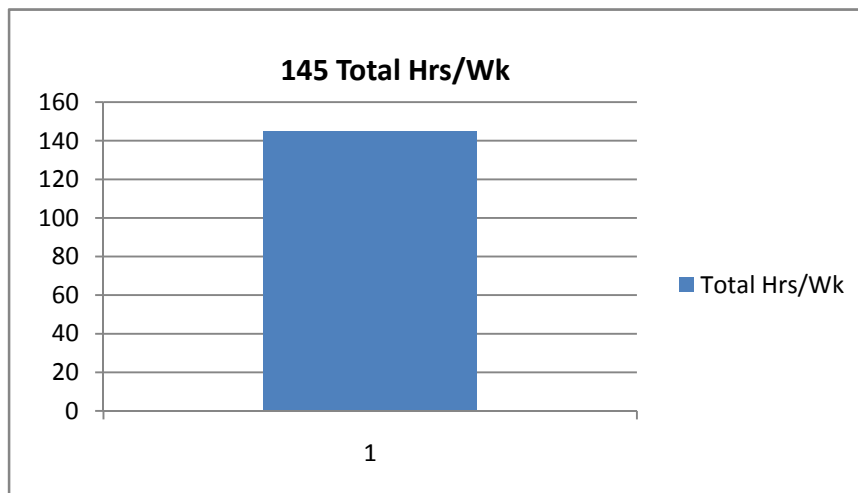
Data and Narrative Needs:

22. Total number of student-faculty interaction hours per week other than class time:

The College of Business currently has;

Faculty	Student	Hours/Wk	Total Hrs/Wk
29	820	5	145

Total Number of Student-Faculty Interaction Hours Per Week



Action Plan:

Currently all instructors maintain advising hours as well as 6 instructors are involved with both club and sport activities with student body. These activities are encouraged and supported by the COB management.

Time Frame:

Ongoing effort to maintain high levels of student – faculty interaction such as participation in clubs, sports and lecture series from Business Faculty.



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

23. Report on the adequacy of classrooms, facilities and labs within college

- Classrooms and learning resources are new with current technologies
- Each classrooms is equipped with computer, projector and internet access
- Classroom seats are designed for learning conducive and adequate seats are provided for each student learner.

Action Plan:

- Upgrade for internet bandwidth are being considered to increase the speed from 54 mbps to 200 mbps with fiber optics.
- Mobily, our internet provider has promised to make fiber optics available to our campus

Time Frame:

Ongoing; to be monitored and reviewed continually during the 2012 school year



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

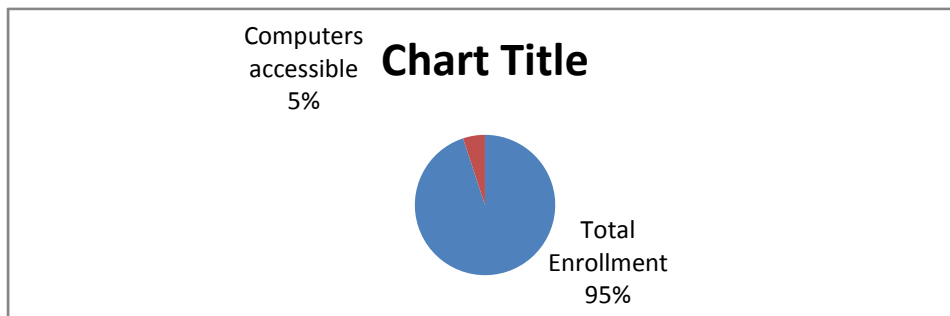
Data and Narrative Needs:

24. Number of computers accessible by students per student in the COBA

COBA students have access to approximately 44 computers throughout the University – 24 in dedicated classrooms for student academic support and 20 in the library. This amounts to one computer per 34 students or approximately 5%. Although this appears on the surface to be minimal, in this age of computers taking the form of laptops, notebooks, netbooks, home desktops and electronic tablets, every student seems to have access to the power of electronic computing and rarely are seen using the computers made available on campus. Because PMU is a technologically advanced campus, should the need for additional computers be raised additional computing capacity is as simple as purchasing them and earmarking classrooms to hold them.

Total Enrollment	Computers accessible
820	44

Computers for Students As Percentage of Total Enrollment



Action Plan:

COB will work with the IT department to monitor and review new technologies and needs of the department.

Time Frame:

Ongoing



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PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

25. Did you survey your teaching staff on adequacy of equipment and facilities in your college?

Action Plan:

- Survey conducted periodically on adequacy of equipment and facilities: Last survey Outcomes:
 - o Classrooms and learning resources are new with current technologies
 - o Each classrooms is equipped with computer, projector and internet access
 - o Classroom seats are designed for learning conducive and adequate seats are provided for each learner.
 - o Upgrade for internet bandwidth are being considered to increase the speed from 54 mbps to 200 mbps with fiber optics.
 - o Mobile, our internet provider has promised to make fiber optics available to our campus
 - o Survey and results from survey are available upon request

Time Frame:

Ongoing/Periodically

AACSB

Faculty Survey

16 respondents

3/5/2011

COBA Mission Review

Student Base

*Key below

What do you expect from your students?

Survey Results

Faculty

<u>Attend classes regular and on time</u>	<u>8</u>	50%
<u>Submit all required work on time</u>	<u>3</u>	19%
<u>Attend classes prepared and ready to work</u>	<u>8</u>	50%
<u>Constructive participation in class</u>	<u>8</u>	50%
<u>Quality learning process</u>	<u>3</u>	19%
<u>Honesty</u>	<u>4</u>	25%
<u>Sharing of knowledge</u>	<u>1</u>	6%
<u>Ask for support if needed</u>	<u>1</u>	6%
<u>Self-Motivated</u>	<u>2</u>	13%
<u>Follow directions</u>	<u>1</u>	6%
<u>Prepared for Exams</u>	<u>1</u>	6%
<u>Homework on time</u>	<u>1</u>	6%
<u>Research capability</u>	<u>1</u>	6%

Are your students meeting your expectations?

<u>Yes</u>	<u>2</u>	13%
<u>Some</u>	<u>12</u>	75%
<u>No</u>	<u>1</u>	6%
<u>Challenges</u>	<u>1</u>	6%
<u>Mathematics</u>	<u>1</u>	6%
<u>English</u>	<u>1</u>	6%
<u>High class capacity</u>	<u>1</u>	6%
<u>Coming late to class</u>	<u>1</u>	6%
<u>Talk in class</u>	<u>1</u>	6%
<u>Lack of perpetration</u>	<u>1</u>	6%
<u>Computer skills</u>	<u>1</u>	6%

Faculty Base

What do you expect from yourselves?

<u>Deliver quality information, (can be used in the work force)</u>	<u>7</u>	44%
<u>Continuously challenge students</u>	<u>2</u>	13%
<u>Open communication with students</u>	<u>2</u>	13%
<u>Establish relationships based on trust and respect</u>	<u>1</u>	6%
<u>Integrity, preparation and cooperation</u>	<u>2</u>	13%
<u>More research, publications, scholarship</u>	<u>4</u>	25%
<u>Required knowledge</u>	<u>1</u>	6%
<u>Timely, pertinent exams evaluated fairly and quick turnaround</u>	<u>3</u>	19%
<u>100% effort and time</u>	<u>1</u>	6%
<u>Administration tasks</u>	<u>1</u>	6%
<u>Solve problems</u>	<u>1</u>	6%
<u>Discipline students attendance</u>	<u>1</u>	6%

What are you doing to meet your own expectations?

<u>Preparation</u>	<u>4</u>	25%
<u>Examples in class</u>	<u>1</u>	6%
<u>Available for all questions</u>	<u>1</u>	6%
<u>Time on learning outcomes</u>	<u>1</u>	6%
<u>Quality information</u>	<u>3</u>	19%
<u>Motivation</u>	<u>1</u>	6%
<u>Work in progress</u>	<u>4</u>	25%
<u>Ice breakers and communications</u>	<u>2</u>	13%
<u>Listening and advising currently and future</u>	<u>1</u>	6%
<u>Positive classroom leaning</u>	<u>1</u>	6%
<u>Blend of theory, concept and application</u>	<u>2</u>	13%
<u>More research</u>	<u>3</u>	19%
<u>Work harder</u>	<u>1</u>	6%
<u>Student participation</u>	<u>1</u>	6%
<u>Using course materials to support student leaning</u>	<u>1</u>	6%
<u>Provide assessment</u>	<u>1</u>	6%

Other comments

Hands on work experience

Field trips

A system that encourages reporting on others, promote cooperation

Reduce load

40% or greater of Faculty agree

39% or less of faculty agree

Issues to be reviewed for concerns



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance

Data and Narrative Needs:

Action Plan:

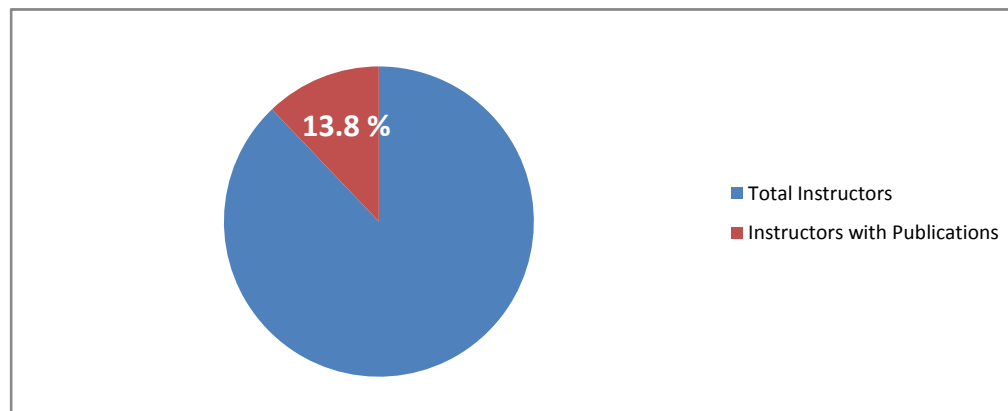
26. Number of full time teaching staff in the college with at least one referred journal publication as a percentage of total full time teaching staff: 13 [45%]

Total Instructors
29

Instructors with Publications
4

Percentage of Instructors with at least one refereed Journal Publication

13.7931



Action Plan:

COB has initiated support programs such as digital guidelines, group papers, pertinent and regional topic banks as well as periodic email request for submission of papers.

COB will work with the Dean of Research to continue to encourage and add value to faculty research.

Time Frame:

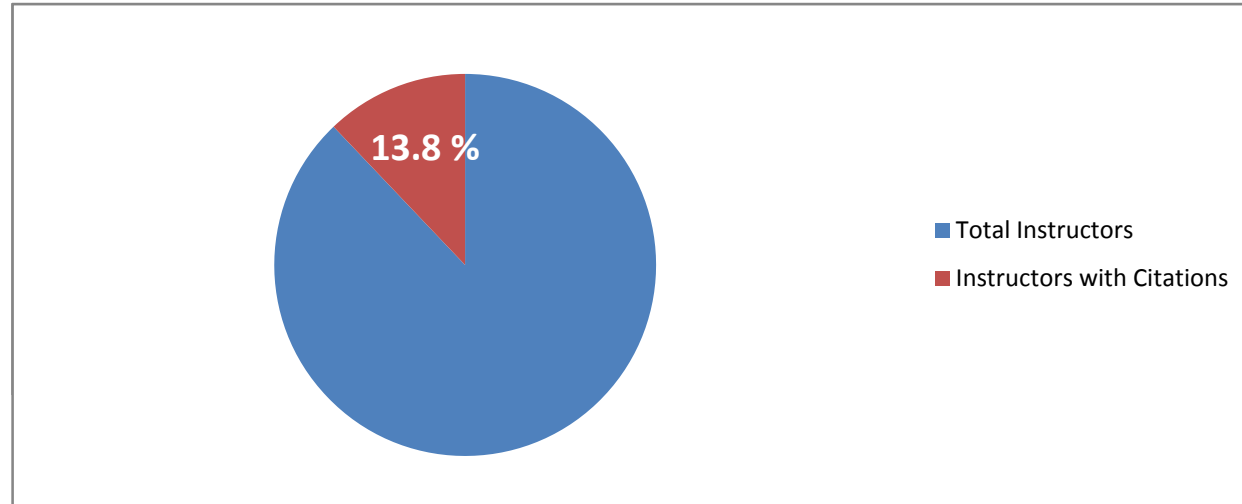
Ongoing – this KPI will be reviewed bi-yearly in order to maintain an update statistics for faculty.

Total Instructors
29

Instructors with Citations
4

Percentage of Instructors with Citations in refereed journals

13.7931





جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

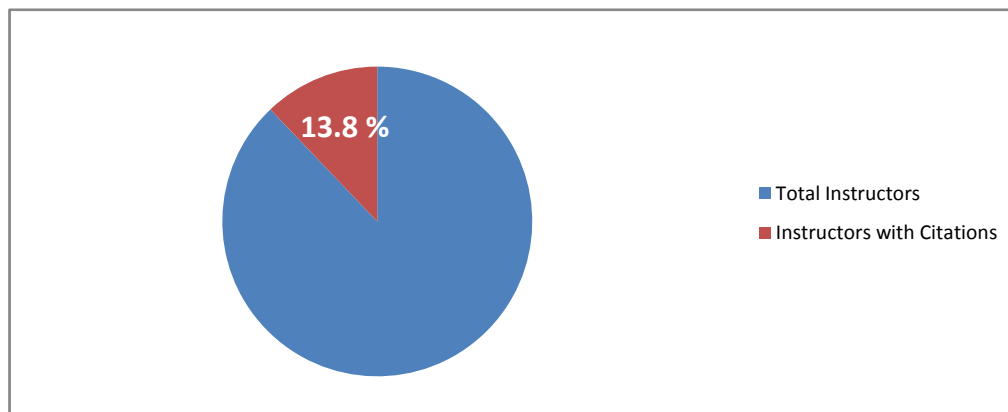
27. Number of citations in refereed journals per full time teaching staff in the past 4 years

Total Instructors
29

Instructors with Citations
4

Percentage of Instructors with Citations in refereed journals

13.7931



Action Plan:

COB has initiated support programs such as digital guidelines, group papers, pertinent and regional topic banks as well as periodic email request for submission of papers.

COB will work with the Dean of Research to continue to encourage and add value to faculty research.

Time Frame:

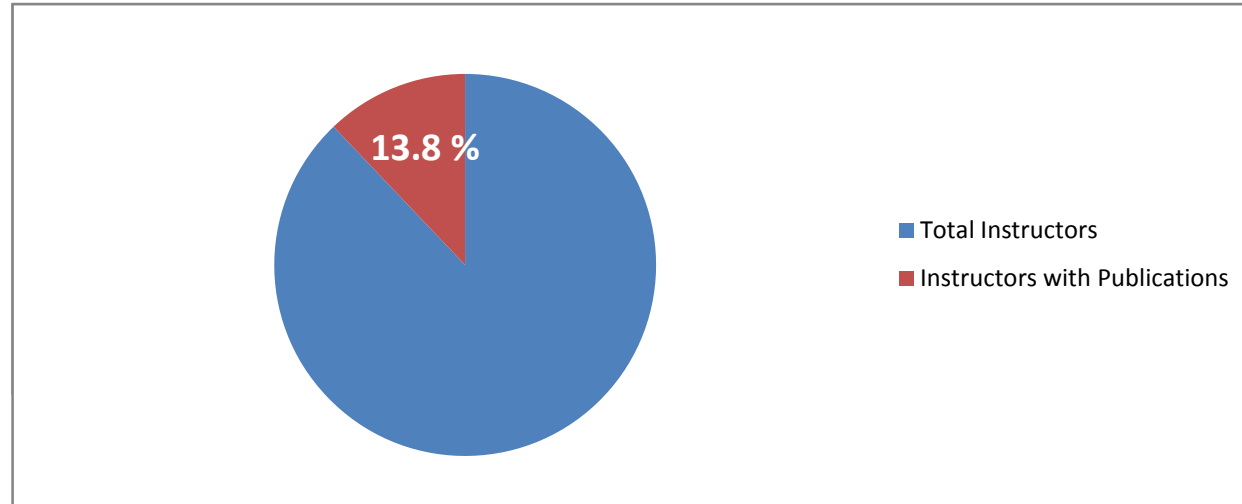
Ongoing – this KPI will be reviewed bi-yearly in order to maintain an update statistics for faculty.

Total Instructors
29

Instructors with Publications
4

Percentage of Instructors with at least one refereed Journal Publication

13.7931





جامعة الأمير محمد بن فهد الأهلية

PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

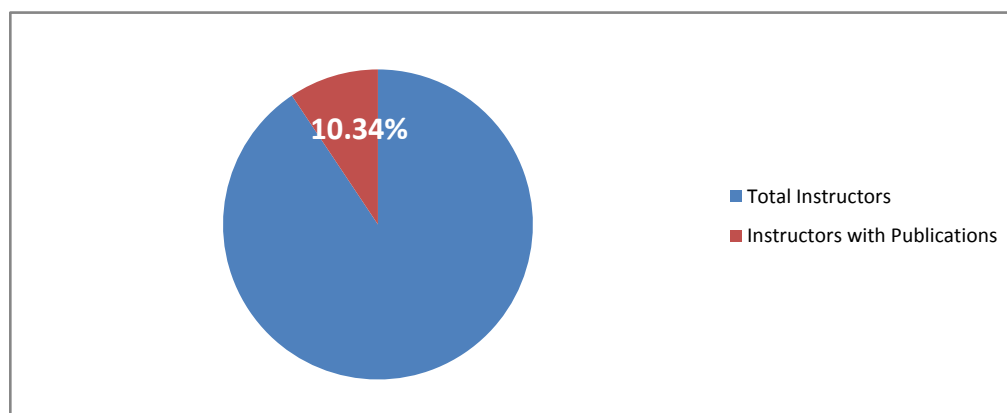
Data and Narrative Needs:

28. Number of full time teaching staff in the college with at least one refereed journal publication as a percentage of total full time teaching staff Faculty Published / Publications

Total Instructors
29

Instructors with Publications
3

Percentage of total full time teaching staff Faculty Published / Publications 10.34483



Action Plan:

COB has initiated support programs such as digital guidelines, group papers, pertinent and regional topic banks as well as periodic email request for submission of papers.

COB will work with the Dean of Research to continue to encourage and add value to faculty research.

Time Frame:

Ongoing – this KPI will be reviewed bi-yearly in order to maintain an update statistics for faculty.

Published Research

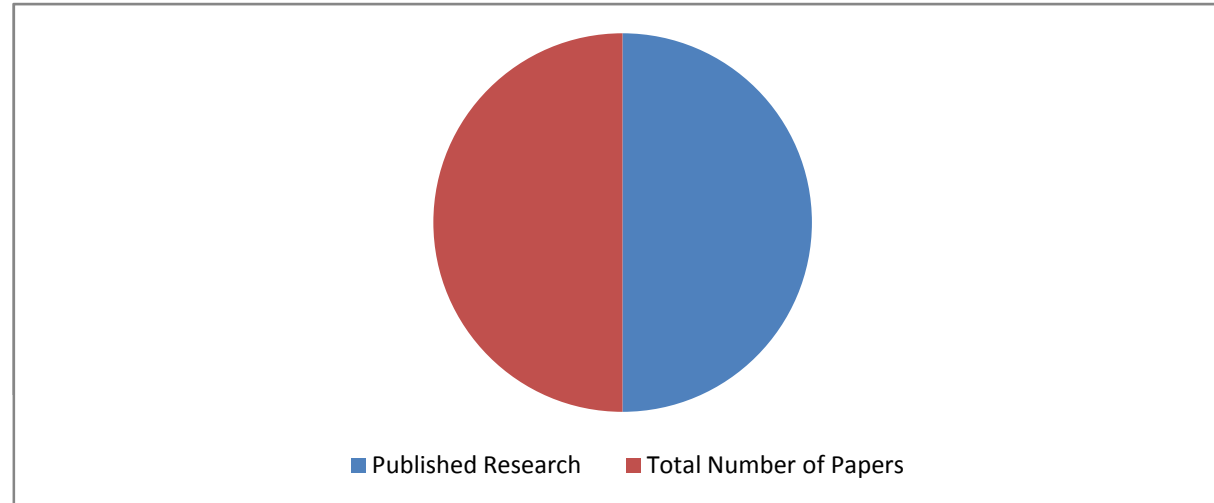
11

Total Number of Papers

11

Percentage of research published of used on the national or international level

100





جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

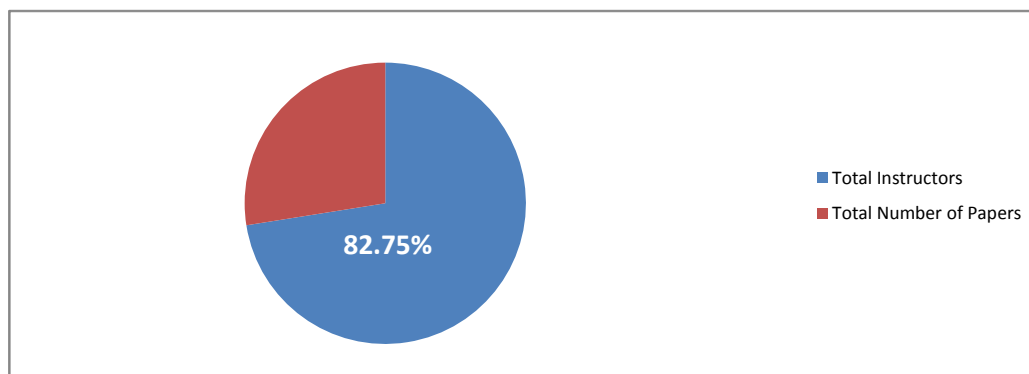
29. Total number of papers, reports and academic presentations in the past year per full time teaching staff in the college.

Total Instructors
29

Total Number of Papers
11

Total number of papers, reports and academic presentations in the past year per full time teaching staff

82.75862



Action Plan:

COB has initiated support programs such as digital guidelines, group papers, pertinent and regional topic banks as well as periodic email request for submission of papers.

COB will work with the Dean of Research to continue to encourage and add value to faculty research.

Time Frame:

Ongoing – this KPI will be reviewed bi-yearly in order to maintain an update statistics for faculty.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

30. Income from research grants to the college per full time teaching staff in the college (SR-faculty)

COB has 0% income from research grants at this time

Action Plan:

1. COBA is to refocus on group project as opposed to individual research initiatives
2. COBA plan to seek for projects from Government agencies, reputable organizations, establishment of entrepreneurial center and to lunch endowed chair in Global Supply Chain to encourage/attract research grants and service remuneration respectively.

Time Frame:

This KPI will be reviewed in 2012/2013 school year.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

31. Ratio of SR spent on research to the total operating expenditure of the college:

COB currently has 0% SR spent on research to the total operations expenditures.

Action Plan:

1. COBA is to refocus on group project as opposed to individual research initiatives
2. COBA plan to seek for projects from Government agencies, reputable organizations, establishment of entrepreneurial center and to lunch endowed chair in Global Supply Chain to encourage/attract research grants and service remuneration respectively.

Time Frame:

This KPI will be reviewed in 2012/2013 school year.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

32. Number of published articles produced from students' master thesis as percentage of total number of graduate students who completed master degree:

COB currently has 0% of articles published produced by master thesis

Action Plan:

A proposal for a Regular Masters of Business Administration program in addition to the Executive Masters of Business Administration graduate degree program is to be submitted to the KSA Ministry of Higher Education.

Time Frame:

Ongoing



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

33. Number of graduate students' work that received national or international awards:

COB currently does not have any graduate student that have received national or international awards

Action Plan:

Faculty and administration have initiated a shared point to disseminate publications, seminars and presentation opportunities to faculty and learners.

Membership to fraternities and clubs are being considered for such fraternity as Sigma Iota Epsilon (Zeta Rho chapter – for Business/Management faculties and students with publications and excellent GPA's), and for associations such as the American Management Associations (Middle East edition), in addition to other esteemed Business/Management clubs.

Thesis Advisors have been established to support the graduate students on research.

Time Frame:

Ongoing



جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

34. SR Funds available internally within PMU for research and projects per full-time teaching staff in the COBA

Currently there are no funds available for research and projects.

Action Plan:

PMU has not provided COBA faculty with funding for research. Research is expected within a faculty members overall responsibilities and they are evaluated accordingly. However, PMU does provide complete funding for faculty members who have research papers accepted in order for them to present their research at regional and international conferences of noted merit. Complete funding includes conference fees, travel, accommodations and a per diem for meals and expenses.

Ideally, the COBA would have a budgeted line item for research and projects that would sponsor a faculty member during summer holidays or during a paid sabbatical to conduct research off campus with or without collaboration with other researchers.

It is recommended that the University consider funding off campus research in advance of publication. The funding could be granted on competitive bases with a panel of peer reviews awarding research or project funding based on value to PMU and to the academic discipline.

The dean, in consultation with the administration, could present a proposal to fund research and projects during the academic year 2011-12 with the first awards funded during the summer 2012.

Time Frame:

Initiating in 2012



جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

35. SR funds available externally for research and projects per full time teaching staff in the college:

Currently there are no funds available for research and projects.

Action Plan:

No external fund have be secured or provided to COBA faculty for funding of research. Research is expected within a faculty members overall responsibilities and they are evaluated accordingly.

However, PMU does provide complete funding for faculty members who have research papers accepted in order for them to present their research at regional and international conferences of noted merit. Complete funding includes conference fees, travel, accommodations and a per diem for meals and expenses.

Ideally, COBA will secure funding from outside sources for research and projects that would sponsor a faculty member during summer holidays or during a paid sabbatical to conduct research off campus with or without collaboration with other researchers.

It is recommended that the University consider sourcing outside funding, off campus research in advance of publication. The funding could be granted on competitive bases with a panel of peer reviews awarding research or project funding based on value to PMU and to the academic discipline.

The dean, in consultation with the administration, could present a proposal to secure funding research and projects during the academic year 2011-12 with the first awards funded during the summer 2012.

Time Frame:

Initiating in 2012



جامعة الأمير محمد بن فهد الأهلية PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

36. Percentage of full time teaching faculty who received internal research / project funds as a proportion to total number of teaching staff in the college

Currently there are no funds available for research and projects

Action Plan:

PMU has not provided COBA faculty with funding for research. Research is expected within a faculty members overall responsibilities and they are evaluated accordingly. However, PMU does provide complete funding for faculty members who have research papers accepted in order for them to present their research at regional and international conferences of noted merit. Complete funding includes conference fees, travel, accommodations and a per diem for meals and expenses.

Ideally, the COBA would have a budgeted line item for research and projects that would sponsor a faculty member during summer holidays or during a paid sabbatical to conduct research off campus with or without collaboration with other researchers.

It is recommended that the University consider funding off campus research in advance of publication. The funding could be granted on competitive bases with a panel of peer reviews awarding research or project funding based on value to PMU and to the academic discipline.

The dean, in consultation with the administration, could present a proposal to fund research and projects during the academic year 2011-12 with the first awards funded during the summer 2012.

Time Frame:

Initiating in 2012



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

37. Percentage of full time teaching faculty who received external research / project funds as a proportion to total number of teaching staff in the college

Currently there are no funds available for research and projects

Action Plan:

No external fund have been secured or provided to COBA faculty for funding of research. Research is expected within a faculty members overall responsibilities and they are evaluated accordingly.

However, PMU does provide complete funding for faculty members who have research papers accepted in order for them to present their research at regional and international conferences of noted merit. Complete funding includes conference fees, travel, accommodations and a per diem for meals and expenses.

Ideally, COBA will secure funding from outside sources for research and projects that would sponsor a faculty member during summer holidays or during a paid sabbatical to conduct research off campus with or without collaboration with other researchers.

It is recommended that the University consider sourcing outside funding, off campus research in advance of publication. The funding could be granted on competitive bases with a panel of peer reviews awarding research or project funding based on value to PMU and to the academic discipline.

The dean, in consultation with the administration, could present a proposal to secure funding research and projects during the academic year 2011-12 with the first awards funded during the summer 2012.

Time Frame:

Initiating in 2012



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

38. Percentage of research published of used on the national or international level as a proportion to total number of research published by college

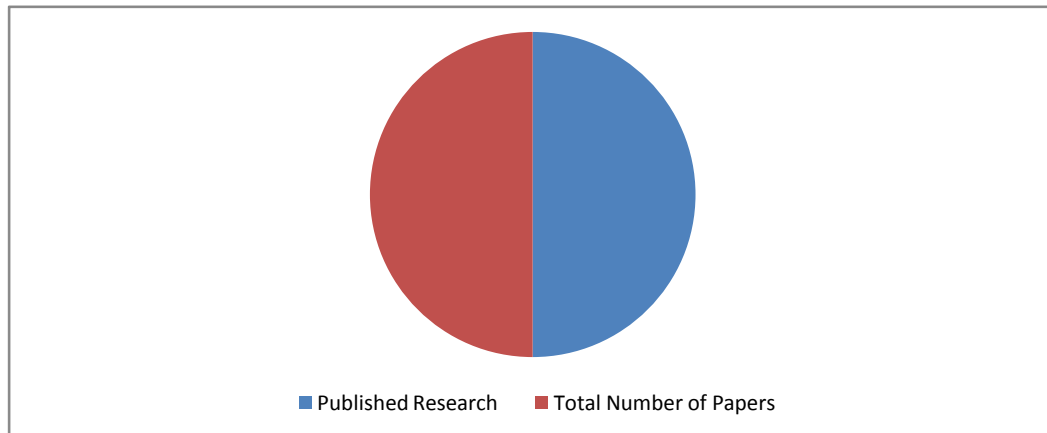
Published Research

11

Total Number of Papers

11

Percentage of research published of used on the national or international level



Action Plan:

COB will continue to support faculty in research and publication.

Time Frame:

Ongoing.

Dr. Kimanthi Ali Thompson

Publication

The Industrial Revolution Is Over for the West, Now What's Next?, International Journal of Management

Working Papers

Customer Service in the Kingdom and Entrepreneurship in Saudi Arabia

Conferences

- Oman 2011 International Business Conference
- Dubai 14th Annual Business Conference.

Community Service

Community Service through committee

- a. COB Undergraduate Committee, Chair
- b. COB Accreditation Committee, Member
- c. Business Admin. Dept Research Collaboration Committee, Chair
- d. Business Admin. Dept Conferences Committee, Member
- e. Business Admin. Dept Certification Committee, Member
- f. Entrepreneur Center, Lead

Dr. Syed Jamal Haider

Publications

- Haider, S.J. (2010). *Transformational Leadership*. VDM Publishing House.
- Haider, S.J. (2011). Organizational Transformation Part I. *Journal of Social Sciences*.

Community Service

Feed the orphan cats of Al-Balad. ☺ (Not sure if NCAAA will accept this as community service. OK, I'll take it out.)



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

39. Number of research projects funded as patents nationally or internationally per full-time faculty in the COBA in the past 5 years

COB at this time does not have any project related to patents national or internationally

Action Plan:

COBA does not function in a patent construct in the accepted conventions of business.

Time Frame:

To be reviewed in 2012



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

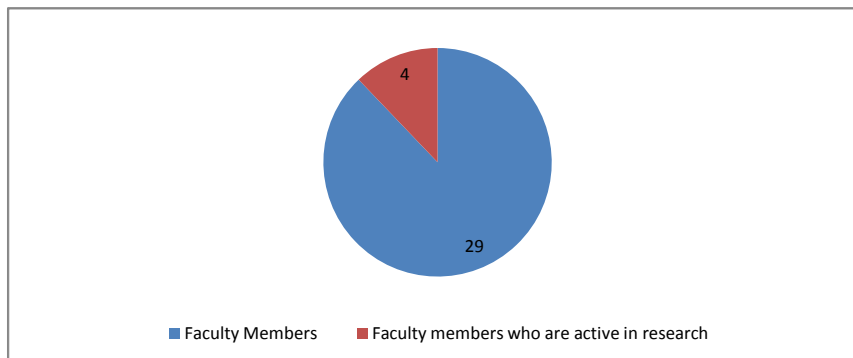
40. Faculty members who are active in research that were cited per full time teaching staff

Faculty Members
29

Faculty members who are active in research
4

Number of Faculty active in research

13.7931



Action Plan:

COB has initiated support programs such as digital guidelines, group papers, pertinent and regional topic banks as well as periodic email request for submission of papers.

COB will work with the Dean of Research to continue to encourage and add value to faculty research.

Time Frame:

Ongoing – this KPI will be reviewed bi-yearly in order to maintain an update statistics for faculty.

Valentina Korzhova publications for last 4 years

Journals:

- Vasant Manohar, Valentina Korzhova, Yan Qiu, Xuejun Sun, and Dmitry Goldgof. Two-View Mammography Registration using 3D Finite Element Model of the Breast. International Pattern Recognition and Artificial Intelligence (submitted). (36 citations)
- V. Korzhova, D. Goldgof, G. Sisoiev. Model-based Recovery of Fluid Flow Parameters from Video. International Pattern Recognition and Artificial Intelligence. Vol 25, N3 (2011), pp. 309-336. (42 citations)
- G.M. Sisoiev, D.B. Goldgof, V.N. Korzhova. Stationary spiral waves in film flow over a spinning disk. Physics of Fluids, 22, 052106, 2010.(7 citations)
- R. Kasturi, D. Goldgof, P. Soundararajan, V. Manohar, J. Garofolo, R. Bowers, M. Boonstra, V. Korzhova, and J. Zhang, Framework for Performance Evaluation of Face, Text, and Vehicle Detection and Tracking in Video, Data, Metrics, and Protocol. IEEE Trans. Pattern Analysis and Machine Intelligence, v. 31, 1-18, 2009. (17 citations)
- V. Korzhova . G.Sisoiev, and D. Goldgof, The video of fluid flow dynamics. APS/DFD, Video, 2008. (13 citations)

Conferences

- Valentina Korzhova, Viktor Ivanov. On approximate solution of 3D-Navier-Stokes equations. International Mathematical School, Yalta, Ukraine, 2011 (accepted) (3 citations)
- Valentina N. Korzhova, Malik F. Saleh, Viktor V. Ivanov. Mathematical modeling of Information Systems. IMICIC, Orlando, USA, 2011, pp. 223-228 (5 citations)
- V. Korzhova, D. Goldgof, and G. Sisoiev. Reconstructing experimental data from video records for film flow over a spinning disk ECCOMAS-CFD2010, 2010. (8 citations)
- V. Korzhova, D. Goldgof, and G. Sisoiev. Optical Measurement of 3D Fluid Waves in Video. 9th Conference on Optical 3-D Measurement Techniques 2009, pages 1-10, 2009.(12 citations)

Presentations

- First Research and Professional Development Colloquium , Prince Mohammad Bin Fahd University (2011)
- IMICIC conference (2011)
- Colloquium in Pattern Recognition, Computer Science & Engineering Department, University of South Florida (2010)
- ECCOMAS-CFD conference (2010)

Total number of papers, reports and academic presentations in the past year

The total number of papers is 4 for the past year; and the total number of presentations is 4 for the past year

Community services

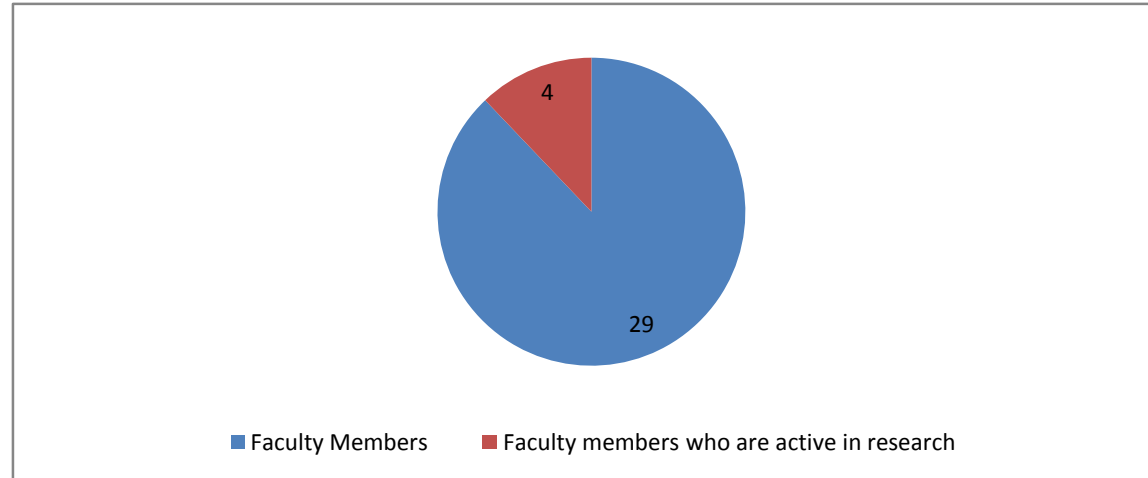
- Serving Student Academic Support Center, College of Business
- Servicing and participation in PMU events, workshops
- Mentoring students during their Assessment III research project
- Reviewing of Plenary Sessions for conferences including the International conference on Pattern Recognition
- Member of the college Grade Appeal committee
-

Faculty Members
29

Faculty members who are active in research
4

Number of Faculty active in research

13.7931





جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

41. Faculty members who are active in research and are qualified as thesis advisors for graduate students.

COB currently has three faculty who are Thesis Advisors.

Action Plan:

COB has initiated training for Thesis Advisors; to support the process as well as provide the needed documentation such as;

- Instructors check list
- Choosing Research Topics
- Proposal Guidelines
- Research Paper; Steps and Tips
- Research Methods Guide
- Write a Literature Review
- APA Citation
- Common Errors; Things to Avoid

As well as;

- Blackboard Safe Assign training

Time Frame:

Ongoing



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

42. Extent to which research equipment and facilities are adequate to conduct research in the college.

The nature of research in the field of economics, management and business administration normally doesn't require any specific equipment and facilities. However, the College's faculty has an online access (through the library facilities) to several electronic databases that contain books and publications in their areas of specialization. Among them are:

Action Plan:

- E-brary: an electronic database that provides access to the full-text of over 60,000 copyrighted books of the leading publishers.
- Such journals and databases, as EBSCO, ABI/INFORM global, ACM digital library.

These resources cover faculty's need in information for any research project to a great extent.

Time Frame:

Ongoing



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

43. Percentage of full time teaching staff who were active in community service programs over past 2 years

Currently, the College of Business Administration involvement in realization of community service programs or continuing education programs is through the development and support of two centers. 2011/2012 school year, as it is planned to incorporate a Center of Entrepreneurship and a Center of Continuing Education into the College's structure.

Action Plan:

For both centers the formal proposals have already been developed. They cover all significant issues that need to be solved before their launch and include:

- Mission, vision, values & goals formulation
- General concept of their functioning
- Analysis of different opportunities that can be realized in the frames of their operations
- Set of courses, seminars, and certification programs and similar that will be offered by them
- Benchmarking results

As both centers have already passed the stage of the proposal development, the next steps in the Center of Continuing Education implementation

Time Frame:

Ongoing – both centers are scheduled to open first quarter of 2012.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

44 Number of continuing education offered to community per number of programs in the college

Currently, the College of Business Administration involvement in realization of community service programs or continuing education programs is through the development and support of two centers. 2011/2012 school year, as it is planned to incorporate a Center of Entrepreneurship and a Center of Continuing Education into the College's structure.

Action Plan:

For both centers the formal proposals have already been developed. They cover all significant issues that need to be solved before their launch and include:

- Mission, vision, values & goals formulation
- General concept of their functioning
- Analysis of different opportunities that can be realized in the frames of their operations
- Set of courses, seminars, and certification programs and similar that will be offered by them
- Benchmarking results

As both centers have already passed the stage of the proposal development, the next steps in the Center of Continuing Education implementation

Time Frame:

Ongoing – both centers are scheduled to open first quarter of 2012.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

45. Number of service design consultation projects offered as a response to needs of external customers of the college:

COB currently has 2 service design consultation projects; Center for Innovation and Entrepreneurship and the Center of Continuing Education.

Action Plan:

Implementation in advanced stage to incorporate a Center of Innovation and Entrepreneurship and a Center of Continuing Education into the College's structure

Time Frame:

Ongoing – estimated opening during the first quarter of 2012.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

46. Number of nationally or internationally designated/recognized centers in the college

Currently COB does not have any nationally or internationally centers in the college

Action Plan:

It is estimated that within the first quarter of 2012 COBA will have;

1. Center of Innovation and Entrepreneurship
2. Center for Continuing Education

Time Frame:

Ongoing



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

47. Detailed report on student field experience showing numbers of students participating and overall report from employers on student performance

See attached 3 documents

Action Plan:

- FIELD EXPERIENCE SPECIFICATION
- FIELD EXPERIENCE REPORTS
- FIELD EXPERIENCE SPECIFICATIONS

Time Frame:

Ongoing

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation &
Assessment

FIELD EXPERIENCE SPECIFICATION

BUSI 4351: INTERNSHIP

Field Experience Specification

Field Experience encompasses fieldwork, professional or clinical placements, internships and other practical experiences in a field location that are part of the formal curriculum within the educational program. For guidance on the completion of this template, refer to section 2.5 of Handbook 2. Internal Quality Assurance Processes and to the Guidelines on Using the Template for a Field Experience Report.

Institution: ☐ Prince Mohammad University
College/Department: ☐ College of Business Administration

A Field Experience Course Identification and General Information

1. Field experience course title and code: ☐ BUSI 4351
2. Credit hours: ☐ 3 Credit hours
3. Program(s) in which this field experience activity is offered: ☐ Bachelor of Business Administration ☐ Bachelor of Finance ☐ Bachelor of Accounting ☐ Bachelor of Management Information System ☐ Bachelor of Human Resource Management (Proposed)
4. Name of faculty member responsible for administration of the field experience ☐ Dr Hesham Magd (Dean)
5. Duration and time allocation of the field experience activity ☐ Eight weeks (40 hours per week, totalling of 320 hours per eight weeks)
6. Level/year at which the field experience is offered ☐ Senior level or completion of 87 credit hours
7. Date of approval of field experience specification ☐ The internship was approved with all the academic programs approval from the Ministry of Higher Education in 2006

B Aims and Objectives

1. Aims of field experience ■ The role of the internship is to provide students with an appreciation of the types of work involved with their major before they actually enter the job market. The internship also provides students with first hand experience and supplements the theories they have learned in the classroom. It allows them to draw upon various concepts to solve complex, real world problems. It provides the business with an opportunity to have students with fresh ideas work on an issue or a problem currently facing the business. Internships may also provide employers with a risk free chance to try potential employees before actually hiring them
2 Summary description of Intended Learning Outcomes of the field experience in the domains of learning (Refer to description of domains in National Qualifications Framework) (Note that the Field Experience may not be designed to develop learning in all the domains)
a. Knowledge ■ To learn to effectively work in business in the student's major field ■ To learn to apply the concepts learned in class in an actual business setting ■ To learn how to integrate and utilize concepts from different courses or functional areas to a complex problem
b. Cognitive skills ■ To apply the theoretical concepts acquired through their major to the real life work experience
c. Interpersonal skills and responsibility ■ To develop students' capacity for self study skills ■ To enhance students critical thinking skills and oral communication skills ■ To enhance the sense of social responsibility
d. Communication, Information Technology and Numerical skills ■ To enhance the utilization of ICT through the Internet and electronic resources ■ To enhance students' oral and written communication skills
e. Psychomotor skills (if applicable) ■ NA

C Description of Activity (General description of the field experience in the form to be used for the Bulletin or Handbook should be attached)

1. At what stage or stages during the program does the field experience occur? ■ Senior level or completion of College of Business Requirements
2. Organizational structure (eg. single time block, distributed time blocks, recurrent schedule of XXX days per week) ■ Internship is offered as one single time block during the academic semesters and the summer school (eight weeks – 320 hours)

3. Student Activities Describe the principal activities in which the students will be involved during the field experience.	
■ Students will work with the assigned supervisor from the internship organization to develop their internship plan for the activities that are required and beneficial for both parties (students and organizations) in accordance to the students major ■ Students will be involved in administrative and operational duties at the designated organization	
4. Student assignments or reports (if any)	
a. Title or description	b. When are these assignments or reports required?
Weekly Log Books	10%
Progress Reports every two weeks	10%
Final Report	60%
Oral Final report Presentation	10%
Evaluation Report	10%
5. Follow up with Students. What arrangements are made for follow up with students to reflect on their experiences and apply what they have learned to future situations? (eg. Seminars or tutorials, individual consultations, reference in subsequent courses, etc.)	
■ After the completion of the internship, students return back and reflect their experiences with their instructor and class mates through official oral presentation, where class participation and knowledge transfer and sharing take place	
6. Responsibilities of Supervisory Staff in the Field. Describe the main responsibilities of supervising staff in the field location. (eg. Planning activities for student's development of skills, advice to students, assessment of performance)	
■ Supervisory staff in the field provides students with job guidance, planning activities for the internship duration in order to perform required job tasks and assessment of job performance at the end of the internship	
7. Responsibilities of Supervisory Faculty from the Institution. Describe the main responsibilities of supervising faculty from the institution. (eg. Consultation, planning with and advice to field supervisors and students, student assessment, time expectations for visits, etc)	
■ Maintain a regular contact with the intern and the company/institution supervisor during the internship ■ Assist in solving problems that jeopardize the student's internship experience ■ Conduct an on site visit to local interns if a problem is risen ■ Continually check the student's learning log books ■ Contact the company/institution supervisor based on feedback from the learning log books to advice on ways to enhance the student's work experience ■ Grade the student's final report and presentation ■ Evaluate the company/institution supervisor's final report ■ Assess the student's performance and assign the course grade	
8. Arrangements for student guidance and support	
■ Before the initiation of the internship, students are asked to register early for the course and after completion of the early registration, a complete list is provided with their contact details.	

- A workshop is performed by the college where information is distributed about the internship explaining their duties and responsibilities
- The email of the assigned advisor is provided to all the interns
- The material is also provided on the blackboard platform for easy access and downloadable, and also the platform is used to place announcements or important issues for all the students

9. What facilities and support are required at the field experience location? (if any)

a. Accommodation

- NA

b Computer resources

- NA

c Learning support materials

- NA

d Other

- NA

D Planning and Preparation

1. Identification of Field Placements. What processes are used to identify appropriate field placements?

The Department of Career Services has built a database of approved companies for internships, and that is categorized per college and per department inside the college if needed. An approval for a company to be listed in the Internship Database is obtained through the College Dean, and the approval process is usually built on a thorough study of the company profile, credentials and readiness (physical and human resources) as well as willingness to run similar programs. Many of the approved companies have signed MOU with the University. The students entitled to take an internship fill a form that reflects their preferences in the selection of the location of the internship. Although this preference is not totally guaranteed, it represents an important part of the process as it involves a real life placement procedure. After this first stage, the Department of Career Services contacts the company to receive placement requirements. Most companies have preferred ranges of GPAs, and conduct interviews to select candidates. This step would ensure that both the university and the company are satisfied with the selection and provides a better and smoother internship program.

2. Preparation of Field Supervisors. Briefly describe and indicate timing of arrangements made to ensure full understanding of roles and responsibilities of supervising faculty/staff in the field setting. (for example, briefing meetings and follow up consultation, training, staff development, notes for guidance.)

- Four weeks before the initiation of the internship, several workshops are held with the internship advisors to provide them with their duties and responsibilities
- Advisors are provided with various templates and detailed instruction related to the internship assessment strategy such as log books, progress reports, final report and oral presentation

3. Preparation of Students. Briefly describe and indicate timing of arrangements made for preparation of students for participation in the field experience activity. (Cross reference to any written notes provided)

- Three weeks before the initiation of the internship, several workshops are held with the internship students to provide them with their duties and responsibilities
- students are provided with various templates and detailed instruction related to the internship assessment strategy such as log books, progress reports, final report and oral presentation
- Students provided with their advisor and brief description about the submission process and the blackboard as a platform for documents and communication tool

4. Risk management ~ Describe process used to identify potential risks to students, persons with whom they work, or facilities where they will be located, and strategies to minimize and protect against those risks (including insurance arrangements).

The internship company selection process ensures that the companies follow recognized quality standards including safety measures. The university does not provide insurance, however, the Saudi Law stipulates that residents are requested to have a proof of insurance as a condition for their Iqama processing, whereas Saudi nationals are insured in all public hospitals.

E Student Assessment

1. Criteria for Assessment ■ Weekly Log Books (10%) ■ Progress Reports (10%) ■ Final Report (60%) ■ Oral presentation and reflection (10%) ■ Supervisor Evaluation (10%)
2. Assessment of Intended Learning Outcomes. How will achievement of the intended learning outcomes be assessed? (Complete for domains the field experience is intended to develop)
a. Knowledge ■ To learn to effectively work in business in the student's major field [supervisor evaluation] ■ To learn to apply the concepts learned in class in an actual business setting [final report] ■ To learn how to integrate and utilize concepts from different courses or functional areas to a complex problem [final report, oral presentation and reflection and supervisor evaluation]
b. Cognitive Skills ■ To apply the theoretical concepts acquired through their major to the real life work experience [final report, oral presentation and reflection and supervisor evaluation]
c. Interpersonal Skills and Responsibility ■ To develop students' capacity for self study skills [final report, and supervisor evaluation] ■ To enhance students critical thinking skills and oral communication skills [final report, oral presentation and reflection and supervisor evaluation] ■ To enhance the sense of social responsibility [final report, oral presentation and reflection and supervisor evaluation]
d. Communication, Information Technology and Numerical Skills ■ To enhance the utilization of ICT through the Internet and electronic resources [final report, oral presentation and reflection and supervisor evaluation] ■ To enhance students' oral and written communication skills [final report, supervisor evaluation]
e. Psychomotor Skills (if any) ■ NA

3. If grades are based on specified activities or reports by students, list them and indicate the weighting for each.

The following are required from the students:

- Weekly log books (10%)
- Progress reports (10%)
- Final report (60%)
- Oral presentation and reflection (10%)

4. Field Supervisors Responsibility for Assessment. Describe the responsibility of supervising staff in field location for student assessment

- Basically the field supervisor guide the students and also evaluate them based on their interaction with employees, supervisors, critical thinking, communication skills, knowledge, attitude ...etc
- At the end of the internship/field experience, the field supervisor assess them and write a report and award the students grade out of 10%

5. Supervising Faculty Responsibility for Assessment. Describe the responsibility of supervising faculty from the institution for student assessment

- Evaluate the log books and award grades
- Evaluate the progress books and award grades
- Evaluate the final report and award grades
- Evaluate the oral presentation and reflection and award grades
- Share the experiences of the students regarding the organization with the student affairs department in order to continue with the organization or not to send any students again

6 Resolution of Differences in Assessments. If supervising staff in the field location and faculty from the institution share responsibility for student assessment, what process is followed for resolving any differences between them?

- NA

F Evaluation of Field Experience

1. Arrangements for evaluation of field experience activity by:

a. Students

- students will be given the opportunity to evaluate the intern organizations after their internship is completed and also during their reflection session, they will be able to provide feedback to their advisors about the intern organization

b. Supervising staff in field setting

- Brief meetings will take place with supervising staff to obtain their opinions about the field experience and students

c. Supervising faculty from institution

- Brief meetings will take place with supervising faculty to obtain their opinions, reflections about the field experience and students. These views will be conveyed to the student affairs department in order to determine whether the university will continue with the specified intern organization

e. Others—(eg. graduates, independent evaluator, etc.)

- NA

3. Process for Reviewing Evaluations and Planning for Improvement.

- Compare syllabi and course description with other universities every five years and report any updates that need to be taken into account
- Biannual meetings of faculty members/advisors to discuss any improvements required
- College of business administration curriculum committee review the internship curriculum periodically and suggest improvements along side with the advisory/industrial board



PMU Quality Center

FIELD EXPERIENCE REPORTS

(Internship, Coop Programs, Summer Training ...etc)

Kingdom of Saudi Arabia

**The National Commission for Academic Accreditation &
Assessment**

FIELD EXPERIENCE REPORT

To be completed by the field experience coordinator at the end of each field experience after receiving evaluation information and given to program coordinator.

Field Experience Report

Field Experience encompasses fieldwork, professional or clinical placements, internships and other forms of placement learning and applied learning that are part of the formal curriculum within the educational program. For guidance on the completion of this template, refer to of Handbook 2, Internal Quality Assurance Processes

Institution
College/Department

A General Information

1 Field experience course title and code
2 Program(s) in which this field experience activity is offered
3 Name of faculty member responsible for administration of field experience
4 Year/ semester to which this report applies

B Conduct of Field Experience

1 Changes (if any) from planned arrangements for preparation of students.	Comment (reasons, consequences, implications for future planning)
2 Changes (if any) from planned arrangements for preparation of field supervisors.	Comment (reasons, consequences, implications for future planning)
3 Changes (if any) in organizational arrangements for the field experience	
	Comment (reasons, consequences, implications for future planning)
a. Changes in required activity, tasks or assignments	
b. Changes in arrangements for student support	
c. Other changes (if any)	

C Results

1 Number of students starting the field experience:	
2 Number of students completing the field experience:	

3 Distribution of Grades (If percentage marks are given indicate numbers in each 5 percentile group)

	No	OR	%	No	%	No
A			95-100		70-47	
B			90-94		65-69	
C			85-89		60-64	
D			80-84		< 60	
F			75-79			
Denied Entry			Denied Entry			
In Progress			In Progress			
Incomplete			Incomplete			
Pass			Pass			
Fail			Fail			
Withdrawn			Withdrawn			

4 Result Summary:

Passed: No Percent Failed No Percent

Did not complete No Percent

5 Special factors (if any) affecting the results

D Administrative Issues

1 Administrative difficulties encountered either at the institution or in the field situations (if any).

2. Effect of any difficulties on student learning outcomes.

3. Changes needed to avoid these difficulties in future administration of the field experience. (if any)

E Evaluation of Field Experience Activity

1. Student Evaluation of the field experience: (attach survey results)

a. List the most important criticisms and strengths

b. Response of coordinator or field experience team

2 Comments (interviews, survey results etc) from field experience supervisors:

a. List the most important criticisms and strengths.

b. Response of coordinator or field experience team.

F Planning for Improvement

1. Action taken to improve the field experience this semester/year.

Provide a brief summary of significant developments this year, including professional development for faculty or support for field supervisors, modifications to the field experience, and new approaches to quality management.

2 Progress on other action identified in previous action plans:		
a. Items identified last year for action (other than those shown in item 1 above)	State whether completed, the impact, and if not completed, give reasons.	
3. Action Plan for Next Semester/Year		
Actions Required	Planned Completion Date	Person Responsible
4. Recommendations to Program Coordinator (if required)		
Recommendations to program coordinator if any proposed action to improve the field experience would require approval at program, department or institutional level or that might affect other courses in the program.		

Field Experience coordinator

Signature: _____ Date report completed: _____

Date received by Program Coordinator: _____

Attachment 2 (I)

Guidelines on Using the Template for a Field Experience Report

Institution, College/Department	Show the name of the institution and the college or department principally responsible for the course.
A. General Information	
1. Field experience course title and code	Show the title and institutional code number for the course.
2. Program(s) in which this field experience activity is offered	Write the name of the program.
3. Name of faculty member responsible for administration of field experience	Indicate name of coordinator. If report is prepared by a different person also show the name of that person.
4. Year and semester to which this report applies	Indicate the calendar year and semester.

B. Conduct of the Field Experience	
1. Changes (if any) from planned arrangements for preparation of students.	Describe any variations that occurred from what was planned. Comments should include reasons for the changes and the likely effects of those variations. Implications for future planning could include suggestions for avoiding problems that caused changes that were not wanted, or changes in plans if new ideas tried were successful.
2. Changes (if any) from planned arrangements for preparation of field supervisors.	Describe any variations that occurred from what was planned. Comments should include reasons for the changes and the likely effects of those variations. Implications for future planning could include suggestions for avoiding problems that caused changes that were not wanted, or changes in plans if new ideas tried were successful.
3. Changes (if any) in organizational arrangements for the field experience.	Changes referred to under items a. b. or c. below could include either changes that were planned and implemented, or changes that resulted from unanticipated events that prevented plans being followed or created new unexpected opportunities.
a. Changes in required activities, tasks or assignments	Describe change and note reason for it being made, indicate consequences of the change (if any) and comment on implications for the future. Implications for future planning could include suggestions for avoiding problems that caused changes that were not wanted, or changes in plans if new ideas tried were successful.
b. Changes in arrangements for student support.	Describe change and note reason for it being made, indicate consequences of the change (if any) and comment on implications for the future. Implications for future planning could include suggestions for avoiding problems that caused changes that were not wanted, or changes in plans if new ideas tried were successful.
c. Other changes	Describe change and note reason for it being made, indicate consequences of the change (if any) and comment on implications for the future. Implications for future planning could include suggestions for avoiding problems that caused changes that were not wanted, or changes in plans if new ideas tried were successful.

C. Results	
1. Number of students commencing the field experience	Show the number of students commencing the field experience activity.
2. Number of students completing the field experience	Show the number of students who completed the course, including any who completed and failed.
3. Distribution of Grades	Enter numbers in the table to show the distribution of grades or percentage marks. (Follow the grading system used by your institution)
4. Result Summary	Show the numbers and percentages of those who commenced the field experience activity who passed, failed or did not complete.
5. Special factors. (if any) affecting the grade distribution.	Describe any unusual events or special factors that might have affected the numbers or percentages noted above and explain what effect those events or factors might have had.
E. Administrative Issues	
1. Administrative difficulties encountered (if any)	Briefly describe any administrative difficulties that were encountered
2. Effect of any difficulties on student learning outcomes.	Comment on any likely effects on student learning in the field experience as a result of those difficulties.
3. Changes needed to avoid those difficulties in future administration of the field experience	Provide suggestions for future planning that might avoid similar problems emerging in the future.
F. Evaluation of Field Experience Activity	
1. Student evaluation of the field experience.	Attach most recent survey results
a. List the most important criticisms and strengths	List the most common and the most significant criticisms and strengths as shown in the student evaluations
b. Response of coordinator or field experience team	Provide explanation or comment. This may acknowledge or disagree with strengths or areas in need of improvement or provide an explanation or interpretation.
2. Comments from field experience supervisors	
a. List the most important criticisms and strengths	Describe how comments were obtained from supervising staff in the field situation.. List the most common and the most significant criticisms and strengths.
b. Response of instructor or field experience team	Provide explanation or comment including comments from supervising faculty from the institution. These may acknowledge or disagree with strengths or areas in need of improvement or provide an explanation or interpretation.
G. Planning for Improvement	
1. Action taken to improve the field experience activity this semester/year	Provide a summary description of any actions that were implemented to improve the activity in the current semester/year and comment on the results achieved.
2. Progress on other actions proposed.	List other actions to improve the field experience that were proposed in previous years and that have still to be fully implemented. For each one indicate progress made and if not undertaken or completed as planned, give reasons.

3. Action Plan for Next Semester/Year	List action proposed to improve the field experience for the next semester/year noting for each action the planned completion date and the person responsible.
4. Recommendations for Program Coordinator	List recommendations for consideration by the department or program coordinator that would require decision at that level or that might affect other courses in the program.



PMU Quality Center

FIELD EXPERIENCE SPECIFICATIONS

(Internship, Coop Programs, Summer Training ...etc)

Attachment 2 (i)

Kingdom of Saudi Arabia

**The National Commission for Academic Accreditation &
Assessment**

FIELD EXPERIENCE SPECIFICATION

Field Experience Specification

For guidance on the completion of this template, refer to Section 2.6 in Chapter 2 of Part 2 of this Handbook.

Institution
College/Department

A Field Experience Course Identification and General Information

1. Field experience course title and code
2. Credit hours
3. Program in which this field experience activity is offered
4. Name of faculty member responsible for administration of the field experience
5. Duration and time allocation of the field experience activity
6. Level/year at which the field experience is offered

B Objectives

1. Summary of the main learning outcomes for students participating in the field experience activity.
2. Briefly describe any plans for developing and improving the field experience activity that are being implemented.
3. Learning Outcomes in Domains of Learning For the domains of learning shown below indicate: • A brief summary of the knowledge or skill the field experience is intended to develop; • A description of the teaching strategies to be used in the course to develop that knowledge or skill. • The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned. (Note that the objectives of the field experience may not include all of the domains and the items should be completed <u>only</u> for kinds of learning the field experience activity is intended to develop) a. Knowledge (i) Description of the knowledge to be acquired (ii) What will be done to develop that knowledge (iii) Methods of assessment of knowledge acquired

b. Cognitive Skills
(i) Description of cognitive skills to be developed
(ii) What will be done to develop these cognitive skills
(iii) Methods of assessment of skills developed
c. Interpersonal Skills and Responsibility
(i) Description of the interpersonal skills and capacity to carry responsibility to be developed
(ii) What will be done to develop these skills and abilities
(iii) Methods of assessment of skills and abilities developed
d. Communication, Information Technology and Numerical Skills
(i) Description of the numerical and communication skills to be developed

(ii) What will be done to develop these skills
(iii) Methods of assessment of skills developed
e. Psychomotor Skills (if applicable)
(i) Description of the psychomotor skills to be developed and the level of performance required
(ii) What will be done to develop these skills
(iii) Methods of assessment of psychomotor skills

C Description of Field Experience Activity (General description in the form to be used for the Bulletin or Handbook should be attached)

1. At what stage or stages during the program does the field experience occur?
2. <u>Organizational structure</u> (eg. single time block, distributed time blocks, recurrent schedule of XXX days per week)

<u>3. Student Activities</u> Describe the principal activities in which the students will be involved during the field experience.	
4. Student assignments or reports (if any)	
a. Title or description	b. When are these assignments or reports required?
<u>5. Follow up with Students.</u> What arrangements are made for follow up with students to reflect on their experiences and apply what they have learned to future situations? (eg. Seminars or tutorials, individual consultations, reference in subsequent courses, etc.)	
<u>6. Responsibilities of Supervisory Staff in the Field.</u> Describe the main responsibilities of supervising staff working in the field location. (eg. Planning activities for student's development of skills, advice to students, assessment of performance)	
<u>7. Responsibilities of Supervisory Faculty from the Institution.</u> Describe the main responsibilities of supervising faculty from the institution. (eg. Consultation, planning with and advice to field supervisors and students, student assessment, time expectations for visits, etc)	

8. Arrangements for student guidance and support
9. What facilities and support are required at the field experience location? (if any) <i>a. Accommodation</i> <i>b Computer resources</i> <i>c Learning support materials</i> <i>d Other</i>

D Planning and Preparation

<u>1. Identification of Field Placements.</u> What processes are used to identify appropriate field placements?
<u>2. Preparation of Field Supervisors.</u> Briefly describe and indicate timing of arrangements made to ensure full understanding of roles and responsibilities of supervising faculty/staff in the field setting. (for example, briefing meetings and follow up consultation, training, staff development, notes for guidance.)
<u>3. Preparation of Students.</u> Briefly describe and indicate timing of arrangements made for preparation of students for participation in the field experience activity. (Cross reference to any written notes provided)
<u>4. Safety and Risk Management</u> Describe process used to ensure safety and identify potential risks to students, persons with whom they work, or facilities where they will be located, and strategies to minimize and protect against those risks (including insurance arrangements).

E Student Assessment

1. Basis for Assessments. List the major performance criteria or matters considered in deciding on student grades. These may include assessments of work performance and personal characteristics and written reports of assignments. If specified weightings are given for different tasks or criteria indicate the weighting given to each component

2. Field Supervisors Responsibility for Assessment. Describe the responsibility of supervising staff in the field location for student assessment

3. Supervising Faculty Responsibility for Assessment. Describe the responsibility of supervising faculty from the institution for student assessment

4 Resolution of Differences in Assessments. If supervising staff in the field location and faculty from the institution share responsibility for student assessment, what process is followed for resolving any differences between them?

F Evaluation of the Field Experience

1. Arrangements for evaluation of field experience activity by:

a. Students

b. Supervising staff in the field setting

c. Supervising faculty from the institution

e. Others—(eg. graduates, independent evaluator, etc.)

2. Describe the planning arrangements for periodically reviewing the effectiveness of the field experience and planning for improvement.

Attachment 2 (j)

Guidelines on Using the Template for a Field Experience Specification

Institution, College/Department	Show the name of the institution and the college or department principally responsible for the field experience activity
A. Field Experience Course Identification and General Information	
1. Field experience course title and code	Show the title and the institutional code number for the field experience
2. Credit hours	Write the number of credit hours for the field experience activity.
3. Program in which this field experience is offered.	Write the name of the program
4. Name of faculty member responsible for the administration of the field experience	If a single faculty member has been given responsibility for coordinating the field experience activity that persons name should be given. If it is a new program for which a coordinator has not yet been appointed that should be noted and the new appointees name included when it is known.
5. Duration and time allocation of the field experience activity	Indicate the length of time taken in the field experience activity and the amount of time taken. Eg. One semester one day per week, three weeks full time, etc.
6. Level/year at which the field experience is offered	Indicate the year level in the program when the field experience is undertaken.

B. Objectives	
1. Main learning outcomes of the Field Experience	This should be a brief summary of the main purposes only. A more detailed description of intended learning outcomes is requested in 3. below.
2. Plans for developing or improving the field experience activity.	List and briefly describe any plans for major changes or developments of the field experience activity and strategies that are being used to achieve those objectives. <i>For example a pilot program to assess the effect of varying scheduling arrangements for the field experience, introduction of newsletters about the program to field supervisors to improve communication and understanding, field research activities by groups of faculty working in cooperation with field supervisors..</i>

3 Learning Outcomes in Domains of Learning	In this item summarize the learning outcomes expected from the field experience in each of the domains of learning, what will be done to develop that learning and the way student learning will be assessed. The field experience is not expected to contribute to every domain but where important outcomes are expected they should be clearly identified and attention given to how they will be developed and learning assessed.
(a). Knowledge	
(i) Knowledge to be acquired	This should be a description of the knowledge that students should gain as a result of participation in the field experience.
(ii) Teaching strategies	Explain what will be done to ensure that this knowledge is gained. <i>Example—Field supervisors advised of regulations, procedures, safety</i>

	<i>precautions students should learn about and asked to ensure that information is provided. Students complete assignment recording information obtained. Tutorial discussion following completion of field experience to review what students have learned</i>
(iii) Methods of assessment	Describe how learning will be assessed. <i>For example—Student quiz at end of field experience.</i>
(b) Cognitive Skills	
(i) Cognitive skills to be developed	List the thinking and problem solving skills the field experience is intended to develop. As a guide it may be useful to begin with the phrase “The ability to....” The list should include practical skills that involve the use of analysis and problem solving techniques gained in on campus studies and any additional techniques used by practitioners in the field setting.
(ii) Teaching strategies	Describe what will be done to ensure that these skills are developed. <i>Example—Practical tasks carried out in the field setting, Assignment task to be completed with advice of field supervisor.</i>
(iii) Methods of assessment	Describe how cognitive skills will be assessed. <i>Example—Ratings of performance by field supervisor and faculty member. Faculty assessment of assignment task.</i>
(c) Interpersonal Skills and Responsibility	
(i) Skills to be developed	List the objectives of the field experience for improving students’ interpersonal skills, capacity for self directed learning, and personal and social responsibility.
(ii) Teaching strategies	Explain what will be done to improve these abilities. Examples—Advice on procedures by field supervisor followed by involvement in group planning task, independent investigation of an identified issue or problem in the field setting involving discussions with relevant people and other investigations.
(iii) Methods of assessment	Ratings by field supervisor and faculty member on performance in group and research tasks.
(d) Communication, IT and Numerical Skills	
(i) Skills to be developed	Indicate the contribution of this course to students’ numerical and communication skills.
(ii) Teaching strategies	Indicate what will be done to apply and improve these skills. <i>Example--Use of skills in practical tasks in the field setting with advice as required by field supervisor</i>
(iii) Methods of assessment	Indicate how quality of learning will be assessed. <i>Example--Judgments about effectiveness of analyses and communications incorporated into ratings of performance in the field setting.</i>
(e) Psychomotor Skills	
(i) Skills to be developed	Indicate any psychomotor skills the field experience activity is intended to develop.
(ii) Teaching strategies	Explain how these skills will be improved in the field experience setting.
(iii) Methods of assessment	Explain what will be done to assess quality of performance.

C. Description of Field Experience Activity	
1. At what stage(s) does the field experience occur?	Indicate when during the program the students participate in the field experience.

2. Organizational structure	Describe how the time schedule for the field experience is organized. Eg. One day per week for XXX weeks, three weeks full time, one semester full time, etc.
3. Student Activities	Describe the principal activities in which the students will be involved during the field experience. If their level of responsibility is to be progressively increased during the period, explain how that will be done.
4. Student Assignments or Reports	List any assignments or reports that students are required to prepare and indicate the time when they must be completed.
5. Follow up Activities with Students.	Describe follow up activities with students after completion of the field experience to consolidate and apply learning, reflect on the experience etc.
6. Responsibilities of supervising staff in the field setting	Describe the major responsibilities to be carried by the supervising staff.
7. Responsibilities of supervising faculty from the institution	Describe the responsibilities of supervising faculty from the institution.
8. Arrangements made for student guidance and support	Describe arrangements made for student support and guidance including scheduled contacts and emergency access for advice and assistance.
9. Facilities and support required at the field experience location	Describe what facilities are required including desk or other accommodation at the field site, computer access if necessary, learning support materials and any other requirements.

D. Planning and Preparation

1. Identification of Field Placements	Describe the process followed in identifying placements including principal criteria for selection.
2. Preparation of Field Supervisors	Describe the process followed to brief supervising staff in the field setting on their responsibilities and the processes to be followed with students. Include details of when this will be done and mechanisms for ongoing consultation and emergency contact if required.
3. Preparation of Student	Describe what will be done to prepare students for their participation in the work experience program and the timing of this preparation. Written notes prepared for student guidance should be referred to or attached.
4. Safety and Risk Management	Describe process followed to ensure safety and identify risks for students, clients or others associated with the field experience activity and steps taken to minimize and protect against those risks. If a risk assessment has been prepared a copy should be attached.

E. Student Assessment

1. Basis for Assessment	Describe the principal criteria for the assessment of students performance in the field setting.
2. Field Supervisors Responsibility for Assessment	Describe the responsibility of field supervisors for student assessment. . (eg. assessment of some aspects of work done, overall assessment of performance shared with supervising faculty from institution, etc.)
3. Supervising Faculty Responsibility for Assessment	Describe the responsibility of supervising faculty from the institution for student assessment. . (eg. assessment of some aspects of work done, overall assessment shared with supervising staff in the field location, etc.)
4. Resolution of Differences in Assessments	Explain what process is followed if the field supervisor and the supervising faculty member from the institution differ in their assessment of students performance in the field experience.

F. Evaluation of Field Experience

1. Evaluation of Field Experience by	
a. Students	Describe process for obtaining feedback on the quality of the field experience by the students involved.
b. Supervising staff in the field setting	Describe process for obtaining feedback on the quality of the field experience by the supervising staff in the field setting.
c. Supervising faculty from the institution.	Describe process for obtaining feedback on the quality of the field experience by the supervising faculty from the institution.
d. Others	Describe process for obtaining feedback on the quality of the field experience by other stakeholders. (Eg. former students in surveys of the quality of the program as a whole.).
2. Arrangements for reviewing evaluations and planning for improvements	Describe the process to be followed in reviewing feedback from various sources and planning for improvement. <i>Example—Summary of evaluations prepared and considered by a program planning group including representatives of students and supervisors at the end of each year.</i>



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators

Data and Narrative Needs:

48. Number of graduating students who were evaluated internally by members of PMU faculty other than Assessment III instructor

During the 2011 school year graduating students were evaluated by three faculty that were not the Assessment III instructors.

Action Plan:

- COB will continue to encourage faculty to participate in evaluation of Assessment III graduating seniors.
- As well COB faculty will be assigned by the Dean to support the evaluation

Time Frame:

Internal evaluation of graduating students by an interdisciplinary faculty will begin in the Spring Semester 2012.



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

NCAAA – Key Performance Indicators:

Data and Narrative Needs:

49. Number of graduating students who were evaluated externally by non-members of PMU faculty during final year Assessment III

COB did not have any non-member faculty evaluate graduating students in 2011 school year.

Action Plan:

- COB will engage non-member faculty to participate in evaluation of Assessment III graduating seniors.

Time Frame:

Internal evaluation of graduating students by an non-member faculty will begin in the Spring Semester 2012.



جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

**National Commission for Academic Accreditation
& Assessment**

Self Evaluation Scales for Higher Education Programs

COLLEGE OF ENGINEERING

June 2011

Self Evaluation Scales for Higher Education Programs

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Self Evaluation Scales for Higher Education Programs

Introduction

These self evaluation scales are intended to provide guidance to program administrators and staff in higher education institutions in their planning, self-review, and quality improvement strategies.

Evaluations of quality in post secondary education are made with reference to generally accepted standards of good practice that serve as criteria for evaluative judgments. This document draws attention to practices that are commonly followed in high quality institutions and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia. The scales call for responses to indicate if those practices are followed and if so how well this is done.

The National Commission for Academic Accreditation & Assessment has been established by the Higher Council of Education in Saudi Arabia with responsibility to establish standards and accredit institutions and programs in post secondary education.

The system for quality assurance and accreditation is designed to support continuing quality improvement and to publicly recognize programs and institutions that meet required quality standards. The objective is to ensure good international standards in all post secondary institutions and in all programs offered in Saudi Arabia.

Students, employers, parents and members of the community should be able to have complete confidence that what has been learned by students, the research conducted, and the services provided are equivalent to good international practice. Accreditation of an institution or a program will give public recognition that these standards have been achieved. Saudi Arabian qualifications should be accepted without question anywhere in the world.

This document provides self evaluation scales dealing with standards for higher education programs. The standards apply to all programs in public and private universities and colleges, including those responsible to the Ministry of Higher Education and to any established or regulated by other ministries or agencies. The only exception is for military education which is administered under different arrangements.

The standards and self evaluation scales for programs have been presented in generic terms that are applicable to all programs. Separate documents that draw attention to specific requirements for certain fields of study are in preparation and details of these can be obtained from the NCAAA.

There is considerable variation in the amount of experience that higher education institutions have had with quality assurance processes and the system of higher education is expanding rapidly. In recognition of this the system for accreditation will be introduced progressively over a transition period of several years. During this time institutions that are well advanced with the introduction of quality assurance systems will be considered first, and others will be evaluated and accredited as their internal quality assurance systems are put in place.

The Commission has developed a set of standards for quality assurance and accreditation of higher education institutions in eleven general areas of activity.

1. Mission Goals and Objectives
2. Program Administration
3. Management of Program Quality Assurance
4. Learning and Teaching
5. Student Administration and Support Services
6. Learning Resources
7. Facilities and Equipment
8. Financial Planning and Management
9. Employment Processes
10. Research
11. Relationships With the Community

These standards are based on what is generally accepted as good practice in higher education throughout the world and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia.

The standards are described with several levels of detail. First, there are general descriptions for each of the eleven major areas of activity. Second, these are broken down into sub-standards dealing with requirements within each of the major areas. Third, within each of those sub-standards there are a number of good practices that are carried out in good quality institutions. To evaluate performance in relation to the standards, an institution should investigate whether these good practices are carried out and how well this is done. The self evaluation scales have been prepared to assist in this process. In this document the groups carrying out the evaluations within the institution are asked whether the particular practices are followed, and to rate the quality of these practices in the institution on a five point rating scale. Their judgments of quality MUST be based on appropriate evidence including at least some comparisons with other institutions on important items. The development of internal systems to provide that evidence is an essential requirement for an institution's quality assurance system. Unless adequate sources of evidence are available an institution cannot be considered for accreditation.

To be granted accreditation it is necessary for an institution to provide evidence of good quality performance in relation to all the eleven general standards and with all of the subsections of those standards. There is one exception. A college offering only undergraduate programs is not expected to have any significant involvement in research though teaching staff must have continuing involvement in scholarly activities in their field of study.

It is not expected that an institution or program will achieve a high rating for every "good practice" described within the sub-sections of the standards. They are not a simple check list, and items are not equal in importance. Their importance will vary according to the mission and objectives of the institution and its stage of development. However it is desirable that all are met and some are essential. In the initial stages of the introduction of the quality assurance and accreditation system the Commission will indicate a number of items to which special attention will be given. The judgment about whether accreditation should be granted will be an overall assessment by an experienced peer review panel taking account of the mission, objectives and stage of development of the institution and the priorities identified by the Commission.

A description of the eleven general standards is provided in this document together with some general explanatory notes and comments on possible performance indicators and kinds of evidence that could be considered in determining quality of performance.

Further guidance on the use of the standards for continuing monitoring of performance and preparations for accreditation is given in the *Handbook for Quality Assurance and Accreditation in Saudi Arabia* prepared by the Commission.

Relationships Between Standards for Institutions and Standards for Programs

General standards have been developed for higher education institutions and programs. They cover the same general areas of activity but there are some differences that reflect a total institutional overview on the one hand and the perspective of just one specific program on the other. In addition, some general institutional functions are not considered in a program evaluation.

Activities relating to the standards fall into three categories.

- Those that are institutional and have no impact or only very indirect impact on programs. Examples include the management of extra curricular activities or the attractiveness of buildings and grounds. These are not considered in looking at the application of the standards to programs.
- Those that are general institutional activities with a major impact on programs. Examples would be the provision of learning resources through a library or the processes for employment and promotion of staff. Evaluation of these functions in an institutional evaluation would be broad and consider the quality of management and services provided for the institution as a whole and how effectively they support all programs throughout the institution. In a program evaluation they would be considered from the perspective of the particular program concerned. For example a library might be very good in many ways, but not have the materials to support a particular program. In that case the provision of learning resources might receive a reasonably high rating in

an institutional evaluation but a low rating in an evaluation from the perspective of the program concerned in the program evaluation.

- Those that relate directly to the planning and delivery of programs. Examples would be the appropriateness of intended learning outcomes for students and the quality of teaching in the program. For an institutional evaluation these things should be looked at within all programs, and then a judgment made about strengths and weaknesses in the institution's programs as a whole with the possibility of identifying significant variations between different programs. In an institutional evaluation part of the consideration for teaching and learning should be the effectiveness of processes for ensuring all programs are of good quality, monitoring performance, and supporting improvements in all programs throughout the institution. An evaluation of learning and teaching for an institutional evaluation would normally be done by getting a profile of performance at the level of departments or colleges, and then preparing a report identifying similarities and differences and overall performance for programs in general.

In this document standards have been described dealing with the things that should be considered in relation to evaluation of a program. They include the matters described in the second and third of these categories.

Evidence of Performance

Judgments about quality based on general impressions could be accurate, but they could also be badly distorted for a number of reasons. Consequently general opinions without supporting evidence cannot be relied on in making assessments of quality in relation to specified standards. Because of this it is necessary to consider appropriate forms of evidence whenever a judgment is made about quality of performance in relation to standards.

What is appropriate evidence will vary widely for different things that are evaluated and an important element in any quality assessment is to decide on what kind of evidence is appropriate for the matter being considered.

In many cases several different forms of evidence should be considered to make a reliable judgment, and the evidence will need to be interpreted. For example high average grades in a course could mean that students have achieved very high standards because of excellent teaching. Alternatively they could mean that standards are low and grades have been inflated. To draw valid conclusions it would be necessary to check that tests were sufficiently rigorous and that criteria for allocating grades were appropriate and fairly administered.

Interpretations of evidence can also be unreliable, and to guard against this it is recommended that groups that undertake evaluations in relation to the standards include some people who have been involved in the activity concerned, some who are the recipients of the service provided (eg students, graduates or members of departments who use services provided by central administrative units or centers) and also some who are familiar with that kind of work, but are not directly involved in that service provision. As a further safeguard it is recommended that the final judgments be reviewed and an independent opinion given by someone who has not been involved in the initial evaluation as a check on whether the interpretations seem reasonable in the light of the evidence provided.

Performance Indicators

A wide range of kinds of evidence can be considered. However as part of the evidence to be used decisions should be made about some specific items of information that can be expressed in quantitative terms and used as performance indicators. These should be identified in advance as part of planning processes. For example when major goals or objectives are established specific indicators should be specified so achievement of those goals and objectives can be monitored on a continuing basis. It is also important for an institution to identify some key performance indicators that will be used consistently by departments and colleges throughout the institution to monitor their own performance, provide for comparisons of performance between departments and colleges, and permit university committees and senior administrators to monitor overall institutional quality on a continuing basis.

Data on these indicators should be collected in standard form and retained in a central data base so there can be comparisons within the institution and over time. An evaluation of the effectiveness of these processes

will consider whether appropriate indicators have been identified, whether the data is consistently collected and recorded, and whether the information is used in monitoring and analysing quality of performance.

It is the responsibility of every program to monitor and plan for improvement in relation to its own mission and objectives. However the Commission has also identified certain key performance indicators on which information should be collected in all institutions. This requirement has several important objectives. It provides a common set of statistical data that can be used by institutions and by those responsible for programs for comparisons of performance and benchmarking within their own institution and elsewhere within the country. (The Commission will publish information for groups of similar institutions, but individual institutional data will be confidential to each institution) It assists the Commission and other relevant Ministries and organizations in monitoring the quality of performance of the system of higher education as a whole, and it provides a sample of important information about institutions that makes it possible for the Commission to maintain accreditation of institutions in the interval between major external reviews.

These indicators established by the Commission should be used by institutions and program managers as part of their quality assurance processes, but they are also encouraged to add additional indicators which they select for themselves that relate to their own mission and objectives and their priorities for improvement.

Good Practices Relevant to More than One Standard

Within each standard and sub-standard a number of statements are made about things that should be done if the standard (or sub-standard) is being met. Many of these statements appear in several different places. This should not be regarded as unnecessary duplication, but rather as a result of the fact that a number of practices are relevant to more than one standard. For example, an expectation that teaching staff be involved on a continuing basis with scholarly activities that ensure they remain up to date is relevant to Qualifications and Experience of Teaching Staff (Standard 4. 8) and also to Personal and Career Development (Standard 9.3), and an expectation that standards of learning outcomes should be checked against the National Qualifications Framework and standards at other comparable institutions is relevant to the standard for Management of Quality Assurance and Improvement (Standard 3) and also to the sub-standards for Student Learning Outcomes (Standard 4.1) and Student Assessment (Standard 4. 4).

Application of the Standards to Different Types of Institutions.

The standards are designed for all higher education institutions, that is institutions offering programs described as higher education and leading to higher education qualifications in the National Qualifications Framework.

While the general standards for higher education institutions are the same for all there are some important differences in the circumstances of some types of institutions that affect how the standards should be applied.

- There are some differences in the regulations affecting public and private institutions, including some relating to borrowing, fee payments by students and financial management. Consequently some of the standards specified for these matters are not relevant to some institutions.
- There are expectations for universities relating to involvement in research and post graduate study. These should be reflected in the evaluations in standard 10 dealing with research. Although scholarly activities on the part of faculty should be encouraged in all institutions these requirements for research do not have to be met in private colleges that are not part of universities.
- Some institutions are involved in partnership arrangements with other institutions, either within or outside the Kingdom, under which certain elements of program planning and evaluation are shared. If such arrangements exist processes must be followed that ensure that quality is maintained and the requirements of the Saudi Arabian system are met.
- Some institutions offer programs by distance education. This different form of delivery changes the form of interaction between students and institutions and leads to additional requirements for program delivery and support. The special requirements for distance education programs are set out in a different document.

In the self evaluation scales attention is drawn to some of these differences. If a particular practice is not applicable to the institution concerned the item should simply be marked as not applicable (NA).

Notes on What Constitutes a Program

A program is regarded as an integrated package of courses and activities in an academic or professional field leading to a qualification. However organizational arrangements in institutions differ and there are sometimes questions about what should be considered as a program.

A program includes all of the courses a student is required to take, including courses that are required by an institution or a college as well as those required by a department, and including any general education programs as well as those in a professional or academic field. It includes courses that may be offered as service courses by another department or college.

A program offered on both men's and women's campuses is a single program and should be evaluated as such. However since there may be significant differences in facilities, resources, experience of faculty, employment of graduates or other matters evidence should be obtained about what happens on each campus and any differences noted and considered in planning what should be done in response. Program reports should show both the evaluations for each campus and a combined result.

A program offered on a remote as well as on an institution's main campus should be dealt with in the same way.

A program offered either on-campus or through distance education should also be evaluated in the same way, that is, information collected for each mode of delivery and reported in a way that shows any differences found. However there are a number of additional matters that relate to distance education and these must also be considered using the standards for distance education.

A program may have an early exit point, for example it may be possible for students to complete two years of study and receive an associate degree or to continue for several more years and complete a bachelor degree. If this is done it is essential that the associate degree be planned so that it provides a complete and useful qualification in its own right. For example it might include significantly more practical and applied work in the field than students would normally undertake in the first two years of a bachelor degree program. It is not acceptable for such an award to be granted simply because students fail or drop out after the early parts of a longer program.

The distinction between what is regarded as a single program or a cluster of related programs is difficult to define and may be best explained through examples.

A bachelors degree program to prepare a student as a civil engineer would be regarded as a different program from one to prepare a mechanical engineer, even though there may be some courses that are common to both. Similarly, if a student had completed the bachelors degree program and wished to take a post graduate program leading to a masters degree or a doctorate in the same general field, that would be regarded as a separate program. The test in these examples relates to there being a qualification that is regarded as being complete in itself, and in the case of a professional program, qualifying the person who has taken the program for professional practice in the field. The distinction does not necessarily relate to organization of an institution or college into departments. In the particular example given it is likely that a civil engineering department would offer both the undergraduate and the postgraduate programs. It would also be possible if an institution wished to organize itself in that way for a single department to offer programs in both civil and mechanical engineering.

The title of an academic award is not necessarily a useful guide to what should be regarded as a program. For example general titles such as Bachelor of Arts, or Business, or Science, could include many different programs. In an Arts degree there could be programs in history and or social sciences, in psychology, in social work, or many others. A Business degree could include separate programs for accountants, for economists, or for management and administration, and these would be different programs leading to quite different occupational skills.

The programs that have been used in these examples are separate entities, and will be accredited as such. However this does not prevent groups of related programs being considered together by an external review team in the accreditation process provided it is possible for external review panels to include the necessary expertise. A panel might consider an undergraduate and a post graduate program in the same field at the same time. However the institutions self study and the reports of the review panel will deal separately with each program and it would be possible for one such program to be accredited and not the other.

An equivalent set of standards has been developed for institutions offering post secondary programs in technical education and training. These standards differ from those for higher education institutions because of important differences in the nature of programs and the processes for program development and delivery. The standards for these institutions are set out in another document, *Standards for Accreditation of Technical Education and Training Institutions*.

Using the Self Evaluation Scales

High quality standards can only be achieved by honest evaluation of performance and commitment to improve, and by action planned and taken by those offering the program and providing the services on which it depends. In recognition of this teaching and other staff responsible for various activities should evaluate their own performance in comparison with generally accepted standards of good practice.. Although every effort should be made to form valid and reliable judgments based on evidence, a number of these evaluations will involve subjective judgments and to avoid an illusion of precision and discourage a misleading aggregation of total numbers in a single “quality score” it is recommended that a starring system be used for rating these quality evaluations. It is expected that these self evaluation scales will be used by institutions, and by those responsible for programs in their initial quality assessment, their continuing monitoring of performance, and in their more extensive periodic self studies prior to an accreditation review by the Commission.

In this document information about the standards is presented at two levels. The first is a general statement of the standard as it applies to a broad area of activity and the second is a description of why it is important and the kinds of processes that are expected if the standard is achieved.

This explanatory information is followed for each standard by a number of more specific statements of “good practices” that are typically carried out in a high quality institution with scales to indicate whether and how well the practice is followed.. The scales” are presented in groups that deal with major components or sub-sections of the general standards.

The lists of specific practices are intended primarily as a guide for those responsible for particular activities to draw attention to things that are generally regarded as good practice, and to assist them in their self-evaluations.

Some of these statements are relevant to certain institutions but not to others. Where an item is not applicable it should be simply marked NA, and ignored.

For each individual item two responses are called for. The first is to indicate whether the practice is followed in the institution. The possible responses are:

NA -- the practice is not applicable or relevant for the institution or unit making the response.

Y – yes, the practice is followed; or

N – no, the practice is relevant but not followed.

The second response is called for in cases where the practice is relevant to the institution (i.e. a “Y” or “N” response). It involves the use of a five-point rating scale to evaluate on a how consistently and how well the practice is carried out. Stars, rather than a numeric or alphabetic rating scale, are used for this purpose.

The evaluations relate to:

The extent and consistency with which processes are followed;

The quality of the service or activity as assessed through systematic evaluations;

The effectiveness of what is done in achieving intended outcomes.

Using Stars for Evaluations

Performance should be assessed by allocating from zero to five stars in accordance with the following descriptions:

Improvement Required

No Star – The practice is relevant but not followed at all. A zero should be recorded on the scale.

One Star – The practice is followed occasionally but quality of the activity is poor or not evaluated.

Two Stars -- The practice is usually followed but the quality is less than satisfactory.

Good Performance

Three Stars—The practice is followed most of the time. Evidence of the effectiveness of the activity is usually obtained and indicates that satisfactory standards of performance are normally achieved although there is some room for improvement. Plans for improvement in quality are made and progress in implementation is monitored.

High Quality Performance

Four Stars—The practice is followed consistently. Indicators of quality of performance are established and suggest high quality but with still some room for improvement. Plans for this improvement have been developed and are being implemented, and progress is regularly monitored and reported on.

Five Stars—The practice is followed consistently and at a very high standard, with direct evidence or independent assessments indicating superior quality in relation to other comparable institutions. Despite clear evidence of high standards of performance plans for further improvement exist with realistic strategies and timelines established.

Converting Survey Responses to a Starring System.

In a number of cases the individual items refer to evaluations of quality by students, faculty, or other stakeholders. The wording of survey instruments and items in rating scales can influence results significantly and interpretations of the data and independent verification of conclusions is important. However as a general guide where a five point rating scale is used with possibilities of positive and negative assessments evenly balanced, an overall rating from respondents to a survey might achieve star ratings as follows:

Above 4.5	Five stars
3.6-4.5	Four stars
2.6-3.5	Three stars
1.6-2.5	Two stars
1.5 or below	One star

Combining Ratings on Individual Items to Develop a Broader Evaluation

The quality ratings of specific practices can be combined to guide broader judgments about an institution's performance in relation to the groups of items that are shown as components of each general standard, or to each broad standards as a whole. This can be done by averaging the number of stars, ignoring the items marked NA and counting items where the practice is relevant but not followed as zero.

However the individual items are not necessarily of equal importance and if individual items are combined to form an overall assessment consideration should be given to weighting certain items more heavily than others and adjusting the overall rating accordingly. Space is provided on the forms to note when this kind of adjustment is made.

Aggregating Evaluations to Obtain an Institution-Wide Overview

The rating scales are presented in a form that enables them to be used for individual programs and aggregated to give an overview of the quality of programs for a college or for the institution as a whole. When aggregated in this way the scales should assist in the conduct of an institutional self-study, and provide useful information for

external review panels as they carry out their independent institutional reviews.

It is recommended that programs within a department or college be looked at together noting both similarities and any significant differences between them, and then at a second stage the reports on programs within colleges brought together to give an overall picture for the institution. It is possible in these processes to simply work out an average number of stars for various functions. However if there are significant differences the overall average is much less important than variations between programs or colleges. Consequently these variations should be identified and reported on, and considered carefully when suggestions are made for improvements.

Priorities for Improvement

An important outcome of the self-assessment carried out through the use of the rating scales is to identify areas for improvement. It is rarely possible to do everything at once and priorities have to be established. Space is provided on the forms to indicate particular items that are considered the highest priorities for improvement.

Indicators as Evidence of Performance

As far as possible evaluations should be based on direct evidence that practices are followed, and that desired levels of quality are achieved rather than general post hoc impressions. This consideration of evidence need not be a major undertaking but it does require some advance planning and selection of indicators that will be used as evidence of performance. The performance indicators should be specified in advance and data gathered and considered as part of continuing monitoring processes. (This does not preclude consideration of other evidence that may emerge) The document includes space for the selected performance indicators to be noted.

Expected Standards of Performance

It is not expected that every program will rate at the highest level on all dimensions of activity. That would be unrealistic, and setting up such expectations is not the purpose of the document. Instead it is intended to provide descriptive performance standards in many different forms of activity, so there can be a clearer basis for evaluation in relation to generally accepted standards of good practice. This is intended to help those responsible for programs in their self-evaluations and planning for improvement, and to help the institution as a whole to identify areas of relative strength and weakness, and to work towards improvement in spheres of activity that are considered priorities for development.

While the document is intended primarily to assist in evaluations and planning for improvement within institutions it also establishes levels of performance that are considered necessary for accreditation. For this purpose the basis of judgment will be at the level of the broader standards rather than the precise assessment of performance in relation to each individual practice. In general a one or two star rating on a standard is considered unsatisfactory and three stars is a minimum acceptable level of performance. However as noted above not all functions are of equal importance in accreditation judgments and the particular circumstances of an institution, and its strategies for development, will be taken into account.

Relative Importance of Different Standards

The point about some items in the rating scales being more important than others applies to the broader standards as well, and the relative importance will vary for different institutions. The place of research is a good example of this. In some institutions, particularly universities seeking international recognition the quality and extent of participation in research is vitally important and international ratings of universities give considerable weight to research performance. In others, such as a college concentrating on quality of undergraduate programs, research may be of little significance though it is still important that faculty participate in scholarly activities to ensure that their teaching is up to date with latest developments.

The quality of learning and teaching will always be of primary importance since this is normally the primary function of an educational institution. Satisfactory performance in relation to this standard is essential for accreditation.

Independent Verification of Evaluations

Although direct evidence of quality of performance should be obtained wherever possible, many of the judgments have to involve some subjective opinions. When self evaluations are made by an individual or a group this can mean unduly harsh or overly generous assessments and some action should be taken to correct for

this.

Provision is made in the scales for independent opinions to be given by a person familiar with the type of activity, but independent of those responsible for it, and whose judgment is respected. For many items during annual evaluations these independent opinions could be given by a person nominated by a dean or department head, such as a colleague from another department within the institution. For major judgments on important items, for example in a program self study prior to an external review for re-accreditation of a program, greater independence may be required.

Note on Terminology

The term **governing body** is used as a general descriptive title for the highest policy making body or committee in a post secondary institution. This would be the university council in a public university, or a board of trustees in many private colleges.

The term **rector or dean** is used in this document to refer to the head of an institution. Rector is the title normally used in Saudi Arabia for the head of a public university, and dean is typically used as the administrative head of a smaller institution or a private college. The term dean is also used for the head of a college within a university, and a private university or college may use other terms for the administrative head such as president or director. In this document reference is made to rector or dean, and it should be possible from the context of the reference to avoid confusion with the position of dean of a college within a university.

The term **teaching staff** has been used rather than “faculty” to refer to all individuals responsible for teaching groups of students. It includes faculty or equivalent members of staff as formally defined in Ministry regulations but also anyone else who has been given teaching responsibility. It includes tutors or instructors working with groups of students in a distance education or on-campus program, but does not include laboratory assistants or others who assist with the teaching of classes under the direct supervision of others.

Standard 1 Mission Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

Main components in this standard:

- 1.1 Appropriateness of the Mission
- 1.2 Usefulness of the Mission Statement
- 1.3 Processes of Development and Review of the Mission
- 1.4 Use Made of the Mission Statement
- 1.5 Relationship Between Mission, Goals and Objectives.

Comment and General Description of Good Practice

Effective and coordinated planning and development normally requires that a program have a succinct mission statement, summarizing in a few sentences what it is trying to achieve as a guide to detailed planning and development.

The mission statement should establish priorities for development and quality improvement and be key element in the quality assurance process. Consequently it should be prepared in a way that generates a sense of ownership on the part of all those involved with the program, be periodically reviewed as a major policy issue, and consistently referred to as a basis for planning and evaluation. It should be consistent with the charter establishing the institution, and realistic in relation to the capacity of the institution in the environment within which it is operating, but at the same time present challenges for development and improvement.

Goals should be thought of as applications of the mission to specific activities. They establish directions for detailed planning though they are usually expressed in general terms.

Objectives should be linked through strategic planning processes to the mission and goals They should be more specific and include intended results to be achieved within a stated time period.

This standard relates to the way the mission statement has been developed and is expressed, to its effectiveness in guiding the development of the program, and to the relationships between the mission and the goals and objectives.

Evidence and Performance Indicators

Evidence about the quality of the mission could be obtained from examination of the mission statement itself, copies of papers proposing the mission or modifications in it, interviews with teaching and other staff and students to find out how well it is known and supported, and consideration of other reports, proposals and statements to see the extent to which the mission is used as a basis for decisions. Indicators that could be used include responses to questions on surveys to see how well the mission is known and supported, or the proportion of policy decisions that refer to the mission among criteria for the decision made.

Standard 1 Mission, Goals and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

**Is this true?
Y/No/NA** **How well is this done?
(enter stars)**

1.1 Appropriateness of the Mission

The mission statement must be appropriate for the institution and for a program of its type in Saudi Arabia.

- 1.1.1 The mission for the program is consistent with the mission of the institution.
- 1.1.2 The mission establishes directions for the development of the program that are appropriate for a program of its type and for the needs of students in the context for which they are prepared.
- 1.1.3 The mission is consistent with Islamic beliefs and values.
- 1.1.4 The appropriateness of the mission is explained in an accompanying statement commenting on significant aspects of the environment within which it operates. (which may relate to local, national or international issues)

Y	4
Y	4
Y	4
Y	4

Overall Assessment

4

Comment The College of Engineering mission is aligned with PMU mission

Priorities for improvement The College of Engineering mission needs to be updated to be
to include graduate academic programs

Independent Opinion

Comment _____

1.2 Usefulness of the Mission Statement

The mission statement must be useful in guiding planning and decision making for the program.

- 1.2.1 The mission statement is sufficiently specific to provide an effective guide to decision-making and choices among alternative planning strategies.
- 1.2.2 The mission is achievable through effective strategies within the level of resources expected to be available.
- 1.2.3 The mission statement provides clear criteria for evaluation of progress towards the goals and objectives of the program.

Y	4
Y	4
	4

Overall Assessment

Comment The current mission meets the minimum standards

4

Priorities for improvement Input from stakeholders will provide feedback important
to introduce changes

Independent Opinion

Comment _____

1.3 Development and Review of the Mission

The mission must be developed through consultative processes and formally adopted and periodically reviewed.

1.3.1 Major stakeholders associated with the program have been consulted and support the mission.

Y

3

1.3.2 The decision making body responsible for approving the program within the institution formally approved the mission statement.

Y

3

1.3.3 The mission statement is periodically reaffirmed or amended if necessary in the light of changing circumstances.

Y

3

1.3.4 Stakeholders are kept informed about the mission and any changes made to it.

Y

3

Overall Assessment

Comment The standard is met, short cycle improvement are warranted to reflect

3

expansions and growth.

Priorities for improvement The institutional due process need to be formalized

Independent Opinion

Comment _____

1.4 Use Made of the Mission Statement

The mission must be used consistently as a basis for planning and major policy decisions.

1.4.1 The mission statement is used as a basis for a strategic plan for development of the program over a medium term planning period. (normally five to seven years)

Y

4

1.4.2 The mission statement is known about and supported by teaching and other staff and students.

Y

4

1.4.3 Consistency with the mission is listed among criteria for consideration of program and project proposals by committees and decision makers.

Y

4

Overall Assessment

Comment As the College faculty size reached a critical mass, more participation will

4

guarantee quality short and long term strategic planning.

Priorities for improvement _____

Independent Opinion

Comment _____

1.5 Relationship Between Mission, Goals and Objectives

The mission must be used to guide the establishment of goals and objectives and strategic plans for the development of the program.

Y

3

1.5.1 Goals for development of the program are consistent with and support the mission.
 1.5.2 Goals are stated with sufficient clarity to effectively guide planning and decision-making in ways that are consistent with the mission.
 1.5.3 Goals and objectives for the development of the program are reviewed periodically and modified if necessary in response to results achieved and changing circumstances.
 1.5.4 Statements of major objectives should be accompanied by specification of clearly defined and measurable indicators that are used to judge the extent to which objectives are being achieved.

Y	4
Y	4
Y	4

Overall Assessment

Comment Corrolation is evident

4

Priorities for improvement Expand goals and objectives to reflect new strategic
planning

Independent Opinion

Comment _____

Overall Assessment of Mission Goals and Objectives

1.1 Appropriateness of the Mission	4
1.2 Usefulness of the Mission Statement	4
1.3 Processes of Development and Review of the Mission	3
1.4 Use Made of Mission Statement	4
1.5. Relationship Between Mission, Goals and Objectives	4
Combined Assessment	4

Comment The College of Engineering has met this standard. Updates are
being introduced as part of the continuous improvement process

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement _____

Standard 2 Program Administration

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

Main Components in this Standard

- 2.1 Leadership
- 2.2 Planning Processes
- 2.3 Relationship Between Sections for Male and Female Students
- 2.4 Institutional Integrity
- 2.5 Internal Policies and Regulations

Comment and General Description of Good Practice

Management arrangements between the program administrators and senior institutional management, and for faculty and staff within the program should provide for appropriate delegations of responsibility with clear guidelines setting out the scope and limits of responsibility, allowing for creativity and innovation within policy guidelines, and with clearly defined mechanisms for accountability.

Mechanisms should exist for effective coordination of planning within the program and for ensuring consistent action by individuals in keeping with the plans that are made. Goals and objectives should be established for the program as a whole, and within the framework of those goals and objectives for planning and delivering individual courses. Plans for courses should include not only the subject matter of each course but plans for teaching that will contribute to the development of the required range of learning outcomes for the program as a whole. Mechanisms for accountability and quality assurance include regular reports on what is done, plans changes that may be needed and follow up action to ensure that planned adjustments are made.

Evidence

Evidence and Performance Indicators

Evidence about effective management could include documents setting out policies, terms of reference and operating procedures for major committees and administrative positions, responses to surveys of teaching and other staff and students about procedures followed, and opinions of senior administrators in the institution to which program administrators are responsible. Evidence of dissemination of integrity expectations should include information on websites, advertisements and awareness of requirements on the part of staff and students in interviews or surveys.

Indicators could be based on responses to surveys by teaching and other staff and students.

Standard 2 Program Administration

Program administration must provide effective leadership and reflect an appropriate balance between accountability to senior management and the governing board of the institution within which the program is offered, and flexibility to meet the specific requirements of the program concerned. Planning processes must involve stakeholders (eg. students, professional bodies, industry representatives, faculty) in establishing goals and objectives and reviewing and responding to results achieved. . If a program is offered in sections for male and female students resources for the program must be comparable in both sections and there must be effective communication between them and equitable involvement in planning processes. The quality of delivery of courses and the program as a whole must be regularly monitored with adjustments made promptly in response to this feedback and developments in the external environment affecting the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
2.1 Leadership		
Program administrators must provide effective and responsible leadership for the development and improvement of the program.		
2.1.1 The responsibilities of program administrators are clearly defined in position descriptions	Y	4
2.1.2 There is sufficient flexibility at the level of the department or college offering the program to respond rapidly to course and program evaluations and changes in program learning outcome requirements, (eg. Departments should have authority to change text and reference lists, modify planned teaching strategies, details of assessment tasks and updating of course content.)	Y	3
2.1.3 Program administrators anticipate issues and opportunities and exercise initiative in response.	Y	4
2.1.4 Program administrators ensure that when action is needed it is taken in an effective and timely manner.	Y	4
2.1.5 Program administrators have sufficient authority to ensure compliance with formally established or agreed institutional or program policies and procedures.	Y	4
2.1.6 Program administrators provide leadership, and encourage and reward initiative on the part of teaching and other staff.	Y	4
2.1.7 Program managers accept responsibility for the effectiveness of action taken within their area of responsibility regardless of whether that action is taken by them personally or by others responsible to them.	Y	4
2.1.8 Regular feedback is given on performance of teaching and other staff by the head of the department	Y	4
2.1.9 Delegations of responsibility to program administrators are formally specified in documents signed by the person delegating and the person given delegated authority, that describe clearly the limits of delegated responsibility and responsibility for reporting on decisions made.	Y	4
2.1.10 Regulations governing delegations of authority are established for the institution and approved by the governing board. These regulations should indicate key functions that cannot be delegated, and specify that delegation of authority to another person or organization does not remove responsibility for consequences of decisions made from the person giving the delegation.	Y	4
2.1.11 Advice and support are made available to faculty and staff in a manner that contributes to their personal and professional development	Y	4
2.1.12 Proposals for program developments and recommendations on policy issues are presented to the appropriate decision making body in a form that clearly identifies the issues for decision and the consequences of alternatives.	Y	4
		4

Overall Assessment

Comment The College of Engineering Dean and Departments Chairs share

administration responsibilities. All are actively involved in decisions relating to academics, Personnel, and resources. They enjoy the support of PMU administrator.

Priorities for improvement _____

Comment _____

Independent Opinion

2.2 Planning Processes

Planning processes must be managed effectively to achieve the mission and goals of the program through cooperative action by the instructional team and program and course reporting and decision making. Planning must combine coordinated strategic planning with flexibility to adapt to results achieved and changing circumstances.

2.2.1 Planning is strategic, incorporating priorities for development and appropriate sequencing of action to produce the most effective short-term and long term-results.	Y	3
2.2.2 Plans take full and realistic account of aspects of the external environment affecting demand for graduates and skills required by them.	Y	4
2.2.3 Planning processes provide for appropriate levels of involvement by teaching and other staff, students and other stakeholders.	Y	3
2.2.4 Planning has a particular focus on intended learning outcomes for students with course content and teaching and assessment strategies that reflect both the background of students and theory and research on different kinds of learning. (For advice on the planning of new programs and review and documentation of existing programs refer to Section 2.4.7 in <i>Handbook for Quality Assurance and Accreditation in Saudi Arabia Part 2, Internal Quality Assurance Arrangements</i> .	Y	3
2.2.5 Plans are effectively communicated to all concerned with impacts and requirements for different constituencies made clear.	Y	3
2.2.6 Implementation of plans is monitored with checks made against short term and medium term targets and outcomes evaluated.	Y	3
2.2.7 Planning provides for reports on key performance indicators to be made on a regular basis to senior management within the institution.	Y	3
2.2.8 Plans are reviewed, adapted and modified, with corrective action taken as required in response to operational developments, formative evaluation, and changing circumstances.	Y	3
2.2.9 Risk management is included as an integral component of planning strategies with appropriate mechanisms developed for risk assessment and minimization.	N	1
Overall Assessment		3

Comment Planning guidelines and processes are adequate
for enhancements

Priorities for improvement Managed college growth is producing opportunities

Comment _____

Independent Opinion

2.3 Relationship Between Sections for Male and Female Students

In programs offered in sections for male and female students the program coordinators and teaching staff in both sections must participate fully in cooperative planning, decision

making and program and course reporting. There must be equitable distribution of resources and facilities to meet the requirements of program delivery, research, and associated services in each section and quality evaluations must consider both performance in each section as well as the program overall.

2.3.1 When programs are offered in both male and female sections resources , facilities and staffing provisions are offered at comparable levels.

N/A

2.3.2 Program administrators in both sections and staff teaching the same courses are fully involved in planning and reporting processes and communicate regularly about the program through processes that are consistent with bylaws and regulations of the Higher Council of Education.

N/A

2.3.3 Male and female sections are adequately represented in the membership of relevant committees and councils.

N/A

2.3.4 Plans for the program and course specifications require the same standards of delivery and are consistent for both sections, subject to any appropriate variations to meet differing needs of students.

N/A

2.3.5 Performance indicators and reports on courses and programs show results for each section, and also overall results for the program as a whole.

N/A

Overall Assessment

Comment The college offers Electrical, Mechanical and Civil Engineering to male

N/A

students only. The college offers Interior Design to female students only.

Priorities for improvement There are no immediate plans to offer nay of our

programs to both genders.

Independent Opinion

Comment _____

2. Integrity

Teaching and other staff involved with the program must meet high ethical standards of honesty and integrity including avoidance of conflicts of interest and avoidance of plagiarism in their teaching, research, administrative and service functions. These standards must be maintained in all dealings with students, teaching and other staff, and in relationships with other internal and external agencies including both government and non government organizations.

2.4.1 Codes of practice for ethical and responsible behaviour have been developed and are followed dealing with matters such as the conduct and reporting on research, performance evaluation, student assessment, committee decision making, and the conduct of administrative and service activities.

Y

4

2.4.2 Regulations dealing with declarations of pecuniary interest or conflict of interest for faculty and staff are consistently followed.

Y

4

2.4.3 Advertising and promotional material are always truthful, avoid any actual or implied misrepresentations or exaggerated claims, or negative comments about other programs or institutions

Y

4

Overall Assessment

Comment This standards is core to the college of engineering values and

4

professional and ethical conducts

Priorities for improvement The University strategic plan includes initiatives that

enhances this standard

Independent Opinion

Comment _____

2.5 Internal Policies and Regulations

Policies and regulations must be established that clearly define the major responsibilities and procedures for the administration of the program and for committees and teaching and other staff and students involved.

2.5.1 The terms of reference and operating procedures for major committees and academic and administrative positions associated with the program are clearly specified and included in the policy and procedures manual.

Y

3

2.5.2 Policies and regulations relating to the program are made accessible to faculty, staff and students, and effective strategies are used to ensure they are understood and complied with.

Y

3

Y

2.5.3 Decisions made by committees on procedural or academic matters are recorded and referred to when future similar issues are considered.

4

2.5.4 Guidelines, bylaws or regulations are established for recurring procedural or academic issues.

Y

3

2.5.5 The policies and regulations for the management of the program are periodically reviewed and amended as required in the light of changing circumstances.

Y

3

Overall Assessment

Comment The college and its departments follow established institutional

3

academic and administrative policies and procedures

Priorities for improvement College faculty staffing plan is being accelerated.

Adding personnel at the college and departments level is an university priority.

Independent Opinion

Comment _____

Overall Assessment of Program Administration

2.1 Leadership	4
2.2 Planning Processes	3
2.3 Relationships Between Sections for Male and Female Students	N/A
2.4 Integrity	4
2.5 Internal Policies and Regulations	3
Combined Assessment	4

Comment The college and university have a good administrative infrastructure in
place. College and its units are striving to accomplish strategic initiatives
that will enhance the college accomplishments.

Comment Independent Opinion

Indicators Considered

Priorities for Improvement

Standard 3. Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

Main Components in this Standard

- 3.1 Commitment to Quality Improvement in the Program
- 3.2 Scope of Quality Assurance Processes
- 3.3 Administration of Quality Assurance Processes
- 3.4 Use of Indicators and Benchmarks
- 3.5 Independent Verification of Standards

Comment and General Description of Good Practice

The central focus in the evaluation of the quality of a program is the quality and extent of student learning, considered as outcomes--what students understand and can do as a result of their studies, and whether that learning is appropriate to their field. Other services, facilities and activities are evaluated according to the extent that they contribute to that learning.

The management of quality assurance for a program should involve evidence from a number of sources with mechanisms for interpreting that evidence and using the results in planning for improvement. This evidence should include systematic feedback from students about the quality of the program they have participated in, but this must be considered as only one element in a system that also includes independent assessments of what they have learned. Student assessment tasks are a direct measure of learning outcomes, but use of students' results as evidence of program quality must be combined with other evidence such as comparisons with standards at other good quality institutions. Appropriate external benchmarks should be established as a basis for evaluations of program quality.

Quality improvement strategies should be integrated into normal planning processes in a continuing cycle of planning, implementation, evaluation and review. This involves reports on the teaching of each course with information arising from those course reports considered to assess their significance for the program as a whole. The standard for management of quality assurance and improvement includes the use of conclusions arising from evidence in those reports in planning and implementing progressive improvements over time. It also includes an expectation that appropriate performance indicators will be used for purposes of reporting on quality to senior management within the institution.

Evidence and Performance Indicators

Evidence about the quality of management of quality assurance processes can be obtained by looking at the extent of involvement in quality assurance processes by teaching and other staff and the adequacy of responses made to evaluations that are made in program and course reports and other reports prepared. The outcomes of those processes can be assessed by examining trend data to see whether there has been progressive improvement in the planning and administration and the learning outcomes achieved by students.

Evidence about the quality processes followed can be obtained from surveys or discussions with staff or students and the quality of reports prepared by program administrators, including whether the quality evaluations are evidence-based and appropriately benchmarked in relation to external standards.

The key performance indicators identified by the Commission should be used, but additional indicators linked to the particular mission of the institution and the program should also be used when needed. When goals and objectives are established for the development and improvement of the program appropriate performance indicators should be identified as part of that planning process

Standard 3 Management of Program Quality Assurance

Teaching and other staff involved in the program must regularly evaluate their own performance and are committed to improving both their own performance and the quality of the program as a whole. Regular evaluations of quality must be undertaken within each course based on valid evidence and appropriate benchmarks, and plans for improvement made and implemented. Quality must be assessed by reference to evidence and include consideration of specific performance indicators and challenging external benchmarks. Central importance is attached to student learning outcomes with each course contributing to the achievement of overall program objectives.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
3.1 Commitment to Quality Improvement in the Program Program administrators and teaching and other staff must be committed to maintaining and improving the quality of the program.		
3.1.1 All teaching and other staff participate in self-assessments and cooperate with reporting and improvement processes in their sphere of activity.	Y	4
3.1.2 Creativity and innovation combined with clear guidelines and accountability processes are actively encouraged.	Y	3
3.1.3 Mistakes and weaknesses are acknowledged, and dealt with constructively, with help given for improvement.	Y	3
3.1.4 Improvements in quality are appropriately acknowledged and outstanding achievements recognized.	Y	3
3.1.5 Evaluation and planning for quality improvement are integrated into normal administrative processes.	Y	3
Overall Assessment		3
Comment <u>The college created departmental assessment faculty coordinators and</u>		
<u>improved them to be in charge of their units improvement initiatives</u>		
Priorities for improvement <u>Results from short and long term "closing the loop"</u>		
<u>assessment cycles need to be identified and implemented</u>		
Independent Opinion		
Comment _____		

3.2 Scope of Quality Assurance Processes

Quality assurance activities that are necessary to ensure good quality must apply to all aspects of program planning and delivery including provision of related services, and to all teaching and other staff involved in those processes.

3.2.1 Quality evaluations deal with all aspects of program planning and delivery including student learning outcomes and facilities and services to support that learning whether they are managed by administrators of the program or by others based elsewhere in the institution.	Y	3
3.2.2 Quality evaluations and reports provide an overview of performance for the program as a whole, including both sections if the program is offered in male and female sections, and all courses	Y	3
3.2.3 Evaluations consider inputs, processes, outcomes and processes, with particular attention to learning outcomes for students.	Y	3
3.2.4 Evaluations include both routine activities and strategic priorities for improvement.	Y	3

3.2.5 Processes are designed to ensure both that acceptable standards are met, and that there is continuing improvement in performance.

Y

3

3.2.6 If the program is offered in sections for male and female students detailed evaluations in relation to all standards are carried out in a consistent way in both sections and quality reports on those standards report on any significant differences found and make appropriate recommendations for action in response to what is found.

N/A

N/A

Overall Assessment

Comment The college faculty are committed to implement best practices that lead to continuous improvement across all academic programs

3

Priorities for improvement The college will introduce tools and instruments that will improve collecting and analyzing data.

Independent Opinion

Comment _____

3.3 Administration of Quality Assurance Processes

Quality assurance arrangements for the program must meet any particular requirements for this program as well as the quality assurance arrangements for the institution as a whole.

3.3.1 Quality assurance processes are fully integrated into normal planning and program delivery arrangements.

Y

3

3.3.2 Evaluations are (i) based on evidence, (ii) linked to appropriate standards, (iii) include predetermined performance indicators, and (iv) take account of independent verification of interpretations.

Y

3

3.3.3 Quality assurance processes make use of standard forms and survey instruments for use across the institution with any special additional elements added to meet the particular requirements of the program.

Y

4

3.3.4 Statistical data on indicators, including grade distributions, progression and completion rates are retained in an accessible central data base and regularly reviewed and reported in annual and periodic program reports.

Y

3

3.3.5 Responsibility is given to a member of the teaching staff to provide leadership and support for the management of quality assurance processes. The responsible person should involve other staff in planning and carrying out the quality assurance processes.

Y

4

3.3.6 The quality assurance arrangements for the program should be regularly evaluated and improved. As part of these reviews unnecessary requirements should be removed to streamline the system and avoid unnecessary work.

Y

3

3.3.7 Processes for evaluation of quality should be transparent with criteria for judgments and evidence considered made clear.

Y

3

Overall Assessment

Comment The administration of this standard receives support of the college and university

3

Priorities for improvement Appoint a college associate dean for academics and assign him oversight of college and departments quality assurance activities

Independent Opinion

Comment _____

3.4 Use of Performance Indicators and Benchmarks

Specific indicators must be identified for monitoring performance and appropriate benchmarks selected for comparative evaluation of the achievement of goals and objectives and quality of performance more generally.

3.4.1 Information is provided regularly on key performance indicators that are selected for all programs in the institution.	Y	3
3.4.2 Additional performance indicators relevant to the particular program are also identified, used for program evaluations and regularly reported on.	Y	3
3.4.3 The additional benchmarks for the program are approved by the appropriate senior committee or council within the institution (eg. senior academic committee, university council).	Y	3
3.4.4 Benchmarks for comparing quality of performance (for example with past performance or comparisons with other institutions) are established and achievements in relation to those benchmarks is regularly monitored.	Y	2
3.4.5 The format for indicators and benchmarks is consistent with that adopted for the institution as a whole.	Y	3

Overall Assessment

Comment The college conducts benchmark studies and developed performance indicators that are being assessed this academic year.

3

Priorities for improvement College recommendations need to be supported within the institution

Independent Opinion

Comment _____

3.5 Independent Verification of Standards

Evaluations of performance must be based on evidence (including but not restricted to predetermined performance indicators and benchmarks) and conclusions based on that evidence must be independently verified.

3.5.1 Self-evaluations of quality of performance are checked against several related sources evidence including feedback through user surveys and opinions of stakeholders such as students and faculty, graduates and employers.	Y	4
3.5.2 Interpretations of evidence of quality of performance are verified through independent advice from persons familiar with the type of activity concerned and impartial mechanisms are used to reconcile differing opinions.	Y	3
3.5.3 Institutional policies and procedures are adhered to for the verification of standards of achievement by students in relation to other institutions and the requirements of the National Qualifications Framework.	Y	2

Overall Assessment

Comment The college has strong ties and partnership with Saudi and International industry and international universities.

3

Priorities for improvement Industry advisory boards need to be formalized

Independent Opinion

Comment _____

Overall Assessment of Management of Program Quality Assurance

3.1 Commitment to Quality Improvement in the Program

3

3.2 Scope of Quality Assurance Processes

3

3.3 Administration of Quality Assurance Processes

3

3.4 Use of Performance Indicators and Benchmarks

3

3.5 Independent Verification of Standards

3

Combined Assessment

3

Comment The college continuous to allocate personnel and resources
to effectively manage its quality assurance initiatives as identified in this
standard.

Independent Opinion

Comment

Indicators Considered

Priorities for Improvement

Standard 4. Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

Main components of this Standard:

- 4.1 Student Learning Outcomes
- 4.2 Program Development Processes
- 4.3 Program Evaluation and Review Processes
- 4.4 Student Assessment
- 4.5 Educational Assistance for Students
- 4.6 Quality of Teaching
- 4.7 Support for Improvements in Quality of Teaching
- 4.8 Qualifications and Experience of Teaching Staff
- 4.9 Field Experience Activities
- 4.10 Partnership Arrangements with Other Institutions

Comment and General Description of Good Practice

The quality of learning and teaching should be central to the institution's planning and quality assurance processes. The focus should be on quality of learning outcomes, which must cover a range of kinds of learning, with knowledge, skills and patterns of behaviour that are assessed within the program, and continue to be reflected in personal and professional lives after graduation.

Different types of learning as described in the Qualifications Framework require different ways of teaching and different forms of student assessment, and these must be used in a systematic way in educational programs. Consequently teaching strategies and methods of assessment that are appropriate for different kinds of learning should be planned and described in program and course specifications. Where an institution has identified any special skills or student attributes that it wants to develop in its students, this adds an additional requirement for planning how those special abilities will be developed in the courses and programs that are taught.

Generic skills such as group participation, capacity for self directed learning, commitment to sound moral and ethical principles, and the effective use of numerical and communication skills should be reinforced and built upon in all courses. Although units of work or specific courses may focus particularly on learning of this kind, all teaching staff include any on part time appointments should be aware of the learning objectives of the program as a whole and contribute to those outcomes in their teaching.

In an institution or program with high standards of teaching and learning a number of sources of evidence are used to assess the quality of students' learning and the effectiveness of the strategies used to develop these abilities. These include such things as student questionnaires about teaching effectiveness, observations of teaching by "critical friends", questionnaires for graduates and employers, and external check assessments of the quality of students' performance on tests and assignments. In most cases these sources of evidence must be interpreted since many factors could influence ratings on surveys and evaluative judgments. Consequently several different sources of evidence are often used, with interpretations of the evidence verified by an independent person.

The delivery of programs and individual courses should be monitored on a continuing basis, with annual reports on what has happened and consideration of any adjustments that may be needed. More extensive reviews of the quality of teaching and learning for each program, and in summary for the institution as a whole, should be undertaken periodically, at least on a seven yearly basis, to coincide with external review

and accreditation processes. These reviews should consider changes in the environment affecting the program, identify strengths and weaknesses and trend data that indicates whether standards and quality of processes and support systems are improving or declining, and develop plans for improvement.

Quality of teaching is vital, and this involves appointment of teaching staff with appropriate levels of knowledge and skill for the programs to be taught, and thorough orientations so the necessary strategies for development of the range of learning outcomes and methods of assessment of those outcomes are understood. In many cases assistance may be needed for faculty to develop expertise in the particular strategies to be used, and students may need to be prepared for ways of teaching and learning that may be unfamiliar to them. Members of teaching staff must have flexibility to draw on their particular strengths, and to respond to the needs of the particular students with whom they work. However they must also see themselves as members of instructional teams who collectively and cooperatively work to develop a wide range of abilities and patterns of behaviour in their students.

Assessment of the adequacy of qualifications and experience of teaching staff involves not only possession of qualifications at appropriate levels, but also the specific knowledge and skill required for particular courses of study. For programs in professional fields this normally includes some teaching by experienced members of those professions, and in courses that involve consideration of recent developments in theory and research, teaching by staff who are themselves active scholars or researchers in the field.

Mechanisms for the support of students' learning include access to teaching staff for counselling and advice, and sufficient high quality equipment and learning materials. The specific requirements vary according to the field of study and the teaching strategies used. The adequacy of provision should be assessed by student evaluations, independent peer reviews, and comparisons with other highly regarded institutions. Individual student progress should be monitored, and those in difficulty identified and assisted.

There are some special considerations that apply to situations where institutions are involved in partnerships with others in the development and delivery of programs. The specification of program content and the description of course outlines is only one small element in the quality of a program. What is critically important is the resources and services available to students in the local environment, the quality of faculty and staff with whom they interact, the experiences in which they are involved, and the quality and relevance of learning that students achieve. A relationship with another institution to provide details of courses or programs, or to provide quality assurance services may add to the effectiveness of local quality assurance mechanisms, but does not replace them.

A second special consideration relates to the quality of teaching and learning provided through distance education or packaged learning materials. Teaching processes through electronic means have developed rapidly and distance education strategies can offer valuable services to students who might not otherwise have access to study opportunities. Packaged materials can also supplement conventional on-campus instruction in a variety of useful ways and increasingly institutions are utilizing these materials in their teaching programs. A separate document is available dealing specifically with the delivery of programs through distance education.

Evidence and Performance Indicators

Evidence about the quality of learning and teaching may be obtained from ratings by students, graduates and employers of the quality of programs, statistics on course and program completions and employment outcomes, ratios of students to teaching staff, and statistics on teaching staff qualifications. Important sources of evidence might include independent expert advice on the appropriateness of teaching strategies and assessments for the different domains of learning in the *National Qualifications Framework*. Evidence should be available about the results of benchmarking of standards of learning outcomes in relation to appropriate external reference points. This could be done in several different ways including check marking of samples of students' work and independent assessments of the standards of test questions and students' responses.

The selection of performance indicators for quality of learning and teaching requires use of data in a form that can be quantified and used in comparisons across the institution, with other institutions, and with past performance.

Standard 4 Learning and Teaching

Student learning outcomes must be clearly specified, consistent with the National Qualifications Framework and requirements for employment or professional practice. Standards of learning must be assessed through appropriate processes and benchmarked against demanding and relevant external reference points. Teaching staff must be appropriately qualified and experienced for their particular teaching responsibilities, use teaching strategies suitable for different kinds of learning outcomes, and participate in activities to improve their teaching effectiveness. Teaching quality and the effectiveness of programs must be evaluated through student assessments and graduate and employer surveys, with feedback used as a basis for plans for improvement. If the program is offered in different sections for male and female students required standards must be the same, equivalent resources provided, and evaluations must include data for each section.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this true? Y/No/NA	How well is this done? (enter stars)

4.1 Student Learning Outcomes

Intended student learning outcomes must be consistent with the National Qualifications Framework, and with generally accepted standards for the field of study concerned including requirements for any professions for which students are being prepared.

4.1.1 Intended learning outcomes are specified after consideration of relevant academic and professional advice.

Y

4

4.1.2 Intended learning outcomes are consistent with the Qualifications Framework. (covering all of the domains of learning at the standards required)

Y

4

4.1.3 Intended learning outcomes are consistent with requirements for professional practice in Saudi Arabia in the fields concerned. (These requirements should include local accreditation requirements and also take account of international accreditation requirements for that field of study, and any Saudi Arabian regulations or special regional needs.)

Y

4

4.1.4 If an institution has identified special attributes to be developed in students graduating from the institution comprehensive strategies are established for these to be developed. (This means that the attributes to be developed in students are clearly defined, strategies for developing them planned and implemented across the program, and mechanisms for assessing and reporting on the extent to which graduating students have developed them, are in place.)

Y

5

4.1.5 Appropriate program evaluation mechanisms including graduating student surveys, employment outcome data, employer feedback and subsequent performance of graduates are used to provide evidence about the appropriateness of intended learning outcomes and the extent to which they are achieved. (see also sections 4.3 and 4.4 dealing with program evaluation processes and verification of standards of student achievement)

Y

4

Overall Assessment

4

Comment All college programs and courses have well developed learning outcomes.

PMU has well developed competencies based on national and international accreditation standards and best practices.

Priorities for improvement Tracking tools and instruments need to be web based and part of university data warehousing and mining office under Institutional Research

Independent opinion

Comment _____

4.2 Program Development Processes

Programs must be planned as coherent packages of learning experiences in which all courses contribute in planned ways to the intended learning outcomes for the program.

4.2.1 Plans for the delivery of programs and for their evaluation are set out in detailed program specifications that include knowledge and skills to be acquired, and strategies for teaching and assessment for the progressive development of learning in all the domains of learning.

Y

3

4.2.2 Plans for courses are set out in course specifications that include knowledge and skills to be acquired and strategies for teaching and assessment for the domains of learning to be addressed in each course.

Y

4

4.2.3 The content and strategies set out in course specifications are coordinated with other courses and followed in practice to ensure effective progressive development of learning for the total program in all the domains of learning.

Y

4

4.2.4 Planning should include any action necessary to ensure that teaching staff are familiar with and are able to use the strategies included in the program and course specifications.

Y

4

4.2.5 The academic and/or professional fields for which students are being prepared are monitored on a continuing basis with necessary adjustments made in programs and in text and reference materials to ensure continuing relevance and quality.

Y

3

4.2.6 In professional programs continuing advisory panels that include leading practitioners from the relevant profession monitor and advise on content and quality of programs.	Y	3
4.2.7 New program proposals are assessed and approved or rejected by the institution's senior academic committee using criteria that ensure thorough and appropriate consultation in planning and capacity for effective implementation.	Y	4

Overall Assessment

4

Comment The college programs are in-compliance with this substandard. The college graduated its first class this academic years. Feedback fro improvement is collected.

Priorities for improvement Develop national and international advisory boards to supplement local industry advisory boards.

Independent opinion

Comment _____

4.3 Program Evaluation and Review Processes

The quality of all courses and of the program as a whole must be monitored regularly through appropriate evaluation mechanisms and amended as required, with more extensive quality reviews conducted periodically.

4.3.1 Courses and programs are evaluated and reported on annually with information about the effectiveness of planned strategies and the extent to which intended learning outcomes are being achieved.	Y	4
4.3.2 When changes are made as a result of evaluations details of those changes and the reasons for them should be retained in course and program portfolios.	Y	4
4.3.3 Quality indicators that include learning outcome measures are identified and used for all courses and the program as a whole.	Y	4
4.3.4 Records of student completion rates in all courses and the program as a whole are kept and used as quality indicators.	Y	4
4.3.5 Annual reports including quality assurance data are provided and reviewed by senior administrators and quality committees.	Y	3
4.3.6 Course completion, program progression and completion rates, and student course and program evaluations, are retained in central records in a form that can be readily accessed by the department and college, and analysed centrally with summaries and comparative data distributed automatically to departments, colleges, senior administrators and relevant committees at least once each year.	Y	2
4.3.7 If problems are found through program evaluations appropriate action is taken to make improvements	Y	4
4.3.8 In addition to annual evaluations a comprehensive reassessment of the program should be conducted at least once every five years. Procedures for conducting these reassessments should be consistent with policies and procedures established for the institution.	Y	3
4.3.9 Program reviews conducted within the institution involve experienced people from relevant industries and professions, and experienced teaching staff from other institutions.	Y	3
4.3.10 Procedures are followed that ensure that in program reviews information about the appropriateness of learning outcomes sought and the extent to which they are achieved is sought from students and graduates through surveys and interviews, discussions with teaching staff, and other stakeholders such as employers.	Y	3
4.3.11 If the program is offered in sections for male and female students evaluations should provide data for each section as well as for the program as a whole, and any deficiencies in one or the other section dealt with appropriately in recommendations for action.	Y	-

Overall Assessment

3

Comment As the college graduates few more classes, collected data/ feedback will be

essential to implement valid changes that will enhance the academic programs.

Priorities for improvement Course improvements should be implemented within the
department program overall improvements should be implemented within the college

Independent opinion
Comment _____

4.4 Student Assessment

Student assessment processes must be appropriate for the intended learning outcomes and effectively and fairly administered with independent verification of standards achieved.

4.4.1 Student assessment mechanisms are appropriate for the forms of learning sought.	Y	4
4.4.2 Assessment processes are clearly communicated to students at the beginning of courses.	Y	4
4.4.3 Appropriate valid and reliable mechanisms are used for verifying standards of student achievement in relation to relevant internal and external benchmarks. The standard of work required for different grades should be consistent over time, comparable in courses offered within a program and college and the institution as a whole, and in comparison with other highly regarded institutions. (Arrangements may include measures such as check marking of random samples of student work by faculty at other institutions, and independent comparisons of standards achieved with other comparable institutions within Saudi Arabia, and internationally.)	Y	4
4.4.4 Grading of students tests, assignments and projects is assisted by the use of matrices or other means to ensure that the planned range of domains of student learning outcomes are addressed.	Y	3
4.4.5 Arrangements should be made within the institution for training of teaching staff in the theory and practice of student assessment.	Y	4
4.4.6 Appropriate procedures have been established and are followed to deal with situations where standards of student achievement are inadequate or inconsistently assessed.	Y	3
4.4.7 Effective procedures are followed that ensure that work submitted by students is actually done by the students concerned.	Y	3
4.4.8 Feedback on performance and results of assessments are given promptly to students and accompanied by mechanisms for assistance if required.	Y	4
4.4.9 Assessments of student work should be conducted fairly and objectively.	Y	4
4.4.10 Criteria and processes for academic appeals should be made known to students and administered equitably (see also item 5.3)	Y	4

Overall Assessment

4

Comment The college faculty members use multiple assessment methods and tools
to assess their students performance on assignments, exams, and projects.

Priorities for improvement Introduce engineering professionalism and ethics
starting with the freshman year.

Independent opinion
Comment _____

4.5 Educational Assistance for Students

Effective systems must be in place for assisting student learning through academic advice, study facilities, monitoring student progress, encouraging high performing students and provision of assistance when needed by individuals.

4.5.1 Teaching staff are available at sufficient scheduled times for consultation and advice to students. (This must be confirmed, not assumed because times have been scheduled)	Y	4
4.5.2 Teaching resources (including staffing, learning resources and equipment, and clinical or other field placements) are sufficient to ensure achievement of the intended learning outcomes	Y	2
4.5.3 If arrangements for student academic counselling and advice include electronic communications through email or other means the effectiveness of those processes is evaluated through processes such as analysis of response times and student evaluations.	Y	2
4.5.4 Adequate tutorial assistance is provided to ensure understanding and ability to apply learning.	Y	2
4.5.5 Appropriate preparatory and orientation mechanisms are provided to prepare students for study in a higher education environment. Particular attention is given to preparation for the language of instruction, self-directed learning, and bridging programs if necessary for students transferring to the institution with credit for previous studies. Preparatory studies must not be counted within the credit hour requirements for programs.	Y	3
4.5.6 If the language of instruction in the program is English, action is taken to ensure that language skills are adequate for instruction in that language when students begin their studies. (This may be done through language training prior to admission to the program. Language skills expected on entry should be benchmarked against other highly regarded institutions with the objective of skills at least comparable to minimum requirements for admission of international students in universities in English speaking countries. The benchmarking process should involve testing of at least a representative sample of students on major recognized English language tests)	Y	3
4.5.7 If preparatory programs are outsourced to other providers the institution accepts responsibility for ensuring the necessary standards are met and entry requirements to the program are maintained.	N/A	-
4.5.8 Systems are in place within the program for monitoring and coordinating student workload.	Y	3
4.5.9 The progress of individual students is monitored and assistance and/or counselling provided to those facing difficulties.	Y	3
4.5.10 Year to year progression rates and program completion rates are monitored, and action taken to help any categories or types of students needing help.	Y	3
4.5.11 Feedback on performance by students and results of assessments is given promptly to students and accompanied by mechanisms for providing assistance if needed.	Y	4
4.5.12 Adequate facilities are provided for private study with access to computer terminals and other necessary equipment.	Y	3
4.5.13 Teaching staff are familiar with the support services available in the institution for students, and refer them to appropriate sources of assistance when required.	Y	3
4.5.14 The adequacy of arrangements for assistance to students are periodically assessed through processes that include, but are not restricted to, feedback from students.	Y	3
Overall Assessment		3

Comment The establishment of the college student academic support center provides
academic and professional services to the students

Priorities for improvement The college should make investments in recruiting teaching
assistants who can provide assistance in the form of help sessions and tutoring services.

Independent opinion
 Comment _____

4.6 Quality of Teaching

Teaching must be of high quality with appropriate strategies used for different categories of learning outcomes.

4.6.1 Effective orientation and training programs are provided for new, short term and part time teaching staff. (To be effective these programs should ensure that teaching staff are fully briefed on required learning outcomes, on planned teaching and assessment strategies, and the contribution of their course to the program as a whole.)	Y	4
4.6.2 Appropriate strategies of teaching are planned and used for the different kinds of learning outcomes the program is intended to develop.	Y	4
4.6.3 The strategies of teaching and assessment set out in program and course specifications are followed by teaching staff with flexibility to respond to the needs of different groups of students.	Y	4
4.6.4 Students are fully informed about course requirements in advance through course descriptions that include knowledge and skills to be developed, work requirements and assessment processes.	Y	5
4.6.5 The conduct of courses is consistent with the outlines provided to students and with the course specifications.	Y	5
4.6.6 Textbooks and reference material are up to date and incorporate the latest developments in the field of study.	Y	2
4.6.7 Textbooks and other required materials are available in sufficient quantities before classes commence.	Y	2
4.6.8 Attendance requirements are made clear to students and compliance with these requirements is monitored and enforced.	Y	4
4.6.9 Effective systems are used for evaluation of courses and of teaching.	Y	4
4.6.10 The effectiveness of different planned teaching strategies in achieving learning outcomes in different domains of learning is regularly reviewed and adjustments are made in response to evidence about their effectiveness.	Y	3
4.6.11 Reports are provided to program administrators on the delivery of each course and these include details if any planned content could not be dealt with and any difficulties found in using the planned strategies	Y	3
4.6.12 Appropriate adjustments are made in plans for teaching if needed after consideration of course reports.	Y	4

Overall Assessment

Comment The college and university have an excellent system in place to achieve
effective teaching and learning

4

Priorities for improvement Department and college recommendations for changing
textbooks should be granted and implemented.

Independent Opinion

Comment _____

4.7 Support for Improvements in Quality of Teaching

Appropriate strategies must be used by the program administrators and teaching staff to support continuing improvement in quality of teaching.

4.7.1 Training programs in teaching skills are provided within the institution for both new and continuing teaching staff including those with part time teaching responsibilities.	Y	4
4.7.2 Training programs in teaching include effective use of new and emerging technology.	Y	4
4.7.3 The extent to which teaching staff are involved in professional development to improve quality of teaching is monitored.	Y	3
4.7.4 Opportunities are provided for the professional and academic development of teaching staff with special assistance given to any who are facing difficulties.	Y	4
4.7.5 Teaching staff are encouraged to develop strategies for improvement of their own teaching and maintain a portfolio of evidence of evaluations and strategies for improvement.	Y	4
4.7.6 Formal recognition is given to outstanding teaching, with encouragement given for innovation and creativity.	Y	3
4.7.7 Strategies for improving quality of teaching include improving the quality of learning	Y	4

materials and the teaching strategies incorporated in them.

Overall Assessment	4
Comment <u>University resources include technology tools and personnel</u>	
<u>in the Learning Resource Center</u>	
Priorities for improvement <u>Develop college and university excellence in teaching</u>	
<u>awards to faculty</u>	

Independent opinion	
Comment _____	

4.8 Qualifications and Experience of Teaching Staff

Teaching staff must have qualifications and experience necessary for teaching the courses they teach, and keep up to date with academic and/or professional developments in their field.

4.8.1 Teaching staff have appropriate qualifications and experience for the courses they teach. (For undergraduate and masters degree programs this would normally require academic qualifications in their specific teaching area at least one level above that of the program in which they teach.)	Y	5
4.8.2 If part time teaching staff are appointed (for example in a professional program where current industry experience may be sought) there is an appropriate mix of full time and part time teaching staff. (As a general guideline at least 75 % of faculty should be employed on a full time basis.)	Y	4
4.8.3 All teaching staff are involved on a continuing basis in scholarly activities that ensure they remain up to date with the latest developments in their field and can involve their students in learning that incorporates those developments.	Y	3
4.8.4 Full time staff teaching in post-graduate courses, are themselves active in scholarship and research in the fields of study they teach.	N/A	-
4.8.5 In professional programs teaching teams include some experienced and highly skilled professionals in the field.	Y	4

Overall Assessment	4
Comment <u>The college attracts excellent credential faculty member with excellent</u>	
<u>academic and industry experience. Access to part time faculty supplement needs for</u>	
<u>specialized courses to bring external expertise to strengthen the program.</u>	
Priorities for improvement <u>The college will make investments in satisfying the</u>	
<u>civil engineering department and interior design department</u>	

Independent opinion	
Comment _____	

4.9 Field Experience Activities

In programs that include field experience activities, the field experience activities must be planned and administered as fully integrated components of the program, with learning outcomes specified, supervising staff considered as members of teaching teams, and appropriate evaluation and course improvement strategies carried out. (Field experience includes any work based activity such as internships, cooperative training, practicums, clinical placements or other activities in a work or clinical setting under the supervision of staff employed in that work or professional setting)

4.9.1 In programs that include field experience activities the student learning to be developed through that experience is clearly specified and appropriate steps taken to ensure that those learning outcomes and expected experiences to develop that learning are understood by students and supervising staff in the field setting.	Y	5
4.9.2 Supervising staff in field locations are thoroughly briefed on their role and the relationship of the field experience to the program as a whole.	Y	4
4.9.3 Teaching staff from the program visit the field setting for observations and consultations with students and field supervisors often enough to provide proper oversight and support. (Normally at least twice during a field experience activity)	Y	3
4.9.4 Students are thoroughly prepared through briefings and descriptive material for participation in the field experience.	Y	5
4.9.5 Follow up meetings or classes are organized in which students can reflect on and generalize from their experience.	Y	3
4.9.6 Field experience placements are selected because of their capacity to develop the learning outcomes sought and their effectiveness in doing so is evaluated.	Y	3
4.9.7 In situations where the supervisors in the field setting and faculty from the institution are both involved in student assessments, criteria for assessment are clearly specified and explained, and procedures established for reconciling differing opinions.	Y	4
4.9.8 Provision is made for evaluations of the field experience activity by students, by supervising staff in the field setting, and by faculty of the post secondary institution, and results of those evaluations considered in subsequent planning.	Y	2
4.9.9 Preparation for the field experience includes thorough risk assessment for all parties involved, and planning to minimize and deal with those risks.	Y	2

Overall Assessment

Comment Each program in the college requires taking an internship course. Internships

are conducted in local, national, and international sites with a wide range of small, Medium, and large corporations and institutions.

Priorities for improvement Internship and experiential learning courses should have

a faculty to student ratio of 12 to 15 to ensure compliance with this standard.

Independent opinion

Comment _____

4.10 Partnership Arrangements With Other Institutions

In situations in which local institutions deliver programs through cooperative arrangements with another institution these arrangements must be clearly specified, enforceable under Saudi Arabian law, and all requirements for programs in the Kingdom of Saudi Arabia must be fully complied with.

Educational programs or courses offered by international organizations including on line or other distance education programs or courses, must not be used unless they have been accredited or otherwise quality assured and approved by the relevant government authorized educational quality assurance agency in the country of origin. Any such programs must be adapted as needed to suit the needs of students in this country, and must meet all Saudi Arabian requirements regardless of where and by whom materials are developed.

If an institution delivers programs using materials developed by another institution, the institution granting the academic award must accept full responsibility for the quality of the program including the materials used and the teaching and other services provided.

An institution based in another country and delivering programs in Saudi Arabia through a Saudi Arabian agent or local institution, and for which it grants an academic award, must meet all Saudi Arabian requirements for standards of educational provision and for cross

border provision of education into the country.

4.10.1 Responsibilities of the local institution and the partner are clearly defined in formal agreements enforceable under the laws of Saudi Arabia.

N/A	-

4.10.2 The effectiveness of the arrangements is regularly evaluated..

N/A	-

4.10.3 Briefings and consultations on course requirements are adequate, with mechanisms available for ongoing consultation on emerging issues.

N/A	-

4.10.4 Teaching staff who are familiar with the content of courses visit regularly for consultation about course details and standards of assessments.

N/A	-

4.10.5 If arrangements involve assessment of student work by the partner in addition to assessments within the institution, final assessments are completed promptly and results made available to students within the time specified for reporting of student results under Saudi Arabian regulations..

N/A	-

4.10.6 If programs are based on those of partner institutions, courses, assignments and examinations are adapted to the local environment, avoiding colloquial expressions, and using examples and illustrations relevant to the setting where the programs are to be offered.

N/A	-

4.10.7 Programs and courses are consistent with the requirements of the Qualifications Framework for Saudi Arabia, and in professional programs, include regulations and conventions relevant to the Saudi environment.

N/A	-

4.10.8 If courses or a programs developed by a partner institution are delivered in Saudi Arabia adequate processes are followed to ensure that standards of student achievement are at least equal to those achieved elsewhere by the partner institution as well as by other appropriate institutions selected for benchmarking purposes.

N/A	-

4.10.9 If an international institution or other organization is invited to provide programs, or to assist in the development of programs for use in Saudi Arabia full information is provided in advance about relevant Ministry regulations and NCAAA requirements for the National Qualifications Framework and requirements for program and course specifications and reports.

N/A	-

Overall Assessment

-

Comment The college has no partnership s with any national or international under
which joint courses and/ or programs are offered.

Priorities for improvement The college will seek joint and/ or twinning MS programs

Independent opinion

Comment _____

Overall Assessment of Learning and Teaching

4.1 Student Learning Outcomes	4
4.2 Program Development Processes	4
4.3 Program Evaluation and Review Processes	3
4.4 Student Assessment	
4.5 Educational Assistance for Students	4
4.6 Quality of Teaching	3
4.7 Support for Improvements in Teaching	4
4.8 Qualifications and Experience of Faculty	4
4.9 Field Experience Activities	4
4.10 Partnership Arrangements	3

Combined Assessment	4
Comment <u>The college faculty are fully committed to delivering best learning</u> <u>environment to the students. Curricula are kept updated, students learning,</u> <u>assessment, and support are adequately addressed and practiced.</u>	

Independent Opinion	
Comment _____	

Indicators Considered

Priorities for Improvement

Standard 5. Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

Main Components of this Standard

Student Admissions

Student Records

Student Management

Student Advising and Counseling Services

Comment and General Description of Good Practice

The standard for student administration and support services as it relates to educational programs deals with matters that directly relate to the administration of the program or that are the responsibility of program managers and staff in the program. These include provision of information and advice about the program for prospective students and mechanisms for dealing with disputes and appeals. Provision of advisory services in relation to careers in the field of study may be provided by staff within the program or within a central career advisory unit within the institution. However even where the service is provided centrally faculty involved in the program should be able to assist in relation to requirements in their professional field.

Evidence and Performance Indicators

Evidence about the quality of student administration and support services can be obtained from surveys of students about the quality and responsiveness of services provided, usage rates for particular services, response times for communicating decisions on admissions and results and the frequency and results of discipline procedures. Performance indicators can be based directly on this information, but additional evidence in a review might include such things as visits to facilities and discussions with students and staff.

Standard 5 Student Administration and Support Services

Admission processes must be efficient, fair, and responsive to the needs of students entering the program. Clear information about program requirements and criteria for admission and program completion must be readily available for prospective students and when required at later stages during the program. Mechanisms for student appeals and dispute resolution are clearly described, made known, and fairly administered. Career advice is provided in relation to occupations related to the fields of study dealt with in the program.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this
true?
Y/No/NA

How well is
this done?
(enter stars)

5.1 Student Admissions

Student admission processes must be reliable, efficient and simple for students to use.

5.1.1 Admission requirements are consistently and fairly applied for all students.

5.1.2 If programs or courses include components offered by distance education, or use of e-learning in blended programs, information is provided before enrolment about any special skills or resources needed to study in these modes. (For distance education programs a separate set of standards that include requirements for that mode of program delivery are set out in a different document, *Standards for Quality Assurance and Accreditation of Higher Education Programs Offered by Distance Education*)

5.1.3 Student advisors familiar with details of course requirements are available to provide assistance prior to and during the student registration process.

5.1.4 Rules governing admission with credit for previous studies are clearly specified.

5.1.5 Decisions on credit for previous studies are made known to students by qualified teaching or other authorized staff before classes commence.

5.1.6 Complete information about the program, including the range of courses, program requirements, costs, services and other relevant information is publicly available to potential students and families prior to applications for admission.

5.1.7 A comprehensive orientation program is available for commencing students to ensure thorough understanding of program requirements and reasons for them, the range of services and facilities available to them, and of their obligations and responsibilities.

Y

4

-

N/A

Y

4

4

3

5

Y

Y

Y

Y

4

Overall Assessment

Comment University admission criteria for freshman and transfer students

are well developed and implemented

4

Priorities for improvement Established college admission criteria.

Independent Opinion

Comment _____

5.2 Student Records

Student records must be maintained in a secure and confidential location. Statistical data needed for quality indicators and internal and external reporting requirements and generation of reports on student progress and achievements must be readily available through automated processes that protect the confidentiality of individual student information.

5.2.1 Automated procedures are in place for monitoring student progress throughout their programs.

Y

4

5.2.2 The student record system regularly provides aggregated statistical data required for planning, reporting and quality assurance.

Y

3

5.2.3 Clear rules are established and maintained governing privacy of information and controlling access to individual student records.

Y

5

5.2.4 Eligibility for graduation is formally verified in relation to program and course requirements.

Y

5

Overall Assessment

4

Comment The University Registrar's Office utilizes "Banner" in all its functions
to meet this standard

Priorities for improvement Queries for retention, persistence to degree, and identifying
students with academic performance issues need to be developed.

Independent Opinion

Comment _____

5.3 Student Management

Policies and regulations must be established for fair and consistent processes of student management, with effective safeguards for independent consideration of disputes and appeals.

5.3.1 Attendance requirements are made clear to students, monitored and enforced.

Y

5

5.3.2 Student appeal and grievance procedures are specified in regulations, published, and made widely known within the institution. The regulations make clear the grounds on which academic appeals may be based, the criteria for decisions, and the remedies available.

Y

4

5.3.3 Appeal and grievance procedures protect against time wasting on trivial issues, but still provide adequate opportunity for matters of concern to students to be fairly dealt with and supported by student counselling provisions.

Y

2

5.3.4 Appeal and grievance procedures guarantee impartial consideration by persons or committees independent of the parties involved in the issue, or who made a decision or imposed a penalty that is being appealed against.

Y

4

5.3.5 Procedures have been developed to ensure that students are protected against subsequent punitive action or discrimination following consideration of a grievance or appeal.

Y

4

5.3.6 Appropriate policies and procedures are in place to deal with academic misconduct, including plagiarism and other forms of cheating.

Y

3

Overall Assessment

4

Comment The university student handbook and other web resources explain student
academic and behavior conduct. Established policies and procedures dealing with
deviations from standards and appeal processes are very well developed and practices
streamlining and saving time and effort to arrive at decisions is being implemented.

Priorities for improvement _____

Independent Opinion

Comment _____

5.4 Student Advising and Counseling Services

Adequate provision must be made for academic advising and counselling services to assist students in planning their participation in the program and in seeking subsequent employment.

5.4.1 Provision is made for academic counselling and for career planning and employment advice within the college, department or another appropriate location within the institution.

Y

4

5.4.2 Adequate protection is provided, and supported by regulations or a codes of conduct, to protect the confidentiality of academic or personal issues discussed with teaching or other staff or students.

Y

4

5.4.3 Effective mechanisms are established for follow up to ensure student welfare and to evaluate quality of service.

Y

3

5.4.4 An effective student support system is available to identify students in difficulty and provide help with personal, study related, financial, family, psychological or health problems

Y

2

Overall Assessment

3

Comment College faculty and student affairs professional staff share responsibilities towards standard.

Priorities for improvement Invest in retention programs at the college and university levels. Enhance career placement opportunities for college graduates.

Independent Opinion

Comment _____

Overall Assessment of Student Administration and Support Services

5.1 Student Admissions

4

5.2 Student Records

4

5.3 Student Management

5.4 Student Advising and Counseling Services

4

Combined Assessment

3

Comment University and college infrastructure and human resources provide
student services that are key to ensure student academic process and success as well
as career placement opportunities.

Comment Independent Opinion

Indicators Considered

Priorities for Improvement

Standard 6. Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

Main Components of this Standard as Applied to Educational Programs

Planning and Evaluation
Organization
Support for Users
Resources and Facilities

Comment and General Description of Good Practice

Adequate library and other learning resources and services for the needs of the program are essential requirements, and are particularly important in programs designed to develop capacity for independent learning and creative application of ideas. Collections must be up to date and regularly enhanced as new material becomes available, and there must be ready access to information located elsewhere.

Basic collections should be adequate for the program, but go well beyond the immediate needs to provide access to research reports, data bases and journal and internet publications that capture the latest thinking in related areas of inquiry. If the program is postgraduate there must be adequate resources for research by students and by faculty in this and related fields.

Orientation programs should be available to ensure that new students know how to make proper use of library and resource center facilities. Ongoing assistance should be available to help students as they use these resources for studies in the program.

Requirements for library services are changing in keeping with the rapid development of information technology and developments in flexible delivery of courses. Libraries are recognized as being not simply collections of books and periodicals, but gateways to information required for research and investigation in an international context. Evaluation of a program includes the availability of the range of services and materials that are needed to support it.

The provision of services should be planned cooperatively between program developers, other faculty, and resource centre staff, so that the resources and services provided are matched to the requirements for teaching and learning and associated research and investigations. Proposals for new or substantially modified courses and programs should include an independent statement from the library or resource centre indicating cost and availability of the information resources required. .

Evidence and Performance Indicators

Evidence about the quality of learning resource provision and performance indicators derived from this evidence can be obtained from user satisfaction surveys, success rates for students in accessing course reference material, documents describing processes for identifying and responding to course requirements, and details of times when facilities are available for use by students and teaching staff. Information should be available about provision of orientation programs for new students and other users, and responsiveness to requests from groups of stakeholders. The institution should be able to provide information about comparisons of level of provision through books, periodicals and web-based resources with comparable institutions offering similar programs and an appropriate performance indicator would be whether that level of provision was equalled or exceeded.

Standard 6 Learning Resources

Learning resource materials and associated services must be adequate for the requirements of the program and the courses offered within it and accessible when required for students in the program. Information about requirements must be made available by faculty in sufficient time for necessary provisions to be made for resources required, and faculty and students must be involved in evaluations of what is provided. Specific requirements for reference material and on-line data sources, and for computer terminals and assistance in using this equipment will vary according to the nature of the program and the approach to teaching.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
6.1 Planning and Evaluation Policies and procedures must be in place to ensure that resource materials and services needed to support student learning are adequate and appropriate for the program, regularly evaluated, and kept up to date as required.		
6.1.1 Teaching staff responsible for the program and for courses within it regularly provide advice on materials required to support teaching and learning.	Y	3
6.1.2 Teaching staff and students participate in user surveys dealing with adequacy of resources and services, extent of usage, consistency with requirements for teaching and learning	Y	3
6.1.3 Data on the extent of usage of learning resources for the program are used in evaluations of learning and teaching in the program.	Y	3
6.1.4 In addition to participation in surveys program representatives have opportunities to provide input to evaluations of forward planning for provision of resources and services.	Y	3
6.1.5 Teaching staff provide regular advice on material that should be held in reserve to ensure access to necessary materials and this advice is responded to.	Y	3
Overall Assessment		3
Comment <u>College faculty need to be fully empowered to update course content</u>		
<u>& textbooks to introduce the latest and cutting edge technology into their courses.</u>		
Priorities for Improvement <u>Utilize direct assessment measures in addition to</u>		
<u>surveys to identify areas for improvement.</u>		
Independent Opinion		
Comment _____		

6.2 Organization

The library or resource center must be managed in a way that meets the requirements of the program for student access and availability of resources and services.

- 6.2.1 Library and resource centers and associated facilities and services are available for sufficient extended hours to ensure access when required by users in the program.
- 6.2.2 Heavy demand and required reading materials needed in the program are held in reserve collections.
- 6.2.3 Ready access to on-line data-bases and research and journal material relevant to the program is provided for.

Y	4
Y	4
Y	3

Overall Assessment

4

Comment PMU library makes available to student electronic textbooks, references and periodicals on and off campus. PMU Learning Resource Center provides students academic and counseling services to the college students.

Priorities for improvement _____

Independent Opinion

Comment _____

6.3 Support for Users

Adequate support must be provided to assist students and teaching staff to make effective use of library services and resources.

6.3.1 Orientation and training programs are provided for new students in the program to prepare them to access facilities and services.

Y

3

6.3.2 Assistance is available to assist faculty and students in the program in conducting searches and locating and using information.

Y

4

6.3.3 A reference service is available through which in-depth questions are answered by qualified librarians.

Y

3

6.3.4 Electronic and/or other automated systems with search facilities are available to assist in locating resources within the institution and in other collections.

Y

4

6.3.5 Teaching staff and students in the program are kept informed of library developments such as acquisition of new materials, training programs, or changes in services or opening hours.

Y

4

Overall Assessment

4

Comment Excellent student and faculty support by library and learning resource center personnel and resources

Priorities for improvement Increase student utilization of library and learning resources

Independent Opinion

Comment _____

6.4 Resources and Facilities

Adequate reference material for the program must be available and facilities in the library or resource center must be appropriate for the needs of the program,

6.4.1 Adequate books journals and other reference material including on line resources are available to meet program requirements.

Y

4

6.4.2 Up to date computer equipment and software is available on a sufficient scale to meet program requirements to support electronic access to resources and reference material.

Y

4

6.4.3 Books and journals and other materials are available in Arabic and English (or other languages) as required for the program and associated research.

Y

4

6.4.4 Sufficient facilities are provided for both individual and small group study and research as required for the program.

Y

4

Overall Assessment

4

Comment The university continues to make investments in adding print and
electronic volumes relevant to all engineering disciplines.
Priorities for improvement Introduce library outreach programs that promote
undergraduate students research engagement.

Independent Opinion

Comment _____

Overall Assessment of Learning Resources

6.1 Planning and Evaluation

3

6.2 Organization

4

6.3 Support for Users

4

6.4 Resources and Facilities

4

Combined Assessment

4

Comment The university learning resources are adequate and provide

excellent support to the college faculty and students.

Independent Opinion

Comment

Indicators Considered

Priorities for Improvement

Standard 7 Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

Main components of this Standard:

Policy and Planning
Quality of and Adequacy of Facilities
Management and Administration
Research Equipment
Information Technology

Comment and General Description of Good Practice

Facilities should always provide an attractive, safe and healthy environment for faculty, staff and students, meet normal building and planning requirements, and the requirements for high quality teaching and learning in the program.

The use of facilities should be monitored and there should be processes to ensure that underutilized facilities are made available for alternative uses, subject to necessary arrangements for protection of expensive and easy to damage equipment.

In programs that require laboratory or other technical equipment including computing facilities, maintenance provisions should be effective and include routine maintenance schedules. Necessary technical support should be available and there should be an immediate response capacity in case of equipment breakdowns.

For all classrooms media needed for effective instruction should be provided with appropriate technical support available.

Evidence and Performance Indicators

Evidence about the quality of provision of facilities and equipment can be obtained from planning documents, user satisfaction surveys, comparisons of provision with comparable institutions offering similar programs and direct observations by independent evaluators.

Condition assessments and maintenance schedules provide information about the quality and maintenance of facilities and major equipment. Regulations and codes of practice relating to the use of facilities and expensive equipment provide evidence of sound management practices and security arrangements. Performance indicators could include such things as ratings on surveys of user satisfaction, statistics on equipment breakdowns, comparisons of provision in relation to other institutions.

Standard 7 Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
7.1 Policy and Planning		
Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.		
7.1.1 Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution.	Y	4
7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met.	Y	4
7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule.	Y	3
Overall Assessment		4
Comment <u>College faculty are in charge of all engineering discipline specific</u>		
<u>equipment acquisitions. PMU policies and practices ensure enforcing</u>		
<u>specifications and standards.</u>		
Priorities for Improvement <u>Streamline process and obtain a quicker turn around time.</u>		
Independent Opinion		
Comment _____		

7.2 Quality and Adequacy of Facilities and Equipment

Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.

7.2.1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.	Y	4
7.2.2 Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.	Y	4
7.2.3 Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, access to computing facilities and associated software, private study facilities, and research equipment.	Y	3
7.2.4 Adequate facilities are available for confidential consultations between faculty and students)	Y	4

7.2.5 Provision is made for students, faculty and staff with physical disabilities or other special needs.

Y

3

Overall Assessment

Comment The PMU/ NI Center of Excellence is a state of the art facility consisting of 10 labs in support of electrical and mechanical engineering programs.

4

Priorities for improvement The college is scheduled to acquire more facilities in support of its educational and research programs.

Independent Opinion

Comment _____

7.3 Management and Administration

Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.

7.3.1 A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.

Y

5

7.3.2 Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively carried out.

Y

4

7.3.3 Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.

Y

4

7.3.4 Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.

Y

3

7.3.5 Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.

Y

4

7.3.6 Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.

Y

3

Overall Assessment

Comment The facilities and equipment are properly accounted for and secured for this use of faculty and students in accordance with local, national and international safety standards.

4

Priorities for improvement College laboratory instructors/ technicians will assume managing and maintaining the college equipments.

Independent Opinion

Comment _____

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed.

Y

2

7.4.2 Institutional policies governing the use of personal computers by students are complied with.

Y

3

- 7.4.3 Technical support is available for teaching staff and students using information and communications technology.
- 7.4.4 Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.
- 7.4.5 Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses.
- 7.4.6 Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately.
- 7.4.7 Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration.

Y	2
Y	2
Y	4
Y	3
Y	4

Overall Assessment

3

Comment The IT Department Personnel are responsible for providing all
administrative and academic computing services to the students and faculty.

Priorities for improvement Campus access to high speed internet via fiber optics
is expected to provide better and stable service.

Independent Opinion

Comment _____

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

4

7.2 Quality of and Adequacy of Facilities

4

7.3 Management and Administration

4

7.4 Information Technology

3

Combined Assessment

4

Comment College computing resources need to be enhanced. College web
content and updated can be best achieved by a college web master.

Independent Opinion

Comment _____

Indicators ConsideredPriorities for Improvement

Standard 8 Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

Main components of this Standard:

Financial Planning and Budgeting
Financial Management

Comment and General Description of Good Practice

Sufficient financial resources must be available to support the effective delivery of the program. This means both maintenance of routine and continuing activities and at least some provision for new initiatives to develop the program and improve its quality. Funds are not unlimited and resources must be effectively managed to avoid waste and adjust allocations when necessary from low priority to high priority items if required, or if possible to seek alternative supplementary funding opportunities. Some guide to adequacy can be obtained by considering funding levels for comparable programs in other similar institutions. However if this is done any such comparisons must take into account any variations in circumstances that may affect funding requirements.

This standard relates not only to the adequacy of funding but also to the efficiency and flexibility of financial management by program managers. To provide for this flexibility and for appropriate accountability, delegations should provide for specified levels of expenditure to be authorized by the program manager subject to reporting and accountability requirements. Regular management reports should be provided to the program manager from the financial accounting system to permit monitoring of expenditure in relation to budget projections.

Evidence

Evidence about the quality of financial planning and management can be obtained from budget statements and audit reports. Faculty surveys can provide information about whether resources considered by them to be necessary for the program are available. Comparisons of funding provisions with similar programs elsewhere can provide useful evidence of adequacy of provision provided care is taken to take account of any differences in the management of financial systems. Reports on risk assessment should be available together with strategies for risk minimization.

Standard 8 Financial Planning and Management

Financial resources must be sufficient for the effective delivery of the program. Program requirements must be made known sufficiently far in advance to be considered in institutional budgeting. Budgetary processes should allow for long term planning over at least a three-year period. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this true?
Y/No/NA

How well is this done?
(enter stars)

8.1 Financial Planning and Budgeting

Funding must be adequate for program requirements and planning must involve full cost estimates and both short and medium term cost projections. Sufficient flexibility must be provided for effective management and responses to unexpected events and this flexibility must be combined with appropriate accountability and reporting mechanisms.

8.1.1 Proposals for new programs, major program changes or other activities, equipment or facilities are accompanied by business plans, which include independently verified cost estimates and cost impacts on other services and activities.

Y

4

8.1.2 If new projects or activities are cross-subsidized from existing funding sources the cost sharing strategy is made clear and intermediate and long term costs and benefits are assessed.

Y

3

8.1.3 Financial resources available for the program are sufficient for good quality program provision and benchmarked against costs of equivalent programs at other similar institutions.

Y

3

8.1.4 The program coordinator (or department chair or dean) submits annual budget proposals setting out detailed program requirements and follows up as necessary to make adjustments after those proposals have been considered.

Y

3

8.1.5 Budget proposals support strategic priorities for program development and quality improvement and consider possibilities for possible savings or alternative revenue sources as well as seeking additional funding if necessary.

Y

3

Overall Assessment

Comment _____

3

Priorities for Improvement Establish

Independent Opinion

Comment _____

8.2 Financial Management

Financial affairs must be effectively managed with a proper balance between flexibility for the cost center manager and institutional accountability and responsibility.

8.2.1 Sufficient delegation of spending authority is given to the program manager (or department chair) for effective program administration

Y

2

8.2.2 Delegations of spending authority are accompanied by appropriate accountability and reporting processes.

N/A

-

8.2.3 The program manager/head of department is involved in the budget planning process, and is held accountable for expenditure within the approved budget.
 8.2.4 The accounting system provides for accurate and continuing monitoring by the program manager of expenditure and commitments against budgets.
 8.2.5 Where possibilities of conflict of interest exist, either actual or perceived, the persons concerned declare their interest and refrain from participation in decisions.
 8.2.6 Financial carry-forward provisions are sufficiently flexible to avoid rushed end of year expenditure or disincentives for long term planning.

N	-
N	-
Y	3
N	-

Overall Assessment

2

Comment The university has tools to implement college and department levels
financial management and accounting standards.

Priorities for Improvement Activate "Banner" financial in support of college and
departments financial activities.

Independent Opinion

Comment _____

Overall Assessment of Financial Planning and Management

8.1 Financial Planning and Budgeting

3

8.2 Financial Management

2

Combined Assessment

2

Comment The university continues to provide adequate financial support to all
college and its departments needs.

Independent Opinion

Comment _____

Indicators Considered

Priorities for improvement

Standard 9 Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

Main components of this Standard:

Recruitment
Personal and Career Development

Comment and General Description of Good Practice

Faculty must be appropriately qualified and must have the detailed knowledge and experience necessary for their particular teaching responsibilities. Relevant professional experience is particularly important in professional programs. Qualifications and experience must be verified before appointments are made.

Faculty should be recruited for particular roles in the program and should be given detailed information about the program and their role as a member of a teaching team. This should also be done before appointment with further detailed orientation given by the program coordinator/manager before they begin their work. They should see themselves as members of a teaching team within a carefully planned and delivered comprehensive program, not just as instructors in a discrete subject specialty.

For all faculty and staff associated with the program feedback on performance should be provided in a constructive and supportive way and assistance given for improvements in both teaching skills and knowledge of their field.

Evidence and Performance Indicators

Evidence about quality of employment processes can be obtained from documents setting out employment and promotion processes and criteria, descriptions of orientation programs for new teaching and other staff, and procedures for performance evaluation and support for improvement. Records of assessments of quality of teaching, and teaching and other staff participation in professional development activities relevant to their employment can provide valuable evidence, particularly when they include ratios of participation and assessments of the value of those activities by the participants. Data on faculty turnover in parts of the institution can be used to indicate stability or instability in staffing. Regulations on dispute resolution combined with records of the incidence and outcomes of disputes can provide evidence about the effectiveness of those processes.

Performance indicators almost always include student/teaching staff ratios and proportions of teaching staff with levels of qualifications. However a number of others that can also be readily quantified are important such as participation ratios in professional development and scholarly activities. Some others such as rates of turnover of teaching and other staff might be selected if there are problems in the institution that need to be monitored.

Standard 9 Employment Processes

Teaching and other staff must have the knowledge and experience needed for their particular teaching responsibilities and their qualifications and experience must be verified before appointment. New teaching staff must be thoroughly briefed about the program and their responsibilities before they begin. Performance of all faculty and staff must be periodically evaluated, with outstanding performance recognized and support provided for professional development and improvement in teaching skills. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
9.1 Recruitment		
Recruitment processes must be designed to ensure that capable and appropriately qualified teaching and other staff are available for all teaching and administrative functions, administered fairly, and that new staff are thoroughly prepared for their responsibilities.		
9.1.1 Recruitment processes ensure that teaching staff have the specific areas of expertise, and the personal qualities, experience and skill to meet teaching requirements.	Y	5
9.1.2 Candidates for employment are provided with full position descriptions and conditions of employment, together with specific information about expectations for contributing to the program as part of the teaching team. (The information provided should include details of employment expectations, indicators of performance, and processes of performance evaluation.)	Y	4
9.1.3 References are checked, and claims of experience and qualifications verified before appointments are made.	Y	5
9.1.4 Assessment of qualifications includes verification of the standing and reputation of the institutions from which they were obtained, taking account of recognition of qualifications by the Ministry of Higher Education.	Y	5
9.1.5 In professional programs there are sufficient teaching staff with successful experience in the relevant profession to provide practical advice and guidance to students about work place requirements.	Y	4
9.1.6 New teaching staff are given an effective orientation to the institution to ensure familiarity with the institution and its operating procedures, services and priorities for development.	Y	4
9.1.7 New teaching staff are given a thorough orientation to the program to ensure they have a thorough understanding of the program as a whole, of the contributions to be made to it through the courses they teach, and of the expectations for coordinated planning and delivery of courses and evaluation and reporting requirements.	Y	4
9.1.8 The level of provision of teaching staff (i.e. the ratio of students per teaching staff member calculated as full time equivalents) is adequate for the program and benchmarked against comparable student/teaching staff ratios at good quality Saudi Arabian and international institutions.	Y	3
Overall Assessment		
Comment <u>College is responsible for identifying and verifying faculty candidates</u>		4
<u>credentials. Campus learning resource center runs the orientation faculty orientation program.</u>		
Priorities for Improvement <u>Complete staffing college and its units with faculty and</u>		
<u>staff as per strategic and growth projections.</u>		

Independent Opinion

Comment _____

9.2 Personal and Career Development

Processes for personal and professional development must be fair to all teaching and other staff, designed to encourage and support improvements in performance and recognize outstanding achievements.

9.2.1 Criteria for performance evaluation are clearly specified in advance and made known to teaching and other staff.

Y

4

9.2.2 Consultations about work performance are confidential and supportive, and occur on a formal basis at least once each year.

Y

4

9.2.3 If performance is considered less than satisfactory clear requirements are established for improvement.

Y

4

9.2.4 Formal performance assessments of teaching and other staff are kept confidential but are documented and retained. Faculty and staff have the opportunity to include on file their own comments relating to these assessments, including points of disagreement.

Y

4

9.2.5 Outstanding academic or administrative performance is recognized and rewarded.

N

-

9.2.6 All teaching and other staff are given appropriate and fair opportunities for personal and career development.

Y

3

9.2.7 Junior teaching and other staff with leadership potential are identified and given a range of experiences to prepare them for future career development.

Y

3

9.2.8 Assistance is given in arranging professional development activities to improve skills and upgrade qualifications.

Y

3

9.2.9 Appropriate professional development activities are provided to assist with new programs or policy initiatives.

Y

4

9.2.10 Teaching staff are expected to participate in activities that ensure they keep up to date with developments in their field and the extent to which they do so is monitored.

Y

3

Overall Assessment

Comment University and college and policies and practices support faculty and staff professional development.

4

Priorities for Improvement Continue to support faculty participation in national and international conferences, workshops and training opportunities.

Independent Opinion

Comment _____

Overall Assessment of Employment Processes

9.1 Recruitment

4

9.2 Personal and Career Development

4

Combined Assessment

4

Comment The university and college faculty recruitment and professional
development practices are well developed and meet this standard.

Independent Opinion

Evaluators Comment _____

Indicators Considered

Priorities for Improvement

Standard 10 Research

A research strategy that is consistent with the nature and mission of the institution should be developed. All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in post graduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

Main components of this Standard as Applied to Educational Programs:

Teaching Staff and Student Involvement in Research
Facilities and Equipment

Comment and General Description of Good Practice in Research

Expectations for research involvement vary with the nature of an institution and the kind of program. Universities are expected to have substantial involvement in research and scholarship and their prestige in the international environment will depend on this to a major extent. There is also a separate expectation for research and scholarship relating to the teaching of post-graduate programs, particularly those with a significant research component, since the quality of teaching and learning in those programs is directly affected by the extent to which faculty have current research involvement. It is important that faculty involved in teaching post-graduate research students or supervising their research projects are themselves active scholars and researchers in their field.

At other institutions offering undergraduate programs there are lesser expectations for research. However faculty must still be familiar with the latest developments in their field and the institution should expect them to be involved in appropriate forms of scholarly activity. It should provide an environment in which this is encouraged, and monitor the extent to which it occurs.

If there is a research expectation for faculty or students in the program, either because of the nature of the institution or the particular program concerned there must be an adequate research infrastructure. This will include library and internet communication facilities, laboratories, equipment, and other research facilities relevant to the program. These resources provided must be available for postgraduate research students and faculty as part of normal basic provision.

Faculty should be encouraged to establish links with other institutions both locally and internationally, and, depending on the nature of the program, with industry and appropriate community agencies for cooperative research and development.

In all higher education programs faculty should be encouraged to pursue research interests, and be recognized for having done so even when additional resources cannot be provided to assist them. Regular reports of the research activities of faculty should be prepared, provided to the governing board, and made generally available in the institution..

Evidence and Performance Indicators

Evaluations of the quality of research should include a review of the research strategy for the department or the college, and other supporting documents including details of the extent and quality of research output by staff associated with the program. Evidence about involvement in research can be obtained from staff and from departmental research reports and staff evaluation and promotion criteria. Further evidence can be obtained by consideration of agreements for cooperative research and for shared use of major equipment items. Staff and student surveys can provide evidence about the adequacy of provisions for research facilities and equipment.

Performance indicators for research are commonly based on statistics on the volume of research publications per faculty member, the proportions of research-active teaching staff (a term that needs to be defined) and numbers of research citations—These figures should be compared with those at other comparable institutions and departments. In institutions with a commitment to research comparisons may

include the extent to which research and scholarly activities are translated into applications within the academic or professional field concerned.

Standard 10 Research

A research strategy that is consistent with the nature and mission of the institution should be developed. All staff teaching higher education programs are expected to be involved in scholarly activities that ensure they remain up to date with developments in their field, and those developments should be reflected in their teaching. Faculty teaching in post graduate programs or supervising higher degree research students must be actively involved in research in their field. Adequate facilities and equipment must be available to support the research activities of faculty and postgraduate students in areas relevant to the program. Staff research contributions must be recognized and reflected in evaluation and promotion criteria.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
10.1 Teaching Staff and Student Involvement in Research		
Expectations for teaching staff involvement in research and scholarly activities must be made clear and provide for widespread participation. Encouragement and support must be provided to encourage research activity by junior teaching staff and postgraduate students.		
10.1.1 Expectations for teaching staff involvement in research and scholarly activities are clearly specified and considered in performance evaluation and promotion criteria. (For universities criteria require at least some research and/or appropriate scholarly activity of all full time teaching staff).	Y	4
10.1.2 Clear policies are established in the institution for defining what is recognized as research, consistent with international standards and established norms in the field of study of the program. (This normally includes both self-generated and commissioned activity but requires creative original work, independently validated by peers, and published in media recognized internationally in the field of study)	Y	5
10.1.3 Support is provided for junior staff in the development of their research programs through mechanisms such as mentoring by senior colleagues, inclusion in project teams, assistance in developing research proposals, and seed funding.	Y	3
10.1.4 Postgraduate research students are given opportunities for participation in joint research projects.	N/A	-
10.1.5 When research students are involved in joint research projects their contributions are appropriately acknowledged. When a significant contribution has been made reports and publications carry joint authorship.	Y	3
10.1.6 Assistance is available for teaching staff to develop collaborative research arrangements with colleagues in other institutions and in the international community.	Y	4
10.1.7 Research and scholarly activities of teaching staff that are relevant to courses they teach are reflected in their teaching together with other significant research developments in the field.	Y	4
10.1.8 Strategies are developed for identifying and capitalizing on the expertise of faculty and postgraduate students in providing research and development services to the community and generating financial returns to the institution.	Y	5
Overall Assessment		4
Comment <u>PMU Deanship of Graduate Studies and Scientific Research is positioned to enhance and align research opportunities in the College of Engineering.</u>		
Priorities for Improvement <u>Establish focused interdisciplinary applied research to programs that will enhance the involvement of faculty and students.</u>		
Independent Opinion		
Comment _____		

10.2 Research Facilities and Equipment

Adequate facilities and equipment appropriate for research in the program field of study must be available for use by teaching staff and postgraduate students. Clear policies must be established for ownership and care for specialized facilities and equipment obtained through research grants or cooperation with industry.

10.2.1 Adequate laboratory space and equipment, library and information systems resources are available to support the research activities of faculty and students in the field in which the program is offered.

Y

3

10.2.2 Security systems are established that ensure safety for researchers and their activities, the institutional community and the surrounding region.

Y

4

10.2.3 Policies are established to make clear the ownership and responsibility for maintenance of equipment obtained through faculty research grants, commissioned research or other external sources.

Y

4

10.2.4 Adequate budget and facilities for the conduct of research at a level consistent with institutional, program and departmental policies should be provided.

Y

5

Overall Assessment

4

Comment PMU approved the college laboratories acquisition plan for the existing UG and G academic programs.

Priorities for Improvement Expediate commissions of all remaining lab equipment.

Independent Opinion

Comment _____

Overall Assessment of Research

10.1 Teaching Staff and Student Involvement in Research

4

10.2 Research Facilities and Equipment

4

Combined Assessment

4

Comment The college is embarking on starting several MS programs and adding
new faculty hires that should increase research throughout. This standards is set
to be in a strong position of compliance.

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Standard 11 Relationships With the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

For the purposes of this standard contributions to the community should include services and activities to assist individuals, organizations or communities outside the institution (i.e. they would not include such things as financial assistance or extra curricular activities for enrolled students or the provision of academic programs leading to qualifications) but could include participation in research or development projects, and community education programs provided either with or without charge.

Main Components of this Standard

Institutional Policies on Community Relationships
Interactions with the Community

Comment and General Description of Good Practice

As influential members of the community institutions should recognize an obligation shared with other community members to cooperate for mutual benefit. However the responsibility of post secondary institutions goes well beyond that general obligation. By their nature they are service organizations whose central responsibility is to provide educational services that are required. In most cases they are established or approved to operate because that service is recognized as being needed in the community. Many receive substantial government support, which is a community contribution to their activities, either directly or through financial support for students.

The mission of an institution should make clear the nature of its contribution to the communities it is intended to serve and should be developed following an analysis of the needs of those communities and the capacity of the institution to respond.

Higher education institutions have special capacity to contribute because of the skills of their faculty in a number of different occupational or professional fields and academic disciplines, and because of the facilities they have for teaching, research and cultural activities. As a result it is common for them to provide for community access to cultural activities, to establish clinics or services for the benefit of the community, to develop research or consultancy programs focusing on requirements of local communities, and to encourage staff to take an active role in aspects of community life that are relevant to their special expertise. The role of higher education institutions in providing assistance and support to other education institutions including schools can be extremely important to those other institutions, as well as providing benefits to the higher education institution itself by improving its capacity to attract high quality students.

A post secondary institution should clearly identify its potential contributions to the community, provide for those contributions in appropriate ways in its mission, develop institutional policies and strategies for response, and monitor and report on what is done.

While the geographic region surrounding an institution is particularly significant, the concept of community should be interpreted broadly, to include the academic and professional communities with which it interacts, locally, nationally, and internationally. Contributions to these communities are all important, and as is the case for the local general community, effective interaction has significant benefits for the institution as well.

Institutions should ensure that their activities and services are widely publicized and understood and valued by the community, and that their reputation is enhanced. The reputation of the institution is a vital factor in attracting and retaining high quality students and staff, seeking endowments, attracting research projects

and funding, and in ensuring community support. It is also important in establishing and maintaining the public credibility of the qualifications that students receive.

Evidence and Performance Indicators

Evidence about quality of community relationships can be obtained from documents describing policies on service to the community, criteria for staff evaluation and promotion that include community contributions, and guidelines and processes for community media releases and other public comments on behalf of the institution. Reports on community relationships that include such matters as community use of institutional facilities, participation of staff on community committees or development projects and interactions with schools and other agencies can provide relevant information. The extent of community service activity, including formal courses and other services provided by the department or individuals within it should be documented and reported so records can be retained in a central data system. Community views about the quality of the institution and its standing as a respected member of the community can be obtained from surveys.

A number of these forms of evidence include ratings that can be used directly as performance indicators. However in this area in particular the mission of the institution and the community within which it operates is important in deciding what aspects of performance should be closely monitored.

Standard 11 Relationships with the Community

Significant and appropriate contributions must be made to the community within which the institution is established drawing on the knowledge and experience of staff and the needs of the community for that expertise. Community contributions should include both activities initiated and carried out by individuals and more formal programs of assistance arranged by the institution or by program administrators. Activities should be documented and made known in the institution and the community, and staff contributions appropriately recognized within the institution.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
11.1 Policies on Community Relationships		
11.1 The service commitment of the program should be defined in a way that reflects the community or communities within which the institution operates, and the skills and abilities of staff teaching in the program.	Y	4
11.1.2 The contributions to the community made by staff teaching in the program are recorded and reported upon on an annual basis.	Y	3
11.1.3 Promotion criteria and faculty assessments include contributions made to the community.	Y	5
11.1.4 Departmental or program initiatives in working with the community should be coordinated with responsible units in the institution to avoid duplication and possible confusion.	Y	4
Overall Assessment		4
Comment <u>The college and its departments have strong partnerships with community stakeholders.</u>		
Priorities for Improvement <u>Hold open houses to promote engineering disciplines to the youth. Sponsor community projects.</u>		
Independent Opinion		
Comment _____		

11.2 Interactions With the Community

Relationships should be established with the community to provide needed services and draw on community expertise to support the program.

11.2.1 Staff are encouraged to participate in forums in which significant community issues are discussed.	Y	5
11.2.2 In a professional program relationships are established with local industries and employers to participate on advisory committees and assist program delivery. (These may include, for example, placement of students for work-study programs, part time employment opportunities, and identification of issues for analysis in student project activities.)	Y	5
11.2.3 Local employers and members of professions are invited to join appropriate advisory committees.	Y	4
11.2.4 Contacts are established with schools in the region offering assistance and support in areas of specialization, providing information about the program and subsequent career opportunities for graduates, and arranging enrichment activities for	Y	3

students at the schools. (If a section within the institution has responsibility for coordinating these relationships these contacts are arranged in consultation with that section.)

11.2.5 Regular contact is maintained with alumni, keeping them informed about institutional developments, inviting their participation in activities, and encouraging their financial and other support for new initiatives.

☐
☐

11.2.6 Opportunities are taken in cooperation with institutional administrators to seek funding support from individuals and organizations in the community for research and other developments associated with the program.

☐
☐

11.2.7 Records are maintained of community services undertaken by individuals and centers or other organizations within the department and provided regularly for recording in a central data base within the institution.

☐
☐

Overall Assessment

☐

Comment_____

Priorities for Improvement_____

Independent Opinion

☐

Comment_____

Overall Assessment of Relationships with the Community

11.1 Institutional Policies on Community Relationships

11.2 Interactions With the Community

Combined Assessment

Comment _____

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement

COLLEGE OF ENGINEERING KPI's Report

Data Needed for
Key Performance Indicators
From
All Colleges

Rev. June 21, 2011

Data Needed for Key Performance Indicators from All Colleges

General information: For each of the following items, please provide a one paragraph narrative introducing the item then include charts that are representative of your claimed data that addresses the item. Trend bar charts over past years until this year are highly recommended when applicable. Data available in other departments within PMU should be responsibility of your unit to collect, analyze, plot and report to the Quality Center. If your unit does not collect data regarding these items below, please consider doing so on a periodic basis as applicable. Response to these items is crucial to complete key performance indicators of the self study of PMU for NCAAA Institutional Accreditation.

Important Guidelines: Narratives should be written carefully with claims that are measurable, authentic and can be supported by quantitative evidence. Please avoid statements that reflects opinion, qualitative judgments, and hard to measure achievements. Reviewers always ask “show me” when they read narratives. *Most items below require trend charts over applicable number of years.*

Data and Narratives Needed:

1. Soft copy of your college strategic plan
2. Level of alignment of college strategy with PMU strategic plan. Need to show a map of your strategy with PMU strategic plan. Use diagrams.
3. Report on your unit’s implementation of PMU guiding principles, core values, strategic goals and strategic initiatives
4. Report on level of engagement of faculty and staff in preparing plans for your unit
5. Program Evaluation Survey (PES). Do not leave any final year student. Need analysis of PES in a report and percentage of participants from total final year students. Plot your PES outcome.
6. Number of full time faculty who received national or international awards as a percentage of the total number of full time faculty in the college
7. Students full time teaching staff ratio in the college
8. Total number of full time teaching staff in the college
9. Number of full time faculty in the college with verifiable doctoral degree
10. Percentage of undergraduate students enrolled in the college who successfully pass the freshman year

11. Percentage of undergraduate students enrolled in the college who complete their degree within 4 academic years
12. Percentage of graduate students who complete their degree in the minimum time
13. Percentage of undergraduate students who get employed within 6 months of graduation
14. Percentage of undergraduate students who enroll in graduate studies
15. Percentage of undergraduate students who get employed in professions closely related to their field of study
16. Percentage of College Programs meeting the NCAAA 11 program standards relative to total number of departments
17. Breakdown of fulltime faculty in terms of academic ranking of TA, Instructor, Assistant, Associate and Full Professor
18. College retention of students (Dropout rate) over the past 4 years
19. Graduate student enrollment as percentage of total enrollment
20. National (Saudi) awards received by college, college faculty or staff in the past 4 years
21. International recognition/awards received by college, college faculty or staff in the past 4 years
22. Total number of student-faculty interaction hours per week other than class time
23. Report on the adequacy of classrooms, facilities and labs within college
24. Number of computers accessible by students per student in the college
25. Did you survey your teaching staff on adequacy equipment and facilities in your college? If not, please consider doing so
26. Number of refereed publications per full time teaching staff excluding conference presentations in each year of the past four years
27. Number of citations in refereed journals per full time teaching staff in the past 4 years
28. Number of full time teaching staff in the college with at least one refereed journal publication as a percentage of total full time teaching staff
29. Total number of papers, reports and academic presentations in the past year per full time teaching staff in the college
30. Income from research grants to the college per full time teaching staff in the college (SR/faculty)
31. Ratio of SR spent of research to the total operating expenditure of the college. Need to show trend over the past three years or more
32. Number of published articles produced from students' master thesis as percentage of total number of graduate students who completed master degree
33. Number of graduate students' work that received national or international awards
34. SR funds available internally within PMU for research and projects per full time teaching staff in the college

35. SR funds available externally for research and projects per full time teaching staff in the college
36. Percentage of full time teaching faculty who received internal research/project funds as a proportion to total number of teaching staff in the college
37. Percentage of full time teaching faculty who received external research/project funds as a proportion to total number of teaching staff in the college
38. Percentage of research published or used on the national or international level as a proportion to the total number of research published by college
39. Number of research projects that was published as patents nationally or internationally per full time teaching staff in the college in the past 5 years
40. Percentage of refereed publications that were cited per full time teaching staff
41. Faculty members who are active in research and are qualified as thesis advisors for graduate students
42. Extent to which research equipment and facilities are adequate to conduct research in the college. Report in details.
43. Percentage of full time teaching staff those were active in community service programs over the past 2 years. Please show trend.
44. Number of continuing education offered to community per number of programs in the college
45. Number of service/design/consultation projects offered as a response to needs of external customers of the college as a proportion to total number of faculty in the college
46. Number of nationally or internationally designated/recognized centers in the college
47. Detailed report on student field experience showing numbers of students participating and overall report from employers on student performance during the past two academic calendar years
48. Number of graduating students who were evaluated internally by members of PMU faculty other than Assessment III instructor during final year as percentage of total number of final year students among the past two cohorts
49. Number of graduating students who were evaluated externally by non-members of PMU faculty during the final year Assessment III as a percentage of total number of final year students among the past two cohorts
50. The success level of COE in realizing its learning outcomes in its graduates. This KPI was added after NCAAA September 2012 visit and plans to collect data from graduates in the work place are being established. PMU is establishing an Alumni Quality Office under DQA to provide performance data on this KPI for all colleges.

Item 5

Program Evaluation Survey (PES). Do not leave any final year student. Need analysis of PES in a report and percentage of participants from total final year students. Plot your PES outcome.

Responsibility

Chairs of Departments:

- Dr Emily Jeannine Grantham
- Dr Naser Al-Huniti
- Dr Rakan Chabaan
- Dr Andy Aziz

Outcomes

A comprehensive study has been conducted at the college of engineering to survey the final year students for their feedback on the program. At the time of the survey, three departments out of the existing four at the college had students at their final year. These departments were:

1. Civil Engineering
2. Electrical Engineering
3. Mechanical Engineering.

What follows is the outcome of these surveys.

PES for Civil Engineering Department

A PES survey was conducted to six senior civil engineering students including four graduating students at the end of Spring 2011 semester. The response rate was 100%, and the statistical result of this survey can be seen in the following table.

Table 1: PES for senior Civil Engineering department students.

Questions	Strongly agree	Agree	True Sometimes	Disagree	Strongly Disagree
Help and Support for my Learning					
1. Adequate academic and career counselling was available for me throughout the program.	50%	17%	0%	17%	17%
2. The instructors were available for consultation and advice when I needed to speak with them.	67%	17%	17%	0%	0%
3. The instructors in the program inspired me to do my best.	67%	0%	33%	0%	0%
4. The instructors in the program gave me helpful feedback on my work.	67%	33%	0%	0%	0%
5. The instructors in the program had thorough knowledge of the content of the courses they taught.	67%	17%	17%	0%	0%
6. The instructors were enthusiastic about the program.	67%	33%	0%	0%	0%
7. The instructors cared about the progress of their students.	83%	0%	17%	0%	0%
Resources to Support my Learning					
8. Study materials in courses were up to date and useful.	67%	33%	0%	0%	0%
9. Library resources were adequate and available when I needed them.	83%	0%	0%	17%	0%
10. Classroom facilities (for lectures, laboratories, tutorials etc) were of good quality.	50%	33%	17%	0%	0%
11. Student computing facilities were sufficient for my needs.	50%	0%	50%	0%	0%
12. Adequate facilities were available for extra curricular activities (including sporting and recreational activities).	50%	17%	33%	0%	0%
13. Adequate facilities were available for religious observances.	50%	50%	0%	0%	0%
14. Field experience programs (internship, practicum, cooperative training) were effective in developing my skills. (Omit this item if not applicable to your program)	67%	17%	17%	0%	0%
Evaluation of my Learning					
15. What I have learned in this program will be valuable for my future.	67%	33%	0%	0%	0%
16. The program has helped me to develop sufficient interest to want to continue to keep up to date with new developments in my field of study.	83%	17%	0%	0%	0%
17. The program has developed my ability to investigate and solve new problems.	83%	0%	17%	0%	0%
18. The program has improved my ability to work effectively in groups.	83%	17%	0%	0%	0%
19. The program has improved my skills in communication.	67%	17%	17%	0%	0%
20. The program has helped me to develop good basic skills in using technology to investigate issues and communicate results.	67%	33%	0%	0%	0%
21. I have developed the knowledge and skills required for my chosen career.	83%	0%	17%	0%	0%
Overall Evaluation					
22. Overall I was satisfied with the quality of my learning experiences at this institution.	83%	17%	0%	0%	0%

Open Ended Questions

23. What did you like the most about your studies at this institution?

- a. Using technology & black board
- b. Qualified instructor.

24. What did you dislike most about your studies at this institution?

- a. No labs.

25. What suggestions do you have for improvements in your program at this institution?

- a. More labs & drawing course.

In general it can be concluded that the students were satisfied with the teaching and learning activities at PMU COE Civil Engineering Department. Most of students were satisfied with the teaching technology provided by PMU, such as utilizing black board, smart board for lectures. However, important suggestion was received from this survey and this is mainly due to lack of laboratory facilities for civil engineering teaching activities. Also, a student commented on very poor performance from the faculty on the lack of career counseling during his study in the program.

PES for Electrical Engineering Department

A PES survey was conducted to eleven senior Electrical engineering students including nine graduating students at the end of Spring 2011 semester. The response rate was 100%, and the statistical result of this survey can be seen in the following table.

Table 2: PES for senior Electrical Engineering department students.

Questions	Strongly agree	Agree	True Sometimes	Disagree	Strongly Disagree
Help and Support for my Learning					
1. Adequate academic and career counselling was available for me throughout the program.	67%	11%	22%	0%	0%
2. The instructors were available for consultation and advice when I needed to speak with them.	56%	33%	11%	0%	0%
3. The instructors in the program inspired me to do my best.	44%	33%	22%	0%	0%
4. The instructors in the program gave me helpful feedback on my work.	56%	11%	33%	0%	0%
5. The instructors in the program had thorough knowledge of the content of the courses they taught.	44%	56%	0%	0%	0%
6. The instructors were enthusiastic about the program.	44%	22%	33%	0%	0%
7. The instructors cared about the progress of their students.	67%	11%	22%	0%	0%
Resources to Support my Learning	0%	0%	0%	0%	0%
8. Study materials in courses were up to date and useful.	33%	33%	33%	0%	0%
9. Library resources were adequate and available when I needed them.	22%	44%	22%	0%	11%
10. Classroom facilities (for lectures, laboratories, tutorials etc) were of good quality.	33%	33%	33%	0%	0%
11. Student computing facilities were sufficient for my needs.	33%	22%	44%	0%	0%
12. Adequate facilities were available for extra curricular activities (including sporting and recreational activities).	22%	11%	56%	11%	0%
13. Adequate facilities were available for religious observances.	56%	22%	33%	0%	0%
14. Field experience programs (internship, practicum, cooperative training) were effective in developing my skills. (Omit this item if not applicable to your program)	22%	33%	33%	11%	0%
Evaluation of my Learning	0%	0%	0%	0%	0%
15. What I have learned in this program will be valuable for my future.	56%	44%	0%	0%	0%
16. The program has helped me to develop sufficient interest to want to continue to keep up to date with new developments in my field of study.	44%	33%	22%	0%	0%
17. The program has developed my ability to investigate and solve new problems.	33%	56%	11%	0%	0%
18. The program has improved my ability to work effectively in groups.	56%	33%	11%	0%	0%
19. The program has improved my skills in communication.	44%	56%	0%	0%	0%
20. The program has helped me to develop good basic skills in using technology to investigate issues and communicate results.	56%	33%	11%	0%	0%
21. I have developed the knowledge and skills required for my chosen career.	56%	33%	11%	0%	0%
Overall Evaluation					
22. Overall I was satisfied with the quality of my learning experiences at this institution.	44%	44%	11%	0%	0%

Open Ended Questions

23. What did you like the most about your studies at this institution?

- a. Technology
- b. Group work
- c. Instructor availability/friendly
- d. Instructor Quality.

24. What did you dislike most about your studies at this institution?

- a. No labs
- b. Unfair grading, program credit high.

25. What suggestions do you have for improvements in your program at this institution?

- a. Teach more software in ASSE2,3 (Matlab ...)
- b. Complete Labs
- c. Basic course on electric wiring, soldering, using tools,
- d. More field trips
- e. Review/improve study plan
- f. Reduce total credit.

In general it can be concluded that the students were satisfied with the teaching and learning activities at PMU COE Electrical Engineering Department. Most of students were satisfied with the teaching technology provided by PMU, such as utilizing black board, smart board for lectures. However, important suggestion was received from this survey and this is mainly due to lack of laboratory facilities for Electrical Engineering teaching activities.

PES for Mechanical Engineering Department

A PES survey was conducted to twenty two senior mechanical engineering students including nine already graduated students at the end of Spring 2010 semester. The response rate was 100%, and the statistical result of this survey can be seen in the following table.

Table 3: PES for senior Mechanical Engineering department students.

Questions	Strongly agree	Agree	True Sometimes	Disagree	Strongly Disagree
Help and Support for my Learning					
1. Adequate academic and career counselling was available for me throughout the program.	32%	32%	23%	5%	9%
2. The instructors were available for consultation and advice when I needed to speak with them.	55%	32%	14%	0%	0%
3. The instructors in the program inspired me to do my best.	50%	27%	18%	5%	0%
4. The instructors in the program gave me helpful feedback on my work.	68%	14%	14%	5%	0%
5. The instructors in the program had thorough knowledge of the content of the courses they taught.	68%	27%	5%	0%	0%
6. The instructors were enthusiastic about the program.	32%	36%	23%	5%	0%
7. The instructors cared about the progress of their students.	50%	32%	18%	0%	0%
Resources to Support my Learning					
8. Study materials in courses were up to date and useful.	27%	45%	23%	5%	0%
9. Library resources were adequate and available when I needed them.	18%	14%	32%	27%	9%
10. Classroom facilities (for lectures, laboratories, tutorials etc) were of good quality.	41%	14%	32%	14%	0%
11. Student computing facilities were sufficient for my needs.	18%	18%	27%	27%	5%
12. Adequate facilities were available for extra curricular activities (including sporting and recreational activities).	5%	18%	32%	27%	18%
13. Adequate facilities were available for religious observances.	18%	32%	36%	5%	5%
14. Field experience programs (internship, practicum, cooperative training) were effective in developing my skills. (Omit this item if not applicable to your program)	36%	14%	9%	18%	0%
Evaluation of my Learning					
15. What I have learned in this program will be valuable for my future.	50%	23%	18%	5%	0%
16. The program has helped me to develop sufficient interest to want to continue to keep up to date with new developments in my field of study.	36%	18%	36%	9%	0%
17. The program has developed my ability to investigate and solve new problems.	32%	32%	23%	14%	0%
18. The program has improved my ability to work effectively in groups.	36%	32%	23%	5%	5%
19. The program has improved my skills in communication.	41%	36%	14%	5%	5%
20. The program has helped me to develop good basic skills in using technology to investigate issues and communicate results.	36%	36%	14%	9%	5%
21. I have developed the knowledge and skills required for my chosen career.	45%	32%	23%	0%	0%
Overall Evaluation					
22. Overall I was satisfied with the quality of my learning experiences at this institution.	27%	55%	14%	0%	5%

Open Ended Questions

23. What did you like the most about your studies at this institution?

- a. This institution encourages me to investigate new ideas, improve my abilities and achieve my target
- b. Student is the center of information
- c. Work as a group
- d. Enhanced my ability to solve problems and improved my teamwork and communication skills
- e. There was some doctors are helpful for any kind of suggestion that we need and give us some advises that will be helpful in our real life
- f. The facilities available
- g. Encouraging Environment is the most I liked at PMU
- h. Professional development

24. What did you dislike most about your studies at this institution?

- a. Location of this institution
- b. Very long process time for any paper work or management decision.
- c. The number of unrelated courses was more than enough
- d. No field trip for each chapter
- e. As a Mechanical Engineer I'd like to improve my knowledge by visiting valuable fields and we have to have better labs
- f. No labs
- g. Lack of doctors, labs: computer and mechanical only I printer for the whole university
- h. Changing the schedules of student who early registered.
- i. Nothing, except non presence of services in evening
- j. No recreation center.

25. What suggestions do you have for improvements in your program at this institution?

- a. Need of more ME subjects

- b. To meet the student and take their notes
- c. They should develop the Lab and increase the number of courses that are related to the major
- d. Field trips after each chapter
- e. Fully equipped gym, computer labs for each major study halls or rooms where you can drink in them close to the buildings
- f. Bringing more instructors and more qualified professors
- g. Gives the names to the courses rather calling it with strange name, like Mechanical Design courses III it should be called ME Engineering Design but ME Design I it should be called Kinematic of Machine I.

In general it can be concluded that the students were satisfied with the teaching and learning activities at PMU COE Mechanical Engineering Department. Most of students were satisfied with the teaching technology provided by PMU, such as utilizing black board, smart board for lectures. However, important suggestions were received from this survey and this is mainly due to lack of laboratory facilities for Mechanical Engineering teaching activities.

Item 27

Number of citations in refereed journals per full time teaching staff in the past 4 years

Responsibility

All full time teaching staff at the COE:

Outcomes

A survey has been conducted using Google Scholar seeking the number of citation of the full time teaching staff in the past 4 years. The table below list results from this survey for all the participated departments within the college of engineering.

As can be seen from the table below, the number of citation per faculty is around 11 citations. This is considered reasonably good in the field of Engineering and reflects the importance and quality of research conducted by the faculty at the college of engineering.

Table 4: Number of citations per full time faculty.

College of Engineering	Electrical	Civil	Mechanical
22	17	8	18

Item 28

Number of full time teaching staff in the college with at least one refereed journal publication as a percentage of total full time teaching staff

Responsibility

All full time teaching staff at the COE:

Outcomes

All full time teaching staff at the college of Engineering has published a minimum of one journal paper. This gives the percentage of

100%

Item 29

Total number of papers, reports and academic presentations in the past year per full time teaching staff in the college.

Responsibility

All full time teaching staff at the COE.

Outcomes

The entire full time teaching faculty at the college of engineering has contributed to success of the college via publishing papers, writing reports or giving academic presentations. Table 5 lists the average number of publication/ presentation per faculty of the college. It can be seen that each faculty has written 3.2 papers, 1.4 reports and delivered 1.5 presentations during the past year. This is considered a high number when considering the teaching load of 16 credit hours per faculty. Table 6 lists the average number of research output per faculty for the whole college. As it shows, on average each faculty was involved in six research outputs. Again, this is a high figure when considering the teaching load.

Table 5: Total numbers per full time faculty.

	Papers	Reports	Academic Presentations
College of Engineering	3.2	1.4	1.5
Electrical	2.4	0	0.8
Civil	14	1	3
Mechanical	2.4	2.2	1.7

Table 6: Total number of papers, reports and presentations per full time faculty.

College of Engineering	Electrical	Civil	Mechanical
6	3	18	6

Item 40

Percentage of refereed publications that were cited per full time teaching staff

Responsibility

All full time teaching staff at the COE.

Outcomes

The percentage of refereed publications that were cited was found to be 65% for the college of engineering. This value needs to be updated and re-evaluated as the number of publications changes as well as the faculty members.

Table 7: percentage of publications that were cited per full time faculty.

College of Engineering	Electrical	Civil	Mechanical
53.6%	42.1%	33.3%	58.1%

Item 45

Number of service/design/consultation projects offered as a response to needs of external customers of the college as a proportion to total number of faculty in the college.

Responsibility

The Dean, Chairs of Departments, and all Faculty members.

Outcomes

When it comes to service to community outside the university, the number of faculty within the college becomes a major factor. It can be seen from the tables below that Mechanical engineering department is the only department that has the capacity to conduct services. This is due to the availability of more faculty, compared with the other departments, that possess a wider area of application. The numbers shown in the tables reflect a need to recruit more faculty at all departments and reduce the teaching load for the faculty to be able to contribute to the wider community within the Kingdom.

Table 8: Total numbers per full time faculty.

	Service	Design	Consultation
College of Engineering	0.5	0.5	0.3
Electrical	0	0	0
Civil	0	0	0
Mechanical	0.8	0.9	0.6

Table 9: Total number of service, design and consultation per full time faculty.

College of Engineering	Electrical	Civil	Mechanical
1	0	0	2

Item 46

Number of nationally or internationally designated/recognized centers in the college.

Responsibility

The Dean, Director of Quality center, and Chairs of Departments:

- Dr. Jamal Faris Nayfeh
- Dr. Emad Tanbour
- Dr Emily Jeannine Grantham
- Dr Naser Al-Huniti
- Dr Rakan Chabaan
- Dr Andy Aziz

Outcomes

Currently there is one center at the college of engineering “**the Graphical System Design Center of Excellence**”. This centre is a product of close collaboration between college of engineering at PMU and National Instruments.

Item 47

Detailed report on student field experience showing numbers of students participating and overall report from employers on student performance during the past two academic calendar years.

Responsibility

Instructors who were responsible for the field experience during the past two years.

Outcomes

The first major internship program (field experience) has been conducted during summer 2010. Around 27 students went into the engineering field seeking field experience in accordance with the college of engineering requirements. The results from the survey conducted are listed below.

Field Experience for Civil Engineering Department

A field experience survey was conducted to two senior civil engineering students. The response rate was 100%, and the statistical result of this survey can be seen in the following tables.

Table 10: Feedback from industry supervisor report.

Please evaluate the individual's performance or ability by checking the rating on the right.	Satisfactory	Needs improvement	No opportunity to observe
Enthusiasm and interest in work.	100%	0%	0%
Completion of the work assigned to him.	100%	0%	0%
Delivery of quality work output.	50%	50%	0%
Comply with company rules and regulations.	100%	0%	0%
Following instructions.	100%	0%	0%
Applying knowledge of chemistry, physics, geology, differential equations, probability and statistics in completing assignments.	100%	0%	0%
Applying knowledge of solid and fluid mechanics, thermodynamics, and materials properties in completing assignments.	100%	0%	0%
Using writing and speaking skills for professional purposes.	50%	50%	0%
Identifying problems, opportunities, constraints, collecting data and making decisions.	50%	50%	0%
Designing tests, gathering, analyzing and interpreting data.	100%	0%	0%
Using latest techniques, skills, and tools to solve engineering problems.	50%	50%	0%
Designing systems, components, or processes for efficient use of resources.	0%	50%	50%
Applying economic principles to design and decision making.	50%	0%	50%
Working in teams or groups, including multidisciplinary teams.	100%	0%	0%
Focusing more on practical problem-solving techniques than on developing new knowledge.	100%	0%	0%
Initiative in taking tasks to complete.	50%	50%	0%
Learning and searching for information.	50%	50%	0%
Maintaining effective relations with co-workers.	100%	0%	0%
Reporting and presenting his work	100%	0%	0%
Arriving work on time (Punctuality).	100%	0%	0%
Learning new tools and techniques.	50%	50%	0%
Following and understanding professional and ethical responsibilities.	100%	0%	0%
Understanding impact of engineering solutions on culturally diverse global society.	50%	50%	0%
Recognizing political, social, and environmental constraints on solving engineering problems.	50%	50%	0%

Table 11: Student feedback report.

Task	Yes	No
Was nature of work assigned challenging?	1	0
Was your work environment satisfactory?	1	0
Was the work technical in nature?	1	0
Were you treated as a member of a professional team?	1	0
Were you able to learn from others?	1	0
Were you able to talk to your supervisor when needed?	1	0
Would you recommend that we continue to assign students to this company in future?	1	0
Would you work for this company after graduation?	0.5	0.5
Overall, how do you rate the company in providing you with this training?	Excellent	Good
	0.5	0.5
	Satisfactory	Poor
	0	0

Open Ended Questions**1. What new knowledge or skill have you acquired as a result of this internship?**

- A. I can work and have the ability to work under hard conditions, like hot weather.
- B. I learned the basic construction concepts and ideas
- C. I improved my leadership and team work skills
- D. Prepare new projects
- E. How to follow up presented projects
- F. How to draw and design by AutoCAD program
- G. How to deal with contractors
- H. How to solve problems in projects

2. Which courses, if any, have helped you in learning the new knowledge, skills and technologies needed to do your work?

- A. Critical thinking
- B. Mechanics of solids
- C. Reinforced concrete
- D. Structural analysis

- E. Statics and dynamics
- F. Hydraulic engineering
- G. Mathematics
- H. Static and dynamics
- I. Reinforced concrete
- J. Hydraulic (especially in pipe projects for water)
- K. Structural analysis
- L. Oral communication and writing research

3. What would have better prepared you for this semester's work?

- A. To link the theory to the real applications as much as I can. Also, improve my knowledge in some areas.
- B. Ways of solving problems
- C. Equations of design structures
- D. Solving problems by using AutoCAD program

4. Suggest ways in which you think the Internship Program, as a whole can be improved:

- A. Prepare schedules or worktable for students who will take internship which contains the ideas or tasks and skills which they have to use and test.
- B. In my opinion the internship program is perfect. Also, it is complete program within topics, information and skills that get by follow the program. But I suggest to let's period of training seven months.

Field Experience for Electrical Engineering Department

A field experience survey was conducted to eight senior civil engineering students. The response rate was 100%, and the statistical result of this survey can be seen in the following tables.

Table 12: Feedback from industry supervisor report.

Please evaluate the individual's performance or ability by checking the rating on the right.	Satisfactory	Needs improvement	No opportunity to observe
Enthusiasm and interest in work.	100%	0%	0%
Completion of the work assigned to him.	100%	0%	0%
Delivery of quality work output.	83%	17%	0%
Comply with company rules and regulations.	100%	0%	0%
Following instructions.	100%	0%	0%
Applying knowledge of chemistry, physics, geology, differential equations, probability and statistics in completing assignments.	100%	0%	0%
Applying knowledge of solid and fluid mechanics, thermodynamics, and materials properties in completing assignments.	67%	0%	33%
Using writing and speaking skills for professional purposes.	50%	50%	0%
Identifying problems, opportunities, constraints, collecting data and making decisions.	33%	50%	17%
Designing tests, gathering, analyzing and interpreting data.	83%	17%	0%
Using latest techniques, skills, and tools to solve engineering problems.	100%	0%	0%
Designing systems, components, or processes for efficient use of resources.	33%	33%	33%
Applying economic principles to design and decision making.	33%	17%	50%
Working in teams or groups, including multidisciplinary teams.	83%	17%	0%
Focusing more on practical problem-solving techniques than on developing new knowledge.	67%	0%	33%
Initiative in taking tasks to complete.	67%	33%	0%
Learning and searching for information.	100%	0%	0%
Maintaining effective relations with co-workers.	100%	0%	0%
Reporting and presenting his work	83%	0%	17%
Arriving work on time (Punctuality).	100%	0%	0%
Learning new tools and techniques.	67%	33%	0%
Following and understanding professional and ethical responsibilities.	100%	0%	0%
Understanding impact of engineering solutions on culturally diverse global society.	67%	0%	33%
Recognizing political, social, and environmental constraints on solving engineering problems.	67%	0%	33%

Table 13: Student feedback report.

Task	Yes	No
Was nature of work assigned challenging?	100%	0%
Was your work environment satisfactory?	100%	0%
Was the work technical in nature?	38%	63%
Were you treated as a member of a professional team?	63%	38%
Were you able to learn from others?	100%	0%
Were you able to talk to your supervisor when needed?	100%	0%
Would you recommend that we continue to assign students to this company in future?	75%	25%
Would you work for this company after graduation?	88%	13%
Overall, how do you rate the company in providing you with this training?	Excellent	Good
	25%	38%
	Satisfactory	Poor
	38%	0%

Open Ended Questions**1. What new knowledge or skill have you acquired as a result of this internship?**

- A. The oil industry is a new field to me. All knowledge gained about that area is valuable. However, the concept of logging is the most important knowledge gained.
- B. Handling problems.
- C. Taking the responsibility.
- D. Improving my communication skills in general.
- E. Dealing with people in the field.
- F. Knowing more information about the real life.
- G. I improved my communication skills where acquiring information is needed.
- H. How to do the job in a team work and also to choose the right suggestion.
- I. The new knowledge or skill that I have acquired as a result of this internship, as follows:
 - a. Writing reports

- b. Boiler section and its purpose
- c. Power generator
- d. Bus bar
- e. Circuit breaker
- f. Switchgear
- g. Distributed control system
- J. I improved my English
- K. Being punctual
- L. Team work
- M. Work experience
- N. Responsibilities
- O. Being punctual
- P. E-tap program
- Q. Electrical circuit by power point
- R. Charts by excel
- S. I was introduced to control panels and how do they work. I was also introduced to relays and conveyors and I had the chance to see how do they work.

2. Which courses, if any, have helped you in learning the new knowledge, skills and technologies needed to do your work?

- A. Taking safety courses such as CPR and H₂S awareness made me consider how serious and dangerous the work is. Those courses forced to be careful while being at the field.
- B. All the communication courses.
- C. Micro and macro economics
- D. Electric machinery
- E. Micro economics and communication courses, writing courses also helped.
- F. I took some courses from the e-learning website about management also about antenna.
- G. The courses that have helped me in learning the new knowledge and skills are:
 - a. Oral communication
 - b. Writing and research

- c. Technical communication
- d. Digital systems
- e. Circuits I and II
- f. Electronics
- H. Math courses
- I. Microprocessor course
- J. Electronics courses
- K. Circuit courses
- L. Physics courses
- M. Digital system
- N. English courses
- O. Machinery
- P. Electrical circuit
- Q. Electric machinery
- R. Electronics I and II

3. What would have better prepared you for this semester's work?

- A. Getting more attention and support from the university was needed in the process of applying for the internship. For example, preparing a career day would have eased the pressure on the student and gave them a better start.
- B. I think because we are already graduate student we or I did not face any problem, but taking the internship with courses during it is period makes the process hard to deal with.
- C. Since we had no idea where we were supposed to do our internship until the last week of the final period. I would say if PMU is more prepared it would help the students.
- D. Signals and systems
- E. Electronics
- F. Probability
- G. I haven't had any better prepared for this semester's work.
- H. It would be better if I took more courses in microprocessor.
- I. If only I was familiar with the electrical equipment
- J. More labs and more courses could have helped a lot for the internship

4. Suggest ways in which you think the Internship Program, as a whole can be improved:

- A. The university was not well prepared for the internship. The job offers were too limited and the whole system was not organized. I suggest that a list of companies should be provided where the student has a variety to choose.
- B. Making alternative options (companies) to let the student be able to choose what he wants as a job, some people like technical field and others like other fields. But for the time being we got our internship program because there were no other choices available to us.
- C. We, the foreign students, suffered the most since no organization would accept us until the final day. In my opinion PMU has to fix this.
- D. I suggest being the internship program for six months because 3 months is not enough to covering everything.
- E. I suggest for PMU to be more organized in this internship program by doing meeting with advisors and make plans including training schedule details to let students know what their goals are and the steps the they have to follow to achieve their goals in this internship program.
- F. I think it would be better if we have 7 months coop course. My internship was 2 months, it would be better it is 3 months for the summer semester.
- G. It needs more than 3 months.
- H. I think if the internship can be taken after finishing all the other courses it would be more productive.

Field Experience for Mechanical Engineering Department

A field experience survey was conducted to nine senior civil engineering students. The response rate was 100%, and the statistical result of this survey can be seen in the following tables.

Table 14: Feedback from industry supervisor report.

Please evaluate the individual's performance or ability by checking the rating on the right.	Satisfactory	Needs improvement	No opportunity to observe
Enthusiasm and interest in work.	100%	0%	0%
Completion of the work assigned to him.	89%	11%	0%
Delivery of quality work output.	78%	22%	0%
Comply with company rules and regulations.	100%	0%	0%
Following instructions.	100%	0%	0%
Appling knowledge of chemistry, physics, geology, differential equations, probability and statistics in completing assignments.	67%	11%	22%
Appling knowledge of solid and fluid mechanics, thermodynamics, and materials properties in completing assignments.	78%	11%	11%
Using writing and speaking skills for professional purposes.	78%	22%	0%
Identifying problems, opportunities, constraints, collecting data and making decisions.	89%	11%	0%
Designing tests, gathering, analyzing and interpreting data.	67%	11%	22%
Using latest techniques, skills, and tools to solve engineering problems.	78%	0%	11%
Designing systems, components, or processes for efficient use of resources.	78%	0%	22%
Applying economic principles to design and decision making.	78%	0%	22%
Working in teams or groups, including multidisciplinary teams.	100%	0%	0%
Focusing more on practical problem-solving techniques than on developing new knowledge.	56%	44%	0%
Initiative in taking tasks to complete.	89%	11%	0%
Learning and searching for information.	100%	0%	0%
Maintaining effective relations with co-workers.	100%	0%	0%
Reporting and presenting his work	89%	11%	0%
Arriving work on time (Punctuality).	100%	0%	0%
Learning new tools and techniques.	100%	0%	0%
Following and understanding professional and ethical responsibilities.	89%	11%	0%
Understanding impact of engineering solutions on culturally diverse global society.	78%	0%	22%
Recognizing political, social, and environmental constraints on solving engineering problems.	44%	11%	44%

Table 15: Student feedback report.

Task	Yes	No
Was nature of work assigned challenging?	100%	0%
Was your work environment satisfactory?	100%	0%
Was the work technical in nature?	100%	0%
Were you treated as a member of a professional team?	89%	11%
Were you able to learn from others?	100%	0%
Were you able to talk to your supervisor when needed?	89%	11%
Would you recommend that we continue to assign students to this company in future?	100%	0%
Would you work for this company after graduation?	100%	0%
Overall, how do you rate the company in providing you with this training?	Excellent	Good
	78%	11%
	Satisfactory	Poor
	11%	0%

Open Ended Questions**1. What new knowledge or skill have you acquired as a result of this internship?**

- A. I learned how to prepare a sample for mechanical testing and how to conduct various types of tests such as hardness, impact, tensile.... I also learned how to the failure occurs in materials and how to identify failure and its type.
- B. Communication skills; Technical skill which is it how solve and fix problem.
- C. I have acquired many things such as commitment, materials standard and its observation.
- D. I know how to handle sample.
- E. I get knowledge about failure analysis.
- F. I have learned many skills during my internship.
- G. I have involved in teamwork professional communication. Also, I did learn how to solve and report technical problems.
- H. I understand how the compressed air system works and how the air distribution system works.
- I. Applying engineering calculations to the field.

- J. How projects are worked on AutoCAD techniques.
- K. NDT (Non-Destructive Testing) method, RBI (Risk Bored Inspection), managing the activity, supervision in the work.
- L. How to use my engineering skills in real life.
- M. The Effectiveness of engineering in business
- N. Skills of engineering communications
- O. How does the metering important in business
- P. How does the control valve related to mechanical engineering
- Q. Learnt the very basic and technical aspects of air-conditioning. The various types of air conditioners, like the window unit, split, packaged, etc...

2. Which courses, if any, have helped you in learning the new knowledge, skills and technologies needed to do your work?

- A. Mechanics of Solids
- B. Materials Engineering
- C. Design III
- D. Communication courses and any technical courses that related to tour work.
- E. Actually material and science for engineering and manufacturing method.
- F. Fluid mechanics
- G. Manufacturing design
- H. Mechanic engineering design
- I. HVAC
- J. Fluid mechanics
- K. Heat transfer
- L. Thermodynamics
- M. Fluid mechanics
- N. Mechanics of solids
- O. Corrosion course
- P. Material in design
- Q. The unit members gives some lectures about orifices and ultrasonic flow meter and about proper calibration before going to the vendor to have knowledge about what is going on there.
- R. Thermodynamics I and II
- S. Heat transfer
- T. Fluid mechanics

3. What would have better prepared you for this semester's work?

- A. The only thing that would have prepared me better for the semesters work was having studied the tests in the lab at the University.
- B. To solving a problem
- C. More material labs especially sample things like grinding and polishing
- D. Teamwork skills
- E. Fluid mechanics, Heat transfer
- F. I would say that some help from our instructors and a previous work experience.
- G. By organizing and putting a schedule to achieve my goals.
- H. If I would've taken HVAC prior to internship, it would have given me more ease in understanding the concepts. Nevertheless, it was made clear to me.

4. Suggest ways in which you think the Internship Program, as a whole can be improved:

- A. I hope for the future that the students could have the choice to take a 7 months training (Co-op) program so they can fully have the experience of working with a company.
- B. It is need more time for works, for example six months or above, three months not enough to learn.
- C. More lectures to let us know more about the internship program the company should look interesting department to students.
- D. I suggest allowing students have their internship in outside Saudi Arabia firm that have real high experience in pure science and high quality industry.
- E. I hope before any training we should take a look to the pipes and ducts in campus to have an idea about what we are going to train on.
- F. Provide students with more companies to work with. Giving more lectures in school related to training.
- G. Since ours was the first batch of students that performed internship, I found the whole program satisfactory.

Item 48

Number of graduating students who were evaluated internally by members of PMU faculty other than Assessment III instructor during final year as a percentage of total number of final year students among the past two cohorts.

Responsibility

Instructors who were responsible for the Assessment III course.

Outcomes

Assessment III project at the college of engineering is handled by highly qualified teaching faculty. Students in their senior year are asked to investigate a real life problem and present a written report and deliver an oral presentation at the end of the semester. The three departments at the college have produced their first patch of project. Mechanical Engineering department on the other hand has more than one year experience in this field. The table below shows a percentage of the total number of final year students.

Table 16: Percentage of total numbers of final year students.

	Spring 2010	Fall 2010	Spring 2011
College of Engineering	33	33	90
Electrical	0	0	100
Civil	0	0	100
Mechanical	100	100	67

Item 49

Number of graduating students who were evaluated externally by non-members of PMU faculty during final year Assessment III as a percentage of total number of final year students among the past two cohorts.

Responsibility

Instructors who were responsible for the Assessment III course.

Outcomes

Assessment III project at the college of engineering is handled by highly qualified teaching faculty. Students in their senior year are asked to investigate a real life problem and present a written report and deliver an oral presentation at the end of the semester. The three departments at the college have produced their first patch of project. Mechanical Engineering department on the other hand has more than one year experience in this field. The table below shows a percentage of the total number of final year students.

Table 17: Percentage of total numbers of final year students.

	Spring 2010	Fall 2010	Spring 2011
College of Engineering	33	25	28
Electrical	0	0	0
Civil	0	0	0
Mechanical	100	75	83

Standard 5: Student Administration and Support Services

Administration of admissions and student record systems must be reliable and responsive, with confidentiality of records maintained in keeping with stated policies. Students' rights and responsibilities must be clearly defined and understood, with transparent and fair procedures available for discipline and appeals. Mechanisms for academic advice, counselling and support services must be accessible and responsive to student needs. Support services for students must go beyond formal academic requirements and include extracurricular provisions for religious, cultural, sporting, and other activities relevant to the needs of the student body.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard	Is this true? Y/No/N A	How well is this done? (enter stars)
O Student Admissions Student admission processes must be reliable, efficient and simple for students to use. - The admission and student registration processes are efficient and user friendly for enrolling students. - Computerized systems used for admission processes are linked to data recording and retrieval systems. (For example to fee payment requirements, the issue of student identity cards, program and course registrations, and statistical reporting requirements.) - Admission requirements are clearly described, and appropriate for the institution and its programs. - Admission requirements are consistently and fairly applied. - If programs or courses include components offered by distance education, or use of e-learning in blended programs information should be provided before enrolment about any special skills or resources needed to study in these modes. (For distance education programs a separate set of standards that include requirements for that mode of program delivery are set out in a different document, <i>Standards for Quality Assurance and Accreditation of Higher Education Programs Offered by Distance Education</i>. - Student fees, if required, are paid at the time of registration unless deferral has been approved in advance. - If the institution's regulations provide for deferral of payments, the conditions and dates for payment are clearly specified in a formal agreement signed by the student and witnessed, and opportunities for financial counselling provided. - Student advisors familiar with details of course requirements are available to provide assistance prior to and during the student	Y	3.5
	Y	3.8
	Y	3.7
	Y	3.7
	N/A	
	Y	3.6
	N/A	
	Y	3.2

registration process. ▪ Rules governing admission with credit for previous studies are clearly specified. ▪ Decisions on credit for previous studies are made known to students by qualified faculty or authorized staff before classes commence. ▪ Complete information about the institution, including the range of courses and programs, program requirements, costs, services and other relevant information is publicly available to potential students and families prior to applications for admission. ▪ A comprehensive orientation program is available for commencing students to ensure thorough understanding of the range of services and facilities available to them, and of their obligations and responsibilities.	Y	3.2
	Y	3.3
	Y	3.8
	Y	3.8
		3.56
Overall Assessment Comment: <i>Registration / Admissions Policies and Procedures are comprehensive and complement the modes of application, Via Web application, Appointments and Walk- in options.</i> • Appendix 5.1.1a • <u>www.pmu.edu.sa/registration</u> <i>Banner, advanced computerized system is highly functional, for all statistical reporting. Options afford streaming to user specifics. Applications are user friendly with security request fields authorized centrally.</i> <i>Regular training sessions scheduled for all staff to improve skill and knowledge of the system in operation to remain ongoing)</i> <i>Step by step requirements detailed in the Policy and available made in hardcopy. The document is also posted on the Website for instant user information.</i> • <i>Enrolment Policy appendix 5.1.3a</i> <i>Established policies and procedures provide for a consistent and fair service to all applicants. Conditional acceptance allows for extra flexibility especially for overseas applicants</i> <i>Enrolment Policy as referenced 5.1.3a</i> <i>The Admissions Policy stipulates all fee procedures. This is strengthened with written terms & conditions that accompany every acceptance letter. Staffs provide a verbal face to face explanation during the physical admission process. Followed by signature of the candidate or guardian.</i> • <i>Terms & Conditions appendix 5.1.6a</i> <i>The institution does not offer a payment deferral option as the long standing regulations regarding fees work very well for the institution and provide ample options for our students. This includes for sufficient time span to receive payments and the option of a three tier payment plan for those on a budget or</i>		

who wish to spread the costs. Our admission officers thoroughly explain all such procedures as part of the standard admissions process

Full collaboration between Admissions and Registrar offices; ensure that staffs are thoroughly familiar with all course details to assist with all possible enquiries from students.

- Study Plans, appendix 5.1.8

A criterion is established for credit transfer students. Procedures are formulated with set guidelines from start to finish. Document criteria comply with the MOHE standards.

- Credit Transfer appendices (5.1.9)

Standing Credit transfer committees per college meet, depending on timing of students' applications. Decisions are usually communicated before class commences.

- Criteria Transfer Criteria appendix 5.1.10

There are many opportunities for all to access necessary information pertaining to admissions. Most include fee information. (Appendices 5.1.11) as follows;

- Newsletter
- Brochures, flyers,
- Courses program (refer to website)
- www.pmu.edu.sa/enrolment
- Call Centre 800-123-234

A structured Orientation program that includes presentation, brochures and tour guide is offered to every new intake prior to the start of the semester. Repeated reference is provided to student through the presence of all academic and non- academic units. The Student Handbook is distributed to all students and a comprehensive brief in English and Arabic is given verbally, particularly the sections on expectations, rights and responsibilities in which it is made clear that students must adhere to campus code, and are encouraged to refer anytime to Student Affairs staff for guidance.

Priorities for improvement:

The Admissions Managers will revise the online application and guidelines and to include newly required fields in compliance with departmental needs as well as MOHE most recent requirements (Exact address, Exact HS address, HS stream, HS codes, and transfer institutions). Effective new admission season (2013-2014).

Contact with Banner training provider to provide additional training and customization of the system and of the reporting tools used. Effective Fall 2012/2013

Provision of a translated document including admissions procedures and requirements to be posted on the website for no English speaking visitors. Effective new admission season 2013/2014.

Develop a process of periodical admissions lists to be issued weekly and replace the individual admission process that is currently implemented. Effective new admission season 2013/2014.

Reassess the fee and refund policy acknowledgement form in a way that ensures the acknowledgement is signed specifically for the fees policy and a separate signature is reserved for the admission offer.

Comprehensive orientation for all new hired staff

Continuous staff development to be attended every semester, managed by Dean and Director

Admissions Manager to draft staff quality surveys develops a culture of self appraisal to identify areas of potential improvement Effective February 2013.

Provide Credit Transfer Policy to webmaster to be available on PMU website. Effective new admission season 2013/2014.

Communications of decisions about credit transfer to be assessed for increased efficiency to meet the goal of always communicate the transfer decisions on time. Changes to be implemented immediately, results monitored and assessed after each semester intake through the credit transfer form cycle.

*Frequently asked questions (FAQ) forum, to be made available online for the admission season
2013/2014.*

Independent Opinion

Comment **The student admissions process includes transcript review and placement testing to identify the appropriate level of entrance into the PMU academic program.**

O Student Records

Student records must be maintained in a secure and confidential location, with automated processes for generation of statistical data needed by the institution, external reporting requirements, and generation of reports on student progress and achievements. The confidentiality of individual student information should be protected.

Effective security is provided for student records. (Central files containing cumulative records of student's enrolment and performance should be maintained in a secure area with back up files kept in a different and secure location, preferably in a different building or off campus).	Y	3.5
Formal policies establish the content of permanent student records and their retention and disposal.	Y	3.2
The student record system regularly provides statistical data they require for planning, reporting and quality assurance to departments, colleges, the quality center and senior managers.	Y	3.0
Clear rules are established and maintained governing privacy of information and controlling access to individual student records.	Y	3.5
5.2.5 Automated procedures are in place for monitoring student progress throughout their programs.	Y	3.4
5.2.6 Timelines for reporting and recording results and updating records are clearly defined and adhered to.	Y	3.5
5.2.7 Results are finalized, officially approved, and communicated to students within times specified in institutional and Ministry regulations.	Y	3.5
	Y	3.6
5.2.8 Eligibility for graduation is formally verified in relation to program and course requirements.		
Overall Assessment		3.4
Comment: <i>Paramount security is provided to student records. Kardex storage and retrieval system is secure and fire protected. Dedicated records office only accessed via Student Record staff, Dean and Director. A log files in operation to track all users and all retrievals. Mandatory document information is required to make up a complete file. Duplicate and full back up system of all files is located electronically off site.</i> <i>Student records appendix 5.2.1a</i> <i>Sample log file appendix 5.2.1b</i> <i>Kardex system information appendix 5.2.1c</i> <i>The Registration Policy governs the regulations on retention and disposal of records. Staffs strictly follow particulars of the policy appendix 5.2.2a. As per previous standard nine mandatory documents makeup the content of a student file.</i> <i>Registration Policy Appendix (5.2.2a)</i> <i>The records system is operational through Banner, requests made to Banner Administrator for detailed information, generated within 24 hours. Data analysis, statistics and reports is made & a report is produced for institutional reference. A reporting tool to view specific data is provided to senior management to monitor data directly through the network. The tool provides preset parameters and is called Executive Reporting Tool (ERT)</i> <i>Enrolment statistical report and the use of Banner appendices 5.2.3a</i>		

&b

Security/privacy measures previously mentioned in standard 5.2.1, and additional measures taken by records officers, manage the upkeep of student files. Specified forms must be filled to have any inquiry investigated. Private information must be authorised by the Dean/Director of SA, authorised access must be dated and signed at the opening and closing of individual records.

- Inquiry forms (appendix 5.2.4)

Student academic standing is available through banner. The Registrar's offices frequently impart requests and information with faculty to monitor student progress. Report on attendance is provided by faculty to the Registrar's office at stipulated times, The Registrars duty to inform students in a timely manner regarding outstanding concerns. Process is efficient and effective.

- Students progress report & academic performance (appendix 5.2.5)

Final grade roster sheet and the Division Calendar prepared in advance regulate the reporting and update of student records. Faculty supply the data to the Registrar's office, Registration Officers process the information on Banner according to specific timelines, and in-turn the system is automatically updated with the new information, ready for use. Timelines are always adhered to as the importance of this procedure is acknowledged by all.

- Sample grade roster sheet (appendix 5.2.6a)
- Calendar (appendix 5.2.6b)

Students are notified of their results in good time through Banner Self Services. Approval is always finalized through the chairs of departments and the University Registrar. All procedures comply with the Institution and Ministry's regulations.

- Sample Ministry's regulations (appendix 5.2.7a)

The graduation procedures and application package is a reference enclosing guidelines for students and staff to formally validate entitlement for graduation. The 16 step procedure is applied in two parts, during the semester and at the end of the semester.

- Graduation Kit (appendix 5.2.8)

Priorities for improvement:

More efficiency required in the update of student records, Assign individual registrar with the assistance of a secretary to manage this system with set targets to be met each month. A systematic approach of immediate and prompt filing of documents to the individual files is required. To that effect 2 additional student record staff is to be hired in the Spring of 2013 to facilitate the compliance to this requirement on both campuses.

Continuous induction workshop provided to newly hired staff and

implementation of the “Acknowledgment of the Privacy Policy Form” with all staff.

Independent Opinion

Comment **Student records are maintained in hard copy and backed up in secure soft copy formats on and off campus. There are no processes for generating student data needed by PMU programs in a timely and efficient manner. Most programs expressed frustration in accessing data on student records.**

o Student Management

Policies and regulations must be established for fair and consistent process student management, with effective safeguards for independent consideration of disputes and appeals.

- A code of behaviour is approved by the governing body and made widely available within the institution specifying rights and responsibilities of students.
- Regulations specify action to be taken for breaches of student discipline including the responsibilities of relevant officers and committees, and penalties, which may be imposed.
- Disciplinary action is taken promptly, and full documentation including details of evidence is retained in secure institutional records.
- Student appeal and grievance procedures are specified in regulation published, and made widely known within the institution. The regulations make clear the grounds on which academic appeals may be based, the criteria for decisions, and the remedies available.
- Appeal and grievance procedures protect against time wasting on trivial issues, but still provide adequate opportunity for matters of concern to students to be fairly dealt with and supported by student counselling provisions.
- Appeal and grievance procedures guarantee impartial consideration by persons or committees independent of the parties involved in the issue, or who made a decision or imposed a penalty that is being appealed against.
- Procedures have been developed to ensure that students are protected against subsequent punitive action or discrimination following consideration of a grievance or appeal.
- Appropriate policies and procedures are in place to deal with academic misconduct, \
- Including plagiarism and other forms of cheating.

Y

3.3

Y

3.0

Y

2.6

Y

3.3

Y

2.6

Y

3.0

Y

2.6

Y

3.0

Overall Assessment

2.92

Comment:

A detailed orientation program is provided to students before the start of the semester, a fully comprehensive presentation in both Arabic and English is given. Students are informed of their rights and responsibilities. The Student Handbook also available on the website and it provides a clear code of behaviour with relative sanctions to be imposed in the incidence of misconduct

- *Orientation Presentation*
- *Student handbook*
- *Detailed Policies and Procedures Manual*

In addition to the measures taken in standard 5.3.1, The Campus Life supervisor will organize a committee to preside over stipulated cases and in president one. The relevant parties are informed and advised at each stage of the investigation. Guidelines allow for modifications to the process and applications of sanctions to a less or more degree. Students reserve the right to appeal or re-appeal the conditions or decisions of a general appeal to the Rector and to the Vice Rector for grade appeals as described in Policies & Procedures (P&P).

- *Campus life Policies & Procedures (appendix 5.3.2)*

As a form of mediation to all incidents, especially with critical female issues, the Division has decided to involve the Counsellor(s) to provide objective yet reassuring assistance to secure independent reports with evidence (if available) from all concerned parties. This is formatted to hard and soft copies stored in a secure designated soft file for future reference. This is presented to the committee who will then request for the presence of individuals to determine the case. A decision for disciplinary action should be reached within 7 days.

- *Incident report form (appendix 5.3.3a)*
- *Sample of hearing minutes*
- *Sample of decision notification.*

Regulated by the department of Campus Life, the Code of Student Conduct and Campus Regulations are published rules and regulations that make clear the grounds for academic appeals and the criteria for decisions and remedies. These are widely known within the institute and are available on the web site and in the Student Handbook. For more details on process refer to P&P document.

- *The Code Of Student Conduct (appendix 5.3.4a Student Hand Book)*

Students are provided the right to make an application for grade/ grievance appeal. They are offered the privilege of free advice from the resident counsellor(s). The Division realizes its responsibility in helping the students to understand the serious nature of these procedures, not to depend on such actions to attain desired results. The current measure to guard against trivial pursuits is by way of a 500sr fee applicable only to academic grade appeals. This charge is refundable if the appeal is approved.

- *General appeal & Grade appeal forms (Appendix 5.3.5a & b)*

Measures currently in place that protect students from any future reprisals do not go far enough. Progress is still developing in the direction of increased communication between the Division and other departments & colleges of the institution.

- *Appeals procedures under Campus life (appendix 5.3.7a)*

The Student Handbook comprehensively covers the many forms of academic misconduct and dishonesty. The policies and procedures are explicitly explained with sanctions to be applied relative to the form of misconduct. Aside from the pre-described misconducts the Division is moderately prepared for unprecedented forms of misconduct. The procedures will be modified to meet the needs of the case. We consider that one of our main duties of support for our students is to help them realize their optimal potential to achieve their best, and with this, students should continually be reminded of their accountability and responsibilities they have agreed to undertake.

Priorities for improvement:

To increase student awareness on campus wide affairs, information will permeate the institution via various mediums. Campus Life should coordinate a series of campaigns to reinforce awareness on campus, particularly among evening students. Applicable Spring 2014.

Refinement of procedures is necessary. A new version has been introduced by the Division and is in the process of approval from PMU Management. This is due for implementation in Spring 2014.

All members of staff to provide information to continually update; Policies & Procedure document

Hand book and Policies to be continually updated to meet the increasing and varying forms of misconduct.

Formalized policies to protect student identity are not advanced and are to be developed for specific sensitive cases.

Independent Opinion

Comment <u>A student handbook is available in hard copy and on the campus website. Entering students receive orientation on expected student behavior.</u>		
O Planning and Evaluation of Student Services		
Effective processes must be established for the planning, administrative oversight and evaluation of student services and activities.		
5.4.1 The range of services provided and the resources devoted to them reflect the mission of the institution and any special requirements of the student population.	Y	2.8
Formal plans are developed for the provision and improvement of student services and the implementation and effectiveness of those plans is monitored on a regular basis.	Y	1.2
A senior member of teaching or other staff is assigned responsibility for oversight and development of student services.	Y	
The effectiveness and relevance of services is regularly monitored through processes which include surveys of student usage and satisfaction. Services are modified in response to evaluation and feedback.	Y Y	1.8
Adequate facilities and financial support are provided for the services that are needed.		
If services are provided through student organizations, assistance is given in management and organization if required, and there is effective oversight of financial management and reporting.	Y	2.6
If student newspapers or other student documents are published there are clear guidelines defining publication standards and editorial policy and the extent and nature of oversight by the institution.	Y	1.5
Overall Assessment		2.01
Comment:		
<i>One of the missions of the department is to inspire and encourage students to make the most of the campus facilities. These aspirations echo the mission of the institution who places strong emphasis on leadership and opportunities to aid the core competencies.</i>		
<i>Increasing co / extra-curricular activities are being introduced to meet the demands of the student</i>		
<i>population;</i>		
<i>List activities for both male and female (Appendix 5.4.1)</i>		
<i>The Student Council voices student concerns directly to the division of Student Affairs, to the vice rectors and to the office of the Rector. Annual surveys also help assess the services and needs in order to incorporate improvements geared more specifically.</i>		
<i>Sample Annual Survey Appendix (5.4.2)</i>		
<i>The Annual Satisfaction Survey is a major assessment process that evaluates</i>		

the overall student experience at PMU. It is administered every spring, close to the end of the semester, to allow enough time throughout the year for the students. This helps to observe and evaluate the student life conditions at PMU.

- *Full Annual Satisfaction survey (appendix 5.4.4)*

Growing funds are being allocated to the services provided;

- *Smart ID cards with top up subsidy to aid convenience for students*
- *Purchased new lockers*

The Student Organization Mandate offers a complete system of operations. The SA Division has proven to be a pillar of strength in the assistance and support to the Organization. The Mandate, drafted and finalized by the Division for the sole purpose to encourage and increase positive campus activities, will be the central hub for student's involvement and participation of campus wide functions. Financial direction and presentation sufficiently meet the required standards.

- *Student Counsel Mandate (appendix 5.4.6)*

Student publications such as the Desert Voice (male) and the Desert Rose (Female) newsletters are standardised, edited and governed by the SA Divisions Printed Material and Website Committee (PMWC) and developed by the Readers & Writers student club at PMU. The Committee oversees all the Divisions published materials for quality and editorial format to conform to their bylaws, policies & procedures in co-ordination with the professional graphic design services available on campus.

- *PMWC bylaws and policies (appendix 5.4.7)*

Priorities for improvement:

To speed up progress committees will be elected to assess the outstanding issues and supply solutions to remedy them. Time is important for the effect so regular proposals will be made with a time frame set for works to begin process.

Schedule Student General Assembly once every semester to ensure students express their concerns & suggestions directly. Effective immediately.

- *Increase the frequency of targeted surveys monthly.*
- *Introduce suggestion boxes for students regulated by the Student Council in coordination with the CL team.*
- *Provide guided options on surveys to afford student choice and empowerment*
- *Build clear corrective actions based on the analysis of the Annual Satisfactory Survey.*

Student services staff to be responsible for assessing the required services needed to be proposed in good time to the appropriate departments and management. Take more initiation to provide the students what they need and will be accountable to meet deadlines.

- *Allocate budget for Student Services improvement.*
- *Assign locations for student clubs.*
- *Increase the capacity of Student Affairs offices to house to house additional staff for student services.*

Campus Life team is to develop a plan giving support to student organization roles in facilitation of activities and services.

Allow more autonomy to students who will be obligated to meet these standards.

Independent Opinion

Comment **Student services are evaluated by student questionnaires.**

5.5 Medical and Counselling Services

Medical and counselling services appropriate for the needs of the student population must be provided by individuals fully qualified for their responsibilities, with confidentiality maintained and effective follow up processes used for students in need.

5.5.1 Student medical services are staffed by people with the necessary professional qualifications.

- Medical services are readily accessible with provision made for emergency assistance when required. (Fees for services may be charged and they may be provided on a part time basis but emergency access must still be available)
- Provision is made for academic counselling and for career planning and employment advice in colleges, departments or other appropriate locations within the institution.
- Personal or psychological counselling services are made available with easy access for students from any part of the institution.
- Adequate protection is provided, and supported by regulation or a code of conduct, to protect the confidentiality of personal issues discussed with teaching or other staff or students.
- Effective mechanisms are established for follow up to ensure student welfare and to evaluate quality of service.

Y

0.3

Y

1.8

Y

2.6

Y

2.7

Y

2.8

Y

2.8

Overall Assessment

2.17

Comment:

The provision of qualified medical staff does not meet the institutions requirements. This remains a priority for the division who are currently revising measures to manage this essential service. Due to the limited resources available it has been proposed that qualified medical practitioners be appointed. Medical facilities are also planned to be offered at the campus

housing complex, construction to be completed by 2012-2013.

Accessibility of medical services facilitates a good provision of emergency assistance when required. Fees are not applicable

Student Counsellors provide academic counselling and advice to all students of the Institution. The robust monitoring stages in operation provide for an advantageous mechanism to alert signs of students at risk. The monitoring of our students is a collective team effort apportioned by the Counsellor(s), Faculty members and the student academic support centre (SASC).

- Procedural steps refer to appendix 5.5.3a.

Careers Counsellor(s) offer services to students of all colleges and majors. This includes the following:

(Appendix 5.5.3b)

- Internship placement
- Mock interviews, dos and don'ts in an interview (workshops)
- Workshops to co-ordinate with the Humanities and Business colleges related to professional Communication and work ethics and CV clinic.

- Guest speakers invited to talk about employer expectations
- Part-time and summer jobs available on campus

Careers Counsellors are actively responsible to facilitate senior students with Internship experience. Students are successfully placed and the employers' feedback response is substantially positive.

- (See appendix 5.5.3c KPIs) on the extent of services provided by the Career Counsellors.

Our services are designed to provide maximum support to students with a view to their academic goals. Personal and psychological counselling services are readily available between the hours of 8am and 4pm. Walk in and appointment system are both offered. Services are accessed externally. Students visits are high this suggest they do not face any difficulty accessing the services.

- Student welfare is sufficiently catered for even with limited facilities
- See Access section on Services : Healthcare & Counselling Policy
- Counselling Interview form (Appendix 5.5.4)

The Counselling Policy is sufficient in its mission for the department. Its regulations incorporate the essential requirements pertaining to confidentiality and privacy of personal issues exchanged. Client information will never be compromised without written consent.

- See section on Counselling Policy (Releasing of information)

Counsellors always encourage clients to return for further engagement and welfare follow up. This has created strong bonds with the students.

- See Counselling Policy : see section on client evaluation of services

Priorities for improvement: <i>Recruitment drives to employ qualified medical practitioner to provide the necessary, essential primary care to all as well as 2 nurses to cover for evening shifts.</i> <i>Staffing requires employment of additional nurses to cover extended evening hours.</i> <i>Measures to be introduced include</i> <i>An extensive Leadership program</i> <i>A Career services library</i> <i>An Internship orientation program.</i> <i>The Code of conduct to be detailed and a release of a new version is due in 2013.</i> <i>Surveys conducted more frequently based on specific services/ information or workshops to increase quality of client care and thorough engagement.</i> Independent Opinion		
Comment <u>The Student Affairs office organizes personal and professional counseling services for students. There are medical clinics on the male and female sides of the campus that are staffed by a nurse. An ambulance is available for transportation to a local hospital in case of serious emergency.</u>		
O Extra-curricular Activities for Students Adequate provision must be made for extra curricula activities for students - Opportunities are provided for participation in religious observances consistent with Islamic beliefs and traditions. - Arrangements are made to organize and encourage student participation in cultural activities such as clubs and societies and in the arts and other fields appropriate to their interests and needs. - Opportunities are provided through appropriate facilities and organizational arrangements for informal social interaction among students. - Participation in sports is encouraged, both for skilled athletes and for others, and appropriate competitive and non-competitive physical activities in which they can be involved are arranged. - The extent of student participation in extra-curricular activities is monitored and benchmarked against other comparable institutions, and where necessary strategies developed to improve levels of participation.	Y Y Y Y Y	2.8 2.2 2.0 2.4 0.8
Overall Assessment		2.04

Comment:

The institution offers good provision for students to observe their religious beliefs. The Male campus provides the facility of a mosque situated in front of the admin building. The Campus Life Department conducts timely cultural/religious events that provide ample opportunities for participation and observance of these traditions. The Female campus offer a number of prayer rooms on campus and LRC. The Islamic club provides activities for the enhancement of religious and cultural values. The club, under the supervision of the Arabic and Islamic studies Department and the Department of Campus Life, offers programs, campaigns, events and activities that promote values of a religious and cultural nature.

- *Male & female Student clubs: Referred to in appendix 5.6.1a&b*

Student Organizations are central to the Life on Campus at PMU. Such involvement is strongly encouraged by the institution, this helps to promote a congenial campus atmosphere, supported by the Department of Campus Life to reinforce values such as cultural friendship, scholarship, respect, cultural awareness, financial responsibility, development and community service.

- *List of student clubs (Appendix 5.6.1)*
- *See Student Organization information pack (5.1.6.a) also available on the PMU website*

Facilities for both the male & female campus are marginally identical; however the use of these facilities may differ. A constant flow of female students during break and free periods, compared to the males, who have the easy choice of leaving campus in their cars during free periods. Students are amply provided access to all areas of the campus; social areas such as the cafeteria and the coffee shops are often be-frequented by students who like to catch up between classes. Other areas on campus such as the atriums provide seating facilities to aid social interaction of students. Students are often chatting and interacting along the corridors and on green areas internal and external. The institution facilitates events to encourage campus life enrichment. The Student Council assumes the role of network facilitators on campus with the addition of the General Assembly that encourages and facilitate social events that have been very beneficial to student's informal social interaction.

Physical fitness and personal growth for our students are considered essential elements for their benefit of a truly wholesome campus experience. The sports centre provides adequate opportunities for sporting events, in which full participation is always encouraged. Incentives ranging from study aids to published recognition are often used to urge student involvement. Competitive International tournaments are held throughout the year for Karate, soccer and swimming for the skilled elite. (Male Campus). The female campus is recently organizing similar sports events and structured class & sessions, to promote physical wellness. Increasing participation is noted among female students. On campus non competitive activities are available throughout the semester. There is good provision for these arranged facilities.

- *See Campus Life Policy: Recreational activities & (5.6.4a-e*

Appendices)

- Student Organisation (list of policies)

Student participation of internal activities is regularly documented; announcements are made in advance giving students the opportunity to register early. Sign in sheets are filled.

Priorities for improvement:

- *Budget to be re-allocated per club or society*
- *Revision of the campus calendar*
- *Innovative planning to utilize space provided more efficiently, especially on the Female Campus. This includes a more systematic use of the cafeteria and the sports complex.*
- *Parameters to set goals of chosen benchmarks*
- *Document benchmarking processes to be used for future tournaments and events*

Provide awareness to all necessary parties of the process and desired outcome
Independent Opinion

Comment **A wide range of academic, professional co-curricular and athletic extracurricular activities for students has been organized by the Student Affairs office. Most co-curricular activities are conducted by faculty as part of their service contribution to PMU.**

Overall Assessment of Student Administration and Services

5.1 Student Admissions

5.2 Student Records

5.3 Student Management

5.4 Planning and Evaluation of Student Services

5.5 Medical and Counseling Services

5.6 Extra-curricular Activities for Students

Combined Assessment

Comment **The Banner (R) program in Student Affairs has excellent data on students from application to graduation. These data must be made more readily available in a form useful to PMU programs in a timely manner.**

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement

Standard 6: Learning Resources

POINT SCALE FOR RUBRICS

Good Practice in Provision of Learning Resources

0 stars	No policies and procedures are in place at this time to satisfy this outcome.
* (1) star	Informal policies and procedures have been implemented to satisfy this outcome.
** (2) stars	Some policies and procedures based on accepted best practices have been implemented to satisfy this outcome.
*** (3) stars	All policies and procedures based on accepted best practices have been implemented to satisfy this outcome.
**** (4) stars	All policies and procedures based on accepted best practices <i>and</i> recognized international standards have been implemented to satisfy this outcome.
***** (5)stars	All policies and procedures based on accepted best practices and recognized international standards have been implemented to satisfy this outcome. The PMU LRC / Library is an acknowledged leader in the creation of best practices that satisfy this outcome.

Good Practice in Provision of Learning Resources

6.1 Planning and Evaluation	Is this true? Y/N/NA	How well is this done? (enter stars)
Clear policies linked to educational requirements for the programs at the institution are established for the development of library and learning resources and support services.	Y	***
A learning resource strategy is developed which is directly linked to strategic priorities for program development, and adjusted as required as new programs are introduced.	Y	***
The adequacy of library and resource center materials is formally evaluated at least biennially.	N	
Evaluation procedures should include user surveys dealing with faculty and student satisfaction, extent of usage, consistency with requirements of teaching and learning at the institution, range of services, and comparisons of provision and user satisfaction with other comparable institutions.	Y	***
Evaluation processes include analysis of data on usage of resources in relation to teaching and learning requirements for different programs in the institution.	Y	**
Advice should be obtained from teaching staff responsible for courses and programs about requirements to support teaching and learning in sufficient time for appropriate decisions to be made.	Y	***

Reserve book collections and other reference materials should be regularly reviewed with advice from teach in staff to ensure adequate access to necessary materials for courses on offer at any time.	Y	**
Overall Assessment: 2.28 (2 stars) **		
Comment: Library planning policies are linked to the University Strategic Plan. The needs of the curriculum guide the Library collection strategies. The 2012 User Survey indicates that students and faculty are satisfied with the collection but want to see improvements.		
Priorities for Improvement: 1. Continue to increase the size of the collection particularly in the area of electronic reference resources.		
Independent Opinion Comment: The PMU program plan includes the Learning Resource Center as an integral part of its Mission and Vision. The LRC has major importance in inducting students into the academic programs at PMU. The TIEC developed system provides clear planning and detailed procedures for evaluation of teaching and learning using a variety of instruments.		

6.2 Organization	Is this true? Y/N/NA	How well is this done? (enter stars)
Library and resource centers and associated facilities and services should be available for extended hours beyond normal class time to ensure access when required by users.	Y	***
Collections should be arranged and catalogued according to internationally recognized good library practice.	Y	****
Agreements should be made for cooperation with other libraries and resource centers for interlibrary loans and sharing of resources and services.	Y	***
Reliable systems should be used for recording loans and returns, with efficient follow up for overdue material.	Y	****
Heavy demand and required reading materials should be held in a reserve collection.	Y	***
There should be reliable and efficient access to online databases and research and journal material relevant to the institution's programs.	Y	****
Rules for behavior within the library should be established and enforced to ensure maintenance of an environment conducive to effective study and research.	Y	****
Security systems should be used to prevent loss of materials and inappropriate use of the Internet.	Y	****
Overall Assessment: 3.57 (4 stars) ****		

Comment: The Female Library is now open an additional 8 hours per week. The Main Library continues to be open an additional 26 hours per week beyond normal class time.

Priorities for Improvement:

Develop formal cooperative agreements with other university libraries in the Middle East and Gulf Region.

Independent Opinion

Comment:

Library and resource centers are open at appropriate times and provide needed services to meet the expectations of the PMU community.

6.3 Support for Users	Is this true? Y/N/NA	How well is this done? (enter stars)
Orientation and training programs should be provided for new students and other users to prepare them to access facilities and services.	Y	***
Assistance should be available to help users in conducting searches and locating and using information.	Y	***
A reference service should be available through which in-depth questions are answered by qualified librarians.	Y	***
Electronic and/or automated systems with search facilities should be available to assist in locating resources within the institution and in other collections.	Y	***
Appropriate procedures should be used to keep users informed of library developments such as acquisition of new materials, training programs, or changes in services or opening hours.	Y	****
Printed or electronic guides should be available to help users find materials for popular subject areas, compiling reference lists or using databases.	Y	**
Library and resource centers should be staffed by sufficient people qualified and skilled in relevant fields of librarianship and information technology.	Y	***
Overall Assessment: 3.0 (3 stars) ***		
Comment: The Main Library was understaffed for most of AY 2011-12 which had some impact on reference services and bibliographic instruction.		

Priorities for Improvement: Subject guides and finding aids need to be placed on the website with continuous updates. The Library needs to create a presence on social media sites Facebook and Twitter.

Independent Opinion

Comment:

Users of resource centers are provided with training from knowledgeable staff. Access is facilitated by a self checkout system.

6.4 Resources and Facilities	Is this true? Y/N/NA	How well is this done? (enter stars)
Adequate and consistent budget provision is made for acquisitions, cataloguing, equipment, and for services and system development.	Y	***
The availability of online access and interlibrary facilities should not be used to reduce commitment to providing adequate physical resources on site.	Y	****
Adequate facilities should be provided to house collections in a way that makes them readily accessible.	Y	****
Copying facilities supported by efficient payment mechanism for users should be provided.	N	

Up to date computer equipment and software should be provided to support electronic access to resources and reference material.	Y	***
Facilities should be made available for using personal laptop computers.	Y	****
Books journals and other materials should be available in Arabic and English as required for programs taught and research undertaken in the institution.	Y	***
Facilities should be provided for both individual and small group study and research.	Y	****
The level of provision of facilities and resources should be benchmarked against good quality similar institutions and be adequate for the size on the institution and the programs offered.	Y	**
Overall Assessment: 3.0 (3 stars)		***
Comment: The facilities continue to be popular with students. However, the 2012 Library User Survey indicates dissatisfaction with the thin-client computers and the fact that copiers and printers are not provided for student user.		
Priorities for Improvement: Obtain copiers and printers for student use.		
Independent Opinion Comment: Print editions are available for the PMU faculty and students. There are numerous electronic library subscriptions, but subscribing to the Saudi Digital Library would greatly expand the electronic resources available.		

Overall Assessment Independent Opinion:

Learning resources are available and accessible both on the male side and female side of the campus. Subscription to the Saudi Digital Library should be pursued.

Standard 7: Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard

Is this
true?
Y/No/NA

How
well is
this
done?
(enter
stars)

7.1 Policy and Planning

Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.

7.1.1 Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution. **Coordinate w/ Dr. Des**

7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met. **Coordinate w/Antonio & Dr. Des**

7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule. **Coordinate w/Antonio**

Overall Assessment

Comment

Priorities for Improvement

Independent Opinion

Comment

7.1 Policies are in place for acquisition and maintenance of equipment needed by PMU programs.

7.2 Quality and Adequacy of Facilities and Equipment

Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.

7.2.1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.

7.2.2 Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.

7.2.3 Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, access to computing facilities and associated software, private study facilities, and research equipment.

7.2.4 Adequate facilities are available for confidential consultations between faculty and students)

7.2.5 Provision is made for students, faculty and staff with physical disabilities or other special needs. Coordinate with Dr. Des & Antonio

☐☐☐

Overall Assessment

☐

Comment

Priorities for improvement

Independent Opinion

Comment

☐

7.2 The evidence is that most equipment meets needed quality standards.

7.3 Management and Administration

Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.

7.3.1 A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.

☐☐

7.3.2 Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively

☐☐

carried out.

~~7.3.3 Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.~~

~~7.3.4 Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.~~

~~7.3.5 Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.~~

~~7.3.6 Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.~~

Overall Assessment

Comment

Priorities for improvement

Independent Opinion

Comment

7.3 The management of installed facilities is mostly in the hands of the programs. Utilization of certain services and facilities not in the programs is sometimes burdened by delays in acquisition and commissioning.

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed. [Link to Weekly ITD Classroom and Labs Report](#) (Print all links request for purchase and all reminder letters for Purchasing). Deployment of Banner Electronic purchasing module will enable us to move from 4 to 5.

7.4.2 Institutional policies governing the use of personal computers by students are complied with.

7.4.3 Technical support is available for teaching staff and students using information and communications technology. **University Help Desk system used to track and trace support request to successful resolution. Aging reports are required to move service level from 3 to 4. Action Plan 1** (See Appendix A) Summary: Evaluate cost effective commercial

Y	4

Y	5

Y	3

package solution for service desk software, point person is Abdulaziz. Recommendation to Eng. Yamani through CIO due by January 31, 2012.

7.4.4 Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.

Y

2

Action Plan 2 (See Appendix B) Summary: Part 1 is a faculty orientation program completed. [Link to presentation on faculty orientation](#); Part 2 conduct faculty survey. Link to survey instrument; Part 3 is work with Learning Resource Center to establish faculty forum for education equipment and software suggestions, input, discussion. CIO to coordinate with Director of LRC and College Deans not later than March 31, 2012. CIO and Team Lead of MIS to finalize faculty satisfaction survey not later than October 26, 2011.

7.4.5 Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses. Based upon 20 years in IT Services, current CIO believes the level of security at PMU is higher than any institution he has ever worked for and it suitable for financial institution such as Bank.

Y

5

7.4.6 Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately. Security system proactively monitors abuse of systems, log attempts to compromise security, and proactively disable access to system when abuse detected.

N/A

7.4.7 Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration. IT supports Learning Resource Center by providing subject matter expert trainer who participates in professional development for all employees (faculty and staff). Also IT supports the Student Affairs Division with student orientation and other training required to help students use systems and services. [Example of Student Orientation](#).

Y

4

Overall Assessment

3.83

Comment

Priorities for improvement

Independent Opinion

Comment

7.4 The campus including classrooms and teaching laboratories have excellent information technology infrastructure. The campus computer network is being upgraded to accommodate growing

demand.

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

7.2 Quality of and Adequacy of Facilities

7.3 Management and Administration

7.4 Information Technology

Combined Assessment Independent Opinion:

Comment

Facilities and infrastructure are either excellent or planned to be upgraded to meet program needs.

Independent Opinion

Comment

Indicators Considered

Priorities for Improvement

Appendix A: Action Plan for Commercial Service Desk System

Reference Question: 7.4.3 Technical support is available for teaching staff and students using information and communications technology.

ACTION PLAN FOR CONTINUOUS IMPROVEMENT:

Evaluate cost effective commercial package solution for service desk software, point person is Abdulaziz.

Mr. Abdulaziz to gather functional requirements, survey current market options to meet these requirements, select vendors for Request for Proposals (RFP), create and process RFP through ETA office.

Recommendation to Eng. Yamani through CIO due by January 31, 2012.

Appendix B: IT Governance for Instructional Technologies

Reference Question: 7.4.4 Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.

ACTION PLAN FOR CONTINUOUS IMPROVEMENT

Part 1: Faculty Orientation Program (COMPLETED September 2011)

Faculty orientation program completed to include coverage of the follow content areas.

Starting With 20 Minutes on the Basics

Who Do I Call When I Have A Problem?

One Stop Shop: X8888 Is Also the Number You Call for all Engineering and Technical Affairs (Which Includes IT and Facilities and Maintenance)

Demo of Outlook E-Mail, Web Site, Call! (2 Minutes)

Using My Computer from Work

Wired in Your Office (2 Minutes)

Wireless in Common Areas at Campus (2 Minutes)

Using a USB Flash Drive

Getting Access to the Local Network Server (2 Minutes)

Applications on My Computer - Faculty Laptops (2 Minutes)

Accessing the Required Documents through the Intranet (5 Minutes)

Introduction to IPT (10 Minutes)

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

10 Minutes: Using My Computer from the Compound

Getting Internet via STC or Mobily (5 Minutes)

Online Banking (5 Minutes)

5 Minutes: Getting and Setting Up My PMU E-Mail Account:

Outlook & Web Mail

My Banner Faculty Self-Service Account: Getting and Setting Up and Submitting Grades!

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

20 Minutes: My Banner Faculty Self-Service Account

Introduction to Banner (2 Minutes)

Login In to Faculty Self-Service for the First Time (2 Minutes)

Introduction to Your Self-Service Banner Session and Main Menu (4 Minute)

Introduction to Your Faculty Schedule (6 Minutes)

Detailed Schedule

Week at a Glance

Master Class Schedule

Start With the End in Mind: How to Submit Student Grades at the End of Semester in Banner (6 Minutes)

ITD-Classroom Services 4 PMU Faculties (1 Time for 1 Hr Long)

Two Groups - Male and Female (1 Hr Long)

Traditional 20 Minutes

Smart 20 Minutes

Enhanced 20 Minutes

Traditional Classrooms: 20 Minutes

Instructor Work Station
Projector
Smart Board & Promethean Active Boards (Female)
Smart Classrooms: 20 Minutes
Instructor Podiums
Projectors
Review after the Walk Through:
YouTube Playlist: Smart Classroom Basics at PMU
Google Presentation: Overview of Smart Classrooms at PMU
Enhanced Classrooms: 20 Minutes
Instructor Podiums
Projectors
Video Conferencing
ITD-College Blackboard for Beginners (ITD Will Be Doing 3 Times for 1 Hr)
ITD Will Be Doing Three Level I Sessions:
Getting and Setting Up
Accessing URL
Login
Changing password
Introduction to Syllabus, Hours, Assignments, Presentations
Later Topics Will Include:
Level II: Tracking Assignments & Grade Book
Level III: Assessments & Tests
Level IV: Working With Instructional Multimedia

Part 2: Conduct Faculty Survey.

DRAFT COMPLETED in October 2011 of IT Department Services at PMU Survey Instrument (Multiple Choice and Free From Responses). The following questions will be asked to ascertain satisfaction levels and to provide input for ongoing improvements in services delivered by ITD:

Academic Computer Services

- 1) I am kept well informed of IT matters important to faculty. [Code: ITD-1-001]
Satisfaction Level
- 2) PMU provides adequate technology equipment and software needed to do my job well
[Code: ITD-1-002] Satisfaction Level
- 3) Technology equipment in classrooms where I typically teach function adequately
[Code: ITD -1-003] Satisfaction Level
- 4) I am satisfied with the response from the ITD when I need help [Code: ITD -1-004]
Satisfaction Level
- 5) The IT system is up and running whenever I need it. [Code: ITD -1-005] Satisfaction
Level

6) IT delivers promised services in a timely manner [Code: ITD -1-006] Satisfaction Level

7) IT Services helps you use technology effectively [Code: ITD -1-007] Satisfaction Level

8) The IT services as a whole are valuable to me. [Code: ITD -1-008] Satisfaction Level
Sub-Category [Edit] [Add Question] [Move/Copy Questions] [Archive Questions]

General Support

1) Ability to get through to a person [Code: ITD -2-001] Satisfaction Level

2) Timeliness of initial response to your inquiry [Code: ITD -2-002] Satisfaction Level

3) Ability to solve a problem [Code: ITD -2-003] Satisfaction Level

4) Turnaround time for resolving your problem [Code: ITD -2-004] Satisfaction Level

5) How satisfied are you with problem resolution overall? [Code: ITD -2-005] Satisfaction Level

6) Regarding the Help Desk -- How do you rate the timeliness in getting requests filled? [Code: ITD -2-006] Satisfaction Level

1) How satisfied are you with the SPEED of PMU Webmail? [Code: ITD -3-001] Satisfaction Level

2) How satisfied are you with the FEATURES of PMU Webmail? [Code: ITD -3-002] Satisfaction Level

3) How satisfied are you with the EASE OF USE of PMU Webmail? [Code: ITD -3-003] Satisfaction Level

4) How satisfied are you with the RELIABILITY of PMU Webmail? [Code: ITD -3-004] Satisfaction Level

5) How satisfied are you with the amount of email storage space provided at no charge by PMU? [Code: ITD -3-005] Satisfaction Level

6) How satisfied are you with PMU email overall? [Code: ITD -3-006] Satisfaction Level

Calendaring

1) How satisfied are you with how the calendar performs on your mobile device? [Code: ITD -4-001] Satisfaction Level

2) How satisfied are you with how the calendar performs for importing or combining calendars from different devices? [Code: ITD -4-002] Satisfaction Level

3) How satisfied are you with how the PMU calendar performs overall? [Code: ITD -4-003] Satisfaction Level

Mobile Devices

Admin Imports Setup Survey Reports Help Database

- 1) Which of the following mobile devices do you currently use or intend to use within the next six months for work or study? iPhone? [Code: ITD -5-001]
Usage in next 6 months
- 2) Use iPad? [Code: ITD -5-002] Usage in next 6 months
- 3) Use iPod Touch? [Code: ITD -5-003] Usage in next 6 months
- 4) Use a Blackberry? [Code: ITD -5-004] Usage in next 6 months
- 5) Use Android device? [Code: ITD -5-005] Usage in next 6 months
- 6) Use Palm OS device? [Code: ITD -5-006] Usage in next 6 months
- 7) Use other cell phone with internet access? [Code: ITD -5-007] Usage in next 6 months
- 8) How important is it to have the following available on your smart phone or other mobile device? Email? [Code: ITD-5-008] Importance Level
- 9) PMU Directory on Smart Phone? [Code: ITD -5-009] Importance Level
- 10) Smart Phone -- Class schedules? [Code: ITD -5-010] Importance Level
- 11) Smart phone - Calendar? [Code: ITD -5-011] Agreement Level
- 12) How satisfied are you with using the following via your mobile device? Email? [Code: ITD -5-012] Satisfaction Level
- 13) Mobile device -- calendar? [Code: ITD -5-013] Satisfaction Level
- 14) Mobile device for public PMU websites and applications? [Code: ITD -5-014] Satisfaction Level
- 15) Which applications, if any, would you like to be more mobile-friendly at PMU? [Code: ITD -5-015] Long Answer

Telephone Services

- 1) How satisfied are you with these aspects of PMU telephone services -- Placing an order? [Code: ITD -6-001] Satisfaction Level
- 2) Order completion and delivery? [Code: ITD -6-002] Satisfaction Level
- 3) Problem resolution? [Code: ITD -6-003] Satisfaction Level

- 4) Voicemail? [Code: ITD -6-004] Satisfaction Level
- 5) How important would the following service and feature improvements be for your PMU work? Ability to schedule calls forwarding of your PMU work number through a web interface? [Code: ITD -6-005] Importance Level
- 6) Ability to set your office desk and cell telephones to ring simultaneously? [Code: ITD -6-006] Importance Level
- 7) Ability to set your office desk and cell telephones to ring sequentially? [Code: ITD -6-007] Importance Level
- 8) Delivery of voicemail messages and faxes to your email? [Code: ITD - 6-008] Importance Level
- 9) Ability to make or receive calls from your computer (Softphone)? [Code: ITD -6-009] Agreement Level
- 10) Ability to modify phone features through a web interface? [Code: ITD -6-010] Importance Level
- 11) How important will the following devices be to your work requirements within the next one to two years? [Code: ITD-6-011]
Importance Level
- 12) Importance of a WiFi VoIP phone that works only on campus? [Code: ITD -6-012] Importance Level
- 13) Importance of a cell phone used only for telephone calls? [Code: ITD -6-013] Importance Level
- 14) Importance of a Smart Phone (eg. iPhone, Blackberry, Android, Windows Mobile Device etc.)? [Code: ITD -6-014] Agreement Level
- 15) Importance of a Tablet Device (eg. Galaxy or iPad)? [Code: ITD -6-015] Importance Level

IT Services Priorities

- 1) Email [Code: ITD -7-001] Service Providers
- 2) Email lists/group discussions [Code: ITD -7-002] Service Providers
- 3) Calendaring (for your own calendar) [Code: ITD -7-003] Service Providers
- 4) Meeting/event scheduling with others [Code: ITD -7-004] Service Providers
- 5) Document sharing [Code: ITD -7-005] Service Providers
- 6) Instant Messaging [Code: ITD -7-006] Service Providers
- 7) Video storage/sharing [Code: ITD -7-007] Service Providers
- 8) Image storage/sharing [Code: ITD -7-008] Service Providers
- 9) Websites, blogs, wikis [Code: ITD -7-009] Service Providers

10) Of the external providers you use, which do you prefer? [Code: ITD -7-010] Service Providers

11) If there were a contract in place with PMU and Google or Microsoft that safeguarded your privacy and intellectual property, which one would you feel most comfortable using? [Code: ITD -7-011]

Service Providers

Remote Access

1) If you use PMU's VPN, SSL or client-based services for remote access, how satisfied are you with your ability to connect to them to get access to such things as your calendar or PMU folder? [Code: ITD -8-001]

Satisfaction Level

Security

1) Anti-virus/anti-spyware software is set to update itself automatically. [Code: ITD -9-001] Likelihood

2) Anti-virus/anti-spyware scanning of your hard disks is turned on [Code: ITD -9-002] Likelihood

3) Operating system updates are installed automatically. [Code: ITD -9-003] Likelihood

4) Application software updates (such as MS Office) are installed when available. [Code: ITD -9-004] Likelihood

5) Passwords changed every six months. [Code: ITD -9-005] Likelihood

6) Password is required to start/wakeup computer. [Code: ITD -9-006] Likelihood

7) Passwords include random combinations of letters and numerals. [Code: ITD -9-007] Likelihood

8) Hand-held devices such as iPhones will require a password. [Code: ITD -9-008] Likelihood

Sub-Category [Edit] [Add Question] [Move/Copy Questions] [Archive Questions]

Final Questions

1) What is one think IT Services could do that would make it easier for you to work or study? [Code: ITD -10-001] Long Answer

2) What are the two or three most important services IT Services provides you? [Code: ITD -10-002] Long Answer

3) What is one thing IT Services could do to improve the way it communicates about its services? [Code: ITD -10-003] Long Answer

4) Any added comments you may have for IT Services [Code: ITD -10-004] Long Answer

Part 3: Work with Learning Resource Center to establish faculty forum for education equipment and software suggestions, input, and discussion.

CIO and Team Lead of MIS to finalize faculty satisfaction survey not later than October 26, 2011.

CIO to coordinate with Director of LRC and College Deans not later than March 31, 2012.

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7. Facilities and Equipment (Overall Rating 3.83 Stars)

Facilities must be designed or adapted to meet the particular requirements for teaching and learning in the programs offered by the institution, and offer a safe and healthy environment for high quality education. Use of facilities must be monitored and user surveys used to assist in planning for improvement. Adequate provision must be made for classrooms and laboratories, use of computer technology and research equipment by faculty and student and appropriate provision made for associated services such as food services, extra curricular activities, and where relevant, student accommodation.

Explanatory note about administration of arrangements for planning, development and maintenance of facilities and equipment. This should include cross references to other more detailed facilities planning documents.

Description of process for investigation and preparation of report on this standard.

ITD Quality Team of of Member drawned from this Department. ITD collaborated closely with representatives of the Deanship of Quality Accreditation throughout the reporting process with particularly emphasis during self evaluation scale star rating and narrative writing processes.

List of Committee Members and meeting minutes are appended to this report.

[Copy of QC Minutes IT June 6.docx -](#)

[Inst SS Meet Mins - Fac Equip Dr. Dobe+ April 6.docx -](#)

[Q C Meeting Minutes FAc Equip May 4.docx -](#)

[DQA Meeting Minutes ITD Oct 8, 2011.docx -](#)

[DQA Meeting Minutes ITD Oct 5, 2011.docx](#)

[DQA Meeting Mins ITD Sept 28, 2011.docx -](#)

Self Evaluation Scales for Higher Education Institutions

**National Commission for Academic Accreditation
& Assessment**

Self Evaluation Scales for Higher Education Programs

February 2010

Self Evaluation Scales for Higher Education Programs

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Self Evaluation Scales for Higher Education Programs

Introduction

These self evaluation scales are intended to provide guidance to program administrators and staff in higher education institutions in their planning, self-review, and quality improvement strategies.

Evaluations of quality in post secondary education are made with reference to generally accepted standards of good practice that serve as criteria for evaluative judgments. This document draws attention to practices that are commonly followed in high quality institutions and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia. The scales call for responses to indicate if those practices are followed and if so how well this is done.

The National Commission for Academic Accreditation & Assessment has been established by the Higher Council of Education in Saudi Arabia with responsibility to establish standards and accredit institutions and programs in post secondary education.

The system for quality assurance and accreditation is designed to support continuing quality improvement and to publicly recognize programs and institutions that meet required quality standards. The objective is to ensure good international standards in all post secondary institutions and in all programs offered in Saudi Arabia.

Students, employers, parents and members of the community should be able to have complete confidence that what has been learned by students, the research conducted, and the services provided are equivalent to good international practice. Accreditation of an institution or a program will give public recognition that these standards have been achieved. Saudi Arabian qualifications should be accepted without question anywhere in the world.

This document provides self evaluation scales dealing with standards for higher education programs. The standards apply to all programs in public and private universities and colleges, including those responsible to the Ministry of Higher Education and to any established or regulated by other ministries or agencies. The only exception is for military education which is administered under different arrangements.

The standards and self evaluation scales for programs have been presented in generic terms that are applicable to all programs. Separate documents that draw attention to specific requirements for certain fields of study are in preparation and details of these can be obtained from the NCAAA.

There is considerable variation in the amount of experience that higher education institutions have had with quality assurance processes and the system of higher education is expanding rapidly. In recognition of this the system for accreditation will be introduced progressively over a transition period of several years. During this time institutions that are well advanced with the introduction of quality assurance systems will be considered first, and others will be evaluated and accredited as their internal quality assurance systems are put in place.

The Commission has developed a set of standards for quality assurance and accreditation of higher education institutions in eleven general areas of activity.

1. Mission Goals and Objectives
2. Program Administration
3. Management of Program Quality Assurance
4. Learning and Teaching
5. Student Administration and Support Services
6. Learning Resources
7. Facilities and Equipment
8. Financial Planning and Management
9. Employment Processes
10. Research
11. Relationships With the Community

These standards are based on what is generally accepted as good practice in higher education throughout the world and adapted to the particular circumstances of higher education in the Kingdom of Saudi Arabia.

The standards are described with several levels of detail. First, there are general descriptions for each of the eleven major areas of activity. Second, these are broken down into sub-standards dealing with requirements within each of the major areas. Third, within each of those sub-standards there are a number of good practices that are carried out in good quality institutions. To evaluate performance in relation to the standards, an institution should investigate whether these good practices are carried out and how well this is done. The self evaluation scales have been prepared to assist in this process. In this document the groups carrying out the evaluations within the institution are asked whether the particular practices are followed, and to rate the quality of these practices in the institution on a five point rating scale. Their judgments of quality MUST be based on appropriate evidence including at least some comparisons with other institutions on important items. The development of internal systems to provide that evidence is an essential requirement for an institution's quality assurance system. Unless adequate sources of evidence are available an institution cannot be considered for accreditation.

To be granted accreditation it is necessary for an institution to provide evidence of good quality performance in relation to all the eleven general standards and with all of the subsections of those standards. There is one exception. A college offering only undergraduate programs is not expected to have any significant involvement in research though teaching staff must have continuing involvement in scholarly activities in their field of study.

It is not expected that an institution or program will achieve a high rating for every "good practice" described within the sub-sections of the standards. They are not a simple check list, and items are not equal in importance. Their importance will vary according to the mission and objectives of the institution and its stage of development. However it is desirable that all are met and some are essential. In the initial stages of the introduction of the quality assurance and accreditation system the Commission will indicate a number of items to which special attention will be given. The judgment about whether accreditation should be granted will be an overall assessment by an experienced peer review panel taking account of the mission, objectives and stage of development of the institution and the priorities identified by the Commission.

A description of the eleven general standards is provided in this document together with some general explanatory notes and comments on possible performance indicators and kinds of evidence that could be considered in determining quality of performance.

Further guidance on the use of the standards for continuing monitoring of performance and preparations for accreditation is given in the *Handbook for Quality Assurance and Accreditation in Saudi Arabia* prepared by the Commission.

Relationships Between Standards for Institutions and Standards for Programs

General standards have been developed for higher education institutions and programs. They cover the same general areas of activity but there are some differences that reflect a total institutional overview on the one hand and the perspective of just one specific program on the other. In addition, some general institutional functions are not considered in a program evaluation.

Activities relating to the standards fall into three categories.

- Those that are institutional and have no impact or only very indirect impact on programs. Examples include the management of extra curricular activities or the attractiveness of buildings and grounds. These are not considered in looking at the application of the standards to programs.
- Those that are general institutional activities with a major impact on programs. Examples would be the provision of learning resources through a library or the processes for employment and promotion of staff. Evaluation of these functions in an institutional evaluation would be broad and consider the quality of management and services provided for the institution as a whole and how effectively they support all programs throughout the institution. In a program evaluation they would be considered from the perspective of the particular program concerned. For example a library might be very good in many ways, but not have the materials to support a particular program. In that case the provision of learning resources might receive a reasonably high rating in

an institutional evaluation but a low rating in an evaluation from the perspective of the program concerned in the program evaluation.

- Those that relate directly to the planning and delivery of programs. Examples would be the appropriateness of intended learning outcomes for students and the quality of teaching in the program. For an institutional evaluation these things should be looked at within all programs, and then a judgment made about strengths and weaknesses in the institution's programs as a whole with the possibility of identifying significant variations between different programs. In an institutional evaluation part of the consideration for teaching and learning should be the effectiveness of processes for ensuring all programs are of good quality, monitoring performance, and supporting improvements in all programs throughout the institution. An evaluation of learning and teaching for an institutional evaluation would normally be done by getting a profile of performance at the level of departments or colleges, and then preparing a report identifying similarities and differences and overall performance for programs in general.

In this document standards have been described dealing with the things that should be considered in relation to evaluation of a program. They include the matters described in the second and third of these categories.

Evidence of Performance

Judgments about quality based on general impressions could be accurate, but they could also be badly distorted for a number of reasons. Consequently general opinions without supporting evidence cannot be relied on in making assessments of quality in relation to specified standards. Because of this it is necessary to consider appropriate forms of evidence whenever a judgment is made about quality of performance in relation to standards.

What is appropriate evidence will vary widely for different things that are evaluated and an important element in any quality assessment is to decide on what kind of evidence is appropriate for the matter being considered.

In many cases several different forms of evidence should be considered to make a reliable judgment, and the evidence will need to be interpreted. For example high average grades in a course could mean that students have achieved very high standards because of excellent teaching. Alternatively they could mean that standards are low and grades have been inflated. To draw valid conclusions it would be necessary to check that tests were sufficiently rigorous and that criteria for allocating grades were appropriate and fairly administered.

Interpretations of evidence can also be unreliable, and to guard against this it is recommended that groups that undertake evaluations in relation to the standards include some people who have been involved in the activity concerned, some who are the recipients of the service provided (eg students, graduates or members of departments who use services provided by central administrative units or centers) and also some who are familiar with that kind of work, but are not directly involved in that service provision. As a further safeguard it is recommended that the final judgments be reviewed and an independent opinion given by someone who has not been involved in the initial evaluation as a check on whether the interpretations seem reasonable in the light of the evidence provided.

Performance Indicators

A wide range of kinds of evidence can be considered. However as part of the evidence to be used decisions should be made about some specific items of information that can be expressed in quantitative terms and used as performance indicators. These should be identified in advance as part of planning processes. For example when major goals or objectives are established specific indicators should be specified so achievement of those goals and objectives can be monitored on a continuing basis. It is also important for an institution to identify some key performance indicators that will be used consistently by departments and colleges throughout the institution to monitor their own performance, provide for comparisons of performance between departments and colleges, and permit university committees and senior administrators to monitor overall institutional quality on a continuing basis.

Data on these indicators should be collected in standard form and retained in a central data base so there can be comparisons within the institution and over time. An evaluation of the effectiveness of these processes

will consider whether appropriate indicators have been identified, whether the data is consistently collected and recorded, and whether the information is used in monitoring and analysing quality of performance.

It is the responsibility of every program to monitor and plan for improvement in relation to its own mission and objectives. However the Commission has also identified certain key performance indicators on which information should be collected in all institutions. This requirement has several important objectives. It provides a common set of statistical data that can be used by institutions and by those responsible for programs for comparisons of performance and benchmarking within their own institution and elsewhere within the country. (The Commission will publish information for groups of similar institutions, but individual institutional data will be confidential to each institution) It assists the Commission and other relevant Ministries and organizations in monitoring the quality of performance of the system of higher education as a whole, and it provides a sample of important information about institutions that makes it possible for the Commission to maintain accreditation of institutions in the interval between major external reviews.

These indicators established by the Commission should be used by institutions and program managers as part of their quality assurance processes, but they are also encouraged to add additional indicators which they select for themselves that relate to their own mission and objectives and their priorities for improvement.

Good Practices Relevant to More than One Standard

Within each standard and sub-standard a number of statements are made about things that should be done if the standard (or sub-standard) is being met. Many of these statements appear in several different places. This should not be regarded as unnecessary duplication, but rather as a result of the fact that a number of practices are relevant to more than one standard. For example, an expectation that teaching staff be involved on a continuing basis with scholarly activities that ensure they remain up to date is relevant to Qualifications and Experience of Teaching Staff (Standard 4. 8) and also to Personal and Career Development (Standard 9.3), and an expectation that standards of learning outcomes should be checked against the National Qualifications Framework and standards at other comparable institutions is relevant to the standard for Management of Quality Assurance and Improvement (Standard 3) and also to the sub-standards for Student Learning Outcomes (Standard 4.1) and Student Assessment (Standard 4. 4).

Application of the Standards to Different Types of Institutions.

The standards are designed for all higher education institutions, that is institutions offering programs described as higher education and leading to higher education qualifications in the National Qualifications Framework.

While the general standards for higher education institutions are the same for all there are some important differences in the circumstances of some types of institutions that affect how the standards should be applied.

- There are some differences in the regulations affecting public and private institutions, including some relating to borrowing, fee payments by students and financial management. Consequently some of the standards specified for these matters are not relevant to some institutions.
- There are expectations for universities relating to involvement in research and post graduate study. These should be reflected in the evaluations in standard 10 dealing with research. Although scholarly activities on the part of faculty should be encouraged in all institutions these requirements for research do not have to be met in private colleges that are not part of universities.
- Some institutions are involved in partnership arrangements with other institutions, either within or outside the Kingdom, under which certain elements of program planning and evaluation are shared. If such arrangements exist processes must be followed that ensure that quality is maintained and the requirements of the Saudi Arabian system are met.
- Some institutions offer programs by distance education. This different form of delivery changes the form of interaction between students and institutions and leads to additional requirements for program delivery and support. The special requirements for distance education programs are set out in a different document.

In the self evaluation scales attention is drawn to some of these differences. If a particular practice is not applicable to the institution concerned the item should simply be marked as not applicable (NA).

Notes on What Constitutes a Program

A program is regarded as an integrated package of courses and activities in an academic or professional field leading to a qualification. However organizational arrangements in institutions differ and there are sometimes questions about what should be considered as a program.

A program includes all of the courses a student is required to take, including courses that are required by an institution or a college as well as those required by a department, and including any general education programs as well as those in a professional or academic field. It includes courses that may be offered as service courses by another department or college.

A program offered on both men's and women's campuses is a single program and should be evaluated as such. However since there may be significant differences in facilities, resources, experience of faculty, employment of graduates or other matters evidence should be obtained about what happens on each campus and any differences noted and considered in planning what should be done in response. Program reports should show both the evaluations for each campus and a combined result.

A program offered on a remote as well as on an institution's main campus should be dealt with in the same way.

A program offered either on-campus or through distance education should also be evaluated in the same way, that is, information collected for each mode of delivery and reported in a way that shows any differences found. However there are a number of additional matters that relate to distance education and these must also be considered using the standards for distance education.

A program may have an early exit point, for example it may be possible for students to complete two years of study and receive an associate degree or to continue for several more years and complete a bachelor degree. If this is done it is essential that the associate degree be planned so that it provides a complete and useful qualification in its own right. For example it might include significantly more practical and applied work in the field than students would normally undertake in the first two years of a bachelor degree program. It is not acceptable for such an award to be granted simply because students fail or drop out after the early parts of a longer program.

The distinction between what is regarded as a single program or a cluster of related programs is difficult to define and may be best explained through examples.

A bachelors degree program to prepare a student as a civil engineer would be regarded as a different program from one to prepare a mechanical engineer, even though there may be some courses that are common to both. Similarly, if a student had completed the bachelors degree program and wished to take a post graduate program leading to a masters degree or a doctorate in the same general field, that would be regarded as a separate program. The test in these examples relates to there being a qualification that is regarded as being complete in itself, and in the case of a professional program, qualifying the person who has taken the program for professional practice in the field. The distinction does not necessarily relate to organization of an institution or college into departments. In the particular example given it is likely that a civil engineering department would offer both the undergraduate and the postgraduate programs. It would also be possible if an institution wished to organize itself in that way for a single department to offer programs in both civil and mechanical engineering.

The title of an academic award is not necessarily a useful guide to what should be regarded as a program. For example general titles such as Bachelor of Arts, or Business, or Science, could include many different programs. In an Arts degree there could be programs in history and or social sciences, in psychology, in social work, or many others. A Business degree could include separate programs for accountants, for economists, or for management and administration, and these would be different programs leading to quite different occupational skills.

The programs that have been used in these examples are separate entities, and will be accredited as such. However this does not prevent groups of related programs being considered together by an external review team in the accreditation process provided it is possible for external review panels to include the necessary expertise. A panel might consider an undergraduate and a post graduate program in the same field at the same time. However the institutions self study and the reports of the review panel will deal separately with each program and it would be possible for one such program to be accredited and not the other.

An equivalent set of standards has been developed for institutions offering post secondary programs in technical education and training. These standards differ from those for higher education institutions because of important differences in the nature of programs and the processes for program development and delivery. The standards for these institutions are set out in another document, *Standards for Accreditation of Technical Education and Training Institutions*.

Using the Self Evaluation Scales

High quality standards can only be achieved by honest evaluation of performance and commitment to improve, and by action planned and taken by those offering the program and providing the services on which it depends. In recognition of this teaching and other staff responsible for various activities should evaluate their own performance in comparison with generally accepted standards of good practice.. Although every effort should be made to form valid and reliable judgments based on evidence, a number of these evaluations will involve subjective judgments and to avoid an illusion of precision and discourage a misleading aggregation of total numbers in a single “quality score” it is recommended that a starrng system be used for rating these quality evaluations. It is expected that these self evaluation scales will be used by institutions and by those responsible for programs in their initial quality assessment, their continuing monitoring of performance, and in their more extensive periodic self studies prior to an accreditation review by the Commission.

In this document information about the standards is presented at two levels. The first is a general statement of the standard as it applies to a broad area of activity and the second is a description of why it is important and the kinds of processes that are expected if the standard is achieved.

This explanatory information is followed for each standard by a number of more specific statements of “good practices” that are typically carried out in a high quality institution with scales to indicate whether and how well the practice is followed.. The scales” are presented in groups that deal with major components or sub-sections of the general standards.

The lists of specific practices are intended primarily as a guide for those responsible for particular activities to draw attention to things that are generally regarded as good practice, and to assist them in their self-evaluations.

Some of these statements are relevant to certain institutions but not to others. Where an item is not applicable it should be simply marked NA, and ignored.

For each individual item two responses are called for. The first is to indicate whether the practice is followed in the institution. The possible responses are:

NA -- the practice is not applicable or relevant for the institution or unit making the response.

Y – yes, the practice is followed; or

N – no, the practice is relevant but not followed.

The second response is called for in cases where the practice is relevant to the institution (i.e. a “Y” or “N” response). It involves the use of a five-point rating scale to evaluate on a how consistently and how well the practice is carried out. Stars, rather than a numeric or alphabetic rating scale, are used for this purpose.

The evaluations relate to:

The extent and consistency with which processes are followed;

The quality of the service or activity as assessed through systematic evaluations;

The effectiveness of what is done in achieving intended outcomes.

Using Stars for Evaluations

Performance should be assessed by allocating from zero to five stars in accordance with the following descriptions:

Improvement Required

No Star – The practice is relevant but not followed at all. A zero should be recorded on the scale.

One Star – The practice is followed occasionally but quality of the activity is poor or not evaluated.

Two Stars -- The practice is usually followed but the quality is less than satisfactory.

Good Performance

Three Stars—The practice is followed most of the time. Evidence of the effectiveness of the activity is usually obtained and indicates that satisfactory standards of performance are normally achieved although there is some room for improvement. Plans for improvement in quality are made and progress in implementation is monitored.

High Quality Performance

Four Stars—The practice is followed consistently. Indicators of quality of performance are established and suggest high quality but with still some room for improvement. Plans for this improvement have been developed and are being implemented, and progress is regularly monitored and reported on.

Five Stars—The practice is followed consistently and at a very high standard, with direct evidence or independent assessments indicating superior quality in relation to other comparable institutions. Despite clear evidence of high standards of performance plans for further improvement exist with realistic strategies and timelines established.

Converting Survey Responses to a Starring System.

In a number of cases the individual items refer to evaluations of quality by students, faculty, or other stakeholders. The wording of survey instruments and items in rating scales can influence results significantly and interpretations of the data and independent verification of conclusions is important. However as a general guide where a five point rating scale is used with possibilities of positive and negative assessments evenly balanced, an overall rating from respondents to a survey might achieve star ratings as follows:

Above 4.5	Five stars
3.6-4.5	Four stars
2.6-3.5	Three stars
1.6-2.5	Two stars
1.5 or below	One star

Combining Ratings on Individual Items to Develop a Broader Evaluation

The quality ratings of specific practices can be combined to guide broader judgments about an institution's performance in relation to the groups of items that are shown as components of each general standard, or to each broad standards as a whole. This can be done by averaging the number of stars, ignoring the items marked NA and counting items where the practice is relevant but not followed as zero.

However the individual items are not necessarily of equal importance and if individual items are combined to form an overall assessment consideration should be given to weighting certain items more heavily than others and adjusting the overall rating accordingly. Space is provided on the forms to note when this kind of adjustment is made.

Aggregating Evaluations to Obtain an Institution-Wide Overview

The rating scales are presented in a form that enables them to be used for individual programs and aggregated to give an overview of the quality of programs for a college or for the institution as a whole. When aggregated in

this way the scales should assist in the conduct of an institutional self-study, and provide useful information for external review panels as they carry out their independent institutional reviews.

It is recommended that programs within a department or college be looked at together noting both similarities and any significant differences between them, and then at a second stage the reports on programs within colleges brought together to give an overall picture for the institution. It is possible in these processes to simply work out an average number of stars for various functions. However if there are significant differences the overall average is much less important than variations between programs or colleges. Consequently these variations should be identified and reported on, and considered carefully when suggestions are made for improvements.

Priorities for Improvement

An important outcome of the self-assessment carried out through the use of the rating scales is to identify areas for improvement. It is rarely possible to do everything at once and priorities have to be established. Space is provided on the forms to indicate particular items that are considered the highest priorities for improvement.

Indicators as Evidence of Performance

As far as possible evaluations should be based on direct evidence that practices are followed, and that desired levels of quality are achieved rather than general post hoc impressions. This consideration of evidence need not be a major undertaking but it does require some advance planning and selection of indicators that will be used as evidence of performance. The performance indicators should be specified in advance and data gathered and considered as part of continuing monitoring processes. (This does not preclude consideration of other evidence that may emerge) The document includes space for the selected performance indicators to be noted.

Expected Standards of Performance

It is not expected that every program will rate at the highest level on all dimensions of activity. That would be unrealistic, and setting up such expectations is not the purpose of the document. Instead it is intended to provide descriptive performance standards in many different forms of activity, so there can be a clearer basis for evaluation in relation to generally accepted standards of good practice. This is intended to help those responsible for programs in their self-evaluations and planning for improvement, and to help the institution as a whole to identify areas of relative strength and weakness, and to work towards improvement in spheres of activity that are considered priorities for development.

While the document is intended primarily to assist in evaluations and planning for improvement within institutions it also establishes levels of performance that are considered necessary for accreditation. For this purpose the basis of judgment will be at the level of the broader standards rather than the precise assessment of performance in relation to each individual practice. In general a one or two star rating on a standard is considered unsatisfactory and three stars is a minimum acceptable level of performance. However as noted above not all functions are of equal importance in accreditation judgments and the particular circumstances of an institution, and its strategies for development, will be taken into account.

Relative Importance of Different Standards

The point about some items in the rating scales being more important than others applies to the broader standards as well, and the relative importance will vary for different institutions. The place of research is a good example of this. In some institutions, particularly universities seeking international recognition the quality and extent of participation in research is vitally important and international ratings of universities give considerable weight to research performance. In others, such as a college concentrating on quality of undergraduate programs, research may be of little significance though it is still important that faculty participate in scholarly activities to ensure that their teaching is up to date with latest developments.

The quality of learning and teaching will always be of primary importance since this is normally the primary function of an educational institution. Satisfactory performance in relation to this standard is essential for accreditation.

Independent Verification of Evaluations

Although direct evidence of quality of performance should be obtained wherever possible, many of the judgments have to involve some subjective opinions. When self evaluations are made by an individual or a

group this can mean unduly harsh or overly generous assessments and some action should be taken to correct for this.

Provision is made in the scales for independent opinions to be given by a person familiar with the type of activity, but independent of those responsible for it, and whose judgment is respected. For many items during annual evaluations these independent opinions could be given by a person nominated by a dean or department head, such as a colleague from another department within the institution. For major judgments on important items, for example in a program self study prior to an external review for re-accreditation of a program, greater independence may be required.

Note on Terminology

The term **governing body** is used as a general descriptive title for the highest policy making body or committee in a post secondary institution. This would be the university council in a public university, or a board of trustees in many private colleges.

The term **rector or dean** is used in this document to refer to the head of an institution. Rector is the title normally used in Saudi Arabia for the head of a public university, and dean is typically used as the administrative head of a smaller institution or a private college. The term dean is also used for the head of a college within a university, and a private university or college may use other terms for the administrative head such as president or director. In this document reference is made to rector or dean, and it should be possible from the context of the reference to avoid confusion with the position of dean of a college within a university.

The term **teaching staff** has been used rather than “faculty” to refer to all individuals responsible for teaching groups of students. It includes faculty or equivalent members of staff as formally defined in Ministry regulations but also anyone else who has been given teaching responsibility. It includes tutors or instructors working with groups of students in a distance education or on-campus program, but does not include laboratory assistants or others who assist with the teaching of classes under the direct supervision of others.

Standard 1 Mission Goal and Objectives

The mission of the program must be consistent with that for the institution and apply that mission to the particular goals and requirements of the program concerned. It must clearly and appropriately define the programs principal purposes and priorities and be influential in guiding planning and action.

Main components in this standard:

- 1.1 Appropriateness of the Mission
- 1.2 Usefulness of the Mission Statement
- 1.3 Processes of Development and Review of the Mission
- 1.4 Use Made of the Mission Statement
- 1.5 Relationship between Mission, Goals and Objectives.

Comment and General Description of Good Practice

Effective and coordinated planning and development normally requires that a program have a succinct mission statement, summarizing in a few sentences what it is trying to achieve as a guide to detailed planning and development.

The mission statement should establish priorities for development and quality improvement and be key element in the quality assurance process. Consequently it should be prepared in a way that generates a sense of ownership on the part of all those involved with the program, be periodically reviewed as a major policy issue, and consistently referred to as a basis for planning and evaluation. It should be consistent with the charter establishing the institution, and realistic in relation to the capacity of the institution in the environment within which it is operating, but at the same time present challenges for development and improvement.

Goals should be thought of as applications of the mission to specific activities. They establish directions for detailed planning though they are usually expressed in general terms.

Objectives should be linked through strategic planning processes to the mission and goals They should be more specific and include intended results to be achieved within a stated time period.

This standard relates to the way the mission statement has been developed and is expressed, to its effectiveness in guiding the development of the program, and to the relationships between the mission and the goals and objectives.

Evidence and Performance Indicators

Evidence about the quality of the mission could be obtained from examination of the mission statement itself, copies of papers proposing the mission or modifications in it, interviews with teaching and other staff and students to find out how well it is known and supported, and consideration of other reports, proposals and statements to see the extent to which the mission is used as a basis for decisions. Indicators that could be used include responses to questions on surveys to see how well the mission is known and supported, or the proportion of policy decisions that refer to the mission among criteria for the decision made.

Standard 7 Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
7.1 Policy and Planning		
Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.		
7.1.1 Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution.	☐	☐
7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met.	☐	☐
7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule.	☐	☐
Overall Assessment		<input style="border: 2px solid black;" type="checkbox"/>
Comment _____		

Priorities for Improvement _____		

Independent Opinion		☐
Comment _____		

7.2 Quality and Adequacy of Facilities and Equipment

Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.

7.2.1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.	☐	☐
7.2.2 Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.	☐	☐
7.2.3 Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, access to computing facilities and associated software, private study facilities, and research equipment.	☐	☐
7.2.4 Adequate facilities are available for confidential consultations between faculty and students)	☐	☐
7.2.5 Provision is made for students, faculty and staff with physical disabilities or	☐	☐

other special needs.

Overall Assessment
Comment _____

Priorities for improvement _____

Independent Opinion
Comment _____

7.3 Management and Administration

Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.

7.3.1 A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.

7.3.2 Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively carried out.

7.3.3 Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.

7.3.4 Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.

7.3.5 Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.

7.3.6 Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.

Overall Assessment
Comment _____

Priorities for improvement _____

Independent Opinion
Comment _____

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed.

7.4.2 Institutional policies governing the use of personal computers by students are complied with.

7.4.3 Technical support is available for teaching staff and students using information and communications technology

7.4.4 Opportunities are available for teaching staff input into plans for acquisition and

replacement of IT equipment for use in the program.

7.4.5 Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses.

Y

5

7.4.6 Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately.

N/A

7.4.7 Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration

Y

4

Overall Assessment

3.83

Comment_____

Priorities for improvement_____

Independent Opinion

Comment_____

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

7.2 Quality of and Adequacy of Facilities

7.3 Management and Administration

7.4 Information Technology

Combined Assessment

Comment _____

Independent Opinion

Comment _____

Indicators Considered

Priorities for Improvement

Evidence of Process of Investigation



جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

Quality Center

Quality Center Meeting Minutes

Date: April 6, 2011

Topic: NCAAA Institutional Self Study

Participants: Facilities and Engineering: Dr. Dobe, Quality Center, R. Davis

Areas of discussion: Section H - 7 of Facilities and Equipment

- Review of Evaluation Scales – most pertinent pages
- Review of Standards with particular attention to key pages as marked on document
- Review of Scales and Self Study with attention given to pgs 5-5 of Scales for Star Rating, process for Scaling, and overview of the range covered in the whole of the H – 7 section
- Discussion of evidence trail
- NCAAA Institutional guidelines for access to NCAAA documents and call-outs for hard and soft copies

Tasks assigned (with target dates if given):

- May 4, 2011 as target completion date

Key Questions/Areas for follow-up (with responsible parties if assigned):

- Absence of Mr. Naimi for much of this cycle may require expansion of Facilities and Equipment Quality Committee



جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

Quality Center

Quality Center Meeting Minutes

Date: May 4, 2011

Topic: Facilities and Equipment

Participants: Dr. Dobe (Fac & Equip), Mr. Davis (QC)

Areas of discussion: Prepare electronic packets for Fac/Equip team, Process for completing Scales and SS Report, KPI's, Evidence binder (digitize flip-chart pages), submission process

Tasks assigned (with target dates if given):

- Fac & Equip Quality Team to continue processes

Key Questions/Areas for follow-up (with responsible parties if assigned):



Quality Center Meeting Minutes

Date: June 6, 2011

Topic: NCAAA KPIs and Inst Self Study Section

Participants: Dr. Dobe, Mr. Jessie (IT), Randy Davis (QC)

Areas of discussion:

- KPI's to infuse data into Self Study documentation and the KPI submission process
- IT and QC representative completing collaboratively the KPI document
- PMU and IT Strategic Plans review and integration into KPI report
- IT: "Total PMU Expenditures per PMU Student" QC liaised with Budget/Finance to procure Annual IT Expenditure Report and alerted Budget/Finance to other PMU entities needing same or similar reports asap.

Tasks assigned (with target dates if given):

- Team to complete KPIs this week
- On track to complete NCAAA Self Study Section by June 20

Key Questions/Areas for follow-up (with responsible parties if assigned):

- Concerns expressed regarding how to best complete the Facilities and Technical Equipment Self-Study section as Dr. Dobe is an IT specialist.



Deanship of Quality and Accreditation Meeting Minutes		
Date:	Sept 28, 2011	
Topic:	NCAAA Inst Self Study: ITD	
Participants:	Dr. Dobe (ITD), Randy Davis (DQA)	
Areas of Discussion:	NCAAA Inst Self Study Report/Self Evaluation Scales Star Rating Process Review (DQA KPIs & ITD Strategic Plan were completed in soft & hard copy Spring 2011): • ITD will continue with process by convening full teams to address Self Study Report Star Rating process • Particular attention given to obtaining full and well-informed input via review of Star Rating Criteria displayed in conference room with particular attention given to delineations between each level of Star Rating --- ITD to use Star Rating process as an opportunity to teach the required processes to ensure comprehensive input and participation in addition to developing a high level of understanding of overall processes & PMU, ITD policies and responses of ITD department • Particular attention given to full understanding of each sub-standard • Document gathering process, review of documents • Team input into Strengths and Areas Offering Room for Improvement Narratives • SMART Plans to remediate weaknesses • DQA representative to assist as requested by ITD in future processes	
Tasks assigned (with target dates if given):	ITD requests extension of deadline until Oct 15, 2011	
Key Questions /Areas for follow-up (with responsible parties if assigned):		



جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

Deanship of Quality and Accreditation



	Deanship of Quality and Accreditation Meeting Minutes	
Date:	Oct 5, 2011	
Topic:	NCAAA Inst Self Study: FAc/Equip (ITD Specific)	
Participants:	DR. Dobe and Mrs. Maazam, Abdulaziz, Alsghar, Garret and Mario (ITD), Randy Davis (DQA)	
Areas of Discussion:	NCAAA Inst Self Study: Section 7, FAc/Equip (ITD) • Review of Self-Eval Scales / Star Rating Criteria • Review of FAc / Equip Sections – noting areas for collaboration between LRC, Eng Antonio and ITD • Selected sub-standards that are ITD specific • Completed Star Rating, noted document collection to be completed, began Strength and Opportunities for Improvement Narratives, began Action Plans with Responsible Parties and Timeframes. • Process and Responsible Parties for soft and hard copy production.	
Tasks assigned (with target dates if given):	• Soft copy and hard copy of ITD specific sections and related sub-sections to be readied by Oct 15, 2011 per previous agreement	



	Deanship of Quality and Accreditation Meeting Minutes	
Date:	October 8, 2011	
Topic:	NCAAA Inst Self Study:	
Participants:	Dr. Dobe (ITD), Randy Davis (DQA)	
Areas of Discussion:	NCAAA Inst Self Study: Follow-up on Self Eval Scales meeting of Wed: • Hyper-Links • Action Plans	
Tasks assigned (with target dates if given):	• Mr. Mario to continue to print and bind hard copies. • ITD to complete Inst Self Study doc for submission	
Key Questions/ Areas for follow-up (with responsible parties if assigned):		



Deanship of Quality and Accreditation

Key Questions/ Areas for follow-up (with responsible parties if assigned):	Particular areas needing coordination between LRC/Dr. Rice and Eng. Antonio of Fac/Equip have been denoted for follow-up Team members have been appointed to particular Action Plans and will follow-up as required to ensure full process documentation and completion of planned processes.	

Standard 7 Facilities and Equipment

Adequate facilities and equipment must be available for the teaching and learning requirements of the program. Use of facilities and equipment should be monitored and regular assessments of adequacy made through consultations with faculty, staff and students.		
The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions		
Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)

1. Policy and Planning

Planning processes for the provision of facilities and the acquisition and maintenance of equipment must include consultation with program representatives to ensure clear specification of program requirements. Plans for provision must appropriately balance program requirements with institutional policies to ensure compatibility of systems and resources available.

1. Equipment acquisitions meet program requirements and are also consistent with institutional policies to achieve compatibility of equipment and software systems across the institution. **Coordinate w/ Dr. Des**

7.1.2 Teaching staff are consulted before major equipment acquisitions to ensure that current and anticipated emerging needs are met. **Coordinate w/Antonio & Dr. Des**

7.1.3 Equipment planning provides for acquisition, servicing and replacement according to a planned schedule. **Coordinate w/Antonio**

Overall Assessment

Comment _____

Priorities for Improvement _____

Independent Opinion

Comment _____

2. Quality and Adequacy of Facilities and Equipment

Facilities and equipment must be of good quality with effective strategies used to evaluate their adequacy for the program, their quality and the services associated with them.

7.2 1 Facilities meet health and safety requirements and make adequate provision for the personal security of faculty, staff and students.

1. Quality assessment processes include both feedback from principal users about the adequacy and quality of facilities, and mechanisms for considering and responding to their views.

2. Standards of provision of teaching, laboratory and research facilities are adequate for the needs of the program and benchmarked through comparisons with other comparable institutions. (This includes such things as classroom space, laboratory facilities and equipment, **access to computing facilities and associated software, private study facilities, and research equipment.**

3. Adequate facilities are available for confidential consultations between faculty and students)

4. **Provision is made for students, faculty and staff with physical disabilities or other special needs. Coordinate with Dr. Des & Antonio**

Overall Assessment

Comment _____

Priorities for improvement _____

Independent Opinion

Comment _____

1. ~~Management and Administration~~

~~Management and administration of facilities, equipment and associated services must be efficient and ensure maximum effective utilization of facilities provided.~~

- ~~1. A complete inventory is maintained of equipment used in the program that is owned or controlled by the institution including equipment assigned to individual faculty or staff for teaching and research.~~
- ~~2. Services such as cleaning, waste disposal, minor maintenance, safety, and environmental management are efficiently and effectively carried out.~~
- ~~3. Provision is made for regular condition assessments, preventative and corrective maintenance, and replacement.~~
- ~~4. Effective security is provided for specialized facilities and equipment for teaching and research, with responsibility between individual faculty, departments or colleges, or central administration clearly defined.~~
- ~~5. Effective systems are in place to ensure the personal security of faculty, staff and students, with appropriate provisions for the security of their personal property.~~
- ~~6. Arrangements are made for shared use of underutilized facilities with adequate mechanisms for security of equipment.~~

Overall Assessment

Comment _____

Priorities for improvement _____

Independent Opinion

Comment _____

7.4 Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

Y

4

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed. [Link to Weekly ITD Classroom and Labs Report](#) (Print all links request for purchase and all reminder letters for Purchasing). Deployment of Banner Electronic purchasing module will enable us to move from 4 to 5.

Y

5

1. Institutional policies governing the use of personal computers by students are complied with.

3

Y

2. Technical support is available for teaching staff and students using information and communications technology. University Help Desk system used to track and trace support request to successful resolution. Aging reports are required to move service level from 3 to 4. **Action Plan 1** (See Appendix A) Summary: Evaluate cost effective commercial package solution for service desk software, point person is Abdulaziz. Recommendation to Eng. Yamani through CIO due by January 31, 2012.

2

Y

3. Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program. **Action Plan 2** (See Appendix B) Summary: Part 1 is a faculty orientation program completed. [Link to presentation on faculty orientation](#); Part 2 conduct faculty survey. Link to survey instrument; Part 3 is work with Learning Resource Center to establish faculty forum for education equipment and software suggestions, input, discussion. CIO to coordinate with Director of LRC and College Deans not later than March 31, 2012. CIO and Team Lead of MIS to finalize faculty satisfaction survey not later than October 26, 2011.

5

Y

4. Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses. Based upon 20 years in IT Services, current CIO believes the level of security at PMU is higher than any institution he has ever worked for and it suitable for financial institution such as Bank.

N/AA/

5. Compliance with a code of conduct relating to inappropriate use of material on the internet is checked and instances of inappropriate behavior dealt with appropriately.

Security system proactively monitors abuse of systems, log attempts to compromise security, and proactively disable access to system when abuse detected.

4

Y

6. Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration. IT supports Learning Resource Center by providing subject matter expert trainer who participates in professional development for all employees (faculty and staff). Also IT supports the Student Affairs Division with student orientation and other training required to help students use systems and services. [Example of Student Orientation](#).

3.83

Overall Assessment

Comment _____

Priorities for improvement _____

Independent Opinion

Comment _____

Overall Assessment of Facilities and Equipment

7.1 Policy and Planning

7.2 Quality of and Adequacy of Facilities

7.3 Management and Administration

7.4 Information Technology

Combined Assessment

Comment _____

Independent Opinion

Comment _____

Indicators Considered _____

Priorities for Improvement _____

Appendix A: Action Plan for Commercial Service Desk System

Reference Question: 7.4.3 Technical support is available for teaching staff and students using information and communications technology.

ACTION PLAN FOR CONTINUOUS IMPROVEMENT:

Evaluate cost effective commercial package solution for service desk software, point person is Abdulaziz.

Mr. Abdulaziz to gather functional requirements, survey current market options to meet these requirements, select vendors for Request for Proposals (RFP), create and process RFP through ETA office.

Recommendation to Eng. Yamani through CIO due by January 31, 2012.

Appendix B: IT Governance for Instructional Technologies

Reference Question: 7.4.4 Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.

ACTION PLAN FOR CONTINUOUS IMPROVEMENT

Part 1: Faculty Orientation Program (COMPLETED September 2011)

Faculty orientation program completed to include coverage of the follow content areas.

Starting With 20 Minutes on the Basics
Who Do I Call When I Have A Problem?
One Stop Shop: X8888 Is Also the Number You Call for all Engineering and Technical Affairs (Which Includes IT and Facilities and Maintenance)
Demo of Outlook E-Mail, Web Site, Call! (2 Minutes)
Using My Computer From Work
Wired in Your Office (2 Minutes)
Wireless in Common Areas at Campus (2 Minutes)
Using a USB Flash Drive
Getting Access to the Local Network Server (2 Minutes)
Applications on My Computer - Faculty Laptops (2 Minutes)
Accessing the Required Documents Through the Intranet (5 Minutes)
Introduction to IPT (10 Minutes)
IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued
10 Minutes: Using My Computer From the Compound
Getting Internet via STC or Mobily (5 Minutes)
Online Banking (5 Minutes)
5 Minutes: Getting and Setting Up My PMU E-Mail Account:
Outlook & Web Mail
My Banner Faculty Self-Service Account: Getting and Setting Up and Submitting Grades!
IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued
20 Minutes: My Banner Faculty Self-Service Account
Introduction to Banner (2 Minutes)
Login In to Faculty Self-Service For the First Time (2 Minutes)
Introduction to Your Self-Service Banner Session and Main Menu (4 Minute)
Introduction to Your Faculty Schedule (6 Minutes)
Detailed Schedule
Week at a Glance
Master Class Schedule
Start With the End in Mind: How To Submit Student Grades at the End of Semester in Banner (6 Minutes)
ITD-Classroom Services 4 PMU Faculty (1 Time for 1 Hr Long)
Two Groups - Male and Female (1 Hr Long)
Traditional 20 Minutes
Smart 20 Minutes
Enhanced 20 Minutes
Traditional Classrooms: 20 Mins
Instructor Work Station
Projector
Smart Board & Promethean Active Boards (Female)
Smart Classrooms: 20 Mins
Instructor Podiums
Projectors
Review After the Walk Through:
YouTube Playlist: Smart Classroom Basics at PMU
Google Presentation: Overview of Smart Classrooms at PMU
Enhanced Classrooms: 20 Mins
Instructor Podiums
Projectors

Video Conferencing
ITD-College Blackboard for Beginners
(ITD Will Be Doing 3 Times for 1 Hr)
ITD Will Be Doing Three Level I Sessions:
Getting and Setting Up
Accessing Url
Login
Changing password
Introduction to Syllabus, Hours, Assignments, Presentations
Later Topics Will Include:
Level II: Tracking Assignments & Grade Book
Level III: Assessments & Tests
Level IV: Working With Instructional Multimedia

Part 2: Conduct Faculty Survey.

DRAFT COMPLETED in October 2011 of IT Department Services at PMU Survey Instrument (Multiple Choice and Free From Responses). The following questions will be asked to ascertain satisfaction levels and to provide input for ongoing improvements in services delivered by ITD:

Academic Computer Services

- 1) I am kept well informed of IT matters important to faculty. [Code: ITD-1-001] Satisfaction Level
 - 2) PMU provides adequate technology equipment and software needed to do my job well [Code: ITD-1-002] Satisfaction Level
 - 3) Technology equipment in classrooms where I typically teach function adequately [Code: ITD -1-003] Satisfaction Level
 - 4) I am satisfied with the response from the ITD when I need help [Code: ITD -1-004] Satisfaction Level
 - 5) The IT system is up and running whenever I need it. [Code: ITD -1-005] Satisfaction Level
 - 6) IT delivers promised services in a timely manner [Code: ITD -1-006] Satisfaction Level
 - 7) IT Services helps you use technology effectively [Code: ITD -1-007] Satisfaction Level
 - 8) The IT services as a whole are valuable to me. [Code: ITD -1-008] Satisfaction Level
- Sub-Category [Edit] [Add Question] [Move/Copy Questions] [Archive Questions]

General Support

- 1) Ability to get through to a person [Code: ITD -2-001] Satisfaction Level
 - 2) Timeliness of initial response to your inquiry [Code: ITD -2-002] Satisfaction Level
 - 3) Ability to solve a problem [Code: ITD -2-003] Satisfaction Level
 - 4) Turnaround time for resolving your problem [Code: ITD -2-004] Satisfaction Level
 - 5) How satisfied are you with problem resolution overall? [Code: ITD -2-005] Satisfaction Level
 - 6) Regarding the Help Desk -- How do you rate the timeliness in getting requests filled? [Code: ITD -2-006] Satisfaction Level
- 1) How satisfied are you with the SPEED of PMU Webmail? [Code: ITD -3-001] Satisfaction Level
 - 2) How satisfied are you with the FEATURES of PMU Webmail? [Code: ITD -3-002] Satisfaction Level
 - 3) How satisfied are you with the EASE OF USE of PMU Webmail? [Code: ITD -3-003] Satisfaction Level

- 4) How satisfied are you with the RELIABILITY of PMU Webmail? [Code: ITD -3-004] Satisfaction Level
- 5) How satisfied are you with the amount of email storage space provided at no charge by PMU? [Code: ITD -3-005] Satisfaction Level
- 6) How satisfied are you with PMU email overall? [Code: ITD -3-006] Satisfaction Level

Calendaring

- 1) How satisfied are you with how the calendar performs on your mobile device? [Code: ITD -4-001] Satisfaction Level
- 2) How satisfied are you with how the calendar performs for importing or combining calendars from different devices?
[Code: ITD -4-002] Satisfaction Level
- 3) How satisfied are you with how the PMU calendar performs overall? [Code: ITD -4-003] Satisfaction Level

Mobile Devices

Admin Imports Setup Survey Reports Help Database

- 1) Which of the following mobile devices do you currently use or intend to use within the next six months for work or study? iPhone? [Code: ITD -5-001] Usage in next 6 months
- 2) Use iPad? [Code: ITD -5-002] Usage in next 6 months
- 3) Use iPod Touch? [Code: ITD -5-003] Usage in next 6 months
- 4) Use a Blackberry? [Code: ITD -5-004] Usage in next 6 months
- 5) Use Android device? [Code: ITD -5-005] Usage in next 6 months
- 6) Use Palm OS device? [Code: ITD -5-006] Usage in next 6 months
- 7) Use other cell phone with internet access? [Code: ITD -5-007] Usage in next 6 months
- 8) How important is it to have the following available on your smart phone or other mobile device? Email? [Code: ITD-5-008] Importance Level
- 9) PMU Directory on Smart Phone? [Code: ITD -5-009] Importance Level
- 10) Smart Phone -- Class schedules? [Code: ITD -5-010] Importance Level
- 11) Smart phone - Calendar? [Code: ITD -5-011] Agreement Level
- 12) How satisfied are you with using the following via your mobile device? Email? [Code: ITD -5-012] Satisfaction Level
- 13) Mobile device -- calendar? [Code: ITD -5-013] Satisfaction Level
- 14) Mobile device for public PMU websites and applications? [Code: ITD -5-014] Satisfaction Level
- 15) Which applications, if any, would you like to be more mobile-friendly at PMU? [Code: ITD -5-015] Long Answer

Telephone Services

- 1) How satisfied are you with these aspects of PMU telephone services -- Placing an order? [Code: ITD -6-001]

Satisfaction Level

- 2) Order completion and delivery? [Code: ITD -6-002] Satisfaction Level
- 3) Problem resolution? [Code: ITD -6-003] Satisfaction Level
- 4) Voicemail? [Code: ITD -6-004] Satisfaction Level
- 5) How important would the following service and feature improvements be for your PMU work? Ability to schedule call forwarding of your PMU work number through a web interface? [Code: ITD -6-005]

Importance Level

- 6) Ability to set your office desk and cell telephones to ring simultaneously? [Code: ITD -6-006] Importance Level
- 7) Ability to set your office desk and cell telephones to ring sequentially? [Code: ITD -6-007] Importance Level
- 8) Delivery of voicemail messages and faxes to your email? [Code: ITD -6-008] Importance Level
- 9) Ability to make or receive calls from your computer (Softphone)? [Code: ITD -6-009] Agreement Level
- 10) Ability to modify phone features through a web interface? [Code: ITD -6-010] Importance Level
- 11) How important will the following devices be to your work requirements within the next one to two years? [Code: ITD-6-011]

Importance Level

- 12) Importance of a WiFi VoIP phone that works only on campus? [Code: ITD -6-012] Importance Level
- 13) Importance of a cell phone used only for telephone calls? [Code: ITD -6-013] Importance Level
- 14) Importance of a Smart Phone (eg. iPhone, Blackberry, Android, Windows Mobile Device etc.)? [Code: ITD -6-014] Agreement Level
- 15) Importance of a Tablet Device (eg. Galaxy or iPad)? [Code: ITD -6-015] Importance Level

IT Services Priorities

- 1) Email [Code: ITD -7-001] Service Providers
- 2) Email lists/group discussions [Code: ITD -7-002] Service Providers
- 3) Calendaring (for your own calendar) [Code: ITD -7-003] Service Providers
- 4) Meeting/event scheduling with others [Code: ITD -7-004] Service Providers
- 5) Document sharing [Code: ITD -7-005] Service Providers
- 6) Instant Messaging [Code: ITD -7-006] Service Providers
- 7) Video storage/sharing [Code: ITD -7-007] Service Providers
- 8) Image storage/sharing [Code: ITD -7-008] Service Providers
- 9) Websites, blogs, wikis [Code: ITD -7-009] Service Providers
- 10) Of the external providers you use, which do you prefer? [Code: ITD -7-010] Service Providers
- 11) If there were a contract in place with PMU and Google or Microsoft that safeguarded your privacy and intellectual property, which one would you feel most comfortable using? [Code: ITD -7-011]

Service Providers

Remote Access

- 1) If you use PMU's VPN, SSL or client-based services for remote access, how satisfied are you with your ability to connect to them to get access to such things as your calendar or PMU folder? [Code: ITD -8-001]
Satisfaction Level

Security

- 1) Anti-virus/anti-spyware software is set to update itself automatically. [Code: ITD -9-001] Likelihood
 - 2) Anti-virus/anti-spyware scanning of your hard disks is turned on [Code: ITD -9-002] Likelihood
 - 3) Operating system updates are installed automatically. [Code: ITD -9-003] Likelihood
 - 4) Application software updates (such as MS Office) are installed when available. [Code: ITD -9-004] Likelihood
 - 5) Passwords changed every six months. [Code: ITD -9-005] Likelihood
 - 6) Password is required to start/wakeup computer. [Code: ITD -9-006] Likelihood
 - 7) Passwords include random combinations of letters and numerals. [Code: ITD -9-007] Likelihood
 - 8) Hand-held devices such as iPhones will require a password. [Code: ITD -9-008] Likelihood
- Sub-Category [Edit] [Add Question] [Move/Copy Questions] [Archive Questions]

Final Questions

- 1) What is one think IT Services could do that would make it easier for you to work or study? [Code: ITD -10-001] Long Answer
- 2) What are the two or three most important services IT Services provides you? [Code: ITD -10-002] Long Answer
- 3) What is one thing IT Services could do to improve the way it communicates about its services? [Code: ITD -10-003] Long Answer
- 4) Any added comments you may have for IT Services [Code: ITD -10-004] Long Answer

Part 3: Work with Learning Resource Center to establish faculty forum for education equipment and software suggestions, input, and discussion.

CIO and Team Lead of MIS to finalize faculty satisfaction survey not later than October 26, 2011.

CIO to coordinate with Director of LRC and College Deans not later than March 31, 2012.

Section 7.4

Information Technology

Computing equipment and software and related support services must be adequate for the program and managed in ways that ensure secure, efficient and effective utilization.

7.4.1 Computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed.

STAR: 4

Strengths:

In order to ensure that computing equipment is available and accessible for faculty, staff and students and the adequacy of this provision is regularly assessed, ITD produces and maintains a Weekly ITD Classroom and Labs Report. This live on-line reporting system allows for the linkage of purchasing requests and the on-going updating of repair status. Artifact of this live process are extracted as example here:

- P.O. #08-Y11-0329-ITIS
- P.O. #09-Y11-0394-ITIS

Opportunities for improvement:

Deployment of Banner Electronic purchasing module will enable us to move from 4 to 5.

Action Plan:

N/A

	LOCATION	SYSTEM DESCRIPTION	STATUS	PLAN OF CORRECTIVE ACTION	HELPDESK TICKET #	Person to Whom Ticket is Assigned	Update Remarks		
1	AUDITORIUM	Lighting system	spot lights failiar	Follow up with Engineering Dep.	12998				
			busted moving head .1unit	Follow up with Engineering Dep.	12999				
			one bulb of wall lights doesn't work						
			All other lights working fine						
		Audio System	Works fine						
		Video System	indoor camera no:2+4 need Brackets to give full coverage, also camera 5 ,4 Fiber connector need to re termination.	- we contact with a Fiber network company to solve the problem ,waiting for approval regards PMU prosdure .					
			-	RFQ (Brackets) has been set waiting for approval					
		Digital Signage System	working fine						
			Busted Moving Head Spotlight. 1 pc.	for replacement of busted Moving headlights	12999	AV Team	As per Eng'g Dept. They're still waiting for the scaffolding to erect inside the auditorium for replacement of busted lights. update 10/23/11 updated by francis labnao		
			Busted Moving Head Washlight. 3 pcs.	for replacement of busted Moving washlights	13000	AV Team	As per Eng'g Dept. They're still waiting for the scaffolding to erect inside the auditorium for replacement of busted lights. update 10/23/11 updated by francis labnao		
		Lighting System	Busted Par 54 Spot lights. 16 pcs	for replacement of busted Par 54 Spot lights.	12998	AV Team	As per Eng'g Dept. They're still waiting for the scaffolding to erect inside the auditorium for replacement of busted lights. update 10/23/11 updated by francis labnao		
		Public Address and Paging System	Installation of some speakers and cabling were still not yet done by the contractor	To follow up to the contractor.	13006				
		Translation	Working fine						
		Panel Desk Discussion	Working fine						
		Panel Discussion (VIP chair mic's)	Working fine						
		Wired and wireless Mic's	Working fine						
		Video Conferencing	Working fine						
		Video Presentation	Working fine						
		Live event video streaming	Working fine						
		Control System	Working fine						
2	MALE LECTURE HALL	Audio Visual System with Video Conferencing	AV System are working fine but the Control room AC doesn't work for almost a month now.	Already reported to Engg. Dept. to this issue.	13039	AV Team	Still waiting the purchasing dept for the spare part of AC Compressor. 10/23/11		
3	FEMALE LECTURE HALL	Audio Visual System with Video Conferencing	Busted Projector Lamp	RFQ for the Busted lamp	13001	AV Team	Pending from the purchasing department.		
			Working fine						
4	Dr. Issa's OFFICE	Audio Visual System with Video Conferencing	Working fine						
5	Dr. Issa's Conference Room	Audio Visual System with Video Conferencing	Working fine						
6	Admin bldg VIP Room	Audio Visual with Video Conferencing	Touch Panel doesn't work	To follow up to the contractor. c/o ENPRO	13002	AV Team			
		Discussion System	Working fine						
7	Data Center	Digital Signage	Working fine						
8	Data Center	MATV Live Video Streaming	Working fine						
9	Vice Rector Conference Room	Audio Visual System with Video Conferencing	Working fine						
10	Admin Building	CCTV System	Server at the admin building are working fine. 6 camera outside admin bldg doesn't work due to power problem.	To check by Vendor (ENPRO) for their outside camera.	13003	AV Team	As per ATCO there's a power going to the parking cctv camera. Already coordinated to ENPRO regarding this issue. update by francis labnao 10/15/12 @ 10am		
11	Main Campus	CCTV System	All camera are already installed but some cameras are not working due to unavailability of network switches and patch panel in the warehouse and chiller plant communication rooms.	Working on progress RFQ-IT-2011-PCNC9S	13005	AV Team			
			Working fine						
12	Main Cafeteria	Audio Visual System	Working fine						
		MATV System	Satellite signal doesn't work	For re-alignment of satellite dish			Already informed/email to vendor (ENPRO) send their technical team to fix satellite dish. updated by francis labnao 11/15/12 @ 10am		
13	Sport Center	Audio System	Working fine						
14	Mosque	Audio System	Working fine						
15	LRC EMBA Rm.	Audio Visual System	Working fine						

PMU IT Facilities Weekly Inspection Report - Latest Updates - Male A Wing

	Wing	Room Type Code	Room No.	Type Of Room	Status	Plan of Corrective Action	Help Desk Ticket	Person to Whom Ticket is Assigned	Updated Remarks
1	A	A	G053	Eng. Lab	Robotel Hubs Not Working - DynEd Only Works in Internet Mode				
2	A	LAB	G055	Eng. Lab	Robotel Hubs Not Works - DynEd Only Working in Internet Mode				
5	A	T.C.	F139	Student Club	Desktop PC is up and running, but Projector needs better cable	Change the VGA cable to EXTRON's cable		AV Team (pending with purchasing Dept.)	
4	A	T.C.	F138	Student Support Center	Configured with New Standard Desktop Image, tested and working fine.				
3	A	SCR	G056	Smart classroom with Video Conf.	Working Fine				
6	A	T.C.	F140	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
7	A	T.C.	F141	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
8	A	T.C.	F142	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
9	A	T.C.	F143	Traditional Classroom	Desktop PC is up and running, but projector lamp needs replacement	P.O. #08-Y11-0329-IT	11943	AV Team (pending with purchasing Dept.)	updated as of 9-28 @ 3:00 PM by Mr. Garret & Mr. Mario
10	A	T.C.	F144	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
11	A	T.C.	F145	Traditional Classroom	Desktop PC is up and running, but projector lamp needs replacement	P.O. #08-Y11-0329-IT	11944	AV Team (pending with purchasing Dept.)	updated as of 9-28 @ 3:00 PM by Mr. Garret & Mr. Mario
12	A	T.C.	F146	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
13	A	T.C.	F147	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
14	A	T.C.	S134	Traditional Classroom	Desktop PC is up and running, but Projector needs better cable		11950	AV Team (pending with purchasing Dept.)	
15	A	T.C.	S135	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
16	A	T.C.	S136	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
17	A	T.C.	S137	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
18	A	T.C.	S138	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
19	A	T.C.	S139	Traditional Classroom	Desk top running but need beter cable	Change the VGA cable to EXTRON's cable	11946	AV Team (pending with purchasing Dept.)	
20	A	T.C.	S140	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
21	A	T.C.	S141	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
22	A	T.C.	S142	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.	Smart Board Needs Cleaning (Report to Auxiliary Services Dept.)			
23	A	T.C.	S143	Traditional Classroom	Desktop PC is up and running, but projector lamp needs replacement	P.O. #08-Y11-0329-IT	11945	AV Team (pending with purchasing Dept.)	updated as of 9-28 @ 3:00 PM by Mr. Garret & Mr. Mario
					Prepared By : Omar Ghuweir				

No.	Wing	Alias	Room No.	Type Of Room	Status	Plan of Corrective Action	Help Desk Ticket	Person to Whom Ticket is Assigned	Updated Remark
1	B	SCR	G038	Smart Classroom	Working Fine				
2	B	LAB	G039	Chemistry LAB	Working Fine				
3	B	SCR	G040	Smart Classroom	Working Fine				
4	B	SCR	G041	Smart Classroom	Working Fine				
5	B	LAB	G042	Math LAB	Working Fine				
6	B	LAB	G043	Physical LAB	PC, Projector and Smartboard installed				Installed New Optiplex 790 desktop. Win Xp configuration in progress. Updated by Garret as of Oct. 18, 2011 @ 12:00 NN
7	B	LAB	F148	Eng. LAB	Configured with New Standard Desktop Image, tested and working fine.				Configured additional Optiplex 790 Desktop with Win XP SP3. Tested and working fine. Updated as of oct-17, 2011 @ 3:00 PM by Garret. From 16, now we have a total of 18 PCs in this lab including the instructor's PC.
8	B	LAB	F149	E-Portfolio	Configured with New Standard Desktop Image, tested and working fine.				Configured additional Optiplex 790 Desktop with Win XP SP3. Installed, Tested and working fine. Updated as of oct-17, 2011 @ 3:00 PM by Garret. From 16, now we have a total of 17 PCs in this lab including the instructor's PC.
9	B	T.C.	F150	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
10	B	LAB	F151	Micro Studio for E-Portfolio	Desktop PC configured, Audio, Video, Lighting Set up & Visual Communicator software set up and configuration completed, tested and working fine.				
11	B	T.C.	F152	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
12	B	T.C.	F153	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
13	B	T.C.	F154	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
14	B	T.C.	F155	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
15	B	T.C.	F156	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
16	B	T.C.	F157	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
17	B	LAB	S144	LAB	Configured with New Standard Desktop Image, tested and working fine.				
18	B	T.C.	S145	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
19	B	T.C.	S146	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
20	B	T.C.	S147	Traditional Classroom	Working fine	Already replaced the projector from Omar's office and New Lamp		AV Team (Done)	Updated as of 10-23 @ 12:30 PM by Francis Labnao
21	B	T.C.	S148	Traditional Classroom	Working fine	Already replaced the projector from Omar's office and New Lamp	11953	AV Team (Done)	Updated as of 10-23 @ 12:30 PM by Francis Labnao
22	B	T.C.	S149	Traditional Classroom	Working fine	Already replaced the projector from Omar's office and New Lamp	11954	AV Team (Done)	Updated as of 10-23 @ 12:30 PM by Francis Labnao
23	B	T.C.	S150	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
24	B	T.C.	S151	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
25	B	T.C.	S152	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.	Already replaced the busted lamp to a new lamp.	11955	AV Team (pending with purchasing Dept.)	updated as of 10-24 @ 11:23 AM by Francis Labnao

PMU IT Facilities Weekly Inspection Report - Latest Updates - Male C Wing

No.	Wing	Alias	Room No.	Type Of Room	Status	Plan of Corrective Action	Help Desk Ticket	Person to Whom Ticket is Assigned	Updated Remark
1	C	T.C.	G026	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
2	C	T.C.	G027	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
3	C	SCR	G028	Smart CR \ W V.C.	Working Fine				
4	C	T.C.	G029	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
5	C	LAB	G030	Writing Lab Lab	All 7 PC's were Configured with New Standard Desktop Image, tested and working fine.				
6	C	T.C.	G031	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
7	C	T.C.	G032	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
8	C	T.C.	G033	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
9	C	T.C.	G034	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
10	C	LAB	F086	Computer Lab	Working Fine	Already replaced the busted projector lamp VT 85LP	# 12604	Francis	updated as of 10-22 @ 2:300 PM by Francis Labnao
11	C	T.C.	F087	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
12	C	T.C.	F088	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
13	C	SCR	F089	Smart CR	Working Fine				
14	C	T.C.	F090	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
15	C	SCR	F091	Smart CR	Working fine				
16	C	SCR	F092	Smart CR	Working Fine				
17	C	LAB	S084	Lab	Working Fine				
18	C	T.C.	S085	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
19	C	T.C.	S086	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
20	C	LAB	S087	Lab	Working Fine				
21	C	T.C.	S088	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
22	C	LAB	S089	Lab.	Working Fine				
23	C	SCR	S090	Smart CR	Working Fine				

PMU IT Facilities Weekly Inspection Report - Latest Updates - Male D Wing

No.	Wing	Room No.	Type Of Room	Status	Plan of Corrective Action	Help Desk Ticket	Person to Whom Ticket is Assigned	Updated Remark
1	D	G017	Traditional Classroom	No Projector, Configured with New Standard Desktop Image, tested and working fine.	P.O. #08-Y11-0329-IT	12142	AV Team (pending with purchasing Dept.)	updated as of 9-28 @ 3:00 PM by Mr. Garret & Mr. Mario
2	D	G018	Smart CR	No projection screen – (Being utilized as Temporary storage of Maintenance Dept)	Need to install projection screen	12143	AV Team (pending with purchasing Dept.)	
3	D	G019	Circuit Lab	Working Fine				
4	D	G020	Physics LAB	Working Fine				
5	D	G021	Physics LAB	Working Fine				
6	D	G022	Smart Classroom	No Projection Screen – (Being utilized as Temporary Bookstore storage)	Need to install projection screen	12144	AV Team (pending with purchasing Dept.)	
7	D	F058	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
8	D	F059	Smart CR	MatLab - COE – up and running. Projector not working		13408		Replaced busted Infocus lamp. Updated as of Oct. 31, 2011 @ 11:00am by Francis Labnao
9	D	F060	Smart CR	Labview Academy – COE – up and running				
10	D	F061	Signal Processing LAB	COE – Up and running				
11	D	F062	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
12	D	F063	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
13	D	F064	Vacant LAB	Pc, projector and Smartboard installed	Win XP configuration in progress			Installed New Desktop and Win XP Configuration in progress. Updated as of Oct. 18, 2011 @ 12:00 NN by Garret
14	D	S053	Robotics LAB	Working Fine				
15	D	S054	Smart CR	Working Fine				
16	D	S055	Traditional Classroom	PC and Projector installed	Need to install Smartboard			Installed New Desktop and Win XP Configuration in progress. Updated as of Oct 18, 2011 @ 12:00 NN by Garret
17	D	S056	Mechanics LAB	Working Fine				
18	D	S057	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
19	D	S058	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.				
20	D	S059	Embedded Systems Lab	Working Fine				

PMU IT Facilities Weekly Inspection Report - Latest Updates - Male E Wing

No.	Wing	Room No.	Type Of Room	Status	Plan of Corrective Action	Help Desk Ticket	Card Read Status		Updated Remark
1	E	G010	STC	OK					
2	E	G011	Datacenter	OK					
3	E	G012	Technical Support Office	OK					
4	E	G013	Purchasing Dept Office	OK					
5	E	G014	ATCO Office	OK			Yes	No	
6	E	G015	Utility – Storage	Ok					
7	E	F051	Traditional Classroom	Only was Smart Board Installed	ROOM BEING UTILIZED AS STORAGE BY MAINTENANCE DEPARTMENT				
8	E	F052	Traditional Classroom	College of Engineering , Support Center- OK					
9	E	F053	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine. Projector not working.	Defective Projector was removed and need to replace the new one	13408			Replaced new NEC projector. Updated as of Oct. 31, 2012 @ 11:00am by Francis Labnao
10	E	F054	SUN LAB	Working Fine					
11	E	F055	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.					
12	E	F056	Smart Classroom	Configured with New Standard Desktop Image, tested and working fine.					
13	E	F057	Comp Lab (Thin Client)	Configured with New Standard Desktop Image, tested and working fine.					
14	E	S046	VACANT Lab	PC, Projector and Smartboard installed	Win XP configuration on progress				Installed New Desktop and Win XP Configuration in progress. Updated as of Oct. 18, 2011 @ 12:00 NN by Garret
15	E	S047	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.					
16	E	S048	Traditional Classroom	Working Fine	Already replaced the projector and New lamp.				Updated as of 10:22 @ 8:30 PM by Mr. Francis Labnao
17	E	S049	Networking Lab	Working Fine					
18	E	S050	Traditional Classroom	Configured with New Standard Desktop Image, tested and working fine.					
19	E	S051	Smart CR, General Purpose Lab	Working Fine					
20	E	S052	Traditional Classroom	Only PC & projector was installed	Need to install Smartboard. Win Xp configuration on progress				Installed New Desktop and Win XP Configuration in progress. Updated as of Oct. 18, 2011 @ 12:00 NN by Garret

Section 7.4.2

Institutional policies governing the use of personal computers by students are complied with

STAR: 4

Strengths:

Through the application of IT Dept. Policies, ITD ensures that personal computer usage by students is governed by institutional policy. Periodic audits are used to document compliance.

Opportunities for improvement:

Provide documentation of on-going system of compliance audits in order to generate/ demonstrate on-going feedback loop for continuous improvement.

Action Plan:

Initial audit documentation to be provided not later than 31 January 2012.



جامعة الأمير محمد بن فهد

PRINCE MOHAMMAD BIN FAHD UNIVERSITY

Information Technology Policies
Prince Mohammad Bin Fahd University
Al Khobar, Saudi Arabia

Last Updated: November 12, 2011

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Policy 01: Customer Support

Customer Support Policy Statement

The Information Technology resources and services of Prince Mohammed Bin Fahd University are provided for the advancement of the University's educational, research, and service objectives. They are offered primarily to facilitate the University's academic and business purposes.

University Service Desk

To ensure support for all students, faculty and staff members, ITD has established a customer service desk commonly known as helpdesk. In order to help our customers, ITD provides a service desk (Helpdesk) software package to track and trace all IT and facilities issues to successful resolution and ensure customer satisfaction. Requests for the provisioning of new services are also handled by service desk.

IT Equipment Refresh

Personal computers in labs and classrooms, as well as faculty computers, are on a 3-5 year replacement cycle.

Applicability

IT Policies are applicable to all students and employees (faculty, administrators, and staff) and any others who are extended the privilege of using IT resources and services for the purpose of achieving the educational objectives of PMU and its students. All such persons accessing and using IT resources and services are subject to the applicable provisions of the University Statutes, University Code of Conduct, and Handbook for Administrators, Student Handbooks, and all other policies and procedures established by administrative offices of PMU.

Policy 02: Acceptable Use

Introduction

This Functional Policy covers the responsibilities for users at PMU. PMU will take reasonable precautions to ensure that the University complies with Saudi Arabian laws where applicable and where such laws exist.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as network link
- All management information systems
- All business activities supported by ITD Group.
- All of the above are either owned or leased by the ITD Group and under the PMU-ITD possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy,

and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy Statements govern the Responsibilities for Users Functional Policies listed in this document:

- All relevant statutory, regulatory and contractual requirements must be explicitly defined by the HR Department and technical requirements must be explicitly defined and documented by PMU for each information system.
- Appropriate procedures must be implemented to ensure compliance with legal restrictions on the use of material in respect of intellectual property rights and on the use of proprietary software products;
- Important records of PMU must be protected from loss, destruction and falsification;
- Controls must be applied to protect staff personal information in accordance with relevant legislation;
- Management must authorize the use of information processing facilities and controls must be applied to prevent the misuse of such facilities;
- Controls must be in place to ensure compliance of Information systems with national agreements, laws, regulations or other instruments to control the access to or use of cryptographic controls. This must be regularly reviewed;
- Where action against a person or organisation involves the law, either civil or criminal, the evidence presented must conform to the rules for evidence laid down in the relevant law;
- This must include compliance with any published functional policy or code of practice for the production of admissible evidence.

Use of the Internet/Intranet – Internet Crime

Current Legislation

The Saudi Arabian Communications and Information Technology Commission announced the issuance of e-crimes and e-transaction acts, Both acts were issued on 27'th of March, 2007. E-crimes act was issued to combat information

electronic crimes, by defining those crimes and penalties upon them. E-transactions act was issued to regulate electronic transactions and electronic signatures in a policy frame work, and combat any misuse of them by defining responsibilities, and penalties.

University Directive

All users must comply with the following functional policies:

Internet/Intranet Functional Policy

Hacking and Cracking into Computer systems

- No employees will participate or be party to any kinds of hacking or cracking into computer systems.
- No user is allowed to gain access to PMU computer networks and systems without prior permission from the designated authority within PMU.
- No vendor or third party is permitted to perform penetration testing on any of PMU systems and network without written approval from PMU.
- All users are allowed to perform only authorized transactions on PMU systems and the Internet/Intranet.

Creating and distribution of Malicious (dangerous) code

Dangerous code can be classified as any computer program (code) that causes destruction or harm to a computer system.

- All users must ensure they have Anti-virus software enabled on their computers. If in doubt, user should contact ITD.
- It is the users responsibility to check all external material for viruses – this includes e-mails with attachments and disks from external sources.
- It is prohibited for employees to create and distribute dangerous code – of any form within PMU and associated parties.

Internet Fraud

- Users are not permitted to use the PMU network or computer systems to perform a transaction they are not authorized to perform.
- All transactions will be logged and will be used in the event of any illegal misconduct.
- All users must always represent themselves as themselves when communicating and operating on PMU systems and network. Misrepresenting yourself is classified as a fraudulent event.
- Users are not allowed to create personal web pages using PMU facilities (systems, network or computers).
- Users must report suspected fraud to PMU/ITD immediately – this can be done anonymously.
- Users are not permitted to operate an independent web page – running an online business for personal gain is forbidden using PMU facilities .

Theft of Information

- Users must only access information which they have authorized access to.
- No information is allowed to be given to an external party unless written permission is given by PMU management.
- All information created and used in the course of the users employment remains the sole property of PMU.
- Theft of information includes the copying of software and using it without a legal license.
- This is forbidden at PMU and can be classified as a serious act of misconduct within the organization.
- All users of software must strictly abide by copyright laws and restrictions detailed by the software manufacturer. Users must not copy software from the Internet. This includes the use of freeware and shareware (certain terms and conditions normally apply). All users must contact PMU/ITD if such software is required to perform their job.

Use of Electronic Mail (e-mail)

Electronic Mail (E-mail) Functional Policy

E-mail Content

- Unacceptable e-mail content must not be acquired, possessed, sent

or shown to other employees. For definition of Unacceptable e-mail, refer to the “Expressly Prohibited Use” section in the Electronic Mail Usage Functional Policy document.

- If users are found creating, reading or distributing such mail, they will be penalized accordingly. Refer to section 9 of this document for penalties.
- All e-mail attachments must be scanned for viruses.
- Misrepresentation of one self is prohibited within PMU– employees should always represent themselves as they are.

Representing PMU

- The use of email to create contracts for and on behalf of PMU is strictly prohibited. PMU Management or the HR Department of PMU must approve all contracts.
- E-mails must not contain any information, views or opinions of the employee's that could create a negative corporate image for PMU.
- All employees have a disclaimer attached to each e-mail. This disclaimer must expressly disclaim the employee's authority to act for or bind the employer.

Defamation

Defamation is defined as “The unprivileged publication of a statement which exposes a person to contempt, hatred, ridicule or obloquy”. Defamation usually consists of written or spoken words but can also include graphics – cartoons or pictures, voice or video conferencing facilities where word is not used.

- Defamation of any person, whether they are employed by PMU or not, is strictly prohibited. This includes written, spoken or graphically representation – unacceptable e-mail content.
- Defamation will lead to a severe disciplinary action.

Copyright

Current Legislation

- In Saudi Arabia, copyright protection is afforded solely under the Copyright Act. The Copyright Act recognizes the following types of work, which are eligible for protection:
 - Literary, musical and artistic work;

- Sound recordings, cinematographic films, sound and television broadcasts and programme-carrying signals;
- Published editions; and
- Computer Programs.

- Computer databases (tables and the data) are protected as literary works.
- Internet web sites are multimedia products containing written texts, photographs, pictures, etc. and all should be assumed a copyright. Web sites can also be seen as computer programs.
- Infringement of the Copyright Act falls into the following categories:
 - Infringement by reproduction;
 - Infringement by publication;
 - Infringement by public performance;

Software Management Functional Policy

Software Copyright

- All users must be aware of and understand the software copyright and acquisition standards, and non-compliance to the software and standards will cause PMU to take the required disciplinary action against staff who breach them.
- PMU must maintain proof and evidence of ownership of licenses, master disks, policy's, etc.
- PMU must implement controls to ensure that any maximum number of users permitted is not exceeded.
- All users must comply with the terms and conditions for software and information obtained from the networks.
- All employees must conform to the Copyright Act as described above.
- Employees are not permitted to load an illegal copy of software on any PMU computer or related facilities.
- The viewing, discussion or distribution of pornography material either by using the facilities of PMU, being on or off the University premises, or during work hours is forbidden.
- PMU will monitor Internet web site access and logs will be maintained for 3 months.

Safeguarding of Organizational Records

- Important records of organization are protected against loss, destruction and falsification.
- Some records may need to be securely retained to meet statutory or regulatory requirements, as well as to support essential business activities. Examples of this are records, which may include evidence that PMU

operates within statutory or regulatory rules, or to confirm the financial status of an organization with respect to shareholders, partners and auditors.

- The time period and data content for national law or regulation may set information retention.
- Records are categorized into record types, e.g. accounting records, database records, transaction logs, audit logs and operational procedures, each with details.
- Consideration are given to the possibility of degradation of media used for storage of records.
- Storage and handling procedures are implemented in accordance with manufacturer's recommendations.
- Data storage systems are chosen such that required data can be retrieved in a manner acceptable to a court of law, e.g. all records required can be retrieved in an acceptable time frame and in an acceptable format.
- The system of storage and handling is ensure clear identification of records and of their statutory or regulatory retention period.
- To meet these obligations, the following steps are in process:
 - Guidelines on the retention, storage, handling and disposal of records and information;
 - A retention schedule identifying essential record types and the period of time for which they retained;
 - An inventory of sources of key information and
 - Appropriate controls to protect essential records and information from loss, destruction and falsification.

Penalties

Depending on the number of offenses made and on the severity of the offense or non-compliance with the provisions covered in this document, the corresponding penalty will be applied at the discretion of the PMU Rector based on the University's By-Laws and Procedures

Internet and Intranet usage

Introduction

This Functional Policy covers PMU's Internet and Intranet usage. Communications and operational management of information resources and systems are essential to maintaining a high level of service to PMU clients and customers. Therefore, security requirements will be developed and implemented to maintain control over communications and operations. It is each user's responsibility and obligation to ensure that all IT resources

are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU

All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Computer, Network and Telephone Usage Functional Policies:

- Independent review of information security in the organisation must be done on a regular basis;
- The security requirements of an organisation outsourcing the management

and control of all or some of PMU's information systems, networks and/or desktop environments must be addressed in a contract agreed between the parties;

- Relevant information security roles and responsibilities must be documented in job definitions where appropriate;
- All Employees and third parties such as contractors, consultants, business partners and outsourced staff must sign a confidentiality agreement as part of their initial terms and conditions of employment;
- Aspects related to information security must be addressed in the Organization's standard employee's terms and conditions of employment and for third parties, with a formal contract with the PMU;
- Users of information services must be required to note and report any observed or suspected security weaknesses in or threats to systems or services;
- The violation of organisational security policies, functional policies and procedures by employees must be dealt with through a formal disciplinary process;
- Capacity demands must be monitored and projections of future capacity requirements made to ensure that adequate processing power and storage is available;
- ITD must implement detection and preventive controls to protect information and information processing facilities against malicious software and appropriate user awareness procedures;
- Authorized PMU employees must be provided with Internet access for academic and business use;
- Content scanning must only be enforced in checking for malicious software, viruses, etc.;
- Functional policies for the use of the Internet and intranet must be implemented and controls put in place to reduce security risks created by the Internet and intranet usage;
- The implementation of the E-mail, Internet and Intranet policy is aimed at ensuring that all employees and independent contractors are made aware of the disciplinary sanctions that PMU must impose on any unauthorised and/or unacceptable use of these services;
- Employees of and independent contractors to PMU are specifically warned that personal criminal and/or civil action may be taken by PMU in the event of their breach of this policy;
- The allocation of passwords must be controlled through a formal management process;
- An intrusion detection system must be in place to detect unauthorised use of PMU networks;

All users must have a unique identifier (user ID) for their personal and sole use so that activities can be traced to the responsible individual.

Internet and Intranet Usage Functional Policies

- Access to the Internet: Access to the Internet is provided to all employees and students. Guests of the university will be provided Internet access at the discretion of the university.
- Acceptable and Unacceptable Use of the Internet/Intranet
- In an open plan office users must be aware of unauthorized users reading information displayed on their screen.

University Use

PMU sees the Internet/Intranet as significant tools for business benefit and for achieving required business objectives, i.e. The Internet can be used to access a wealth of information and resources, while the Intranet is one of the most effective ways of making PMU information available internally to the organization.

These services do however offer the opportunity for abuse of resources and inappropriate use of these mediums could expose PMU to significant risks. Therefore Internet/Intranet facilities will only be available to users after formal contracting of the Internet/Intranet functional policy. Any exceptions will be filed.

- Unauthorized attempts to break into any computer;
- Theft or copying of electronic files without permission; and
- Sending or posting company files outside the company or inside the company to unauthorized personnel.

Personal Use

PMU understands that many users work at non-traditional times, for example outside working hours and that these activities infringe on “personal time”. PMU therefore allows incidental and infrequent personal use of the Internet/Intranet within the Constraints on Personal Use noted below.

Constraints on Personal Use

Incidental and infrequent personal use of PMU's Internet/Intranet during or outside normal work hours are allowed on condition that:

- It does not consume significant amounts of the user's workday.
- It does not consume substantial amounts of PMU bandwidth in such a way

that it negatively impacts upon PMU systems, either directly or indirectly. PMU bandwidth could be impacted by distribution of for example the following:

- Attachment types such as JPEG, JPG, AVI, etc; or
- Chain letters, jokes, bitmaps, etc.
- It does not expose PMU to a noticeable increase in costs.
- It does not expose PMU to reputation or financial risks.

Expressly Prohibited Use

In order to prevent loss and the possibility of PMU being in violation of regulatory and statutory requirements the following Internet/Intranet related activities are prohibited within PMU:

- Carrying of any obscene, defamatory or discriminatory material.
- Material containing derogatory racial, gender, religious or hate-oriented comments;
- Libelous remarks about products or other companies,
- Defamatory remarks, including defamation of character; or
- Discriminatory language or remarks that would constitute harassment of any type.

Password Management

Internet/Intranet access to General Support systems and Public data shall require a password. All password creation and usage must be in accordance with those stated in

PMU General Security Guidelines Functional Policy.

Downloading content

Users are permitted to download content from the Internet/Intranet. The downloading of content from the Internet/Intranet must however be in accordance with the following:

- Users downloading large volumes should consider scheduling these for transmission after normal working hours.
- When non-text files (databases, software object code, spreadsheets, formatted word-processing package files, etc.) are downloaded from non-PMU sources via the Internet, the following conditions must be adhered to:

- Files must be screened with approved virus detection software prior to being used (opened);
- Whenever an external provider of the software is not trusted, downloaded software should be tested on a stand-alone non-production machine that has been recently backed up. If this software contains a virus, worm, or Trojan horse, then the damage will be restricted to the involved machine;
- Downloaded files must be decrypted and decompressed before being screened for viruses;
- The use of digital signatures to verify that unauthorized parties have not altered a file is recommended, but this does not assure freedom from viruses.

Representing PMU

Vicarious Liability:

Users must be aware that in using PMU Internet/Intranet facilities they are representing PMU. It is therefore important that the use of Internet/Intranet must be in accordance with the following:

- Users should consciously build and preserve PMU image when using the Internet/Intranet.
- Users may indicate their affiliation with PMU in mailing lists (list servers), chat sessions, and other offerings on the Internet. This may be done by explicitly adding certain words, or it may be implied, for instance via an electronic mail address. In either case, whenever users provide an affiliation, they must also clearly indicate the opinions expressed are their own, and not necessarily those of PMU.
- Users can indicate that opinions expressed are their own by the use of a disclaimer stating the following:
“Any opinions, presented explicitly or implied, are solely those of the author’s and do not necessarily represent those of the Organization’s.”

Information Protection

In this subsection, “proprietary information” refers to information that is “confidential” and/or “critical”.

As information is very valuable to PMU, users should observe the following before considering sending information over the Internet:

- Wiretapping and message interception is straightforward and frequently encountered on the Internet. Accordingly, PMU proprietary information must not be sent over the Internet unless it has first been encrypted by approved methods.
- User IDs and passwords, and other parameters that can be used to gain access to PMU information must not be sent over the Internet in readable form.
- PMU software, documentation, and all other types of internal information must not be sold or otherwise transferred to any non-PMU party for any purposes other than business purposes expressly authorized by management.
- Users should not allow others to use their user IDs and passwords when connecting to Internet sites requiring authentication (e.g. Gartner research database). If a user has no option but to allow this, the user must understand that he/she is the responsible party.

Expectation of Privacy

- Individual Practices: On the Web, one of the real dangers is a possible loss of privacy or leakage of information about user activities. Employees should be aware of the following issues relating to their privacy when surfing the web:
- When you visit a Web site, the site you are visiting can identify where your Internet connection originates. For example, if you use the Web from work, your activities can be identified as coming from PMU.
- Web sites can log all of your activity including any personal data you provide. The web site owner can associate you with this data on future visits. They may want to use this information to give you a better web experience, or they may be collecting competitive information, or both. Some web sites do not respect data privacy laws and may make the information collected from you available to other organizations. Should any of the events mentioned takes place, the Legal Department must be informed immediately.
- PMU Practices: The Internet connection provided to employees is a PMU resource. Activities may be subject to monitoring, recording, and periodic audits to ensure they are functioning properly and to protect against unauthorized use. Users must therefore note the following:

- PMU reserves the right to monitor sites (e.g. duration and content) visited by users and to detect security violations.
- PMU reserves the right to examine and access all information, created, stored or communicated using PMU information systems whenever warranted by business need or requirements.
- PMU will disclose information obtained through such examinations to appropriate third parties, including law enforcement agencies.
- Internet users expressly consent to such monitoring, recording and examination.

Internet Integrity

When using the Internet all users must comply with the following:

- All information taken off the Internet should be considered suspect until confirmed by separate information from another source.
- Before users release any internal PMU information, enter into any contracts, or order any products via public networks, the identity of the individuals and organizations contacted must be confirmed.

Electronic Fraud

- Impersonation: Misrepresenting, obscuring, suppressing, or replacing a user's identity on the Internet or any PMU electronic communications system is forbidden.
- Disclaimer of Liability: PMU is not responsible for material viewed or downloaded by users from the Internet or other public communications networks. Users are cautioned that web pages may include offensive, sexually explicit, and/or other inappropriate material. Users accessing the Internet and other public communications networks do so at their own risk.

General Information on Wireless Networks:

- Wireless Networking now provides easy, Inexpensive, high bandwidth network services for any organizations which selects this Latest Network technology.
- Approved by IEEE Standards committee the 802.11 further enhanced to 802.11b/g/n specification detailed the frame work necessary for a standard method of wireless network communication.
- Connectivity previously had to creep up with the monopoly held” Wires” ,now the data can Fly thru the walls ,significantly increasing the Network Bandwidth & Performance.
- A recent survey by a leading Security Consulting Company has

reveled that Wireless Networking has indeed increased in the current technology Savvy market by 30% and Wireless Networking is the Future Networking. But as Every Technology has it's own loopholes , Security is a real cause of Concern for Wireless networks,.

- Access Points communicate with the data freely flowing in the Air vulnerable to penetrate by any unauthorized user.
- Placement of the access points is equally important , As you do your site survey for access point deployment, think about locating the access points toward the center of your building rather than near the windows. Plan your coverage to radiate out to the windows, but not beyond. If the access points are located near the windows, a stronger signal will be radiated outside your building making it easier for people to find you.

Introduction

This functional policy covers PMU's Computer, telephone and network, Mobiles usage. In today's business environment,. Therefore, proper use and protection of PMU resources and information is essential for business operations.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All business activities supported by PMU.

All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Computer, Network and Telephone Usage Functional Policies listed in this document:

- Both the wired and wireless networks will be monitored for unauthorized use or devices.

Wireless Network (Wi-Fi) Functional Policy

Technical Functional Policies

Authentication

- All wireless stations (users/devices) must be authenticated to access a WLAN.
- If username and password authentication is used, users/devices must use strong passwords (alphanumeric and special character string at least eight characters in length).
- If a central authentication server or VPN gateway is used in the WLAN architecture, each wireless client must uniquely and successfully authenticate to the WLAN. Strong passwords must be used in this situation
- All wireless device users must be authenticated to access wireless devices and/or the desktop PC synchronization software.
- Wireless handheld devices and synchronization software must require a strong password, or both to authenticate access to the device or software. Users are required to authenticate when operating locally and remotely.
- Wireless device authentication must not be disabled.

Encryption

- All WLAN traffic must be encrypted to limit eavesdropping and ensure confidentiality.
- Wired Equivalent Privacy (WEP) must be enabled using 128-bit key or the strongest encryption available in the 802.11 b/g/n compliant product used.

Access Control

- All access to the WLAN system, including its data and resources, shall be restricted unless authorized by the PMU -ITD. Data traversing wireless networks and data accessible via wireless entry must be protected from unauthorized access, use, modification, or deletion using access control methods.
- Non-PMU employees, excluding approved vendors and contractors, must not have access to WLANs that connect to the PMU Enterprise data network.
- Service Set IDs (SSIDs) must be changed from the factory default to something that is meaningless to outsiders. SSID character strings must not reflect Member or Committee name, location, or product being used.
- Broadcast mode of SSIDs must be disabled in products that permit it so that the client SSID must match that of the access point.
- The authentication server, firewall, and/or VPN gateway must enforce access control mechanisms.

Anti-Virus Software

- Antivirus software at the perimeter will provide protection for handheld devices by scanning all entry ports (i.e, synchronizing, email, and Internet downloading) as data is imported into the device, provide online signature update capabilities, and prompt the user before it deletes any suspicious files.

Personal Firewalls

- It is highly recommended that WLAN client and handheld devices utilize personal firewall software.
- Users that access public wireless networks (e.g., in airports, conference centres, coffee shops) should install personal firewall software on all WLAN client and handheld devices. A personal firewall protects against wireless network attacks and rogue access points (e.g., Ad hoc networks, accidental or malicious association, soft access points) that can be easily installed in public areas.

Physical Security

- Access points must be physically secured upon proper configuration to prevent tampering and reprogramming (i.e., to prevent unauthorized

physical access).

- Access points must be placed in secure areas, such as high on a wall, in a wiring closet, or in a locked enclosure to prevent unauthorized physical access and user manipulation. Devices must not be placed in easily accessible public locations.
- To mitigate eavesdropping, access points shall be placed strategically within the building so that the range does not exceed the physical perimeter of PMU-controlled facilities and allow unauthorized users to eavesdrop near the perimeter. Access points shall be placed to minimize or prevent the distance that the signal can travel outside the area that is under the control of the organization, including buildings, court yards, adjacent parking areas, etc.
- The transmission power of WLAN access points must be restricted to the lowest power required for coverage.
- In the event that the reset function of an access point is used, the device must be restored to the latest security settings.

Logical Security

- All access points shall be logically separated and isolated from the House Enterprise data network, such as on a different segment, in a demilitarized zone (DMZ), or in a virtual LAN (VLAN).
- WLANs must be treated as insecure counterparts to their wired associates. Access to resources on the wired network must be restricted.
- Access points shall be physically situated so that authorized users can connect, yet away from sources of interference such as microwave ovens and Blue-tooth devices.
- To keep interference to a minimum, access point channels shall be at least five channels different from all other nearby access points on different WLANs. Some coordination may be required if multiple WLANs are to be used within close proximity.
- All insecure and nonessential management protocols (Hypertext Transport Protocol (HTTP) and Simple Network Management Protocol (SNMP)) shall be disabled if not used
- SNMP settings must be set to least privilege (read only).
- Web-based management of access points shall be from pre-defined management stations controlled by access lists on the access point. SNMP requests shall only be accepted from specified management devices.
- SNMPv3 products or equivalent cryptographically protected protocol shall be used since they include mechanisms to provide strong security.

Monitoring & Audit

- All wireless LANs and handheld devices must be routinely monitored and security audits performed to verify that security configurations comply with this policy, access points and wireless devices are authorized, and to identify unauthorized activity.
- If DHCP is used in the environment, logs shall be reviewed for static addresses to determine if rogue access points have been installed.
- Access logs and system audit trails shall be routinely monitored.
- The ITD will conduct routine controlled penetration tests or packet sniffing/ wireless traffic analysis on WLANs and within the coverage area
- All access points must have Intrusion Detection Systems (IDS) at designated areas on House property to detect unauthorized access or attack.

Responsibilities

Systems Administrators/Vendors/Users Responsibilities.

- System Administrators / Vendors are required to operate Wireless LANs and devices in a secure manner.
- System Administrator / Vendors job includes proper authorization and termination of access, proper configuration and placement of wireless components and associated security technologies, routine, random, and event-driven maintenance, support monitoring and audit functions, etc.
- System Administrators / Vendors are required to change factory default settings and use strong administrative passwords on all wireless devices to ensure a higher level of security. (On some wireless devices, the factor default password is blank.) All insecure and nonessential management protocols must be disabled.
- To the extent possible, System Administrators / Vendors shall ensure that their wireless implementation and associated security technologies are up-to-date with evolving standards and best practices.
- System Administrators / Vendors are required to maintain a list of authorized wireless device users to enable them to perform periodic inventory checks and security audits.
- Wireless users must only access information systems using approved wireless device hardware, software, solutions, and connections.
- Wireless users must act appropriately to protect information, network access, passwords, cryptographic keys, and wireless equipment.
- Wireless users are required to report any misuse, loss, or theft of wireless

devices or systems immediately to the IT Department. (Planning & Control)

Minimum Security Requirements

There will further addition to the checklist in case of new release, Version or change in Technology. Each point in the section has a check box which needs to be filled with “Y” for available and “N” for not available. Please read the points carefully before filling the check boxes.

Reduce your WLAN transmitter power

This feature not on all and access points, but some allow you lower the power of your WLAN transmitter and thus reduce the range of the signal. Although it's usually impossible to fine-tune a signal so precisely that it won't leak outside your home or business, with some trial-and-error you can often limit how far outside your premises the signal reaches, minimizing the opportunity for outsiders to access your WLAN.

Authentication

Consider using an additional level of authentication, such as RADIUS, before you permit an association with your access points. Cisco access points, for example, can enforce RADIUS authentication of MAC addresses to an external RADIUS server.

Supplement on Email Accounts

Introduction

This functional policy covers PMU's E-mail usage. Communications and operational management of information resources and systems are essential to maintaining a high level of service to PMU Users. Therefore, security requirements will be developed and implemented to maintain control over Electronic Mail Usage.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of these Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU which includes

Purpose and Scope

To make a easy and secure policies for electronic mails being used by all PMU personals, to have a organized and professional method to follow in PMU, where it limits the usage, controls the email behaviors etc....

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the email usage

- Email Domain of PMU: <user>@pmu.edu.sa
(i.e. First letter of the first name then the last name / family name)
- E-mail must only be available to PMU employees and students.
- No offensive material must be sent using E-mail.
- Functional policies for the use of E-mail must be developed and controls put in place to reduce security risks created by electronic mail.
- Content scanning must only be enforced in checking for malicious software, viruses or violations.
- Formal agreements must be established for the electronic or policy exchange of information and software between organizations.
- PMU's policy on Internet, Intranet and E-mail services access and use provides that usage of these services by PMU employees must be compatible with the organisations objectives.
- The implementation of the E-mail, Internet and Intranet policy is aimed at

ensuring that all employees and independent contractors are made aware of the disciplinary sanctions that PMU must impose on any unauthorised and/or unacceptable use of these services.

- The policy is also implemented to minimise the risk of civil and/or criminal liability to the organisation through the unauthorised and/or unacceptable use of the E-mail, Internet and Intranet services
- Every Outgoing email from PMU should have disclaimer

Electronic Mail Functional Policies

Access to E-mail: All requests for e-mail access must be forwarded by HR to ITD Helpdesk for account creation.

Acceptable and Unacceptable Use of E-mail Business Use

E-mail communication enables PMU employees and other types of workers to send messages and memorandum between workers within PMU, and also between PMU, business partners, vendors and required domains, more effectively.

This service does however will not offer the opportunity for abuse of resources and inappropriate use of this medium, which could expose PMU to significant risks. Therefore e-mail facilities will only be available to PMU users by following the formal procedures and by accepting the policy rules.

Conditions on Academic and Business Use

Email usage in PMU for the academic and business use must be within, but not limited to the following conditions:

- Employees may not use e-mail for personal or commercial purposes.
- Access to e-mail from a PMU-owned home-based computer or through PMU-owned connections must adhere to all the same functional policies that apply to use from within PMU facilities.
- Employees shall not allow family members or other non-employees to access PMU e-mail system via linked home computers.
- Disciplinary action may occur after actions including or similar to those stated below of PMU e-mail facilities has occurred:
 - Unauthorized attempts to break into any computer;
 - Theft or copying of electronic files without permission; and
 - Sending PMU files outside the PMU to unauthorized personnel.

Personal Use

PMU understands that many users work at non-traditional times, for example

outside working hours and that these activities infringe on “personal time”. PMU therefore allows incidental and infrequent personal use of e-mail

Conditions on Personal Use

Users may use e-mail for coincidental personal purposes on condition that:

- It does not consume significant amounts of the user’s workday.
- It does not consume substantial amounts of PMU bandwidth in such a way that it negatively impacts upon PMU e-mail system or other PMU users, either directly or indirectly. PMU bandwidth could be impacted by distribution of the following:
- Large e-mail messages. Users should consider using compression utilities such as Zip before sending large e-mail messages.
- Large e-mail attachments can also be placed on shared documents if it is being used for local communication, and pass a hyperlink to access the required files, which will reduce the bandwidth usage drastically.
- Attachment types such as JPEG, JPG, AVI, Chain letters, jokes, bitmaps, etc cannot be circulated using PMU infrastructure services.

Note: There are many free services on the Internet to share images and video files. Do not use university resources to distribute large files to large group of people.

Privacy of PMU E-mails.

As PMU allows the incidental and infrequent personal use of e-mail, users must be aware of the restrictions placed on the privacy of e-mail.

- Electronic mail is private and owned by the sender and each recipient account holder.
- The contents of e-mail will not be monitored, censored, or otherwise examined except:
- With specific authorization from the head of the Department as part of the required system administration;
- Investigations may require the examination and release of any document, including electronic files such as e-mail. Should any PMU user be involved, the ITD Department will act only under the specific instructions from a business unit manager to ensure that individual rights, including rights to privacy and due process are maintained; and
- A special condition exists for users who receive e-mail associated with his/her job responsibilities and where, their direct supervisor or others in the department need to have access to their e-mail. ITD will continue to maintain the privacy of mail

Expressly Prohibited Use

The creation, transmission, receipt or storage of certain content may be in violation of regulatory and statutory requirements and are therefore prohibited within PMU. This content includes, but not limited to the following:

- Unprofessional Threats;
- Pornographic explicit material, but limited to unsolicited SPAMS being spoofed and circulated.
- Material containing derogatory racial, gender, religious or hate-oriented comments;
- Discriminatory language or remarks that would constitute harassment of any type.
- Any other comments that offensively addresses someone's age, political beliefs, national origin, or disability.

E-mail Manners

Any form of communication is most effective if it conforms to etiquette acceptable to both the sender and the recipient of the message. Therefore the following principles should be followed when using e-mail:

- Are concise - long messages often lose their emphasis.
- If you have received a message as a part of a group of recipients consider a reply to only the author rather than to the entire group.
- As with any written form of communication, attention to proper grammar, spelling, etc. will convey your message most effectively.
- Remember that even though the medium is electronic, the recipient of the message is another human.

Unsolicited E-mail

When a staff receives unwanted E-Mail (Junk Mail or SPAM), they must refrain from responding directly to the sender. Instead, they should forward such E-Mail to the IT-Help desk which will forward the case to the appropriate technical resource for remediation.

Representing PMU

Liability

Users must be aware that in using PMU e-mail facilities they are representing PMU.

It is therefore important that the use of e-mail must be in accordance with the following:

- Users should consciously build and preserve PMU image when they use e-mail for communication. When applicable, users should attach the official PMU headers and disclaimers to e-mail. A disclaimer could state the following:
 - This message (including attachments) is intended for the addressee named above. It may also be confidential, privileged and/or subject to copyright. If you wish to forward this message to other, if you are not the addressee named above, you must not disseminate copy, communicate, otherwise use, or take any action in reliance on this message. You understand that any privilege or confidentiality attached to this message is not waived, lost or destroyed because you have received this message in error. If you have received this message in error, please notify the sender and delete from any computer.
- Unless explicitly attributed, the opinions expressed in this message do not necessarily represent the official position or opinions of PMU.
- Whilst all care has been taken, PMU disclaims all liability for loss or damage to person or property arising from this message being infected by computer virus or other contamination.
- The creation of business e-mail is equivalent to the creation of any other PMU document. Therefore, user must use the same degree of care and seriousness associated with the drafting of PMU documents when composing business e-mail messages.
- The quality of written or verbal communications reflects on PMU. Users should always strive to use good grammar, correct punctuation, and acceptable language.
- Users are not allowed to enter into any contractual agreement for or on behalf of PMU using e-mail.

Disclaimer of Liability

PMU is not responsible for material viewed or received by users from the Internet or other public e-mail systems. Users are cautioned that these communications may include offensive, sexually explicit, and/or other inappropriate material. Having an e-mail address may lead to receipt of unsolicited messages containing offensive content.

Electronic Fraud

As electronic fraud may be possible via e-mail, user must adhere to the following:

- Impersonation
 - Impersonation of another user when using e-mail is prohibited within PMU.
 - Users should not allow others to use their e-mail accounts. If a user has no option but to allow this, the user must understand that they will be held responsible for all actions performed on their e-mail account.
- Anonymous E-mail: Anonymous e-mail may be used in the event of:
 - A user reporting an incident due to wrongdoing caused by another PMU user may send anonymous e-mail.
 - Users requesting medical information, without disclosing their identity.

Computer Viruses

A computer virus is a software program intended to damage, delete or perform other harmful actions to a user's data. It is therefore important that users adhere to the following when receiving e-mail from an unknown source:

- Users must ensure that all e-mail attachments are scanned for viruses before opening, using approved PMU anti-virus software.
- Users must immediately report any malfunction that might be related to a computer virus to the IT-Helpdesk
- When accessing public e-mail servers (e.g. hotmail) or when connecting to public SMTP servers from a workstation that is linked to the PMU network, users must ensure that any attachments are scanned for viruses on the user's workstation.
- User must read and comply with the Protection Against Malicious Software and Viruses Functional Policy

Transmitting Confidential Information

Addressing E-mail

- When a user sends e-mail, it is the user's responsibility to ensure that the e-mail address of the recipient is correct.
- When a user recognizes that a mail item has been incorrectly addressed to him, the user should inform the sender by returning and deleting the mail.
- The user must ensure that their personal information on directories and/or address books is kept up to date.

Information Protection

- Prior to e-mailing or forwarding proprietary data, the e-mail options should be set to confidential. The message should be given the subject confidential.
- Documents containing proprietary information should be individually password protected.
- The sender and receiver should agree on the password by calling in advance. Under no circumstances should sensitive information be sent without a password.
- The sender should also ensure that the receiver is able to retrieve the message from the e-mail address to which it is sent – in terms of the software used to create the e-mail as well as any attached documents.
- The e-mail system should not be used to communicate details of the password.
- The message recipient should be asked to confirm receipt of the document.
 - In this subsection, "proprietary information" refers to information that is "confidential" and/or "critical".

E-mail Software

Only authorized email software may be used, no re-mailer (mail bomber) software will be permitted for any purpose.

Retention of E-mail Messages

E-mail shall be retained for periods that would normally apply to written or facsimiled transactions. Where precise retention periods need to be defined, they should be defined in conjunction with PMU IT Department.

Supplement on Software Copyright Compliance

Introduction

This functional policy covers PMU's Software Licensing and Compliance. This is to ensure that all PMU assets must be accounted for and controlled in the proper manner, for both physical and logical assets. These assets are crucial to PMU's success and must be protected by the proper controls to minimize any risk of harm, disruption of services or disclosure of proprietary information.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff. Each policy statement is supported by standards and procedures to achieve a complete security framework in the PMU.

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU.
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy Statements govern the Functional Policies on Software Licensing and Compliance listed in this document:

- Arrangements involving third party access to organisational information processing facilities must be based on a formal contract that must contain all necessary security requirements accompanied with appropriate responsibility and confidentiality undertaking. Any violations thereto must be dealt with accordingly.
- Owners must be identified for all major assets and the responsibility for the maintenance of appropriate controls must be assigned.
- All Employees and third parties such as contractors, consultants, business partners and outsourced staff must sign a confidentiality agreement as part of their initial terms and conditions of employment.
- Detection and preventive controls to protect information and information processing facilities against malicious software and appropriate user awareness procedures must be implemented.
- Formal agreements must be established for the electronic or policy exchange of information and software between organizations.
- Procedures for monitoring use of information processing facilities must be established and the result of the monitoring activities reviewed regularly.
- Control must be applied for the implementation of software on all systems.
- All data must be protected and controlled.
- Strict control must be maintained over access to program source libraries.
- The purchase, use and modification of software must be controlled and checked to protect against possible covert channels and Trojan code.
- Controls must be applied to secure outsourced software development.
- Appropriate procedures must be implemented to ensure compliance with legal restrictions on the use of material in respect of intellectual property rights and on the use of proprietary software products.

Software Licensing and Compliance Functional Policies

Protection of Intellectual Property

- All software and/or applications developed for PMU by third parties is the property of PMU. This must be conveyed to all third parties, which develop software or applications for PMU use, to prevent any dispute about ownership of the software once a project is completed.
- Software developed by PMU employees on company time becomes the property of PMU.

User Responsibilities regarding Software Licensing

- Purchase and use of third party software must be in accordance with third party licensing agreements. These agreements may include specific user restrictions such as:
 - The number of copies allowed to be installed;
 - The number of machines the software can be installed on;
 - The number of concurrent users of the software allowed at any one time; and/or
 - The customer support levels (onsite or phone) may also be specified within the agreement.
- Only appropriately licensed software may be placed on or used in a resource. Such software may only be for the purpose of conducting PMU business.
- Employees are to be provided appropriately licensed copies of software necessary to perform their assigned tasks. Employees must not be asked or expected to perform tasks for which appropriately licensed software has not been provided.
- Some software licenses allow for the user to make a copy for home use or home-based business use in conjunction with the business use of the software. A user of licensed software at work should not assume that such provision is in place. Prior to installing copies of software at home, employees must obtain confirmation of their rights in writing from relevant management.
- Internal Audit, in conjunction with ITD, must perform periodic reviews of software usage on PMU PC's, laptops and servers to ensure that it is in compliance with licensing agreements.
- All software found in violation must be removed immediately. Parties responsible for loading and/or using non-compliant software will be subject to corrective actions by management.
- The implementation of new or upgraded software must be carefully planned and managed, ensuring that the increased Information Security risks associated with such projects are mitigated using a combination of procedural and technical control techniques

User Responsibilities Regarding Software Copyrights

The unauthorized use, copying, or distribution of copyrighted software is not allowed.

Unauthorized acts include, but are not limited to, the following:

Making extra copies of computer based software for use on other computers unless specifically allowed through a licensing agreement;
 Putting copies on a network in unprotected environments where they may be copied by others

To comply with government mandates and to ensure ongoing vendor support, the terms and conditions of all End User License Agreements are to be strictly adhered to:

- Obtaining copies of software from others without paying the appropriate licensing fees;
- Unauthorized distribution of software by electronic mail.
- All users of software on PMU Information Systems must strictly abide by copyright laws and restrictions detailed by the software manufacturer and the Agreements signed therewith.
- A copyright notice must be used to protect software or other copyrighted materials developed by or for PMU.

Obtaining and Using Software

Software Definitions

Software that can be obtained from sources other than ITD can be defined as follows:

- **Evaluation Software:** Evaluation software is a limited software that has some of its features disabled. This software usually allows the use of a fair number of features in order to entice a user to purchase the full product.
 - **Public Domain Software:** Public domain software is made available with no restrictions on its distribution or copying. However, unless there is a statement to the effect that the software is in the public domain, the user should assume the author retains the copyright to the software.
 - **Freeware Software:** Freeware is free and was developed to provide end users with a new application. There are no license restrictions to these programs.
- **Shareware Software:** Shareware is software that can be downloaded, tried and evaluated for its use, and its full-featured program can be bought at a nominal fee. If not bought, the shareware programs usually either stop functioning after a period of time or they continue working but will never have all of the features that the purchased version would have.
- **Application Software:** Application software is a software containing business application programs that may have been developed in-house or by a third party or may have been purchased off-the-shelf.

Evaluation and Public Domain Software

Obtaining or downloading of evaluation and public domain software from other than PMU sources is permitted only under the following conditions:

Selecting Business Software Packages

- The software must be required for a legitimate business purpose and approved by management.
- Use of the software must comply with all applicable copyright and license agreements.
- It is recommended that the software be obtained only from known vendors or suppliers, ideally those with whom PMU currently does business, or are considering doing business with.
- At a minimum, an evaluation as to the safety and reliability of the vendor or provider of the software must be performed by the person obtaining the software.
- The person obtaining the software should check it for viruses, trap doors, and other malicious code. A reasonable evaluation must be performed on a single system or in a test environment lab before deploying the software to others.
- If the software is found to be creating security vulnerabilities or causing system or network problems, the problem causing the identified vulnerability must be corrected in a timely manner or the software must be removed immediately.

Freeware and Shareware Software

Obtaining or downloading of freeware and shareware software from other than PMU sources is permitted only if the conditions laid out by this functional policy are adhered to. In addition, the following should be noted:

- Software distributed in this manner is often inadequately tested, e.g., Beta versions of software. The software may not work correctly, or may cause problems with other approved software. ITD has no obligation to support this software or resolve any problems it causes, unless arrangements have been made in advance with ITD Management;
- The supplier or vendor of such software may refuse to make modifications or provide support for the software in the future; and
- Shareware, where required, must be licensed and users must strictly abide by copyright laws and restrictions detailed by the software manufacturer. This includes the terms and conditions when downloading the shareware or freeware.

Purchasing Software

All requests for new applications systems or software enhancements must be presented to management with a Business Case with the business requirements presented in a User Requirements Specification document

- Proof of purchase is required for all licensed software installed on an PMU personal computing device.
- Proof of purchase may be demonstrated by possession of one or more of the following:
 - Original purchase order (or a copy of the original purchase order);
 - Receipt or packing slip from the vendor;
 - Software right to use license; and
 - Original serialized software CD or diskette.

Proof of purchase is not required for site-licensed software obtained through authorized procedures. However, users must ensure they are in compliance with the software license before copying or loading site-licensed software.

Proof of purchase must be kept and filed for reference and audit purposes.

Protection of Software

Protection of Computing Software

- CDs and DVDs and other removable media containing software programs must be locked in secure file cabinets when not in use.
- CDs and DVDs and other removable media containing application software programs must be kept under the custody of ITD

Return of Computing Software

- Software stored on PMU personal computing devices must be returned together with the personal computing device to PMU upon termination of employment or work contract.
- Off-site copies, including copies stored on personally owned computers (when permitted by the license agreement) must also be returned (or erased, where appropriate) at the same time.

Policy 03: Data Access

Purpose

Administrative data captured and maintained at PMU are a valuable university resource. To protect PMU sensitive data from unauthorized disclosure and inappropriate use the ERP system contains data from multiple operational areas that need to be integrated in order to support institutional business analysis, reporting, and decision making. The purpose of this ERP Data Policy is to ensure the security, confidentiality and appropriate use of all ERP data which is processed, stored, maintained, or transmitted on PMU computer systems. This includes protection from unauthorized modification, destruction, or disclosure, whether intentional or accidental. This policy applies not only to stored information but also to the use of the various computerized systems and computerized programs used to generate or access data, the computers which run those programs including workstations to which the data has been downloaded, and the monitors and printed documents that display data.

Definitions

ERP Data – Any data that resides on, is transmitted to, or extracted from any ERP system, including databases or database tables/views, file systems and directories, and forms.

ERP Security Administrator – An IT professional position in the Office of CIO is responsible for processing approved requests.

ERP System – Human Resources, Finance, Student, Financial Aid, Luminis, Executives reporting tool, Banner Online Reports, ERT and any other interfaces to these systems.

Data Owners - Data Owners are responsible for determining who should have access to data within their jurisdiction, and what those access privileges should be. Responsibilities for implementing security measures may be delegated, though accountability remains with the owner of the data.

Area of Responsibility Data Owner(s)

Student System	:	Student Affairs Dept.
Student Financial Aid System	:	Budget and Accounting Dept.
Finance System	:	Budget and Accounting Dept.
Human Resources System	:	HR Dept.
Faculty Academic	:	Student Affairs Dept.
Accounts Receivable	:	Budget and Accounting Dept.

Data Custodians - Data Custodians oversee data management functions related to the capture, maintenance and dissemination of data for a particular operational area. They are responsible for the general administration of user access to data within their area(s) of responsibility. Data Custodians are appointed by the respective Data Owner.

Data Users - Data users are individuals who access ERP data in order to perform their assigned duties or fulfill their role in the PMU.

Query access – Access enabling the user to view but not update ERP data.

Maintenance access – Access enabling the user to both view and update ERP data. This access is limited to users directly responsible for the collection and maintenance of data.

Data Administration

By University policy, certain data is confidential and may not be released without proper authorization. All PMU ERP data, whether maintained in the central database or captured by other data systems, including personal computers, remains the property of PMU. Department heads are responsible for ensuring a secure office environment regarding all ERP data. Department heads will review the ERP data access needs of their staff as it pertains to their job functions before requesting access via the Banner Access Request Form. ERP data (regardless of how collected or maintained) will only be shared among those employees who have demonstrated a job related need to know.

Access to ERP Data

Below are the requirements and limitations for all PMU Divisions/Departments to follow in obtaining permission for access to ERP data. Division/Department heads must request access authorization for each user under their supervision by completing and submitting a Banner

Access Request Form

Approved requests will be forwarded to the ERP Security Administrator for processing. Under no circumstances will access be granted without approval of the appropriate department heads.

Secured Access to Data

ERP security classifications will be established based on job function. Specific capabilities will be assigned to each security classification. Each user will be assigned a security classification. Some users may be assigned several security classifications depending on specific needs identified by their Division/Department head. The use of generic accounts is prohibited for any use that could contain protected data.

Policy 04: Data Protection

Purpose

To protect PMU sensitive data from unauthorized disclosure and inappropriate use.

Policy

It is the responsibility of each individual with access to sensitive data resources to use these resources in an appropriate manner. Additionally, it is the responsibility of each individual with access to sensitive data resources to safeguard these resources. Methods of safeguarding sensitive data include:

- Sensitive data should not be stored on personal desktop or laptop computers since these computers tend to reside in less secure locations than central servers.
- Access to computers that are logged into central servers storing sensitive data should be restricted (i.e. authenticated logins and screen savers, locked offices, etc.).
- Access to sensitive data resources stored on central servers should be restricted to those individuals with an official need to access the data.
- All servers containing sensitive data must be housed in a secure location and operated only by authorized personnel.
- Copies of sensitive data resources should be limited to as few central servers as possible.
- Sensitive data should be transmitted across the network in a secure manner (i.e., to secure web servers using data encryption with passwords transmitted via secure socket layer, etc.).
- Any accidental disclosure or suspected misuse of sensitive data should be reported immediately to the appropriate University official.

Definiation

Sensitive Data - any information that could cause an individual personal financial harm if disclosed and used improperly. Examples of sensitive data include but are not limited to social security numbers, credit card numbers, computer

passwords, and any personal information flagged for non-disclosure.

Policy 05: System Development Life Cycle (SDLC)

Introduction

This functional policy covers PMU's Systems Development and Maintenance. It is essential that security is built into information systems and not bolted on afterward. Therefore ITD will document the security and control requirements to be determined during system design, development of the system architecture and to be implemented in the final system. Effective security related change control procedures will be in place to ensure changes occur to the system in a controlled and secure environment with minimal risk to the "live" environment.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU.
- All of the above are either owned or leased by the PMU and under PMU's possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Systems Development and Maintenance Functional Policies

Roles and Responsibilities

Project Management

The Project Managers responsibilities include, but are not limited to the following:

- Provides overall direction for the project;
- Ensures appropriate representation of affected users and business units if necessary;
- Monitors and controls costs and project timetable; and
- Ensures deliverables are a quality product.
- Ensure adequate implementation of security policies.

Project Planning

Purpose of Project Planning

Planning must be done for development of new systems/applications and for any major and/or minor enhancements to systems/applications.

Creation of Project Plan

Project Plan creation must include consideration for the following:

- The allocation of personnel and information resources needed for analysis, design, implementation, administration, and maintenance.

- The plan must include a discussion of specific goals as an integral part of the system requirements. This must include:
 - Documentation of known constraints, which could impede proper development;
 - Processes to ensure adequate security has been addressed, such as security reviews.
 - All cost estimates must include the cost of analysis, design, implementation, and ongoing administration and maintenance.
- All time estimates must include a reasonable estimate of the time required for a thorough analysis and implementation.
- The planned reporting structure and hierarchy must include the appropriate management levels needed for approval and control throughout the project, including:
- Requirements will be defined, and specifications approved by the Owner prior to acquiring or starting development of any applications; and
- Recoverability processes must be considered during planning since this could influence the selection of computing platforms and database management systems.

Analysis of the System/Application

Purpose of Analysis

Analysis defines the features and functions of the system or application and provides the logical system specifications from which requirements will be defined.

Analysis

The following must be included during the analysis:

- A risk analysis to determine the controls required for the system or application under development or acquired, including:
- Performing a threats and vulnerability analysis. Security vulnerability considerations including those introduced when designing the connectivity or interface with other systems and applications; and
- Performing a business impact analysis. This must include an analysis of the impact on both existing and new systems and of opening new connections
- In defining the required operating environment, existing operating system security controls must be utilized (where available).
- The environment selected must support all requirements of the system or application being developed.

- Where an application or system has no specific requirements, a statement to that effect should be documented and approved by management.
- The analysis must balance user's requirements with required security controls.
- An acquisition vs. development analysis must include specifications for required academic and business need.
- Any Request for Proposal or Request for Information used to solicit vendors must include selection criteria for functionality.

Design of the System/Application

Purpose of Design

- Design uses the logical models from analysis and makes them executable.
- The work done in design provides the basis for actual development of the system or application. System and physical architecture, interfaces, policy processes, and documentation are design components.

Requirements in Design

For all systems designed within or for PMU, requirements must be used, which have been determined in the analysis phase, prior to the application development phase. During the system design phase, Information Owners, PMU and Information Security must determine the proper control environment of the application by using the security specifications of the analysis phase.

Development Environment

Securing Source Code under Development

For securing source code under development the following must be adhered to:

- Source code, including parameter and configuration files, is a valuable information asset and must be protected when in development.
- Access control to the development environment and authorization control for all data and source code files must be implemented.
- Developer access must be restricted to only those resources required to perform established job duties.
- Security audit records capable of providing sufficient information for after-

the-fact investigation of loss, impropriety or other inappropriate activity must be generated and reviewed.

- Source code under development may be at greater risk of being acquired before all copyright protection is in place, thus making it subject to claims of ownership by intruders.
- Programmers must maintain documentation of their program development and changes in order to legally support claims of ownership for software not yet copyrighted.
- Systems/applications documentation must be prepared and maintained throughout the development/maintenance lifecycles to ensure continuity.

Management of Changes to Source Code under Development

Management of changes to source code under development must conform to the following:

- Version control must be utilized for ensuring ongoing management of changes to the source code. An automated process with specific version tracking functionality or a policy procedure may provide version control.
- Source code under development must be backed up and secured from unauthorized access.
- Changes to source code must allow for rollback. Rollback will enable the developer to restore source code to its original state if necessary.
- Changes to source code under development must be part of the change control process.
- System/Application documentation should be updated when changes are made.
- Changes to source code must be evaluated by a second person to review if any inappropriate code has been included (i.e. Trojan horses, etc).

Test vs. Production Environments

The following must be adhered to for the test and. production environments:

- Development and testing must be performed in an environment which is separate from production, either physically or logically, to ensure that testing and production processing cannot impact each other.
- If possible, testing should not involve any components of the production environment, including software, hardware, and network connectivity.
- Testing should be done only with test data; production files and data must never be impacted by the development process.
- If access to production environment is required, such access must be approved by the Information Owner and must be limited to read only.
- Copies of production data may be used for testing, after scrambling where

feasible, if they are controlled to the same degree as in production.

- Sensitive data should be sanitized or deleted from the created test data.
- Production processing must be performed only with production data. Production data must never be impacted by the testing process.
- Development hardware must not be migrated to a production environment until all development and testing is completed and proper signoff was obtained.
- It is recommended that the operating system and all file systems be reinstalled and reinitialised to ensure that all production security controls are in place.
- Measurements need to be in place to ensure that the tested system is transferred to production without any alterations (e.g. using checksums).

Testing of the System or Application

Purpose of Testing

- Testing verifies that the features and functions of the system or application are in line with the development specifications and ensures that its operation is compatible with the environment in which it will run.
- During testing, the test scenarios are designed for unit, system, integration, and acceptance testing.
- All tests are executed and the results are logged and evaluated. All errors must be corrected during testing and before implementation.

Security Requirements for Testing

Security must be integrally included in unit, system, integration, and user acceptance tests. This includes both developed and purchased software. In all cases:

- Test plans must include time and resources to sufficiently test all aspects of the security functionality.
- Scenarios for testing security must be designed in attempt to defeat or circumvent security.
- Testing procedures must be properly documented on the change request forms.
- During integration and acceptance testing, logical access restrictions must ensure that developers have no update access and that the code being tested cannot be modified without written consent of the user.
- Both successful and unsuccessful access attempts must be tested and the appropriate audit logging must be verified.
- The developer must supervise unit testing in the testing environment. The developers manager must then perform an independent review of these results.

- As part of the test, verification must be done to ensure that the newly developed system or application does not introduce vulnerabilities in existing structures, common networks and systems.
- If test data must be transmitted to an external site, other than to the ultimate recipient, to complete a test, all sensitive or proprietary information in the data must be sanitised or deleted.
- If the system or application is intended to execute on more than one type of platform, security must be tested in each of the possible operating environments.
- Testing of security administration functions is required.
- If the software being tested was purchased, it may be advisable to have a technical representative from the vendor onsite during the testing.
- The system or application must be tested when the security function is down to ensure that access is not allowed.
- All testing logs and evaluations must be secured and marked.
- Where a mechanized scanning tool is available, a vulnerability scan must be completed for all new systems prior to being approved for production. The tools used for such scans must not be distributed to the developers or any persons other than security or system administrators.
- All significant modifications, major enhancements and new systems must be integration and acceptance tested prior to installation of the software in production.
- Volume and stress testing for the security functions must be included in the test plan. If possible, maximum user access should be simulated to measure the response of the system.
- Backup and recovery processes for the system or application and for any databases must be tested.
- Disaster Recovery Plans must be tested and updated to ensure changes to systems/applications are adequately addressed.
- All tests performed must be signed off in the test plan/test script by staff who performed the test and must be approved by the Business Owner.

Unit Testing

- The developer will supervise unit testing in the development environment.
- Testing procedures must be properly documented and the developer's manager must perform an independent review of unit test results.
- If problems are noted, the developer will document the problem, make appropriate modifications in the development environment.

Integration Testing

- All significant modifications, major enhancements and new systems will follow integration testing prior to installation of the software in production.
- System stress testing and volume testing must be performed, and in some cases, parallel testing will be required.

- Integration testing must be conducted in a separate, independently controlled environment.
- During integration testing, logical access restrictions must ensure that developers have no update access and that the code being tested cannot be modified without the written consent of the user.
- Copies of production data, sanitized from any customer data, or pre-designed test datasets must be used for testing purposes..

User Acceptance Testing

- All significant modifications, major enhancements and new systems must be acceptance tested by the appropriate users, prior to installation of the software in production.
- The user acceptance plan will include tests of all major functions, processes and interfacing systems.
- Testing procedures must be properly documented on the change request forms.
- During acceptance testing, logical access restrictions must ensure that developers have no update access and that the code being tested cannot be modified without the written consent of the user.
- If problems are noted, the user will document the problem, the developer will make appropriate modifications in the development environment and submit it to CASD for re-testing.

Implementation of the System or Application

Purpose of Implementation

- Implementation installs the system or application into production.
- During implementation, data is converted as needed, and live processing begins.
- Users and operators should be trained before implementation.

Requirements for Implementation

Before moving a system or application into production, the following must be accomplished:

- An operational readiness review must be completed which includes evidence of the following items at a minimum:
 - Compliance with the current PMU IT Architecture;

- Satisfactory completion of vulnerability scanning, where feasible;
 - Preparation of a Disaster Recovery/Contingency Processing Plan; and
 - Assignment of an appropriate number of qualified System and Security Administrators.
- A backup of all existing files and databases that will be impacted must be done before beginning implementation.
- After successful installation, all developer access must be removed to the production environment.
- If multiple sessions were allowed for any testers or other users, they should be reviewed in production and limited if no longer needed or conflicts with existing access.
- Approval to move software from development to production must be obtained.
- Approval to move software from production to development must be obtained within the formal change management process.
- Security administrators and users must be fully trained on the new functions.
- Any policy security processes required for implementation must be in place.
- Availability of a facility to print security reports, such as:
 - Security violations;
 - User profiles and access rights; and
 - User administration activities.
- Personnel to review and monitor audit intrusion reports must be available and trained.
- For purchased software, a written vendor statement that all security controls have been successfully implemented and are functional must be obtained.
- Only object code should be distributed to end users.
- Rollback plans need to be in place.
- License data on all purchased software distributed must be maintained.
- If the new system or application is replacing an existing system, procedures for maintaining security administration on both systems during the implementation must be established.
- Ensure the correct version is installed (the version that was tested and signed off).
- Ensure the necessary SLA is in place and signed.

Maintenance of Systems or Application

General Maintenance Information

General maintenance information includes:

- Maintenance of systems and applications begins after the system or application is stable and no longer under development and continues over the life of the system.
- It includes day-to-day system/application monitoring, tuning for performance purposes, scheduled and emergency maintenance functions, problem management to correct faults and to adapt to business change, change control for system enhancements, and security administration.
- Maintenance actions must be planned and must sufficiently cover the maintenance of security functionality of systems/applications.

Monitoring of Systems and Applications

Monitoring of systems and applications must be in accordance with the following:

- Systems and applications are only valuable if they are available at the required times. All parties involved must ensure that procedures to support operational monitoring of all production systems and applications are in place.
- Dated and time stamped logs should be produced to aid in evaluating the operations. Examples of areas to monitor include:
 - Outages and downtime;
 - Volume of usage for data and users;
 - General system response time; and
 - System and resource access.

Emergency Maintenance Procedures

Emergency procedures for correcting unpredicted software errors must include:

- The ability to grant sufficient access to enable the maintenance personnel to accomplish the task.
- As soon as the emergency is past, details of the changes implemented must be documented.
- This documentation should include the following details:
 - The change requestor;
 - Authorization for change;
 - Short description of the required change; and
 - The time frame in which the change was required.
- Normal maintenance or change control procedures should be applied retroactively.
- Emergency changes to programs should be made to separate copies of the programs to allow production work to continue.

- After the emergency, implementation approval as used in change management should be utilized.
- If it was necessary to grant special access to production resources, activities must be monitored and logged. After the emergency, all such access must be revoked.
- The installation of any type of back door that circumvents security controls is prohibited.

Policy 06: Change Management

Introduction

Prince Mohammad University relies upon IT services in order to perform its roles of teaching and administration. The inter-dependencies of these systems are complex and the results of change made to any system may have serious consequences. The uncontrolled implementation of changes to University's IT systems, critical systems and underlying infrastructure utilized to perform its core roles presents a significant risk to the University.

Changing system requirements, resolution of known issues, implementation of new services and routine maintenance all require appropriate Change Management. Change management ensures the stability of systems by the identification and mitigation of associated implementation risks, minimization of disruption to Prince Mohammad University's operations caused by system outages, and improves service and service levels provided to the University.

The Change Management policy is based on the industry best-practice standards of ITIL – the IT Infrastructure Library.

This policy outlines the ITD Change Management process, including its roles and accountabilities.

Purpose

The goal of Change Management at Prince Mohammad University is to ensure that standardized ITIL (IT Infrastructure Library) methods and procedures are used for efficient and prompt handling of all Changes to the IT systems; thus minimizing any undue disruption to IT services delivered to the University.

Change Management also aims to provide the ITD the ability to rapidly adapt as University's requirements change and increase their ability to ensure a customer focused operation is maintained

To ensure that a comprehensive business and technical risk assessment is made for all changes, allows for open communication between key stakeholder and coordination of resources required for successful implementation.

Definitions

PMU: Prince Mohammad University

ITD: Information Technology Department

ITIS: IT Infrastructure Services

Change Management: is the process of developing a planned and documented approach to change in an organization. In the ITIL framework, Change Management is responsible for controlling change to all configuration items within the live environment, test and training environments, and all environments under the control of ITD operations. It is not typically responsible for change within development projects where change requests are managed by the Project Manager.

CAB: The Change Advisory Board. As can be inferred from the name, this body has no governance role, but is tasked with *advising* the Change Manager and Service Owner of the perceived impact of a requested change. This body is made up of a core group with representation from all major systems and the core Services teams, and incorporates required stakeholders depending on the nature of the Request for Change being assessed.

ITIL: The IT Infrastructure Library is a collection of internationally recognized best-practices for delivering IT Services, covering all aspects of service provision, quality assurance, and providing a framework which allows customization of internal processes. It was developed within the British Public sector and has since been revised with commercial input to become the world standard for IT Service Management.

RFC: Request for Change – an electronic form which initiates the Change Management process.

CM Change manager: is a Chair of the CAB meeting and will be responsible to select the CAB members per the nature of the RFC. CM is also responsible for scheduling and publishing approved changes.

Service Owner: is a person or department responsible to provide the service for the business.

Change Management Process Development

Guidance from ITIL

The Change Process at the Prince Mohammad University has been based extensively upon the guidance of the British Government "Information Technology Infrastructure Library" textbooks (ITIL). Wherever possible, this guidance has been followed closely, most notably in the use of the ITIL terminology.

The ITIL texts provide comprehensive guidance as to industry best-practice in this area, and have been widely adopted as standards to ensure IT infrastructure stability and resilience.

ITIL forms the basis of the British Standard BS15000 and International Organization for Standardization ISO20000.

Process Development

The Change Management Process was developed within the ITD and implementation will be staged. The benefit of this approach is to work on the process iteratively, allowing various approaches to be trialed before formal adoption.

Process Improvement

The Change Management Process will undergo continuous improvement. The primary source of improvements will be the review phase of the process, wherein the Change Advisory Board members analyze and identify process improvements which will enhance success or increase the efficiency of the process.

Constructive feedback is welcomed, and suggestions for improvement will be incorporated wherever value is added.

Change Management Process Notes

Change Process Scope

Currently the scope of this process is limited to ensure a successful staged implementation. All changes to centrally managed IT infrastructure and Systems must follow the PMU Change Management Process.

This scope is further limited to changes for which an outage or noticeable change is visible for clients. This ensures the process is not swamped by minor operational changes, and reduces the bureaucratic overhead of the process.

Integration with the (Purchase Department) Approval Process

Where Purchase Department approval is required for IT equipment or software purchases, an assessment of the impact of the purchase should be sought through the PMU Change Management process. The appropriate place for this integration is prior to distribution of Request for Proposal made by office of CIO

In some instances, assessment may be requested to provide information for inclusion as part of the development of the business case.

Change Type

The type of the changes which follow the Change Process varies. The following categories have defined:

- Pre-approved
- Minor
- Medium
- Major
- Urgent
- Emergency
- Installation
- Evaluation

The type of the Request for Change (RFC) affects the timeline of the request, determines the notifications which must be sent, and the review and closure process to follow.

Pre-Approved Changes

Many changes do not require authorization, and do not need to pass through the formal process. Those changes should still be logged in the normal manner; however they will proceed to the scheduling phase immediately.

This is essential to ensure appropriate change scheduling, and the minimization of impact arising from change conflicts. It also provides an audit trail of

improvement made to systems and services. In CAB review phase the minor or medium changes done frequently can be categorized as Pre-Approved Change.

Minor or Medium Changes

Minor or medium changes follow the standard change process and may affect relatively few clients or cause minimal impact; however they do require proper notification of selected groups of staff or students.

Major Changes

Major changes are designated as such because they affect, or have the potential to affect, large numbers of clients, or will involve lengthy outages of critical systems.

Major changes will typically involve notification of all staff or students and may require authorization by Senior University Management (IT supervisory committee, Communication meeting)

Urgent Changes

Urgent changes are designated as those which are not able to follow the standard change implementation timeline. These may occur due to external factors such as consultant availability or external project critical timelines, possible hardware failure, or simply due to scheduling issues necessitating implementation in conjunction with other previously scheduled changes.

As these changes fall outside the normal change window, a special meeting of the CAB may be held, or consultation prior to approval may be made by email.

All urgent changes will be reviewed by the CAB post-implementation. This will ensure that appropriate measures are taken to reduce or eliminate the requirement for such urgency.

Emergency Changes

Changes may be designated at the time of recording as 'Emergency' changes. These changes will not be required to follow the standard Change Management Process, but instead are automatically approved and proceed directly to implementation. Emergency changes naturally take schedule precedence from all other changes.

All emergency changes are reviewed by the CAB, following implementation.

Installations

All new systems to be commissioned within the IT managed server facilities must be submitted as an RFC. This allows the CAB to assess the request for business and technical risk and ensure appropriate resources are allocated. It also automates the creation of appropriate work requests to ensure all standard tasks for preparation take place.

Evaluations

The process for the evaluation of a new item of equipment or software prior to its sale or support is important in order to ensure support criteria are met. The inclusion of a change type for the evaluation of new equipment etc reflects this importance, although it constitutes a variation on the standard process.

Request for evaluation are circulated to a number of key areas of ITD, to ensure appropriate checks take place prior to introduction.

The Change Advisory Board

Overview

The Change Advisory Board (CAB) is the body responsible for the assessment of changes to determine their risks and impact, and authorization of RFC implementation or otherwise.

Given the complexity of computing environment a CAB has to be developed which has the depth to ensure accurate assessment and identification of risk and impact, both from a business viewpoint, and technical and support issues. The method chosen in this instance has been to establish a "core" CAB of relevant staff from the IT infrastructure services and mission critical MIS system, which will almost always be involved in change assessment, and then bring other appropriate stakeholders into the assessment when required.

The members of the core CAB:

- Change Manager
- Infrastructure Supervisor
- MIS Supervisor
- Academic Supervisor

- Business Representative

In essence the CAB has a dynamic membership so we do not waste the time of those that particular changes do not impact upon. This follows the industry best-practice guidance provided by ITIL.

Additional CAB members relevant to each change are added to the group based on the services affected by a particular RFC. In particular this includes the service owners of all affected services. A further list of stakeholder for inclusion in the assessment includes representation from all service units and academic colleges and is built in consultation with those units. It may include a technical support of management staff with vested interest in the service

These stakeholder will be given the opportunity to submit an assessment of relevant changes, however they will not be required to attend the regular CAB meetings , although they are welcome to do so.

CAB Responsibilities

- The responsibilities of the CAB members are:
- Identification of business , technical and support risks associated with the implementation of the RFC
- Identification of the direct or indirect costs and resource requirements
- Identification of impact on any other University services
- Identification of impact on PMU operations not directly associated with the change
- Circulation of assessment and collation of responses from team members
- Timely response to requests for assessments
- Assisting the Change Manager with authorization of RFCs

CAB Meetings

The CAB will meet weekly to perform authorization, review and closure of RFCs. The Change Manager is responsible for scheduling and rescheduling the meeting.

Time frame

As the CAB meets weekly, impact on timeframe for implementation should be minimal, given appropriate planning prior to RFC initiation.

Agenda

The CAB meeting will be chaired by the Change Manager, and will follow a standard agenda.

Authorization

Discuss RFCs in assessment phase
Approve or Reject RFCs

Scheduling

Schedule changes
Ensure ITS Change Calendar is updated

Notifications

Ensure all RFCs include proper notification
Emergency and Urgent RFC Review

Closure

Close all outstanding completed RFCs

Review

Review failed changes
Improve the IT Change Management Process

The agenda of RFCs for assessment will be circulated to CAB members and notified via email prior to each meeting.

Urgent Meetings

An ad-hoc urgent CAB meeting may be called as and when required for urgent changes. This may be conducted via email if required.

Quorum

For IT infrastructure changes, a quorum of four CAB members must be present

in order to authorize any RFC. In the absence of sufficient CAB members, all changes may be deferred until a time a quorum can be obtained or referred to Service Owner, IT Directors, and Chief Information Officer to authorize.

Authorization

For an RFC to be authorized, it must be approved unanimously by the CAB, having taken into account the assessments submitted. Should a unanimous decision be unachievable, the RFC will be referred to Service Owner, IT Director or Chief information officer for a final decision.

Reporting

An essential element of the Change Management Process is the requirement to ensure the IT supervisory Committee and Senior Management are well informed about all Changes relating to mission critical systems, especially those for which they have delegated accountability.

The Department heads and Service Owner identified for each MIS system are to be included in automated reporting. The Forward Schedule of Changes will also be circulated to ITD Management and Senior Administrators monthly.

Process Overview

Initiation / Recording

Due to the variety of the changes that may be required, specific Request for Change forms is designed to suit the type of change. They are as follows (see Appendix A for templates):

The proper recording of changes is essential to this process. All changes must be submitted either electronically or by tools approved by PMU.

RFCs must be filled out in full and include the following information:

Initiator	The person requesting the change should fill in their userid. All communication with the initiator will then be made by email
Service Affected	To identify the Owner and stakeholders of the

	service which are to be consulted and given the opportunity to take part in the RFC assessment.
Requested Date	This indicates the data and time on which the initiator wishes to implement the change. Both date and time are required to assess the impact of outages.
Critical Date	In most cases the requested date will become the implementation date. The exception to this is when the request conflict with higher priority change already in the system, or when another critical date is indicated by the assessment. The critical date should be the date by which this change must be implemented. It will be used to resolve scheduling conflicts only
Change Description	Describe the requested change in detail, providing as much information as required for other staff to understand and make an appropriate assessment. This change description should include details of the implementation plan, if appropriate.
Reason for Change	Why is this change being requested? Is It to fix a known problem? If so provide the provide the problem number.
Who will this Change effect?	The RFC initiator should provide their assessment of the impact of this change. Which clients will be affected? Will other services be affected? Which staff will be required for the implementation? The CAB will ensure appropriate representatives from this list provided are advised of the change and allowed an opportunity to provide their assessment.
Length of an outage	If there is to be an outage associated with this Change, please indicate the length. Approximation should be accompanied with some explanation.
Back out plan	If the change implementation fails, what plans have been made to reverse the change? These plans

	should be comprehensive, as in the case of a failed change, they will be reviewed by the CAB to identify area for improvement.
Change Type	Indication of the type of RFC: Pre-Approved , Minor , Medium , Major , Urgent or Emergency
Notification Text	What message should be sent to the clients?

Filtering

It is essential that indicated fields are filled in, and the system/CM will not save the requests without identification of the initiator, change description, requested date and back-out plan.

The above filtering can be done at form level or by using tools approved by PMU. policy Filtering of RFC also takes place to ensure changes are not submitted to the process which are erroneous and frivolous or requested by unauthorized staff.

Initial errors in the completion of the RFC form must be quickly identified, as must any missing information. RFC record may be updated by the Change Manager, CAB members, or the RFC initiator. All changes made will be logged to ensure proper audit trail.

Inputs

Completed RFC form

Output

Filtered and corrected RFC

Roles and responsibilities

Responsibility for filtering the RFC form and ensuring accurate information has been recorded lies with the Change Manager. In the absence of the Change Manager this responsibility lies with the members of the core CAB.

Assessment

Assessment is one of the key phases of the process. Request for change will be forwarded via email to the CAB members for their assessment. The CAB is responsible for assessing the RFC and providing their assessment of:

- Business and technical risks associated with the RFC
- Impact on any other PMU Services
- Impact on PMU operations not directly associated with the change
- Direct or indirect Costs and resource requirement

Email notification will be sent to all core CAB members, the Service Owner, and identified service stakeholders following successful RFC and collation of responses from other affected colleagues (where necessary). The notification of assessment can be forwarded to other staff members if required.

CAB members have a responsibility to ensure they respond to requests for assessment in a timely manner. Should no response be submitted, it will be assumed that no impact is foreseen in their area and therefore they approve the RFC.

Requests for further Information

CAB members may also use email to request more information from the initiator. The initiator may respond by email. Following response, the CAB will be informed of both the question and the answer provided to assist with their assessment. This will highlight areas of the RFC where clarification is required and may also result in revisions to components of the process itself.

Inputs

RFC

Outputs

CAB assessment

Assessed change for authorization

Roles and Responsibilities

The change Advisory Board members have a responsibility to assess all RFCs to the best of their ability and knowledge.

Assessment should be provided within two working days of notification

Categorization

Taking place in parallel with the assessment phase the RFC is categorized on a number of aspects.

Source

The source of the change is categorized in order to identify whether the RFC is the result of a fix to a known problem, a new service, an installation, a patch or upgrade, or a client requested enhancement.

Service

It is important that the service to be changed is identified, as this allows the identification of relevant stakeholders who would then be requested to take part in the assessment.

Impact

The impact of the change is the extent to which it affects PMU's operations, based roughly on the number of clients affected by the change, or the business critical nature of the services affected.

Urgency

Urgency provides an indication of the extent to which delay of implementation can be tolerated

Priority

The combination of Impact and Urgency allows us to priorities RFCs appropriately; ensuring resources are targeted where they are most needed and eliminating scheduling conflicts.

Scale

The scale of the change gives the CAB an indication as to the level of authorization required.

These categorizations are important to monitor the nature of changes, and to ensure efficiency of the process. They also contribute to the approval and scheduling phases of the process.

Authorization

Following assessment by the CAB, the RFC will proceed to authorization. All RFCs are authorized by the CAB during the weekly meeting or by special arrangement if the RFC is designated urgent. Authorization will be based upon the collected assessment made by the CAB members, and will balance the expected benefits of implementation with the business and technical risks identified, the urgency of the change and the predicted impact on clients or PMU operations.

All changes to centrally managed IT infrastructure will be authorized by the CAB itself. In the case of RFCs which are for MIS systems, a recommendation for approval or rejection, and the CAB assessments will be forwarded to the Service Owner or appropriate authority for formal sign-off. Those changes which will impact on several critical MIS systems will be referred to higher authorities depending on the scale of the change.

For an RFC to be authorized, it must be approved unanimously by the CAB, having taken into account the assessments submitted. Should a unanimous decision be unachievable, the RFC will be referred to the Service Owner, ITIS Director or CIO for a final decision.

Following the CAB meeting the appropriate RFC will be updated, setting its status to Approved or Rejected, and specifying any points noted by the CAB during the discussion.

Approval of the RFC will result in the notification of the CAB members, the Service Owner, the Initiator, ITIS Director and CIO

Rejection of the RFC will result in notification of the initiator with the reason for rejection.

No unauthorized RFCs will be implemented. The decision of the CAB or Service Owner will be final. The RFC may be re-submitted provided that all the issues resulting in the rejection have been mitigated.

Inputs

- CAB assessments
- RFC

Outputs

- Recommendations for approval or rejection to the Service Owner.
- Approval or rejection notification to the Initiator,
- Notification to ITD Management
- Notification to Service Owner
- Notification to CAB members

Scheduling

Proper scheduling is important to ensure change implementations do not conflict and cause undue impact on the PMU operations.

The IT change calendar should be published on the Intranet. This should be the definitive source of change schedule information, and is updated automatically directly from the Change process.

Changes requested for implementation within the same time period are rescheduled based on the impact and urgency of each change

Input

Approved Changes
Existing Change Schedule

Output

Updated Change Schedule

Roles and responsibilities

Scheduling is the joint responsibility of the Initiator, the Service Owner and the Change Manager.

Notification

All notification to Clients should be broadcasted. This ensures consistency and reliability in notification process and content. This is especially important where outages may affect client operations, or where an outage to normal service is involved.

All notification will include reference to the appropriate RFC and links to the ITS change Calendar.

Notifications will only be sent following proper change authorization.

No change notification to be sent by any other party.

All RFCs which are rescheduled must be notified to clients, firstly to inform them of the cancellation of the original change or outage window, and then to provide details for the updated schedule.

Inputs

Scheduled Change
Notification text via RFC

Outputs

Notification to appropriate client groups

Roles and responsibility

Responsibility for notification lies with the IT help Desk / or the Change Manager.

Implementation

- From a change management point of view, the implementation of the change should follow the plans provided as part of the RFC.
- Success or failure of the implementation must be promptly reported to the IT
- Helpdesk, as must any known issues created by the implementation.
- Following the scheduled date of implementation, an email message will be sent to the initiator requesting a status update.
- On the requested implementation date, a problem record will be created and all incidents attributed to this implementation will be recorded efficiently which will provides raw data for change review phase.

Inputs

Authorized and Scheduled RFC

Outputs

Successful or failed change
Problem record with associated incident

Roles and responsibilities

The Initiator has responsibility for ensuring the implementation follows the suggested plan, and that back out plans are implemented if required. They are also responsible for ensuring appropriate staffs are available to assist with implementation, when and if required.

Review

All changes which fall into the following categories are reviewed:

- Failed Changes
- Changes which exceeded the specified outage window
- Emergency or urgent changes
- Changes causing unexpected or unreasonable incident volumes

Changes falling into these categories will be passed to the Change Manager, who will ensure appropriate investigation take place, circulate a written report, and facilitate discussion to ensure any improvement to the process, or to the implementation can be identified and actions are taken to resolve.

All stakeholders and relevant Service Owners will be requested for information pertaining to the impact of RFC upon their operations, and will also receive a formal review report at the end of the process.

Inputs

Implemented Changes

Outputs

Review document to CAB m Stakeholders and Service Owners
Process Improvements

Roles and responsibility

The CAB members are responsible for appropriate review of changes and identification of improvements or additional safeguards to ensure future successful change implementation.

Closure

The formal process of RFC closure is the final step of the change Management process
The CAB members will close all RFCs formally at the normal CAB meeting, following any review or discussion required.

Inputs

Completed RFCs

Outputs

Closed RFCs

Roles and responsibilities

The Change Manager has the formal responsibility for RFC record closure.

Reporting

The PMU change management process incorporates several key communication opportunities.

Change Calendar

The Change Calendar will be published via the web as publicly available information. It is updated dynamically upon each visit. This allows all interested parties to see those changes which have been authorized, are still to be assessed etc.

Forward Schedule of Changes

The Forward Schedule of Changes is circulated to the ITD directors and IT Supervisory Committee where appropriate. This keeps those bodies informed of all upcoming changes.

Management Reporting

An essential element of the Change Management Process is the requirement to ensure Service Heads are well informed about all Changes relating to mission critical systems, especially those for which they have delegated accountability.

Change Process Metrics

Each step of the process should have associated metrics which allow the process quality to be monitored, and improvements to be identified.

Example metrics include:

- Time to assess
- % failed changes
- Number of assessments per RFC
- Impact as per incidents recorded

Policy 07: Data Center Operations

General Guidelines

- Staff and visitors alike may not tamper with, or in any manner adversely affect, security, infrastructure monitoring, and/or safety systems within the Data Center.
- Smoking, drinking, and eating are strictly prohibited within the Data Center raised floor space.
- Unless otherwise expressly permitted in writing, storage of combustible materials (e.g. wood, cardboard and corrugated paper, plastic or foam packing materials, flammable liquids or solvents) are prohibited within the Data Center.
- Sharing Data Center Proprietary information (like architecture, design, facilities information and services) without the express written permission is strictly prohibited.
- All hand-carry containers, boxes, bags, laptops, purses, backpacks, or equipment carried into or out of the Data Center are subject to inspection by Data Center staff and/or Security.

Physical Security

- Data Center is a secured facility. Access to the data center and other areas of the facility are restricted to persons with authorization.
- Security controls include 24 x 7 security officer presence, sign-in procedures for all ingress and egress, managed key and access card plans, managed access permissions and access request methods.
- Ingress and egress to Data Center is monitored on Closed-circuit television (CCTV) cameras
- Tampering with, or in any manner adversely affecting, security and/or safety systems within the Data Center is strictly prohibited.
- Safety and Security Departments has the right to access any part of the Data Center at any time for safety and security reasons.
- All persons entering the Data Center must:
 - Possess either authorized staff ID or authorized visitor ID
 - Have Authorization to access the facility

Rack/Cabinet and Cabling

- All refuse materials (which include, but are not limited to boxes, crates, corrugated paper, plastic, foam packing materials, and any other materials which are non-essential to the operation of equipment) must be removed. Materials must be placed in designated disposal
- All spare equipment shall be stored in a cabinet or must be kept in approved plastic or metal containers. Containers must be sealed, stacked neatly and can not impede ingress/egress or cooling.
- The tops of the cabinets or racks may not be used for physical storage.
- Mounting or hanging anything on walls of Data Center or on housed cabinets is prohibited
- “Un-racked”, operating equipment outside of cabinets/racks is strictly prohibited.
- Unsecured cabling across aisles or on the floor is prohibited. All devices must be installed in racks or cabinets.
- Cable wrapping, wire management, zip ties and/or Velcro, must be used to organize cabling in a rack or cabinet
- Cabling must not obstruct airflow / ventilation /AC (perforated tiles) or access to power strips
- All Network connected equipment is labeled with host names.

Floor Tiles

- The sub-floor (access floor) area is restricted area, accessible by or in the presence of Data Center Management Staff. The perforated tiles are strategically placed for HVAC cooling patterns in-line with the cooling requirement of the equipments/racks/cabinets

Power Protection and Backup Policy

- Main Utility Power Supply to the Data Center need upgrade should the load reaches 80% of the installed capacity
- Emergency Power Generator facility with Automatic Transfer Switch (ATS) is available to support Data Center facility for 72 Hours in absence of

Utility Power Supply

- All the Distribution Communications rooms are equipped/supplied with Emergency Power in order to provide communications facility via UPS provision of power to all switches
- Power Supply to the equipment/racks/cabinets are drawn from two different panels to provide redundancy
- All the equipment housed in Data Center is properly grounded/bonded
- Sizing of the Power Protection & Power Backup device is 50% more than the projected load
- Power Backup time is greater than or equal to 90 minutes on full projected load. The system sends alert Emails/messages to the Data Center Management Staff.
- Equipment brought into the Data Center is powered in consultation with Data Center Management in order to help calculate and determine additional power draw for the new equipment being installed

Data Center Environment Policy

- Data Center temperatures are recorded/monitored and maintained in a range of 18-22 degrees Celsius
- Relative Humidity is recorded and observed in a range of 45-55%.
- Precision AC units work in rotation with at least one unit being standby at all times.
- Adequate fire detection/alarm and suppression systems are in place
- Leak detection system is in place to monitor and report on any seepages of liquids

Supplement on Disaster Recovery

Introduction

This functional policy covers PMU's Backup & Recovery Policies. The primary purpose for the backup system is to provide for disaster recovery of key network servers and services. The backup system is not an archival system for storing information off-line for indefinite periods of time, and is not set up to recover individual email messages. It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement wherever required is supported by standards, procedures to achieve a complete security framework at PMU.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Backup & Recovery Functional Policies:

- Identify computerized systems that store information.
- Implement standard frequency of backup for each type of system or platform in use based on the significance of the information and its frequency of change.
- Implement procedures for transferring a recent copy of backup media to a physically and environmentally secure off-site storage location.
- Ensure that documented procedures exist for the recovery and restoration of information from backup media.
- Monitor backup and recovery procedures and practices to ensure compliance with this policy.
- Identify I.T. staff responsible for ensuring successful back-ups.
- Transport or provide for the transportation and storage of current backup media at an off-site storage Location.
- Ensure that a recent copy of backup media is stored off site at all times.
- Determine that the off-site storage location has sufficient physical and environmental controls to ensure the safety of backup media.

Backup & Recovery Functional Policies

Operations

- Backups are scheduled to run daily; files that were captured in weekly backup will be available for restore for a period of 3 months.

Accidental Deletion, Overwrite, Corruption

- A file that has been accidentally deleted can only be recovered from the backup system if that file existed on the network at the time of the last backup

Schedules

- Backups are to be performed, usually incremental backup daily referred as Incremental Backup.
- Schedules must be followed to perform Incremental Backup; full backup schedule should be developed to perform certain backup.
- Incremental backup will be performed request

Retention

- Depending on the type and location of the files, backup tapes are kept available for recoveries for a minimum period of 1 to 3 months before being recycled. After that, tapes should be recycled (information is overwritten) as necessary to keep the backup system running
- Off-site monthly backups to be retained for 1 year.

Notification

- System Owners/Application owners to be notified of the status of daily backups
- Weekly status of the backup system to be notified to the office of CIO.

Recoveries

- Any file stored on a network server should be "recoverable" from tape after it has entered the backup cycle, and as long as the tape has not exceeded its retention period.
- A request for a recovery must be made to support personnel (helpdesk).
- It is not possible for individuals to recover their own files for security reasons.
- When a recovery is requested, the most recent version of a file that can be successfully recovered should be restored to the network server.
- The backup system cannot recover modifications to a file made between the last successful backup and the point of failure
- The files stored on Network Drive can be requested to be restored.

Users Responsibilities

- Users must provide support personnel with three pieces of information in order for any file to be recovered.
 - When the file was lost, deleted, overwritten, or corrupted.
 - The name (spelled correctly) of the file to be recovered
 - The full directory path to where the file was located should be passed by the user.
- Users are responsible for backing up any data not stored on Authorized Servers.

Operators Responsibilities

- Backing up systems on a daily basis /weekly basis
- Backing up all necessary data files and programs to recreate the operating environment
- Storing backup copies at an off-site location sufficiently distant from the data centre to ensure their protection if the original system is destroyed
- Backing up the printed documentation and pre-printed forms necessary for recovery
- Ensuring that backup is not continually performed on the same set of tapes
- Testing the backup to determine if data files and programs can be recovered

- Ensure that the following are stored at an off-site storage location:
 - Source and object code for production programs
 - Master files and transaction files necessary to recreate the current master files
 - System and program documentation
 - Operating systems, utilities, and other environmental software

Procedures Supporting Policy

Policy 08: Security

Introduction

It is each user's responsibility and obligation to ensure that all resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption. This FP Intends to Clarify to all users on PMU infrastructure, what their responsibilities are; Define what the potential risks and dangers are for PMU in the event of misappropriation and abuse of Infrastructure users; and regulate the professional and effective use of Infrastructure within PMU as well as between PMU and external entities.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets
- All software assets
- All physical assets, such as computer and network equipment
- All supporting services, such as power and network link
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy Statements govern the General Security Guidelines:

- Responsibilities for the protection of individual assets and for carrying out specific security processes must be clearly defined;
- A management authorisation process for new information processing facilities must be established;
- Advice on information security provided by in-house or specialist advisors must be sought and communicated throughout the organisation;
- Arrangements involving access to organisational information processing facilities by an organisation handling the outsourcing must be based on a formal contract containing all necessary security requirements;
- An inventory of all-important assets must be drawn up and maintained;
- Owners must be identified for all major assets and the responsibility for the maintenance of appropriate controls must be assigned.
- A regular inventory of assets must be performed.it's a necessary security requirements;
- Classifications and associated protective controls for information must be suited to business needs for sharing or restricting information and the business impacts associated with such needs;
- A set of operational and security procedures must be defined for information labelling and handling in accordance with the classification scheme adopted by the PMU
- An information classification scheme must be implemented
- Aspects related to information security must be addressed in an employee's terms and conditions of employment and for third parties, with a formal contract with PMU;
- Any security related incidents must be reported immediately through the established channels after the incident is discovered;
- Users of information services must be required to note and report any observed or suspected security weaknesses in or threats to systems or services;
- Mechanisms must be in place to enable the types, volumes and costs of incidents and malfunctions to be quantified and monitored;
- The violation of organisational security policies, functional policies and procedures by employees must be dealt with through a formal disciplinary process;

- Physical security perimeters must exist for all areas housing relevant information processing facilities;
- Secure areas must be protected by appropriate entry controls to ensure that only authorised personnel are allowed access;
- Secure areas must be created in order to protect offices, rooms and facilities having special security requirements;
- Additional controls and guidelines for working in secure areas must be used to enhance the security provided by the physical controls protecting the secure areas;
- Delivery and loading areas must be controlled and, if possible, isolated from information processing facilities to avoid unauthorised access;
- Access to the machine rooms must be restricted to only those people who are permitted to use the machines;
- Access to the machine rooms must be monitored for illegal access attempts;
Any information processing equipment, used for information processing on PMU's systems, but situated outside PMU's secure perimeters, must be secured in a way equivalent to PMU's on-site equipment;
- Information must be erased from equipment prior to disposal or re-use;
- No employee must be allowed to remove property from the PMU premises unless they have obtained authority to do so from an approving manager;
- PMU must have and implement a clear desk and a clear screen policy in order to reduce the risks of unauthorized access, loss of, and damage to information;
- Removal of any equipment, information or information facilities that belong to PMU, from the premises must be strictly monitored and controlled;
- Incident management responsibilities and procedures must be established to ensure a quick, effective and orderly response to security incidents;
- Duties and areas of responsibility must be segregated in order to reduce opportunities for unauthorised modification or misuse of information or services;
- Detection and preventive controls to protect information and information processing facilities against malicious software and appropriate user awareness procedures must be implemented;
- Back-up copies of essential business information and software must be taken regularly;
- Systems and applications backup documentation must include the following information:
 - Ownership;
 - Procedures;
 - System dependencies;
 - Data validation results; and
 - Source code.
- Operational staff must maintain a log of their systems operation activities;
- Faults must be reported immediately and corrective action taken;
- Regular inventory of backup media must be performed;

- The management of removable computer media, such as tapes, disks, cassettes and printed reports must be protected and controlled according to its classification;
- Media must be disposed of securely and safely when no longer required;
- Procedures for the handling and storage of information must be established in order to protect such information from unauthorized disclosure or misuse;
- Controls to prevent unauthorised access to system documentation must be developed;
- Content scanning must only be enforced in checking for malicious software, viruses or violations;
- The allocation of passwords must be controlled through a formal management process;
- A formal process must be conducted at regular intervals to review users' access rights;
- Operating systems and applications must include as a minimum, adequate user access controls, password controls and monitoring controls;
- PMU must enforce all users to follow good security practices in the selection and use of passwords;
- Users must be required to ensure that unattended equipment has appropriate protection;
- Procedures for monitoring use of information processing facilities must be established and the result of the monitoring activities reviewed regularly;
- Users must not install modems in office PC's and dial in to those PC's;
- Functional policies and procedures on the use of cryptographic controls for the protection of information must be developed and followed;
- Encryption must be applied to protect the confidentiality of sensitive or critical information;
- Digital signatures must be applied to protect the authenticity and integrity of critical electronic information, where necessary;
- Non-repudiation services must be used to resolve disputes about occurrence or non-occurrence of an event or action;
- Modifications to software packages must be discouraged and essential changes strictly controlled;
- The purchase, use and modification of software must be controlled and checked to protect against possible covert channels and Trojan code;
- Controls must be applied to secure outsourced software development.

General Security Functional

Desktop Confidentiality

- To promote desktop confidentiality the following must be adhered to:
- In an open plan office users must be aware of unauthorized users reading

information displayed on their screen.

- Users must switch off their computer when it will be left unattended for an extended period of time,
- No obvious links or shortcuts to sensitive documentation must be created, e.g. shortcut for “Marketing Information.doc” on the Windows desktop.
- All Windows desktop backgrounds must be in accordance with PMU Policy
- No proprietary information must be posted on the computer screen, i.e. with post-it stickers.
- Clear Screen
- The controls pertaining to a clear screen include:

Screen Savers

A password protected screen saver will obscure the content of your computer screen after a period of no activity. Use of screen savers must be used in accordance with the following:

- User must enable screen savers on their computers, which will require input of a password if inactive for more than 15 minutes.
- Users must use screen savers, which promotes PMU business and does not offend, intimidate or disparage others.
- Users must change their screen saver password regularly,.
- Users are not allowed to disclose their screen saver password to any personnel without authorization from their direct manager at PMU.
- When entering passwords users must prevent unauthorized observation by any third party, e.g. shoulder surfing.

Computer lockout

Computer lockout must be in accordance with the following:

- Users must lock out of their workstation(s) and any active applications or log out when leaving their computers unattended.
- Users must not disclose their passwords to any personnel who want to unlock their workstation without authorization.
- A user must ensure they have logged out of all systems, including the network, after hours.

Passwords

- **Creating Passwords:** Creation of passwords must be in accordance with the following:

- Passwords must be a minimum of six (6) characters in length for regular users, eight (8) characters in length for managers and other privileged users, and must comprise of letters, numbers, and special characters to the extent possible.
 - Passwords must not be easily associated with PMU or the user (i.e. identification number, employee number, address, numerical equivalent of name, family names, birthdate, spouse name, pet names etc.).
 - Passwords must not contain:
 - Words from a dictionary, movie or geographical location; and
 - Common character sequences such as "123456".
 - Passwords should not be based upon month/year combinations such as "jan01" or "april2001". 'Hackers' use these types of words in attempts to guess passwords.
 - Users will not use cyclical passwords. For example, users cannot add a numeric at the end of the password in sequence.
 - Passwords must not consist of identical all numeric or all alphabetic characters, for example 1111111 or aaaaaaa.
- **Safeguarding Passwords:** For effective safeguarding of password, users must adhere to the following:
 - A password must be known only to the user who creates it. Passwords must not be shared with others.
 - A password must not be shared except in a temporary emergency situation. If a situation requires a password to be revealed to a second person, the owner of the password must change the password as soon as possible after the emergency situation has passed.
 - Passwords must not be stored in readable form (i.e. writing down passwords).
 - Passwords should be changed:
 - Every 45 days or less for supervisors and other privileged users and every 90 days or less for regular users; or
 - Whenever there is any indication that the user's password has been compromised, passwords must be changed immediately.
 - As an exception, password for application user ID may be set to "never expires", provided the password is encrypted.
 - Temporary passwords assigned to users must be changed at first log-on.
 - **Handling of Privileged Passwords:** Privileged passwords, such as root or super user, are powerful passwords. As such, the custodians of these passwords must properly handle them by adhering to the following:
 - A privileged password must be known only to the Administrator responsible for the system. The backup administrator should have

no knowledge of it.

- In case of emergency and in the absence of the Administrator, the backup Administrator should be given access to the password with the proper approval from his Dept. Manager. The Emergency Password form should be filled up by the requester and signed by the Dept. Manager.
- The custodian of the privileged password must use his own account to log into the system. He should then switch from his own account to the privileged account.
- After using the password, the backup Administrator should change the password,
- When the Administrator returns, he should get the new password from the backup Administrator & change it.

Virus and Malicious Software Protection

- Virus Detection Programs
 - ITD should ensure that the latest version is installed on all computers.
 - Users are not allowed to remove or de-activate virus detection programs installed on their computers, without approval from ITD.
- Preventing Viruses
 - Externally supplied floppy disks, CD-ROMs, and other removable storage media must not be used unless they have first been checked for viruses.
 - Externally supplied computer-readable files (software programs, databases, word processing documents, spreadsheets, etc.) must be unzipped prior to being subjected to an approved virus checking process.
 - If the files have been encrypted, they must be decrypted before running a virus detection program. Many virus detection programs cannot detect viruses in a zipped or encrypted file.
- Eradicating Viruses
 - Because viruses can be complex and sophisticated, users must not attempt to eradicate them without expert assistance.
 - If users suspect infection by a virus, they must immediately stop using the involved computer, disconnect from all networks, and call the Helpdesk.
 - If the suspected virus appears to be damaging information or software, users must turn the computer off immediately.

- **Playing with Viruses**

Users must not intentionally write, compile, copy, propagate, execute, or attempt to introduce any computer code designed to self-replicate, damage, or otherwise hinder the performance of any PMU computer system. Such software may be called a virus, bacteria, worm, Trojan horse, etc.

- **Related Functional policies**

Users must adhere to the Protection against Malicious Software and Viruses Functional Policy in particular the following:

- Users must not open e-mail attachments from unknown sources. All e-mail attachments received from known sources must be scanned for viruses.
- Executable attachments (i.e. .exe) must not be launched and should be deleted immediately.
- All software and/or freeware downloaded from the Internet or attachments from mail programs used on the Internet must be scanned for viruses.

Intellectual Property Rights Protection

General

- All personal computing device software must be obtained from approved sources, as defined by PMU.
- Software not supplied by PMU or at PMU direction must not be loaded or used on PMU personal computing devices.
- Obtaining or downloading of public domain and/or evaluation copies of software from other than PMU sources is permitted only under the following conditions:
 - The software must be required for a legitimate business purpose and approved by management;
 - Use of the software must comply with all applicable copyright and license agreements;
 - At a minimum the person obtaining the software must perform an evaluation, as to the safety and reliability of the vendor or provider of the software; and
- The software should be checked for viruses and other malicious code. This evaluation should be done on a single system before deploying the

software to others.

Copyright Protection: PMU strongly supports strict adherence to software vendors' license agreements and copyright holders' notices. Users must therefore strictly adhere to the following conditions:

- Making unauthorized copies of licensed and copyrighted software, even if only for "evaluation" purposes, is strictly forbidden.
- Reproduction of copyrighted materials may only be allowed with the permission of the author/owner or a court of competent jurisdiction.
- If users have any questions about the relevance of copyright laws, they should contact PMU IT Department.
- Unless they receive information to the contrary, users should assume that software and other materials are copyrighted.
- It is the responsibility of each employee to protect PMU interests as they perform their duties. This includes responsibility for assuring that commercial software, acquired by PMU, is used only in accordance with licensing agreements.

Back-up Protection of Information

Periodic Back-up

- All proprietary and/or valuable information resident on PMU computer systems must be periodically backed-up.
- Unless automatic back-up systems are known to be operational, all end-users are responsible for making back-up copies of sensitive, critical, or valuable files. These separate back-up copies should be made each time that a significant number of changes are saved.
- Users must ensure the back-up process was successful by restoring selected files from back-ups made.
- Access to back-up copies should be properly restricted; e.g. storage media such as disks, etc. should be locked-up and access to back-up drives should be set up with user profile access control links.

Destruction of Information

Deletion of Information

- Users are required to delete information from their computers if it is clearly no longer needed or potentially useful.
- Use of an “erase” feature (e.g. putting a document in a trash can icon) is not sufficient for proprietary information because the information may still be recoverable.
- All disks and CDs must be formatted before given to any third party or employee of PMU not authorized to see content. Users should contact the Helpdesk for assistance on formatting disk and CDs after authorization has been obtained from the owner of the information.

Destruction of Information

- Electronic Media: Prior to disposal, defective or damaged disks containing proprietary information must be destroyed using scissors or other methods approved

Asset Accountability

Information Assets

- Users must not leave proprietary information unattended e.g. at a printer or on photocopy machines.
- All users must protect information in any format (hard copy, disk, tape, etc) at the level commensurate with its classification.

Software Assets

- Users must protect personal computing device software from theft, unauthorized use, and/or unauthorized copying.
- Users are not allowed to install or remove any software from any of PMU computing equipment.

Hardware Assets

- Computing Equipment: Users’ accountability for computing equipment must be in accordance with the following:
 - Users must not leave laptops unattended in an unsecured environment (on site or off-site).
 - Users must not leave laptops exposed in cars or hotel rooms.
 - User must never check-in a laptop as luggage when traveling. Always carry it on as hand luggage, in a briefcase

or a laptop carry case. Airport X-ray machines do not damage data on a laptop or diskette.

- Users must return any items issued to them (laptop computers, keys, ID cards, software, data, documentation, policies etc.) to their manager or the Human Resources (HR) Department upon resignation or termination.
- Users are accountable for any damage to computers and related equipment in their work area.
- Equipment and media taken off the premises should not be left unattended in public places.
- Equipment must not be exposed to extreme heat or cold.
- Avoid storing any devices (i.e. hard disks, etc) and equipment (i.e. laptops, desktops, etc) in automobiles.
- Automobiles and hotel rooms are potential theft areas. Store devices out of the view of others.

Use of Networking Facilities

Use of Modems

- Modems for office computers are not permitted. Mobile and telecommuting computers are an exception to this rule. The use of modems must be approved as per the policy.
- Do not provide IP addresses or dial-up access phone numbers to vendors and/or unauthorized parties.
- Any individual who requires an individual analog line for dial-in/dial-out must obtain approval from the IT Department.
- Remote access software such as PC Anywhere or Carbon Copy is strictly prohibited from use on PMU computing resources without the expressed permission of the IT Department.
- Persons using remote, e.g., in-dial, ISDN, wireless or Internet, access to an PMU information resource must be individually identified and authenticated by an independent dedicated device such as Firewall.

Unauthorized Browsing

- Users must not browse through PMU computer systems or networks. For example, curious searching for interesting files and/or programs in the directories of other users is prohibited.
- Steps taken to legitimately locate information needed to perform one's job is not considered browsing.

Reporting and Responding to Security Incidents

Identification of Security Incidents

Methods by which suspicious activity can be identified by a user include, but is not limited to:

- Unexpected account lockout;
- Unusual last login time; and/or
- Unknown files in their file areas.

Reporting Security Incidents

- All PMU users must watch for any potential security incidents including:
 - Breaches of confidentiality;
 - Denial of service;
 - Errors resulting from incomplete or inaccurate business data; and
 - Information system failures and loss of service
- Any such incidents must be promptly reported to the Helpdesk and/or their Information Security Officers thru phone call or e-mail.
- Reporting of Weaknesses
 - Users are required to note and report any suspected security weaknesses in, or threats to, systems or services.
 - Users must not attempt to prove a suspected weakness as testing weaknesses might be interpreted as a potential misuse of the system.
- Reporting of Software Malfunctions
 - Prior to reporting software malfunctions, the following should be considered by the user:
 - The symptoms of the problem should be noted;
 - Any messages appearing on the screen should be noted;
 - Use of the computer should be suspended and the computer isolated;
 - The computer should be disconnected from PMU network; and
 - Disks, which were used on the affected computer, should not be transferred to any other computer.
- Users must not attempt to remove the suspected software, unless authorized by IT.
- Disciplinary Action
 - Users must know and understand that in the event of an incident caused by user negligence, they will face disciplinary action.

- All users who commit security breaches will be subjected to a formal disciplinary process.

Controlling Configuration Changes on Computers

Changes to Software

PMU has a standard list of permissible software packages that users can run on their computers. Software package conditions that user must adhere to include:

- Users must not install other software packages on their computers without obtaining advance permission from IT
- Users must not permit automatic software installation routines to be run on PMU computers unless IT has first approved these routines.
- Auto discovery license management software may be used to remotely determine which software packages are resident on users' hard disks; unapproved software may be removed without giving user advance notice.
- Users are not allowed to download and install software, games and/or freeware from the Internet.

Changes to Operating System Configurations

- Users must not change their computer operating system configurations, including:
 - Upgrade existing operating systems; and/or
 - Installing new operating systems.
 - If such changes are required and authorized, they will be performed by IT

Changes to Hardware

Computer equipment supplied by PMU must not be altered or added to in any way (e.g. upgraded processor, expanded memory, or extra circuit boards) without the prior knowledge of and authorization from IT.

Prohibited Use of Information Resources

- Any activity intended to degrade the performance of an PMU information

resource, circumvent security controls, or misuse the resource in any way is prohibited.

- Users are prohibited from attempting to access other user accounts and/or files to which access has not been expressly authorized.
- All information resources, including all owned, leased and contracted services involving word processing, minicomputers, mainframes, public telephone network elements and service bureaus, must be used only as authorized by PMU
- Unauthorized use of any PMU information resource may subject the user to disciplinary action, up to and including termination of employment, termination of a supplier, contractor or agency agreement,

Protection against Social Engineering

Social engineering is the practice of impersonating someone else to gain information or services in a fraudulent manner. Employees must take steps to avoid being the victims of social engineering. Required steps include:

- Know with whom you are communicating.
- If you do not know the caller personally or suspect the caller may not be valid, insist on a callback number and before returning the call, verify that the caller is legitimate.
- You can be “spoofed” via E-mail. The name and address you receive or send to via E-mail may not be the real name and address of the person. Do not send PMU or customer proprietary information or reply with PMU or customer proprietary information to E-mail addresses you do not know or cannot verify as correct.
- Make sure that the caller has a business need to know the information they are requesting. Never furnish proprietary information until the caller's need to know has been established.
- Users who become the victim of social engineering, or social engineering attempts must report the incident to IT immediately.

PMU Internal Network Security

- When connected to and using PMU internal networks, including Local Area Networks (LANs):
 - Do not misrepresent yourself (i.e., masquerade) as someone else on the network.
 - Unauthorized individuals should not monitor network traffic (i.e., use a "sniffer" or similar device) without first obtaining explicit management approval and informing IT.

- Do not add any network device which creates an external connection (e.g. a bridge, router, gateway, hub, modem) to your workstation without first obtaining permission from your Provider of Service.
- Do not install file sharing or peer-to-peer software (e.g. "Napster") unless PMU provides it.
- Sharing files on your own hard drive (via network connections) can pose the following threats:
 - Unauthorized access to data files
 - Damage to data/program files - either accidental or malicious
 - Damage caused by virus attacks
- If you must allow other users to access or store files on your network connected workstation:
 - You must select either User ID access control or password access control when defining the share options for the workstation disk drives and files.
 - You must not allow ANONYMOUS FTP, TFTP, or other unauthenticated access to program or data files on your workstation.

Physical and Environmental Security

Introduction

This functional policy covers PMU's Physical and Environmental Security. All information, systems and assets within PMU will enforce proper and strict physical access control. Physical security measures will be implemented to ensure the physical security and integrity of building facilities and computer centers. Protection measures will be appropriate to the classification level of the assets and information processed, stored, and handled within.

Objective

The objective of this Information Security Policies is to secure PMU Information Assets and staff. Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy Statements

The following Executive Policy Statements govern the Physical and Environmental Security Functional Policies listed in this document:

- Appropriate contacts with law enforcement authorities, regulatory bodies, information service providers and telecommunications operators must be maintained;
- The risks associated with access to organisational information processing facilities by third parties must be assessed and appropriate security controls;
- All risks resulting from third party access must be reassessed on a periodic basis, or whenever such risks change;
- Arrangements involving third party access to organizational information *processing* facilities must be based on a formal contract that must contain all necessary security requirements accompanied with appropriate responsibility and confidentiality undertaking. Any violations thereto must be dealt with accordingly;
- Arrangements involving access to organisational information processing facilities by an organisation handling the outsourcing must be based on a formal contract containing all necessary security requirements.

- Physical security perimeters must exist for all areas housing relevant information processing facilities;
- ITD must ensure that secure access areas be protected by appropriate entry controls to ensure that only authorised personnel are allowed access;
- Secure areas must be created in order to protect offices, rooms and facilities having special security requirements;
- Additional controls and guidelines for working in secure areas must be used to enhance the security provided by the physical controls protecting the secure areas;
- Delivery and loading areas must be controlled and, if possible, isolated from information processing facilities to avoid unauthorised access.
- Access to the machine rooms must be restricted to only those people who are permitted to use the machines;
- Access to the machine rooms must be monitored for illegal access attempts.
- Equipment must be sited and protected to reduce risks from environmental hazards and opportunities for unauthorised access;
- Equipment must be protected from power failures and electrical anomalies;
- Power and telecommunications cabling carrying data or information services must be protected from interception or damage;
- Any information processing equipment, used for information processing on PMU's systems, but situated outside PMU's secure perimeters, must be secured in a way equivalent to PMU's on-site equipment;
- All access requirements must be based on a need to know, need to do basis;
- Procedures for monitoring use of information processing facilities must be established and the result of the monitoring activities reviewed regularly.

Physical and Environmental Security Functional Policies

Access to PMU Premises

Physical Security Perimeter

- Based on a risk assessment, all PMU buildings must be classified and separated into secure areas. Based on the classification of secure areas

physical security measures must be implemented to provide adequate protection.

- For all PMU facilities, a security perimeter must be established. The strength of the security perimeter will be determined by an assessment of the risks and threats to the physical environment. The security perimeter includes, but is not limited to:
 - Clearly defining the facility and security perimeter boundaries;
 - Ensuring all physical perimeter components (walls, doors, windows, etc.) are physically sound;
 - Effective access control 24 hours a day, seven days a week;
 - Implementing a manned reception area to control access to the main entry of the facility and appropriate controls to secondary entrances;
 - Implement alarmed fire control doors as per local safety requirements; and comply with all applicable safety regulations.
- Any subdivision of the PMU facilities requiring enhanced physical security must have its own physical security perimeters. These areas are referred to as "secure areas". These areas would include, but are not limited to:
 - Computer data centres;
 - Security control centres;
 - Any vault or valuable storage facility;
 - Production or processing control centres.

Physical Entry Controls

- All PMU employees and visitors must be authorized by a PMU Head of Department/Business Unit and Security Department for physical entry into PMU facilities.
- Access rights to all areas must be reviewed on an annual basis.
- Access to areas deemed "secure areas" (e.g. computer data centers, security control centers, valuable storage facilities or production processing centers), must be reviewed on a quarterly basis.
- Physical access to all computer rooms must be tightly controlled. Doors must be locked at all times with only authorized personnel having access.
- Authorized personnel must not allow unknown or unauthorized individuals into restricted areas without escort. Any unrecognized and unescorted personnel within a computer room must be immediately challenged to determine the reason for their presence.
- Personnel without a valid reason for being in the computer room must be escorted out of the computer room immediately and the Security Department must be contacted through the department head or his representatives.
- It is the responsibility of each employee, vendor or visitor that has been issued an access card to immediately report lost or stolen badges.

Securing Offices, Rooms and Facilities

All Areas

All areas within PMU which need to be secured, due to the nature of the information or assets they contain, must adhere to the following controls:

- All critical computer rooms and data centres will be monitored 24 hours a day. This monitoring can be by cameras, alarmed doors and windows, people manning the centres, or a combination of the above. This monitoring ensures that unauthorised physical access to critical resources and information does not occur.
- Buildings that house the Bank's computers or communications systems must be protected with physical security measures that prevent unauthorised persons from gaining access.
- Computer room access must be limited to only those people with a valid business reason for access. Access must be reviewed quarterly and revoked immediately once it is no longer needed.
- PMU computer and data centres are restricted areas. Programmers and users are not permitted unsupervised access to the computer centres.
- Directories and internal books identifying locations of PMU information processing facilities or any other sensitive or secure area must not be readily available or accessible to the public.
- Any hazardous or combustible materials must be stored at a safe distance from any secure area per local safety regulations and manufacturer specifications.
- All doors and windows must be locked when unattended and comply with any local safety regulations.
- Rooms containing wiring or communications equipment (wiring closets, PBX rooms, etc.) must be locked at all times with access restricted to authorised personnel only. Signs are not to be posted on wiring closets, telephone rooms and other equipment components that would attract the attention of unauthorised individuals.
- Computer facility rooms must be equipped with doors that automatically close immediately after they have been opened, and which set off an audible alarm when they have been kept open beyond a certain period of time.
- To avoid unnecessary access and damages, computer facility rooms must not be used for printing, faxing, storage of computers, parts of computers or stationary.

- Computer facility rooms must not be shared with third parties.
- There must be no signs indicating the location of computer or communications centres.
- Backup and recovery media and facilities must be located at a safe distance from main facilities. The backup facilities must be at a distance that would protect it from damage from any incident at the main site.

Secure Areas

- Any person working or having access to a “secure area” must be informed of the enhanced security requirements of the “secure area”, this includes:
 - The details of the security perimeter of that area; and
 - The associated responsibilities for the area.
- Recording equipment, like photo, video, audio is not allowed unless specifically authorised by an appropriate Department/Business Unit.
- Any third party access granted to a “secure area” must be strictly controlled and monitored. All parties with access to the area must be authorised and logged. This includes support services such as cleaning or waste removal.
- Any area deemed a “secure area” must be locked when vacant and physically checked periodically. The period of checks will be determined during the designation of the security requirements for that “secure area” and creation of the security perimeter.

Equipment Security

Cabling Security

- Ethernet ports or network cabling must not be left unprotected. Exposed Ethernet ports or cabling can be used as an entry point to the PMU network by unauthorised users.
- All power and telecommunications equipment and cabling must be protected against deliberate or accidental interruption of service. This includes protecting control boxes, cables, wiring hubs and other equipment from fire, vandalism, interception of communications or disruption of service.
- All PMU network connections must be removed and/or deactivated when a site is being vacated. Unauthorised users can use Ethernet ports or cabling that are not removed or deactivated as an entry point to the PMU network.

Equipment Maintenance

- All equipment shall be under support and/or maintenance contracts. The level of maintenance taken out is to be appropriate for the importance of the item of equipment.
- All equipment must be maintained, monitored and inspected in accordance with the suppliers' recommended service intervals and specifications to provide availability and protect the integrity and confidentiality of information.
- Only authorised maintenance personnel are allowed to perform repairs and all repairs or service work must be recorded to identify potential failure patterns.
- If equipment must be sent offsite for repairs, the confidentiality and integrity of any information must be ensured.

Equipment Staging and Protection

- The level of protection that must be provided for any information resource within PMU must be assigned and will be dependent on:
 - The criticality of the service/operation being provided by the resource. For example, Is the service provided to a single user or multiple users? Is the service critical to PMU;
 - Effect of loss on supported services/operations;
 - The monetary value of the information resource;
 - Risk of theft; and
 - Value of the resource.
- A physical location must be determined for each information resource in accordance with its specified level of protection.
- Equipment must only be sited in a physical location after due consideration of the following potential threats:
 - Theft of equipment or vandalism;
 - Vibration;
 - Impact of disasters happening in nearby premises;
 - Electrical supply interference;
 - Electromagnetic radiation; and
 - Environmental factors, such mentioned in section 3.4.
- Computer equipment must be housed in an environment equipped with fire and water detection and prevention measures.

- Rooms adjacent to the computer facility room must not be used for purposes that may involve high risks (i.e. storage space, electricity room).
- Any equipment located in publicly accessible areas, or rooms that cannot be locked, is to be fastened down by some physical means such as a cable lock system or enclosed in a lockable computer equipment unit or case.
- Clear identification of ownership should be clearly marked on all computer equipment, including the asset number.

Power Supplies

- To avoid power failures, a suitable electrical power supply must be provided in such way that Single Points of Failure can be avoided.
- Based on business criticality, the use of a back-up generator must be considered.
- Recovery procedures must be documented to ensure proper fallback or fail over processes. These procedures should be part of the disaster recovery plan.
- Uninterruptible Power Supplies (UPS) must be used for equipment supporting critical business operations to orderly close down or allow systems to continue running.
- UPS and generator equipment will be checked on a quarterly basis to ensure it has adequate capacity and tested in accordance with the manufacturer's recommendations.

Secure Disposal or Re-use of Equipment

- Any PMU information processing equipment that is to be disposed of, or reused, must undergo a cleansing process before release. The cleansing process must consist of:
 - Destruction of the information residing on equipment;
 - Validation of the process; and
 - Testing of the process to ensure no data is left on the equipment.
- If the equipment stored information classified as “confidential” or “critical” the equipment must be physically destroyed beyond repair or restoration before being disposed of.

Environmental Control

- Adequate environmental safeguards must be implemented to protect IT

system resources as deemed appropriate for the sensitivity or criticality of the resource. At least the following environmental safeguards are to be assessed:

- Fire prevention, detection, suppression and protection;
- Water hazard prevention, detection and correction;
- Electric power supply protection (an international guide on maximum reasonable expenditure on power protection suggests 4 percent of the value of the equipment being protected unless the mission critical nature of a particular system necessitates additional protection.);
 - Temperature control;
 - Humidity control;
 - Natural disaster protection (from lightning, etc.);
 - Magnetism protection; and
 - Good housekeeping procedures for protection against dust and dirt.
- Environmental conditions should be periodically reviewed and monitored for conditions, which could affect PMU information processing facilities.
- Fire walls surrounding computer facilities must be non-combustible and resistant to fire for at least one hour. All openings to these walls (doors, ventilation ducts, etc.) should be self-closing and likewise rated at least one hour.
- To minimise theft and water damage, multi-user computers and communications facilities must be located above the first floor in buildings.
- All computer equipment must operate in a climate-controlled atmosphere at all times. Backup ventilation plans must be provided in the event that air conditioning systems in computer rooms fail.
- Facilities management must monitor and test fire suppression system test equipment at least every 6 months and document the test results.
- All computer room personnel must be trained in the use of any automatic fire suppression systems, the use of portable fire extinguishers, and in the proper response to smoke and fire alarms.
- Use of mobile phones must be restricted inside the computer rooms.
- Fire drill for Computer Operations staff should be conducted quarterly.

Removal of Property

- Equipment, information or software should not be taken off-site without written authorization. A copy of the authorization should be kept by the user and the manager. Written authorization should include, but is not limited to the following detail:
 - The date the removal is authorized for;
 - The name of the person that granted the authorization as well as

his signature;

- The name of the person the authorization is granted to as well as his ID and signature; and
- The serial number(s) where applicable.

- Where necessary and appropriate, equipment should be logged out and logged back in when returned (serial number(s) used, where possible).
- Spot checks should be undertaken to detect unauthorized removal of property. Individuals should be made aware that spot checks will take place.
- Computer media in transit must be protected from loss or misuse during transportation. Reliable transport or couriers should be used. Appropriate heat- resistant and water-resistant packaging should be used to protect the contents from heat, water and any physical damage likely to arise during transit, in accordance with manufacturers' specifications.

Securing Communications Networks

- Physical access to communications equipment and facilities must be restricted to authorized personnel.
- Suppliers or service engineers must be supervised when they have access to communications equipment.
- Critical areas, such as network operation centers, including those at remote sites, must be protected from power failure, such as by the use of uninterruptible power supplies (UPS).
- Communications cables should be protected by use of the following:
 - Concealed installation;
 - Armored Conduit;
 - Locked inspection/termination points;
 - Alternative feeds or routing; and
 - Avoidance of routes through public areas.
- Fiber optic cables should be used to reduce the risk of data in transit being intercepted.

Supplement on Virus Prevention, Detection, and Removal

Introduction

This functional policy covers PMU's Protection against Malicious Software and Viruses. Communications and operational management of information resources and systems are essential to maintaining a high level of service.

Security requirements will be developed and implemented to maintain control over communications and operations

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU 's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU.

Purpose and Scope

This policy applies to ITD, Owners, their delegates and/or Custodians. In the PMU context the term "Owner" covers any of the following: an information, application, installation, network, business and/or development owner:

- All Information Assets
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All business activities supported by PMU.
- All of the above are either owned or leased by PMU and under PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Protection Against Malicious Software and Viruses Functional Policies listed in this document.

- Responsibilities for the protection of individual assets and for carrying out specific security processes must be clearly defined;
- The risks associated with access to organizational information processing facilities by third parties must be assessed and appropriate security controls implemented;
- Any security related incidents must be reported immediately through the established channels after the incident is discovered;
- Detection and preventive controls to protect information and information processing facilities against malicious software and appropriate user awareness procedures must be implemented;
- The management of removable computer media, such as tapes, disks, cassettes and printed reports must be protected and controlled according to its classification;
- Back-up copies of essential business information and software must be taken regularly;
- Content scanning must only be enforced in checking for malicious software, viruses or violations;
- Media being transported must be protected from unauthorized access, misuse or corruption;
- The purchase, use and modification of software must be controlled and checked to protect against possible covert channels and Trojan code.

Protection Against Malicious Software and Viruses

Malicious Software Delivery Mechanisms

Users should also be aware that malicious software is commonly delivered by one of the following methods:

- Physical Transfer of Storage Data.
- Computer systems may become infected by exposure to a contaminated source. Malicious software can infect any form of storage media, including hard drives, diskettes, CDs, magnetic tapes and cartridges, or optical media.
- Some of the most frequent sources of contamination are:
 - Copying data from an infected diskette; and
 - Booting from an infected disk or CD.

- Infected media may be received from another user within PMU, a vendor or even in commercial shrink-wrapped software.

Electronic Mail

- Malicious code is often spread when documents and files are sent over e-mail.
- Basic e-mail is pure text and cannot contain viruses or other malicious code.
- However, most e-mail applications today allow file attachments. These attachments may contain executable macros or scripts. When the message is received, the attached macro or script may be activated by the user, giving the malicious software an opportunity to attack and spread.

Downloaded Software

- Software downloaded from the Internet or an electronic bulletin board system may include malicious software and computer viruses.
- Files exchanged in chat sessions are becoming a frequent method of propagating malicious software.

Mobile Code

- Mobile code is software that will run on multiple platforms.
- Mobile code is contained in small applications called applets, which are often used on Web pages to provide news tickers; front-end graphical user interfaces (GUIs) and video games.
- Some examples of programming languages used in developing mobile code include Java, JavaScript, ActiveX, and Postscript.
- Malicious code can be hidden within Java applets, ActiveX controls and plug-ins to steal information from a computer file or disable a system.

Preventing Malicious Software and Viruses

To protect PMU resources against the risk of physically transferred malicious code, the following protection measures must be adhered to:

Physical Transfer

- Users should avoid booting or copying files from removable media such as USB drives or CD-ROM's unless they have been obtained from a trusted source.
- Users should avoid leaving removable media such as diskettes and CD-ROM's in boot-able drives.
- All storage media obtained from sources external to PMU must be scanned by an approved anti-virus software product with current signature files prior to use.
- Prior to providing storage media to customers, vendors, or others outside PMU, the media must be scanned by an approved anti-virus software product with current signature files.

Electronic Mail

- Users should be suspicious of all e-mail messages from people that they don't know.
- All e-mail messages that include attachments should be viewed with suspicion. Users should know the purpose of attachments before opening them.
- Suspicious e-mail messages with executable attachments (e.g. com or exe) should not be opened, even if they appear to be from people known to the user (s).
- Macro programs contained in Word or Excel files received by e-mail should not be executed until it has been determined that they are from a trusted source.

Downloaded Software

- Software should not be downloaded from an unknown or un-trusted source.
- Obtaining or downloading of public domain, shareware, or evaluation copies of software from other than PMU sources is permitted only under certain conditions.
- Software downloaded from sources external to PMU must be scanned by an approved anti-virus software product with current signature files prior to

being installed on an PMU information resource.

Mobile Code

- In an interactive environment, a server is accessed across a network and an application (applet) is downloaded onto the computer that is then executed. The Users web browsers should be configured to prevent downloading of applets.
- Java and ActiveX should only be enabled when they are needed to access a trusted Web site.

Application Software

- Many software applications such as Internet Explorer, Mozilla Firefox and Google Chrome and the Microsoft Office Suite, contain features designed to alert the user before opening or activating files that could contain potentially dangerous software.
- Users should carefully consider the source of files that are flagged in this manner.
- Users should not configure the application software to disable these warnings.

Anti-Virus Software

Anti-Virus software is the main line of defense against computer viruses.

ITD responsibilities include:

- Ensuring that current, University approved, anti-virus software is installed and activated on all computers issued to users.
- Configuration of the software to scan all file types, not just executables.

User responsibilities include:

- Software must not be written; generated, copied, propagated or executed that will damage or hinder the performance of any PMU information resource.
- Users of any PMU PC must ensure that current; University approved, anti-virus software is activated on their PC. This software must be actively enabled at all times.

Detecting Malicious Software and Viruses

Identification of Malicious Software

- Malicious software can be identified through observation, technical knowledge, or virus alerts.
- Several factors can indicate that malicious code has infected a system. Below are some indicators to help confirm the presence of a virus:
 - File size increase;
 - Change in update timestamp;
 - Sudden decrease of free space;
 - Numerous unexpected disk accesses; and
 - Strange macros attached to files.

Further Guidelines

- The anti-virus software should be used to perform a periodic scan of all files on the system. PMU ITD maintains a local signature server that contains the most recent updates. All University laptops and Desktops are configured to get their updates from this central server.
- Any machine suspected to be infected by a virus is immediately disconnected from all networks. The machine must not be reconnected to the network until IT staff can verify that the virus has been removed.

Reporting Malicious Software and Viruses

- Malicious software can spread quickly and needs to be eradicated as soon as possible to limit damage to PMU information resources.
- Reporting actual attacks by viruses or other malicious software is important because it allows PMU to collect information regarding the magnitude and severity of the attack and to take appropriate steps to halt

further contamination.

- For assistance in removing a virus or other malicious software, if needed, or for help repairing any damage that resulted, users should contact the Help desk.
- Any significant malicious software attacks must be reported to the Help desk for further investigation and assessment. An attack should be considered "significant" if one or more of the following apply:
 - The infection has caused the loss or damage of PMU data;
 - The infection has impacted more than one computer or system; and/or
 - The infection is the result of a virus that has previously been assessed by PMU as a high risk.
- Correcting Malicious Software and Viruses
- Backup
 - The ability to recover from a malicious attack depends upon maintaining frequent backups.
- Recovery
 - If it is not practical or feasible to obtain a new copy of the file without the virus, when attempting recovery, anti-virus software may be used to remove the virus.
- Virus Hoaxes
 - A virus hoax is the fraudulent report of a virus for the purpose of generating large amounts of network traffic about the non-existent virus.
 - While PMU will sometimes make use of established employee communications channels to distribute information regarding viruses, users must ignore and not forward e-mail or other messages originating from other sources regarding supposed viruses.
 - Passing on messages about hoaxes only serves to further propagate them and unnecessarily increase the utilization of PMU resources.
 - PMU security personnel regularly receive information from the major anti-virus software vendors and other sources. It is not necessary to pass information to them regarding possible viruses

Supplement on SPAM, Intrusion Prevention and Detection

Introduction

It is each user's responsibility and obligation to ensure that all resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption. This FP Intends to Clarify to all users on PMU infrastructure, what their responsibilities are; Define what the potential risks and dangers are for PMU in the event of misappropriation and abuse of Infrastructure users; and regulate the professional and effective use of Infrastructure within PMU as well as between PMU and external entities.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff. Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU.
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Combating Cyber Crime Functional

Policies listed in this document:

- Intrusion detection software which records attempted and successful access to your systems.
- Access control lists and facilities, which record certain activities for specific files, such as: read, write, execute, and delete
- Network usage analysis, which identifies application access and reports on user authorization levels
- Network packet sniffing software to detect attack origins
- Disable specific applications, for example, an e-mail system subjected to a SPAM attack
- Ensure that all system and access events are logged
- Gather evidence to prove malicious intent, especially if the suspects are organization staff
- Access Controls should limit access to only those persons so authorized. Use a combination of policies and guidelines to promote both awareness and compliance
- Implement strong authentication and appropriate access control measures.
- Always perform rigorous System Testing before releasing into live 'production'
- Restrict and control all software and utilities which could be used inappropriately
- All software downloads must be virus-scanned
- Deploy software scanning tools to detect the 'footprint' of malicious code, introduced via e-mail, Internet download or by other means, e.g. diskette or CD-ROM
- Foster a sense of constant vigilance throughout the organization
- Nominate a technically oriented member of staff as 'virus control officer' to be the first point of contact for all virus alert issues and who co-ordinates follow up actions
- Advise staff of virus reports identified as hoaxes, in order to minimize disruption to business
- Considering designating a specific telephone extension as the virus 'hotline', reserved for virus and other malicious code reports / warnings.
- The Information Security Officer, the System Administrator, and the nominated virus control officer should collaborate to prepare a **Virus Incident**

Response Plan

- Ensure that **all** PCs are protected, and that regular anti-virus updates are

distributed

- After a virus attack, consider regularly reviewing software and files used for critical business processes to identify and investigate unauthorized and / or suspicious changes
- Promote awareness of the risks and encourage best practice regarding the receipt of e-mail attachments
- Consider the optimum deployment: servers only, or servers and workstations. The latter is recommended
- Ensuring that the license agreement includes updates of the anti-virus software and of the vaccine files
- Choosing a vendor who offers 'hotline' support to deal with newly released virus strains

Functional Policy

Combating Cyber Crime

Cyber Crime remains a major area of Information Security risk. The sophistication of these threats is consistently increasing and the methods employed to combat these threats must match this level of sophistication. As a result, it is necessary for all systems users to be especially vigilant at all times

Defending Against Premeditated Third Party Cyber Crime Attacks.

Criminals may target organization's information systems, resulting in serious financial loss and embarrassment.

- Security on the network is to be maintained at the highest level. Those responsible for the network and external communications are to receive proper training in risk assessment and how to build secure systems which minimize the threats from cyber crime.

Minimize the Impact of Cyber Attacks.

Even the most Information Security conscious organizations can be attacked; this may be to 'prove a point' or for other malicious reasons

- Plans are to be prepared, maintained and regularly tested to ensure that damage done by possible external cyber crime attacks can be minimized and that restoration takes place as quickly as possible

Collecting Evidence for Cyber Crime Prosecution

In order to prosecute Cyber Crime successfully you need proof. This can be difficult to provide, unless your organization's information systems have adequate

controls and audit capabilities.

- Perpetrators of cyber crime will be prosecuted by PMU . Suitable procedures are to be developed to ensure the appropriate collection and protection of evidence

Defending Against Premeditated Internal Attacks

Access to confidential data may be legitimized in employees' job descriptions. The act of copying sensitive data may not necessarily leave a 'footprint' on the system, and such copies can then be exported from your organization by e-mail or by removable media without leaving a trace. The effects of outright malicious data destruction are obvious, but the computer entry process of so doing may have seemed routine.

- To reduce the incidence and possibility of internal attacks, access control standards and data classification standards are to be periodically reviewed whilst maintained at all times

Defending Against Opportunistic Cyber Crime Attacks

Opportunistic criminal attacks usually arise from chance discovery of a loophole in the system, which permits access to unauthorized information

- It is a priority to minimize the opportunities for cyber crime attacks on PMU systems and information through a combination of technical access controls and robust procedures

Safeguarding against Malicious Denial of Service Attack.

Denial of Service (DoS) attacks have gained notoriety as being an effective way to disable Web based services. See DoS for an explanation of the techniques used and their consequences.

- Contingency plans for a denial of service attack are to be maintained and periodically tested to ensure adequacy

Defending Against Hackers

Unlike other forms of Cyber Crime, these attacks take a 'scatter gun' approach, in that they do not target a specific organization. If you happen to be 'in the firing line', and your Information Security safeguards are poor, you are likely to be hit.

- Threats to PMU-IT systems and information are to be minimized by fostering staff awareness, encouraging staff vigilance, and deploying appropriate protective systems and devices

Handling Hoax Virus Warnings

Threats from viruses are well known throughout the IT community. Hoax threats - the spreading of rumors of fictitious viruses or other malicious code - can waste time, as staff attempt to locate a virus which does not exist

Vigilance and good virus intelligence warnings are the key to minimizing the impact of hoaxes.

Defending Against Virus Attacks

Virus infection can be minimized by deploying proven anti-virus software and regularly updating the associated vaccine files. Many anti-virus companies supply such updates from their Web sites.

- Without exception, Anti Virus software is to be deployed across all PCs with regular virus definition updates and scanning across both servers, PCs and laptop computers

Responding to Virus Incidents

Despite general awareness and technical safeguards, some viruses nevertheless enter and infect the organization's systems. Dealing with a virus in a professional and planned way reduces both its impact and its spread throughout the organization and beyond.

- The threat posed by the infiltration of a virus is high, as is the risk to PMU -IT systems and data files, Formal procedures for responding to a virus incident are to be developed, tested and implemented.
- *Virus incident response must be regularly reviewed and tested*

Virus Scanning Software

The development of anti-virus software is a highly technical and specialized area. Consequently, selection of the product should be with utmost care.

- Anti Virus software must be chosen from a proven leading supplier

Supplement on Authentication and Passwords

Introduction

This functional policy covers Authentication at PMU. It governs logical access to all information, systems and equipment. This will be enforced by a set of access rights or profiles to ensure that users can only gain access on a 'need-to-know' and 'need-to-do' basis to those resources on the system to which he has been properly authorised.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU.
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy Statements govern the Functional Policies on Log

on and Authentication listed in this document:

- Business requirements for access control must be defined and documented, and access must be restricted to what is defined in the access control policy.
- All access requirements must be based on a need to know, need to do basis.
- The allocation of passwords must be controlled through a formal management process.
- Operating systems and applications must include as a minimum, adequate user access controls, password controls and monitoring controls.
- Each System Owner at PMU must enforce all users to follow good security practices in the selection and use of passwords.
- Access by remote users must be subject to authentication.
- Connections to remote computer systems must be authenticated.
- The procedure for logging onto computer systems must be designed to minimize the opportunity for unauthorized access.
- User identification and authentication must be strictly enforced.
- Access to information services must use a secure log-on process.
- All users must have a unique identifier (user ID) for their personal and sole use so that activities can be traced to the responsible individual.
- A password management system must be in place to provide an effective, interactive facility that ensures quality passwords.
- Use of system utility programs must be restricted and tightly controlled.
- Inactive terminals in high risk locations or serving high risk systems must shut down after a defined period of inactivity to prevent access by unauthorized persons.
- Restrictions on connection times must be used to provide additional security for high-risk applications.
- Audit logs recording exceptions and other security-relevant events must be produced and kept for an agreed period to assist in future investigations and access control monitoring.
- Procedures for monitoring use of information processing facilities must be established and the result of the monitoring activities reviewed regularly.
- Computer clocks must be synchronised for accurate recording.

Authentication Functional Policies

- Log on
 - Pre-Log on Banner: All computer systems within PMU must contain

a pre-log on warning banner to address the following:

- Before being given the opportunity to log onto a computer facility, intended users will be presented with a login banner, where applicable.
- This provides: Users with a chance to terminate the login before accessing a computer that they are not authorized to; Identification of PMU, the network, location, or host must not appear prior to a successful login.
- Systems must be configured to not give any information on an unsuccessful login. This includes identifying which portion of login sequence (user ID or password) was incorrect.

- Authentication
 - User Identification
 - All users must have their identity verified with a user ID and a secret password, or by other means that provide equal or greater security, prior to being permitted to use PMU information resources.
 - Unless prior permission from the ITD has been granted, all System Administrators must consistently observe the user-ID naming standards.
 - Each computer and communication system user-ID must be unique and forever connected solely with the user to whom it has been assigned.
 - After a worker leaves PMU, there should be no re-use of any user-IDs. Any exceptions should be authorized. This serves to minimize the risk of dormant access permissions being inherited by a new user.
 - Administrators with access to super user or privileged accounts must use their account to log into systems. They should then switch from their own accounts to the privileged account.

All Guest Accounts must be disabled on servers, desktops, databases and applications.

Assigning Passwords

Administrator's responsibilities when assigning passwords include:

- The initial temporary password assigned to users must be a minimum of six (6) characters in length and comprised of alphanumeric, non-alphanumeric and special characters.
 - Passwords assigned must be unique for each user.
 - Passwords must only be supplied to users in a secure manner e.g. not via a third party.
 - Initial passwords must not be easily associated with PMU or the user (i.e. identification number, employee number, address, numerical equivalent of name, etc.)
 - On initial log on, new users will be forced by the system they are accessing to change their initial password to one that meets the relevant password functional policies.

Safeguarding Passwords

Administrators must adhere to the following regarding safeguarding of passwords:

- ITD must perform password testing on quarterly basis to ensure proper passwords are being used. This includes the use of password cracking tools.
- This process must be controlled in the strictest manner and subject to explicit supervision.
- Users whose password is cracked must be notified immediately, their account disabled, and a new password issued using the normal allocation methods.
- Users must be forced to change passwords every Academic semester. System administrators shall enforce this through technical means by deploying password aging on systems.
- Default passwords shipped with servers, operating systems software or applications must always be changed when the hardware or application is installed or implemented.
- Where technically feasible, systems must use password history techniques to maintain a password history of users. This will ensure that users do not reuse passwords when forced to change the password.
- All computers, databases or applications that store user account and password information must be secured in the strictest manner. Access to the user account base must be restricted to only authorize administrators.
- This access must be reviewed at least twice a year along with a technical review of the host/server/user store.

System Account Controls

General Account Controls

General account controls include the following:

- For high security environments it may be necessary to limit session initiation to specific terminals or locations. In this case, unique device identifiers must be associated with the approved connection points or direct connection to a server may be required.
- Users given command line access to systems must, where feasible, be limited to the access or service needed. This may include restricted shells, application menu restrictions, and the like.
- Unless authorized to the user, systems should not allow users to have multiple sessions on the same system.

Account Lockout

- Upon three consecutive authentication failures, users must be locked out of the resource in which they are attempting to gain access to and will have to have their account policy reset.
- In the event that an account requires a new password, Help desk/System Administrator personnel must be contacted.
- In the event that the account requires resetting without changing the password, the reset must only be executed after verification of the user's identity.

Disabling Inactive Accounts

User accounts that have not been accessed for 90 days must automatically be disabled.

Automatic time-outs

Automatic time-outs must be in accordance with the following:

- PC's/laptops and Servers, when applicable, must be configured with a password-protected screen saver. The screen saver must require the entry of a password after a PC/laptop or Server console has been left idle for five (15) minutes.
- Systems must force users off after 30 minutes of inactivity. The user should have to log back into the system.
- System sessions that are not active for two (2) hours will be automatically terminated. For those systems that cannot automatically terminate connections, password protected screen savers or terminal locks must be activated.

Use of System Utilities

A number of utilities are available to enable system administrators to perform low-level maintenance tasks on a system. If inappropriate access is gained to these utilities they may be used to circumvent logical security controls. All utilities must:

- Be stored off-line if not required on a daily basis;
- Have access restricted to a very limited group of authorized users; and
- Include logging facilities to record their use.

Application Access Controls

All users must only be provided with the minimum level of access required to perform their duties. This should be achieved using a combination of:

- Logical security within an application;
- Hiding the availability of unauthorized options;
- Limiting file permissions, e.g. read-only- Control of output distribution.

Monitoring System Access and Use

For applications that will be initiated and developed from the publication date of this document, the application program should pass the user login ID to the Oracle database for proper monitoring.

Clock Synchronization

System clocks must be synchronised to an agreed standard to ensure the accuracy of audit logs. For example, Greenwich Mean Time or Local time.

System Monitoring

System Administrators must ensure that monitoring tools are installed in order to log user access activity and security violations against critical production data.

Security Event Logs

- Computer and communications systems handling sensitive, valuable, or critical PMU information must securely log all security relevant events.
- Logs containing computer or communications system security relevant events must be retained for a period prescribed. During this period, logs must be secured such that they cannot be modified, and such that they can be read only by authorized persons.
- ITD will review records reflecting security relevant events in conjunction with Computer Operations and Systems Administration staff. All potential security incidents must be reported immediately.
- Security Administrator must ensure that monitoring tools are installed in order to log user access activity and security violations against critical production data.

Supplement on Incident Handling and Reporting

Introduction

This functional policy covers PMU's Incident Handling and Reporting. In order to minimise the damage from security incidents and malfunctions within PMU, adequate security controls will be followed and security will be monitored to

detect security breaches, incidents or areas of non-compliance with security policies, Functional Policies and procedures.

It is each user's responsibility and obligation to ensure that all IT resources are used only for its intended business purpose and that information contained or transmitted via these resources are protected from unauthorized use, appropriation, or corruption.

Objective

The objective of this Information Security Policies is to secure PMU's Information Assets and staff.

Each policy statement in this policy wherever required is supported by standards, procedures to achieve a complete security framework in the PMU

Purpose and Scope

- All Information Assets (Digital Media)
- All software assets
- All physical assets, such as computer and network equipment.
- All supporting services, such as power and network link
- All management information systems
- All business activities supported by PMU.
- All of the above are either owned or leased by the PMU and under the PMU possession, custody, or control.

General Responsibilities

It is the responsibility of the different departments/offices and each employee to take necessary steps for ensuring compliance with the guidelines in this policy, and any further Policies and Procedures that may be added in due course of time.

Governing Policy

The following Executive Policy statements govern the Incident Handling and Reporting Functional Policies listed in this document:

- Training and orientation are provided to newly hired employees through the induction process;
- Any security related incidents must be reported immediately through the established channels after the incident is discovered;
- Procedures must be established and followed for reporting software malfunctions;
- Users of information services are required to note and report any observed or suspected security weaknesses in or threats to systems or services;
- Mechanisms must be in place to enable the types, volumes and costs of incidents and malfunctions to be quantified and monitored;
- The violation of organisational policies, functional policies and procedures by employees must be dealt with through a formal disciplinary process;
- Incident management responsibilities and procedures are established to ensure a quick, effective and orderly response to incidents;
- Faults must be reported immediately and corrective action taken;
- An intrusion detection system is in place to detect unauthorised use of PMU networks;
- Audit logs recording exceptions and other security-relevant events are produced and kept for 3 months to assist in future investigations and access control monitoring.

Incident Handling and Reporting

Incident Levels

All incidents must be reported based on the severity of the incident and can be classified as one of the following:

Critical Alert

A critical alert is an event that is, or could become a serious and immediate threat to any of the devices on PMU network and requires immediate attention and action.

Threatened devices may include routers, networks, servers, firewalls, network management hosts, attached LAN's, or user hosts.

Major Alert

A major alert is an event that is, or could become, a future threat, but which has not been

determined as serious enough as of that time. Hence, it may or may not require an immediate response depending on the incident.

Minor Alert

A minor alert is an event that is, or could become, a minor annoyance or threat; or which has been determined to be a non-threat resulting from either authorised, or unauthorised network activity.

Minor alerts are informational in nature.

Types of Incidents

The type of incidents which can be reported by users, include but is not limited to the following:

- Accidental and/or negligent incidents, including:
- Compromise of system integrity;
- Denial of system resources;
- Illegal access to a system (either a penetration or an intrusion);
- Malicious use of system resources,
- Any kind of damage to a system.
- Power Outages

Reporting Security Incidents

Reporting Violations

- All incidents will be reported to the IT Help Desk
- Help Desk will escalate the incident for investigation to appropriate senior personnel.
- All incidents will be investigated by ITD to determine the severity of the incident.
- Investigative methods and procedures will be used based upon the Security Incident Level.
- In cases where the violation is clearly illegal with intent, notification to the Higher Management shall be immediate.
- In cases where the intent is not clear, the violator shall be advised to correct the violation. A repeat violation shall be reported immediately to management and the appropriate disciplinary action will be taken based on the severity of the incident.
- In cases where the violation is either a support or resource-sharing issue,

the violator will be informed of the violation and advised of possible corrective action. Records shall be kept of such violations.

- If support teams determine that repeated violations of policies and functional policies are causing support or resource-sharing problems, they may contact ITD who may defer support and/or report the violation to ITD management.
- No PMU employees are allowed to talk about any security incident in public or media.

Responding to Incidents

ITD Responsibilities

The ITD have the following responsibilities when responding to incidents:

- Confirming that an intrusion has occurred (or is occurring).
- Keeping records of work efforts.
- Activating additional event logs immediately.

Initial Analysis

- To be able to address incidents properly it might be necessary to collect evidence as soon as possible after the occurrence.
- Regardless of how the suspicious activity is identified, the administrator must quickly perform an initial analysis to determine if the possible intrusion is the result of:
 - Hardware or software problems;
 - User error; or
 - An actual security intrusion.
- The initial analysis must be performed immediately, so that innocent activities can be quickly eliminated, and intrusions can get prompt attention.

Taking Action

- If PMU information resources are in danger of being irreparably harmed, the administrator of the system must take immediate action to protect these resources.
- Examples of irreparable harm include, but are not limited to:
 - An intruder has entered a system and is in the process of destroying or damaging data that cannot be recovered;
 - An intruder is actively bringing systems down and impacting customer service; or
 - An intruder is actively engaged in other behaviour that will cause unrecoverable loss or damage to PMU or PMU information resources.

- Examples of protective actions to be taken could include, but are not limited to:
 - Disabling all system accounts and/or changing all system passwords and/or disabling access permissions;
 - Correcting the vulnerability that allowed the intruder to gain access in the first place;
 - Removing or shutting down the access method being used by the intruder;
 - Bringing the system down or disconnecting it from the network; and
 - Physically removing disk drives, tape files, or other system resources.
- Where feasible, any action taken should be performed in a manner to prevent the intruder from being made aware that his actions have been noticed.
- Security violations will be followed by corrective action by management and the users involved in the incident.

Learning from Incidents

- All security violations and other incidents investigated must provide sufficient information so that management can take steps to ensure that:
 - Such incidents cannot reasonably take place again; and
 - Effective security measures have been re-established.
- Information that should be collected by the investigating body during the investigation, include:
 - Time spent on incident;
 - The type of incident; and
 - Cost of incident or malfunction. Loss due to man-hours must be calculated for all incidents.
- Summary reports of all incidents should be maintained by ITD for historical documentation.

Disciplinary Action

- Users must know and understand that in the event of an incident caused by user negligence, they may face disciplinary action.
- Disciplinary actions must be co-ordinated by the ITD through the Human Resource (HR) Department.
- All users who commit security breaches may be subjected to a formal disciplinary process.

Section 7.4.3.

Technical support is available for teaching staff and students using information and communications technology.

STAR: 3

Strengths:

University Help Desk system used to track and trace support request to successful resolution.

Opportunities for improvement:

Aging reports are required to move service level from 3 to 4.

Action Plan:

Evaluate cost effective commercial package solution for service desk software. Point person is Abdulaziz. Mr. Abdulaziz to gather functional requirements, survey current market options to meet these requirements, select vendors for Request for Proposals (RFP), create and process RFP through ETA office. Recommendation to Eng. Yamani through CIO due by January 31, 2012.

Section 7.4.4.

Opportunities are available for teaching staff input into plans for acquisition and replacement of IT equipment for use in the program.

STAR : 2

Strengths:

Faculty orientation program completed to orient teaching staff to technology resources available at PMU and enable them to engage in informed discussions about the acquisition and replacement of IT equipment used in the program.

- Presentation on faculty orientation
- Using YouTube for Teaching Learning @PMU

Action Plan :

Part 2 conduct faculty survey. Part 3 is work with Learning Resource Center to establish faculty forum for education Director of LRC and College Deans not later than March 31, 2012. CIO and Team Lead of MIS to finalize faculty satisfaction survey not later than October 26, 2011.

- IT survey instrument

Introducing New (And Old) Faculty and Staff to IT Resources

Prince Mohammed bin Fahd
University

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long)

- 20 Minutes on the Basics
 - Who Do I Call When I Have A Problem?
 - One Stop Shop: X8888 Is Also the Number You Call for all Engineering and Technical Affairs (Which Includes IT and Facilities and Maintenance)
 - Demo of Outlook E-Mail, Web Site, Call! (2 Minutes)
 - Using My Computer From Work
 - Wired in Your Office (2 Minutes)
 - Wireless in Common Areas at Campus (2 Minutes)
 - Using a USB Flash Drive
 - Getting Access to the Local Network Server (2 Minutes)
 - Applications on My Computer - Faculty Laptops (2 Minutes)
 - Accessing the Required Documents Through the Intranet (5 Minutes)
 - Introduction to IPT (10 Minutes)

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

- **10 Minutes:** Using My Computer From the Compound
 - Getting Internet via STC or Mobily (5 Minutes)
 - Online Banking (5 Minutes)
- **5 Minutes:** Getting and Setting Up My PMU E-Mail Account:
 - Outlook & Web Mail
- My Banner Faculty Self-Service Account: Getting and Setting Up **and Submitting Grades!**

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

- 20 Minutes: My Banner Faculty Self-Service Account
 - Introduction to Banner (2 Minutes)
 - Login In to Faculty Self-Service For the First Time (2 Minutes)
 - Introduction to Your Self-Service Banner Session and Main Menu (4 Minute)
 - Introduction to Your Faculty Schedule (6 Minutes)
 - Detailed Schedule
 - Week at a Glance
 - Master Class Schedule
 - Start With the End in Mind: How To Submit Student Grades at the End of Semester in Banner (6 Minutes)

ITD-Classroom Services 4 PMU Faculty (1 Time for 1 Hr Long)

- Two Groups - Male and Female (1 Hr Long)
- Traditional 20 Minutes
- Smart 20 Minutes
- Enhanced 20 Minutes

Traditional Classrooms: 20 Mins

- Instructor Work Station
- Projector
- Smart Board & Promethean Active Boards (Female)

Smart Classrooms: 20 Mins

- Instructor Podiums
- Projectors
- Review After the Walk Through:
 - YouTube Playlist: [Smart Classroom Basics at PMU](#)
 - Google Presentation: [Overview of Smart Classrooms at PMU](#)

Enhanced Classrooms: 20 Mins

- Instructor Podiums
- Projectors
- Video Conferencing

ITD-College Blackboard for Beginners (ITD Will Be Doing 3 Times for 1 Hr)

- **ITD Will Be Doing Three Level I Sessions:**
 - **Getting and Setting Up**
 - Accessing Url
 - Login
 - Changing password
 - **Introduction to Syllabus, Hours, Assignments, Presentations**
- **Later Topics Will Include:**
 - **Level II: Tracking Assignments & Grade Book**
 - **Level III: Assessments & Tests**
 - **Level IV: Working With Instructional Multimedia**

Using YouTube for Teaching & Learning @PMU

College of Business
Fall 2011



What is YouTube Good For?

@PMU?





Uploads (134)

[see all](#)
[arrange](#)



HIST 1301 Review (1 of 6)

342 views - 1 year ago

1:47



HIST 1301 Review (2 of 6)

288 views - 1 year ago

1:54



HIST 1301 Review (3 of 6)

171 views - 1 year ago

4:47



HIST 1301 Review (4 of 6)

142 views - 1 year ago

3:45



HIST 1301 Review (5 of 6)

83 views - 1 year ago

3:00



HIST 1301 Review (6 of 6)

200 views - 1 year ago

5:56

Favorites (81)

[see all](#)
[arrange](#)



David Blight on Frederick Douglass

gilderleh... - 614 views

2:52



Discovery Uncovering the real Gangs of New

Docmate - 35,969 views

8:26



Discovery Uncovering the real Gangs of New

Docmate - 36,463 views

8:28



Discovery Uncovering the real Gangs of New

Docmate - 45,980 views

8:21



Discovery - Uncovering the real Gangs of New

Docmate - 87,537 views

9:19

Playlists (81)

[see all](#)
[arrange](#)



Strategic Management

2 months ago
[more info](#)



Dr. Bruce's Aramco Health and Wellness

3 months ago
[more info](#)



New Student Orientation @PMU

4 months ago
[more info](#)



Smart Classroom Basics @PMU

1 month ago
[more info](#)



HIST 1301 Exam Review

3 months ago
[more info](#)



[« Back to Playlists](#)

[Edit My Playlist](#)

Strategic Management

URL: <http://www.youtube.com/user/professordobe#grid/user/DCCF62A0E9E5E5DB>



BUSI 4362 Strategic Management

cisnerosfgp1
123 views



BUSI 4362 Strategic Management

cisnerosfgp1
123 views



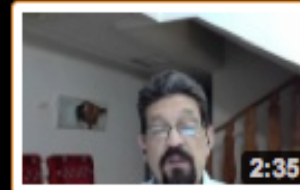
BUSI 4362 Strategic Management Base

cisnerosfgp1
85 views



BUSI 4261 Entrepreneurship

cisnerosfgp1
7 views



BUSI 4261 Entrepreneurship

cisnerosfgp1
8 views



Class Notes Mission Statement Vision and

cisnerosfgp1
36 views



[« Back to Playlists](#)

[Edit My Playlist](#)

Dr. Bruce's Aramco Health and Wellness Workshop

Videos of the 6 June 2011 Health and Wellness Workshop conducted at the Aramco Abqaiq facilities by Dr. Bruce Wells (PMU).

URL: <http://www.youtube.com/user/professordobe#grid/user/E8B08985862C8E0F>



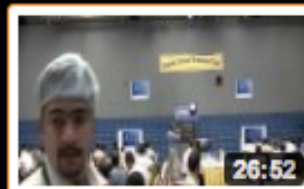
Health and Wellness Workshop at ARAMCO

professordobe
358 views



Health and Wellness Workshop at ARAMCO

professordobe
153 views



Health and Wellness Workshop at ARAMCO

professordobe
262 views

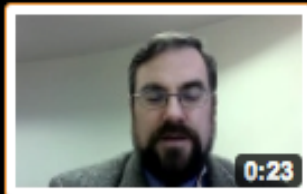


[« Back to Playlists](#)

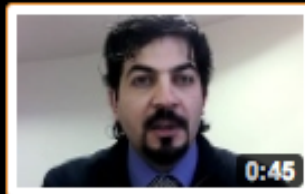
[Edit My Playlist](#)

New Student Orientation @PMU

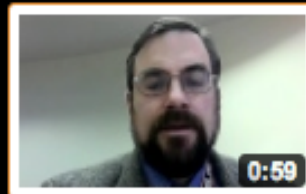
URL: <http://www.youtube.com/user/professordobe#grid/user/E97C84A6A767A6E5>



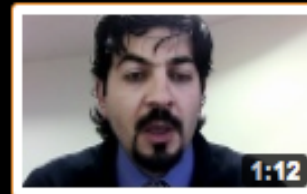
PMU IT Services - English
professordobe
70 views



PMU IT Services - Arabic
professordobe
71 views



PMU Laptop Configuration - English
professordobe
63 views



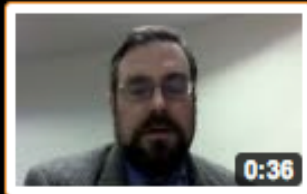
PMU Laptop Configuration - Arabic
professordobe
82 views



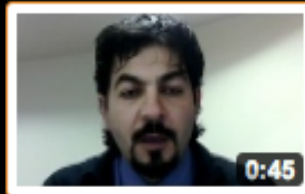
PMU Email - English
professordobe
46 views



PMU Email - Arabic
professordobe
46 views



PMU IT Help Desk - English
professordobe
87 views



PMU IT Help Desk - Arabic
professordobe
73 views



Smart Classroom Basics @PMU by professordobe's channel

Edit Playlist

▶ Play All

Share

10
videos

12:13
duration

40
views

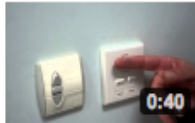
1



Smart Step 01 - Logging Into Active Directory
by professordobe

47
views

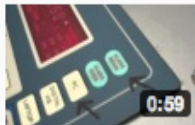
2



Smart Step 02 - Turning on Power, Lights, Lowering S...
by professordobe

35
views

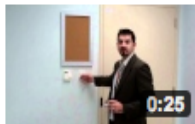
3



Smart Step 03 - Turning on the Overhead Projector
by professordobe

24
views

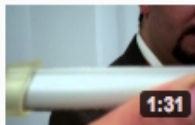
4



Smart Step 04 - Adjusting Lighting in Classroom
by professordobe

21
views

5



Smart Step 05 - Turning on Wireless Stylus (Pen)
by professordobe

27
views

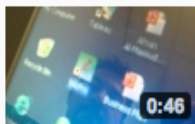
6



Smart Step 06 - Using the Wizpro Software
by professordobe

14
views

7



Smart Step 07 - Double Take on the Wizpro Software
by professordobe

17
views

About Playlist Creator

19,624 views
22 subscribers

<http://www.youtube.com/playlist?list=PLA2BAA4FAD05509AC&feature=viewall>

How to Become a YouTube Content Creator

@PMU?



What Do You Need?

- A Couple Hours of Your Time
- An Internet Connection (Home or Office)
- A Computer With a WebCam
- Video Recording Software ...
- For Example These Programs Come With Your Operating System:
 - Windows Movie Maker
 - Apple QuickTime
- Last But Not Least: A YouTube Account (Do I Mention it is Free?)



A Couple Hours of Your Time

- Well, we don't have that much time, so we'll have to rush ...



An Internet Connection

- The faster the better... STC DSL is probably your best bet at this point.
- Today we will be using the on campus connection.



A Computer With a Web Cam

- Carrefour and Jarir Bookstore Carry Web Cams Ranging from 100 - 400 SAR
- You Get What You Pay For!
- On campus, you can use your office laptop or visit the Microstudio on the first floor of Wing B ...





PMU Microstudio

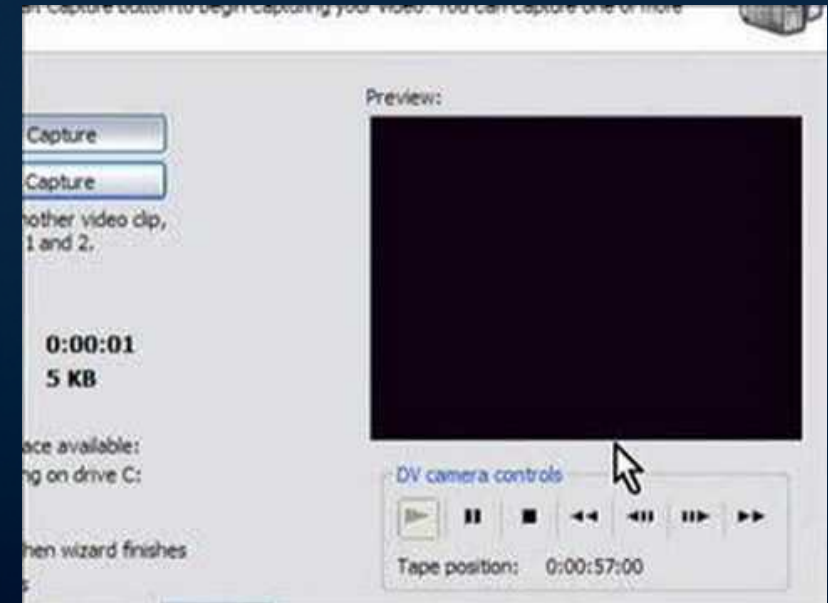


SEARCH YOUTUBE FOR >>>>

How To Create A YouTube Account & Upload Your First Video



Windows Movie Maker
YouTube Tutorial



YouTube's Powerful Features

@PMU?



What Next Now That I Have an Account and am Uploading?

- Linking to Your Video in Blackboard
- Security Options: Public, Unlisted, Private
- Advanced Topics:
 - Embed Code
 - Closed Captioning



Section 7.4.5.

Security systems are in place to protect privacy of personal and sensitive personal and institutional information, and to protect against externally introduced viruses.

STAR: 5

Strengths:

Based upon 20 years in IT Services, current CIO believes the level of security at PMU is higher than any institution he has ever worked for and it suitable for financial institution such as Bank.

Opportunities for improvement:

N / A

Action Plan

N / A

Section 7.4.6

Compliance with a code of conduct relating to inappropriate use of material on the Internet is checked and instances of inappropriate behavior dealt with appropriately.

STAR: N/A

Strengths:

Opportunities for improvement:

N/A

Action Plan:

N/A

Section 7.4.7

Training programs are available for faculty and staff to ensure effective use of computing equipment and appropriate software for teaching, student assessment, and administration.

STAR: 4

Strengths:

IT supports Learning Resource Center by providing subject matter expert trainers who participate in professional development for all employees (faculty and staff). Also, IT supports the Student Affairs Division with student orientation and other training required to help students use systems and services.

- Student Orientation
- Spring 2011 Introduction to IT Resources
- Using You Tube for Teaching Learning @ PMU

Opportunities for improvement:

ITD will continue to share knowledge and conduct on-going review of resources utilized at orientations.

Action Plan:

N/A

Overall Evaluation of Provision of Facilities and Equipment. This report should refer to evidence and relevant benchmarks, and include a summary of particular strengths, areas requiring improvement, and priorities for action

Student Orientation for Information Technology

تعريف الطالبات بتكنولوجيا المعلومات

Presented by Mrs. Ameera Al-Balushi

Fall 2011



What is to be discussed

الموضوعات التي ستناقش

Information Technology Services at Prince Mohammad University	خدمات تكنولوجيا المعلومات في جامعة الأمير محمد
Laptop Configuration	إعدادات جهاز الكمبيوتر المحمول
When I Have a Problem With My Computer at Prince Mohammad University, What Do I Do?	عندما تواجه مشكله مع جهاز الكمبيوتر في جامعة الامير محمد, ماذا تفعل؟

Information Technology Services at Prince Mohammad University

خدمات تكنولوجيا المعلومات في جامعة الأمير محمد

Email

البريد الالكتروني

Black Board

البلاك بورد

Banner

البانر

البريد الالكتروني Email

1. الدخول الى موقع الجامعة
www.pmu.edu.sa

PMU : Home page - Windows Internet Explorer provided by PMU - Information Security

http://www.pmu.edu.sa/v4/default.asp

File Edit View Favorites Tools Help

PMU : Home page

PMU Home | News | Announcements | Contact Us

Search PMU web

PMU
جامعة الأمير محمد بن فهد
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

2. ادخال معلومات الحساب
الرقم الاكاديمي

Making History
Building Leaders

Web Mail

200600161

.....

Login

3. Login اضغطي على كلمة

Rector's Office Student Admissions & Registrar Student Affairs Academic Programs LRC & Library Support Services Community Programs HR

Under the Patronage of His Royal Highness Prince Mohammad Bin Fahd
First Graduation Ceremony at Prince Mohammad Bin Fahd University

Graduation Day Ceremony
for more pictures please click here

البريد الالكتروني Email

Microsoft Outlook Web Access - Windows Internet Explorer provided by PMU - Information Security

http://mail.pmu.edu.sa/exchange/

File Edit View Favorites Tools Help

PMU : Home page Microsoft Outlook Web A...

Outlook Web Access

Inbox (Messages)

Items 1 to 25 of 260

Log Off

Folders

- Mohammed Al-Shaikh
 - Calendar
 - Contacts
 - Deleted Items (51)
 - Drafts
 - Inbox (238)
 - Journal
 - Notes
 - Outbox
 - Sent Items
 - Tasks
 - البريد الإلكتروني غير الهام

From	Subject	Received	Size
Alshafai Tra...	رمضان مبارك	Tue 7/26/201...	1 MB
Alshafai Tr...	2011 رائعة لصف	Sun 6/19/2...	312...
Student Af...	Managing Test Anx...	Mon 6/6/20...	229...
Student Af...	PASS THE WORD - م...	Tue 5/31/2...	53 ...
Omar elm...	End of Semester Ce...	Mon 5/30/2...	79 ...
Student Af...	Debate	Sat 5/28/2...	85 ...
Student Af...	Open House	Tue 5/24/2...	538...
Student Af...	Trip to Aramco	Tue 5/24/2...	209...
Student Af...	MOHE announceme...	Mon 5/23/2...	310...
Student Af...	GOOD NEWS for PM...	Sat 5/21/2...	5 M...
Student Af...	Scitech Science Exh...	Tue 5/17/2...	74 ...
Student Af...	Community Service	Sat 5/14/2...	356...
Student Af...	Health Matters	Sat 5/14/2...	212...
Student Af...	Student Affairs Ann...	Sun 5/8/20...	669...
Student Af...	Student Affairs Ann...	Sun 5/8/20...	669...
Student Af...	Students and Facul...	Wed 5/4/20...	824...
Student Af...	Health Matters tod...	Tue 5/3/20...	97 ...
Student Af...	Safety Driving	Sat 4/30/2...	48 ...
Mohamme...		Sat 4/30/2...	44 ...
Student Af...	Health Matters	Wed 4/27/2...	114...
Alshafai Tra...	عروض أوروبا .. شتاء 2010	Thu 10/21/20...	219...
System A...	Your mailbox is ove...	Wed 9/7/20...	912...
System A...	Your mailbox is ove...	Tue 9/6/20...	912...
System A...	Your mailbox is ove...	Mon 9/5/20...	912...
System A...	Your mailbox is ove...	Sun 9/4/20...	912...

رمضان مبارك

Alshafai Travel [travelplus@alshafai.com]

To: Alshafai Travel

Cc:



الحول شهر رمضان المبارك

Alshafai®

الشافعي للسفر والسياحة

AL-SHAFAI TRAVEL AGENCY

920005666

7 أيام في الإسيوع حتى 12:00 ليلاً

البريد الالكتروني Email



The image shows a web browser window displaying the PMU Web Mail Access login page. The page has a blue header with the title 'البريد الالكتروني Email'. Below the header, there is a logo on the left and the text 'PMU Web Mail Access Information Technology Department' in the center. A message in red text states: 'You have logged off from Outlook Web Access. To log on again, type your domain\user name and password, and then click **Log On**.' Below this message, there are two input fields: 'Domain\user name:' and 'Password:'. To the right of the password field is a 'Log On' button. Below the input fields, there are two sections: 'Client (what's this?)' with radio buttons for 'Premium' (selected) and 'Basic'; and 'Security (what's this?)' with radio buttons for 'Public or shared computer' (selected) and 'Private computer'. A green circle highlights the 'Change Password' link, with a green arrow pointing to it from the bottom of the page.

PMU Web Mail Access
Information Technology Department

You have logged off from Outlook Web Access. To log on again, type your domain\user name and password, and then click **Log On**.

Domain\user name:

Password:

[Change Password](#)

Client (what's this?)

☒ Premium

☐ Basic

Security (what's this?)

☒ Public or shared computer

☐ Private computer

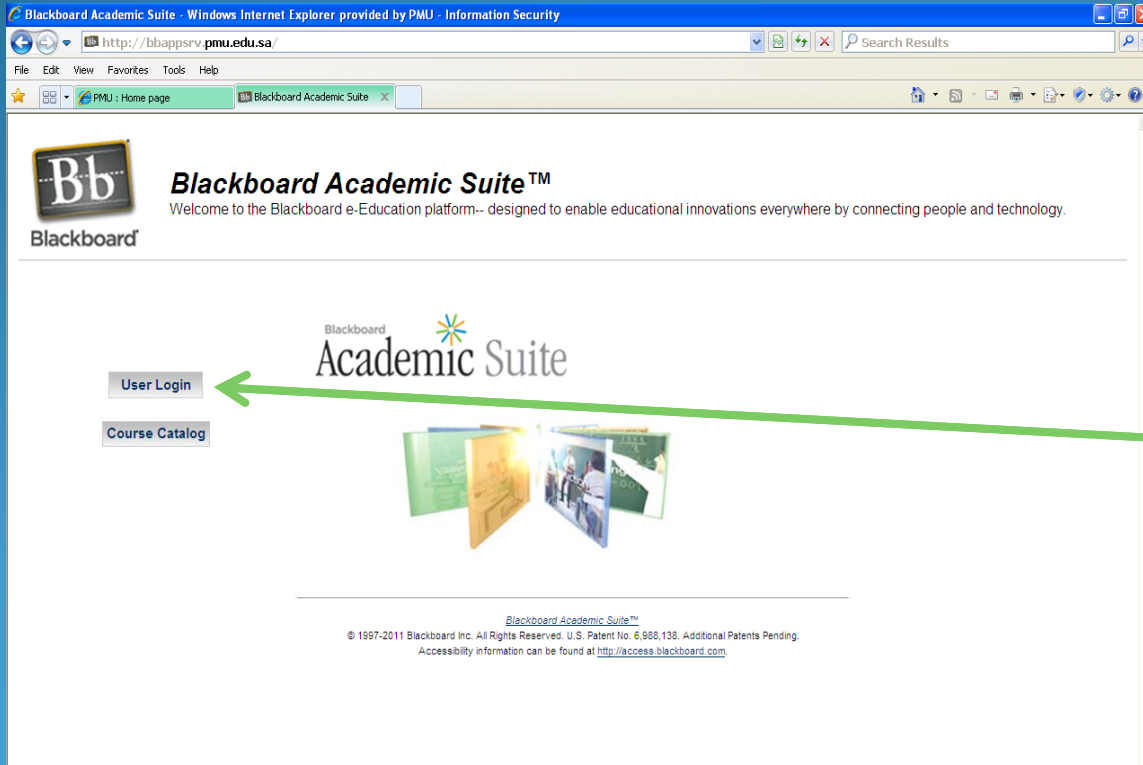
To protect your account from unauthorized access, Outlook Web Access automatically closes its connection to your mailbox after a period of inactivity. If your session ends, refresh your browser, and then log on again.

يمكنك تغيير كلمة السر بالضغط على هذا الخيار

You may change your password by clicking here

البلاك بورد Black Board

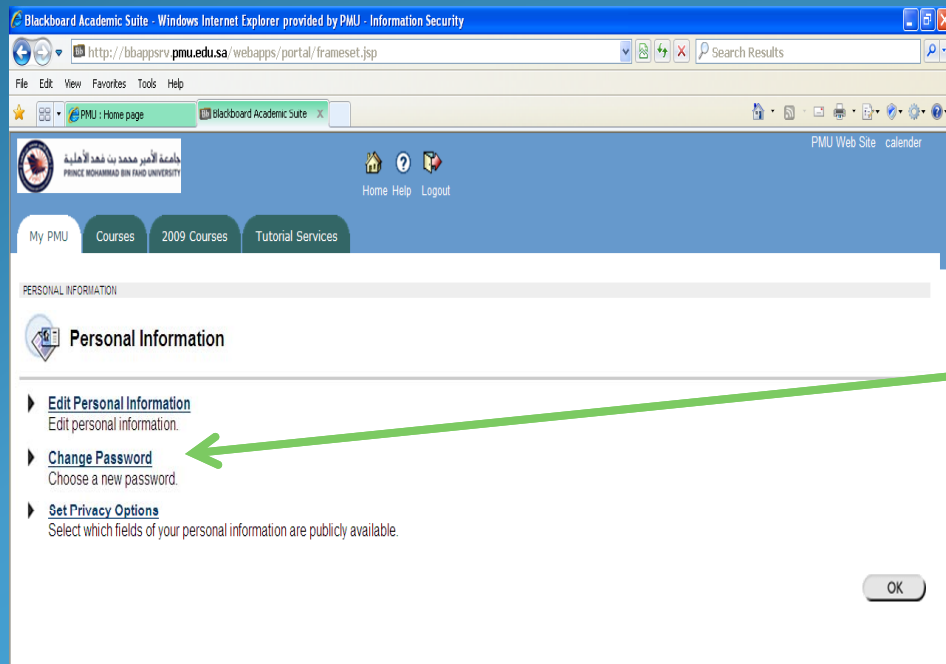
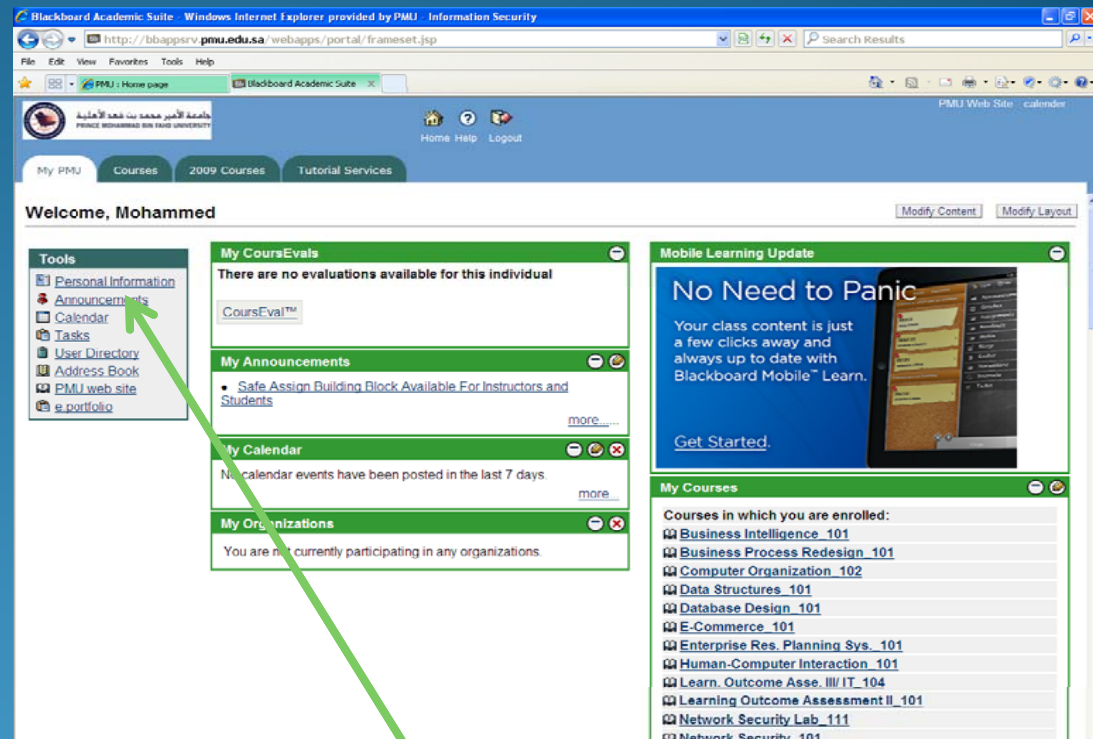
ادخلي الى موقع الجامعة www.pmu.edu.sa
اختاري Black Board
ثم اضغطي على Direct Link



اضغطي على ايقونة User Login
استخدمي رقمك الاكاديمي للدخول للBlack Board
كلمة السر هي ذاتها رقمك الاكاديمي

البلاك بورد Black Board

جميع المواد المسجلة لك ستجديها مدرجة في صفحة ال Black Board



يمكنك تغيير كلمة السر بالدخول الى Personal Information

البانر Banner

ماهو البانر؟؟

- تسجيل المواد
- حذف / إضافة مادة
- متابعة الدرجات

The screenshot shows a web browser window titled "PMU : Banner Self Service - Windows Internet Explorer provided by PMU - Information Security". The address bar shows the URL "http://www.pmu.edu.sa/v4/bssautoa.asp". The page header includes the PMU logo, the university name "جامعة الأمير محمد بن فهد" (Prince Mohammad Bin Fahd University), and the slogan "Making History Building Leaders". A navigation menu includes links for "Rector's Office", "Student Admissions & Registrar", "Student Affairs", "Academic Programs", "LRC & Library", "Support Services", "Community Programs", and "HR". Below the navigation menu is a "PMU Guide for Registration" button. The main content area has tabs for "Personal Information" and "Student and Financial Aid". A search bar is present with a "Go" button. The "Main Menu" section displays a welcome message for "Mohammad K. Mohammad Al Suwayih" and provides links for "Student Registration" (with a description: "Build your class schedule, Add/Drop classes and print your schedule.") and "Student Records" (with a description: "View your holds, grades, transcripts and account summary."). The footer includes the text "RELEASE: 7.4" and "powered by SUNGARD HIGHER EDUCATION".

الدخول لنظام البانر يكون باستخدام الرقم الاكاديمي والPIN

يمكنك الحصول على ال Pin من مكتب Ms. Bashira Chanane / G009

Laptop Configuration

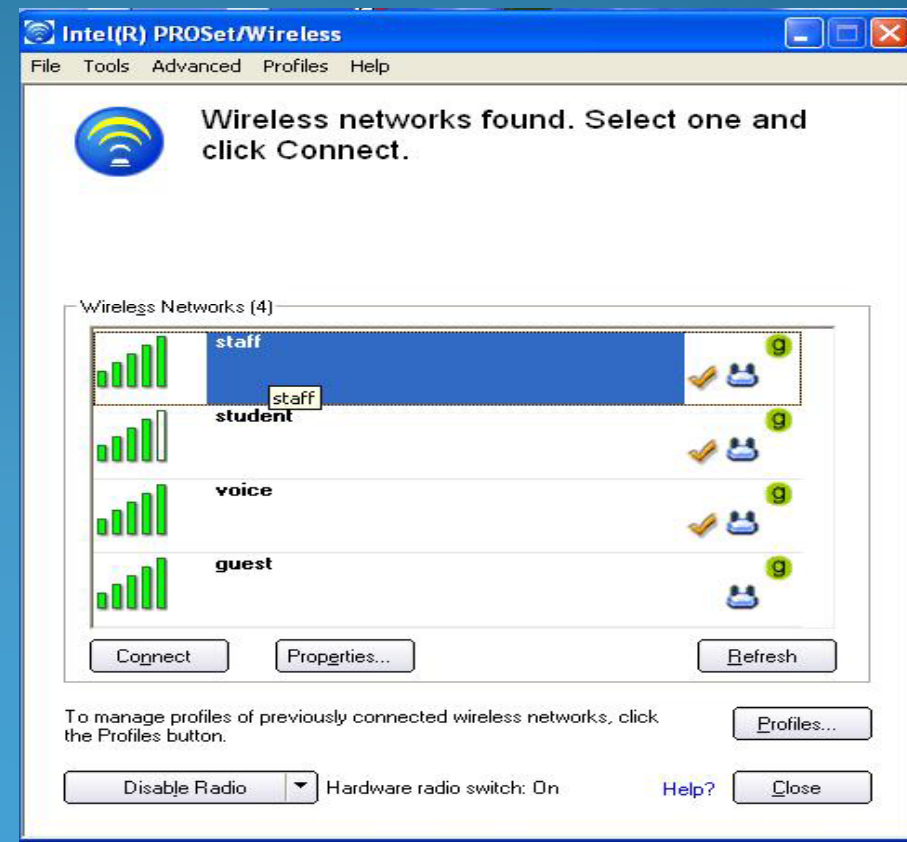
إعدادات جهاز الكمبيوتر المحمول

What Do You Need to Connect to the Wireless Network at PMU?

ماذا تحتاج كي تتصل بالشبكة اللاسلكية في جامعة الامير محمد؟



Check that the wireless button is on/enabled on your laptop.



When I Have a Problem With My Computer at Prince
Mohammad University, What Do I Do?

عندما تواجه مشكله مع جهاز الكمبيوتر في جامعة الامير محمد, ماذا تفعل؟

G056

Thank you for listening

شكرا

Introducing New (And Old) Faculty and Staff to IT Resources

Prince Mohammed bin Fahd
University

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long)

- 20 Minutes on the Basics
 - Who Do I Call When I Have A Problem?
 - One Stop Shop: X8888 Is Also the Number You Call for all Engineering and Technical Affairs (Which Includes IT and Facilities and Maintenance)
 - Demo of Outlook E-Mail, Web Site, Call! (2 Minutes)
 - Using My Computer From Work
 - Wired in Your Office (2 Minutes)
 - Wireless in Common Areas at Campus (2 Minutes)
 - Using a USB Flash Drive
 - Getting Access to the Local Network Server (2 Minutes)
 - Applications on My Computer - Faculty Laptops (2 Minutes)
 - Accessing the Required Documents Through the Intranet (5 Minutes)
 - Introduction to IPT (10 Minutes)

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

- **10 Minutes:** Using My Computer From the Compound
 - Getting Internet via STC or Mobily (5 Minutes)
 - Online Banking (5 Minutes)
- **5 Minutes:** Getting and Setting Up My PMU E-Mail Account:
 - Outlook & Web Mail
- My Banner Faculty Self-Service Account: Getting and Setting Up **and Submitting Grades!**

IT Services for PMU Faculty and Staff (1 Time, 1 Hr Long) -- Continued

- 20 Minutes: My Banner Faculty Self-Service Account
 - Introduction to Banner (2 Minutes)
 - Login In to Faculty Self-Service For the First Time (2 Minutes)
 - Introduction to Your Self-Service Banner Session and Main Menu (4 Minute)
 - Introduction to Your Faculty Schedule (6 Minutes)
 - Detailed Schedule
 - Week at a Glance
 - Master Class Schedule
 - Start With the End in Mind: How To Submit Student Grades at the End of Semester in Banner (6 Minutes)

ITD-Classroom Services 4 PMU Faculty (1 Time for 1 Hr Long)

- Two Groups - Male and Female (1 Hr Long)
- Traditional 20 Minutes
- Smart 20 Minutes
- Enhanced 20 Minutes

Traditional Classrooms: 20 Mins

- Instructor Work Station
- Projector
- Smart Board & Promethean Active Boards (Female)

Smart Classrooms: 20 Mins

- Instructor Podiums
- Projectors
- Review After the Walk Through:
 - YouTube Playlist: [Smart Classroom Basics at PMU](#)
 - Google Presentation: [Overview of Smart Classrooms at PMU](#)

Enhanced Classrooms: 20 Mins

- Instructor Podiums
- Projectors
- Video Conferencing

ITD-College Blackboard for Beginners (ITD Will Be Doing 3 Times for 1 Hr)

- **ITD Will Be Doing Three Level I Sessions:**
 - **Getting and Setting Up**
 - Accessing Url
 - Login
 - Changing password
 - **Introduction to Syllabus, Hours, Assignments, Presentations**
- **Later Topics Will Include:**
 - **Level II: Tracking Assignments & Grade Book**
 - **Level III: Assessments & Tests**
 - **Level IV: Working With Instructional Multimedia**

Using YouTube for Teaching & Learning @PMU

College of Business
Fall 2011



What is YouTube Good For?

@PMU?





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BUSI 4362 Strategic Management

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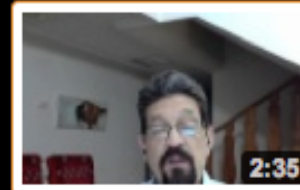
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Dr. Bruce's Aramco Health and Wellness Workshop

Videos of the 6 June 2011 Health and Wellness Workshop conducted at the Aramco Abqaiq facilities by Dr. Bruce Wells (PMU).

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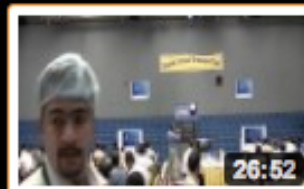
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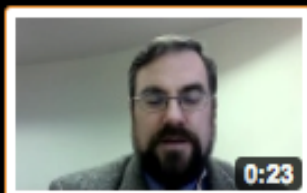


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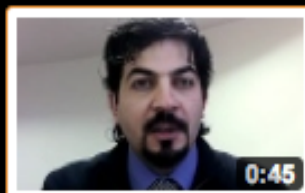
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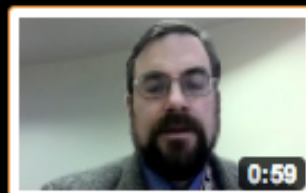
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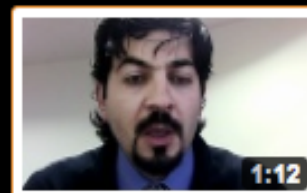
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PMU Laptop Configuration - Arabic

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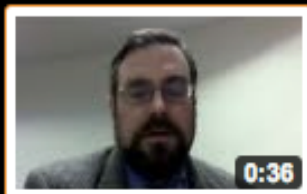
PMU Email - English

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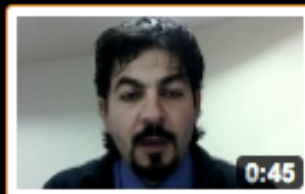
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PMU IT Help Desk - English

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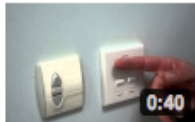


Smart Step 01 - Logging Into Active Directory

by professordobe

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views

2

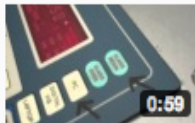


Smart Step 02 - Turning on Power, Lights, Lowering S...

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3

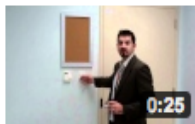


Smart Step 03 - Turning on the Overhead Projector

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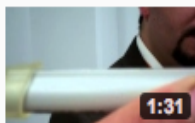


Smart Step 04 - Adjusting Lighting in Classroom

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21
views

5



Smart Step 05 - Turning on Wireless Stylus (Pen)

by professordobe

27
views

6

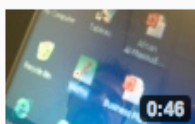


Smart Step 06 - Using the Wizpro Software

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7



Smart Step 07 - Double Take on the Wizpro Software

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19,624 views

22 subscribers

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How to Become a YouTube Content Creator

@PMU?



What Do You Need?

- A Couple Hours of Your Time
- An Internet Connection (Home or Office)
- A Computer With a WebCam
- Video Recording Software ...
- For Example These Programs Come With Your Operating System:
 - Windows Movie Maker
 - Apple QuickTime
- Last But Not Least: A YouTube Account (Do I Mention it is Free?)



A Couple Hours of Your Time

- Well, we don't have that much time, so we'll have to rush ...



An Internet Connection

- The faster the better... STC DSL is probably your best bet at this point.
- Today we will be using the on campus connection.



A Computer With a Web Cam

- Carrefour and Jarir Bookstore Carry Web Cams Ranging from 100 - 400 SAR
- You Get What You Pay For!
- On campus, you can use your office laptop or visit the Microstudio on the first floor of Wing B ...





PMU Microstudio

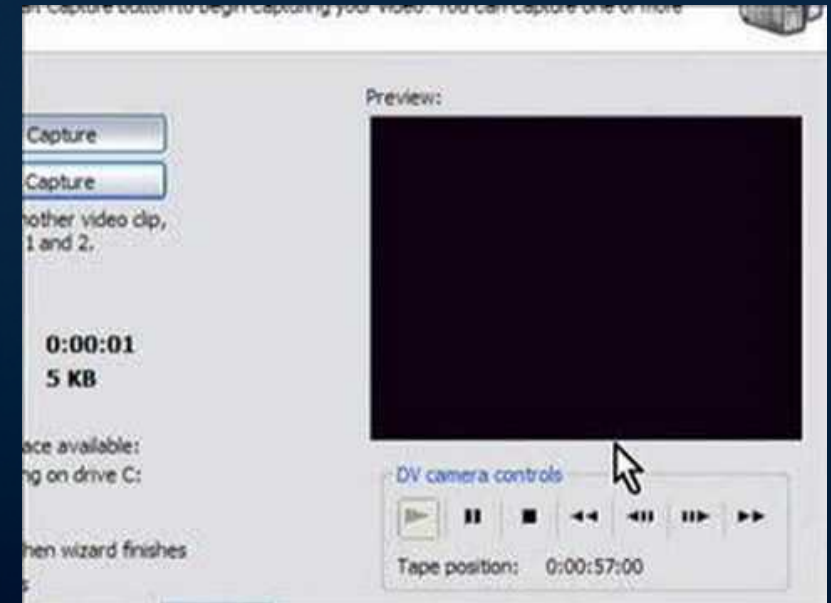


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How To Create A YouTube Account & Upload Your First Video



Windows Movie Maker YouTube Tutorial



YouTube's Powerful Features

@PMU?



What Next Now That I Have an Account and am Uploading?

- Linking to Your Video in Blackboard
- Security Options: Public, Unlisted, Private
- Advanced Topics:
 - Embed Code
 - Closed Captioning



ENGINEERING AND TECHNICAL AFFAIRS DIVISION

ENGINEERING AND TECHNICAL AFFAIRES Division is the backbone of PMU to give to students, scholars and workers a safe and healthy environment for high quality education, monitoring all facilities to correct every kind of abnormalities and working hard pursuing excellence on serving the external constituencies of the University. Also it is the responsible for the proper maintenance of all P.M.U. facilities from University Campus to housing facilities and compounds at Al-Khobar.

Engineering and Technical Affaires Division is constituted by five Departments as follows:

- 1. Engineering Affairs**
 - 1.1 Projects Section**
 - 1.2 Operation & Maintenance Section**
- 2. Safety & Security Department**
- 3. QA /QC Department**
- 4. Support and Auxiliary Services**
- 5. IT – Chief Information Office**

Regular meetings are held between E.T.A. Supervisor and managers of each Department discussing needs and situations to conceive solutions, planning activities for development not only regarding present and future projects as also operations and maintenance of existing facilities.

Overall Star Rating:

1. Engineering Affairs

This Department not only is the physical responsible for the existence of the before referred environment as it was one the first Departments of PMU and the one who made possible the existence of the University starting with the achievement of Mini-Campus by 2006 that allowed PMU to begin its teaching activities.

Engineering Affaires Department is composed by two sections, Projects section and Operation and Maintenance Section.

Overall Engineering Affaires Department Star Rating: 3.05

1.1. Projects Section

Coordination and control of all works at PMU from Civil to Mechanical and Electrical, of all Landscaping Works, all activities involving all Projects regarding PMU, both the existing ones as the new ones, including preparation and follow-up at their different stages like the new Housing Project for instance, and also follow-up and support in all technical aspects to all other PMU's Departments and Sections with special attention on the Operation and Maintenance one.

Main objectives to be achieved in the near future:

- Completion of PMU's Landscaping Project, including Green House.
- Construction of Reverse Osmosis Plant at PMU.
- Total completion of PMU's Project in every aspect.
- PMU's Housing Project execution.
- Construction of New offices at Administration Building's free area.
- Increment of Conference Hall's Sound System.
- Development of Prince Sultan College (for sight handicaps) Project.
- Improvement of Air conditioning at Chiller Plant Unit.
- Increase of Electrical Power Supply.

PROJECTS SECTION SELF EVALUATION RATE

1.1.1 – Policy and Planning

Star Rating: 3.5

1.1.2 – Quality and Adequacy of Facilities and Equipment

Star Rating: 3.0

1.1.3 – Management and Administration

Star Rating: 3.0

1.1.4 – Information Technology

Star Rating: Not Applicable to ETA Projects Section

1.1.5 – Students Residences

Star Rating: Not Applicable to ETA Projects Section

Projects Section Overall Star Rating: 3.17

1.2. Operation & Maintenance Section

This Section deals with Operations and Maintenance of all PMU's facilities and housing, by establishing an effective help desk services that receives and distributes maintenance requests through e-mails to proper concerned departments and personals.

It's quite remarkable its achievements within such a short period of time improving the operation of a full team equipped and trained to perform normal, emergency, and preventive maintenance activities at PMU Campus and Housing Effectively in order to provide proper educational environment.

To provide high quality services and well maintained educational environment and reach to the customer satisfaction, following initiative have been established:

- Improving help desk services to receive and distribute maintenance request e-mails to proper concern departments and personals with more advanced follow up system.
- Services provided should be scheduled and conducted in proper timing and without affecting the operation of the university.
- Proper maintenance plans should be prepared and updated frequently in order to meet the recent requirements.
- Perform preventive maintenance and check-up activities effectively scheduled.

To provide a full qualified maintenance team staff, the following is now being done or to be done in the nearest future:

- Recruitment of additional highly qualified trained technicians.
- Ongoing site job training for technicians.
- Site permanent technical supervision.
- Maintain workforce motivation properly.
- Reach adequate number of skilled manpower on Maintenance Team.
- Improvement of Material Controlling System.
- Improvement of adequate financial operation and maintenance budget.
- Operation and Maintenance vehicles proper maintenance to improve.

OPERATION AND MAINTENANCE SECTION SELF EVALUATION RATE

1.2.1 – Policy and Planning

Star Rating: 2.75

1.2.2 – Quality and Adequacy of Facilities and Equipment

Star Rating: 2.86

1.2.3 – Management and Administration

Star Rating: 3.16

1.2.4 – Information Technology

Star Rating: Not Applicable to ETA Op. & Mnt. Section

1.2.5 – Students Residences

Star Rating: Not Applicable to ETA Op. & Mnt. Section

Operations & Maintenance Section Overall Star Rating: 2.92

1.3. Safety & Security Section

As the name indicates this Department is composed by two distinct sections working along with each other.

Safety Section deals with all aspects regarding this matter in all PMU Campus.

This is a very small section, comparing to Security Section which has more than 15 workers, however has already achieved some important assets to PMU:

- Established a zero major incidents /accidents record due to the implemented safety rules and regulations.
- Provided fire protection equipments and regularly inspected and maintained by the contractor to avoid any failure.
- Conducted the Fire Extinguisher Training to produce fire volunteer's team.
- Submitted daily observation and monthly summary reports.

To keep this racket these are going to be done in the nearest future:

- Maintenance zero major incident / accident record.
- Fire drill and safety training to PMU's staff.
- Creation of a fire fighting & rescue team to answer any emergency.
- Provision of fire truck, additional fire fighting equipments and tools according to the future needs.
- Promotion of safety slogan /campaign contest.
- Provision of service vehicle for safety department .

SAFETY SECTION SELF EVALUATION RATE

1.1.1 – Policy and Planning

Star Rating: 3.0

1.1.2 – Quality and Adequacy of Facilities and Equipment

Star Rating: 2.7

1.1.3 – Management and Administration

Star Rating: 2.75

1.1.4 – Information Technology

Star Rating: Not Applicable to ETA Safety Section

1.1.5 – Students Residences

Star Rating: Not Applicable to ETA Safety Section

E.T.A. SAFETY Section Overall Star Rating: 2.82

Standard 8: Financial Planning & Management

Budget & Finance: Institutional Self Study Evaluation Scales Narratives

Financial resources must be adequate for the programs and services offered and efficiently managed in keeping with program requirements and institutional priorities. Budgetary processes should allow for long term planning over at least a three year period. Effective systems must be used for budgeting and for financial delegations and accountability providing local flexibility, institutional oversight and effective risk management.

Main components of this standard:

- 8.1 Financial Planning and Budgeting
- 8.2 Financial Management
- 8.3 Auditing and Risk Management

Comment and General Description of Good Practice

Institutions must have sufficient financial resources to support the full range of programs and activities that are offered, at a level of quality at least comparable to the standards of highly regarded institutions with a similar profile elsewhere. However financial responsibility goes beyond the level of funding and requires that whatever resources are available are effectively and efficiently used to maximize benefits to students and the long-term development of the institution.

Annual budget, financial reports, and long term financial projections should be considered in detail in senior committees and approved by the governing body. The governing body should be kept regularly informed of levels of expenditure in relation to budgets and of trends and developments that may affect future financial circumstances.

Appropriate delegations should provide for specified levels of expenditure to be authorized by designated faculty and staff within organizational units across the institution, subject to reporting and accountability requirements. Responsibility for the overall budgeting, accounting and financial management system should be centralized and overseen by a senior member of staff responsible to the Rector or Dean. Regular financial reports should be provided to cost center managers to enable them to compare estimated and actual expenditure and assess any implications for annual financial provision.

Evidence and Performance Indicators

Evidence about the quality of provision of facilities and equipment can be obtained from planning documents, user satisfaction surveys, comparisons of provision with comparable institutions offering similar programs and direct observations by independent evaluators. Condition assessments and maintenance schedules provide information about the quality and maintenance of facilities and major equipment. Regulations and codes of practice relating to the use of facilities and expensive equipment provide evidence of sound management practices and security arrangements. Performance indicators could include such things as ratings on surveys of user satisfaction, statistics on equipment breakdowns, comparisons of provision in relation to other institution.

Standard 8 Financial Planning and Management

Financial resources must be adequate for the programs and services offered and efficiently managed in keeping with program requirements and institutional priorities. Budgetary processes should allow for long term planning over at least a three year period. Effective systems must be used for budgeting and for financial delegations and accountability providing local flexibility, institutional oversight and effective risk management.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
8.1 Financial Planning and Budgeting Financial planning processes must be responsive to institutional goals and priorities, maintain viable revenue/expenditure relationships and take full account of long term and short term funding implications.		
8.1.1 Budgeting and resource allocation reflect the mission and goals of the institution and strategic planning to achieve those goals.	Y	4
8.1.2 Annual budgets are developed within a framework of long term revenue and expenditure projections that are progressively adjusted in the light of experience.	Y	3.5
8.1.3 Budget proposals are developed by senior academic and administrative staff in consultation with cost center managers, carefully reviewed, and presented to the governing body for approval.	Y	2.5
8.1.4 Proposals for new programs or major activities, equipment or facilities are accompanied by business plans that include independently verified cost estimates and cost impacts on other services and activities.	Y	3
8.1.5 If new ventures are cross-subsidized from existing funding sources the cost sharing strategy is made explicit and intermediate and long term costs and benefits are assessed.	Y	2
8.1.6 If loans are used debt and liquidity ratios are monitored and benchmarked against commercial practice and equivalent ratios in other higher education institutions.	NA	5
8.1.7 Ratios of expenditure on salaries to total expenditure are planned and monitored, with variations for colleges or departments with different cost structures.	Y	3
8.1.8 Borrowing and other long term financing schemes are used sparingly as a strategic financing strategy to improve capacity rather than to meet unanticipated short term operating costs, with obligations to be met from projected additional revenue, or from known existing revenue sources.	Y	4
8.1.9 Financial planning aims to diversify revenue through a range of activities, which, while consistent with the charter and mission of the institution, reduce its dependence on a single funding source.	Y	4

Overall Assessment

3.4

Comment _____

Priorities for Improvement_____

Independent Opinion

Comment

Financial planning processes are in place and rely on needs assessment from the programs and administrative units. Since the campus is growing so rapidly, there is a delay in meeting needed levels of faculty and staff.

8.2 Financial Management

Financial affairs must be effectively managed with a proper balance between local flexibility for cost center managers and institutional accountability and responsibility.

8.2.1 The oversight and management of the institution's budgeting and accounting functions are coordinated by a business or financial officer responsible to a senior manager.

8.2.2 Sufficient delegations of spending authority is given to managers of organizational units within the institution for effective and efficient administration.

8.2.3 Financial delegations are clearly specified, and conformity with regulations and reporting requirements confirmed through audit processes.

8.2.4 Cost center managers are involved in the budget planning process, and are held accountable for expenditure within approved budgets.

8.2.5 The accounting system provides for accurate monitoring of expenditure and commitments against budgets with reports prepared for each cost center and for the institution as a whole at least once every semester.

8.2.6 Discrepancies from expenditure estimates are explained and impact on annual budget projections assessed.

8.2.7 Accounting systems comply with accepted professional accounting standards and as far as possible attribute total cost to particular activities.

8.2.8 The accounting and reporting systems ensure that funds provided for particular purposes are used for those purposes.

8.2.9 Where possibilities of conflict of interest exist, either actual or perceived, the persons concerned declare their interest and refrain from participation in decisions.

8.2.10 Financial carry-forward provisions are sufficiently flexible to avoid rushed end of year expenditure or disincentives for long term planning.

Y

3

Y

3

Y

4

Y

3

Y

4

Y

3

Y

4

Y

3

Y

4

Y

5

Overall Assessment

3.6

Comment_____

Priorities for Improvement_____

Independent Opinion

Comment

There is a lack of delegation of spending responsibility to departments and other programs. PMU should review current approval and spending practices to expedite acquisition of needed resources and improve efficiency of operations.

8.3 Auditing and Risk assessment

Risk assessment and auditing processes must provide for effective risk analysis and thorough independent verification of financial processes and reports in keeping with applicable accounting standards.

8.3.1 Planning processes include independently verified risk assessment.

8.3.2 Risk minimization strategies are in place and adequate reserves maintained to meet realistically assessed financial risks.

8.3.3 Internal audit processes operate independently of accounting and business managers, reporting directly to the Rector or Dean or chair of the relevant governing board committee.

8.3.4 External audits are conducted annually by an independent government agency or a reputable external audit firm that is independent of the institution, financial, or other senior staff in the institution, and members of the governing body.

Y
Y

3
3
2

Y

Y

5

Overall Assessment

3.25

Comment _____

Priorities for improvement _____

Independent Opinion

Comment

Auditing of the financial affairs of the university are required by the Ministry of Education. External audits are conducted annually by a third party organization and presented to the Board of Trustees.

Overall Assessment of Financial Planning and Management

8.1 Financial Planning and Budgeting

3.4

8.2 Financial Management

3.6

8.3 Auditing and Risk Management

3.25

Combined Assessment

3.42

Comment _____

Independent Opinion

Comment

Processes for management and auditing of financial affairs are in place. Means must be found to delegate authority to make expenditures against an approved budget in a timely manner.

Indicators Considered _____

Priorities for improvement _____

8.1 Financial Planning and Budgeting

Financial planning processes must be responsive to institutional goals and priorities, maintain viable revenue/expenditure relationships and take full account of long term and short term funding implications.

8.1.1 Budgeting and resource allocation reflect the mission and goals of the institution and strategic planning to achieve those goals.

STAR: 4

Strengths:

Budget planning and Recourse allocations are tools used to achieve PMU Goals.

- Budgeting & Accounting Department is preparing an annual Budget forecast based on the institutional goals or strategy planed to the coming year.
- Allocation of resources for training of staff and faculty which then infuses PMU instruction with up-to-date skill-sets
- PMU investments in new technology planned and tracked by this department
- PMU makes strong efforts to partner with quality international partners with budgetary planning from this department
- Bringing Banner System online at this time that controls all expenditures of PMU.

Note: See attachment 8.1.1- Copy of Annual Budget Forecast per Cost Center, Copy of Total Annual Budget Forecast, Copy of Faculty Conference Attendance Policy and the related per diem policy.

Areas offering opportunities for improvement:

Budget and Finance has not up to this point developed a system whereby it consistently integrates the PMU Strategic Plan's Goals and Objectives into its own operations

PLAN: Use of Banner System will more closely integrate Budget and Finance with all departments and programs and allow for greater focus on integrating PMU Strategic Goals and Objectives. TIME: Banner is being phased in during Fall 2011 – problems incorporating other PMU departments into Banner while shifting from the old system to Banner make a concrete deadline hard to forecast (Aug 2011 was the initial deadline).

8.1.2 Annual budgets are developed within a framework of long term revenue and expenditure projections that are progressively adjusted in the light of experience.

STAR: 3.5

Strengths:

Financial Planning and Management has improved its original operations by consistently developing three (3) and five (5) year budgets starting in 2007. Banner utilization will enhance this planning process. From the other hand, Budgets are adjusted from time to time to cover all PMU needs and to make sure that funds reserved are used to the same purpose it were reserved for.

Opportunities for improvement:

- Colleges and Departments feedback in preparing the University Annual Budget forecast is the most important element to get paralleled accurate Budget Forecast. Therefore, Budgeting and accounting Department prepared a Budget Questionnaire covers all the required expenditures and assets of each college and department.

Note: See Attachment 8.1.2- Copy of Cash Flow Forecasting Summary from January 1, 2008 to July 31, 2012, Copy of Budget Questionnaires, Copy of guidelines on how the questionnaires will be answered by each department and a copy of a sample letter requesting one department to adjust their budget.

8.1.3 Budget proposals are developed by senior academic and administrative staff in consultation with cost center managers, carefully reviewed, and presented to the governing body for approval.

STAR: 2.5

Strengths:

- To date Financial Planning and Management, based on TIEC policy, has regularly sent budget requests forms to senior academic and administrative staff at the outset of the planning cycle
- Banner has recently been utilized for the delivery of these documents segregated by Academic Program and Administrative Department
- Board of Trustees each year meets to approve budget and review balance sheet
- Banner provides comprehensive End of Year Balance sheet reports

Opportunities for improvement:

- Greater accountability by Academic Programs and Administrative Departments in completing and submitting budget documents
- Dialog between requesting Programs and Departments regarding justifications and attendant negotiations on budget requests

Note: See Attachment 8.1.3- Sample copy of proposed budget from Senior Academic and Administrative Staff and copy of the Final Budget submitted to the Board of Trustees for final approval.

8.1.4 Proposals for new programs or major activities, equipment or facilities are accompanied by business plans that include independently verified cost estimates and cost impacts on other services and activities.

STAR: 3

Strengths:

- As mentioned in item (8.1.2) we are following Colleges and Departments requirements during the budget preparation putting in mind any new programs or major activities so it can be funded by the forecasted budget prepared.

Opportunities for improvement:

- Greater incidence of business plans for all new operations under the auspices of PMU, with particular focus on cost impact on other services and activities

8.1.5 If new ventures are cross-subsidized from existing funding sources the cost sharing strategy is made explicit and intermediate and long term costs and benefits are assessed.

STAR: 2

Strength:

- Banner supports planning and tracking of cross-subsidized funding

- Banner implementation provides procedure to transfer funds from one aspect of the PMU operation to another to support justified budget needs
- Banner requires external approval for End Users to exceed budgeted funds

Opportunities for improvement:

- Greater implementation of Banner for short and long term budgeting

8.1.6 If loans are used, debt and liquidity ratios are monitored and benchmarked against commercial practice and equivalent ratios in other higher education institutions.

STAR: 5

Strengths:

- **PMU maintains strong positive cash flow, thus PMU does not require commercial loans**
- **Any loans that must be taken come from the Ministry of Higher Education which charges no interest**

Opportunities for improvement:

8.1.7 Ratios of expenditure on salaries to total expenditure are planned and monitored, with variations for colleges or departments with different cost structures.

STAR: 3

Strengths:

- PMU has historically generated monthly reports regarding expenditures. As a next step, this report can be queried to provide detailed information per each College, Program and Administrative Department

Opportunities for improvement:

- Colleges, Programs and Departments must adhere to submission of budget guidelines and deadlines.
- Process to accommodate late proposals must be instituted if late proposals are still to be accepted.
- Implementation of Banner will facilitate planning and monitoring of ratio of expenditure on salaries to total expenditures.

Note: See Attachment 8.1.7- Copy of Total Salaries for the month against the total expenditures.

8.1.8 Borrowing and other long term financing schemes are used sparingly as a strategic financing strategy to improve capacity rather than to meet unanticipated short term operating costs, with obligations to be met from projected additional revenue, or from known existing revenue sources.

STAR: 4

Strength:

- PMU is able to rely primarily upon known existing revenue sources, or if need be to borrow from within PMU resources

Opportunities for improvement:

- Fund reserves within PMU investment account will continue to help PMU avoid borrowing as a strategic financing strategy

8.1.9 Financial planning aims to diversify revenue through a range of activities, which, while consistent with the charter and mission of the institution, reduce its dependence on a single funding source.

STAR: 4

Strength:

- Investment account employed to reduce dependence on a single funding source

- Continuing Education programs can provide additional income – Example: Maher Project and Sabic Project

Opportunities for improvement:

- Continue to develop Continuing Education Programs

Note: See attachment 8.1.9- Copy of the policy for Continuing Education Project.

8.2 Financial Management

Financial affairs must be effectively managed with a proper balance between local flexibility for cost center managers and institutional accountability and responsibility.

8.2.1 The oversight and management of the institution's budgeting and accounting functions are coordinated by a business or financial office responsible to a senior manager.

STAR: 3

Strengths:

- TIEC called for a Director of Budget and Accounting in the University Organization Plans starting in Year Zero, thus PMU has had a manager in charge of this office since PMU began its operations.

Opportunities for improvement:

- A Vice Rector of Finance and Business Affairs has not been appointed as of yet, thus the Director of Budget and Finance answers directly to the Rector.

Note: See Attachment 8.2.1 – Copy of the Financial Affairs Department Organizational Chart.

8.2.2 Sufficient delegations of spending authority is given to managers of organizational units within the institution for effective and efficient administration

STAR: 3

Strengths:

- Directors such as the Director of Budget and Accounting, the Supervisor General of Engineering and Technical Affairs and the Vice Rector of the Academic Affairs have a degree of spending authority within prescribed limits.

Opportunities for improvement:

- Implementation of a policy granting spending authority to managers of organizational units within the institution must occur along with a system to audit budgets and expenditures to ensure effective and efficient administration.

Note: See attachment 8.2.2- Copy Administrative decisions that shows the spending authority of the Vice Rector for Academic Affairs, Supervisor General for Engineering and Technical Affairs , Supervisor General for Administrative Affairs

8.2.3 Financial delegations are clearly specified, and conformity with regulations and reporting requirements confirmed through audit processes

STAR: 4

Strengths:

- Current Financial Delegation Policy and Flowchart is being implemented at the time of writing.
- PMU regularly conducts external audits
- Financial Affairs is following GAAP (General Accepted Accounting Principles) to avoid any low level standard.

Note: See attachment 8.2.3- Copy of the Audited Financial Reports reviewed by the External Auditor.

Opportunities for improvement:

- Necessity to clearly define Financial Delegations and award responsibility
- Establish policy and procedures for conducting regular internal audits

8.2.4 Cost center managers are involved in the budget planning process, and are held accountable for expenditure within approved budgets

STAR: 3

Strengths:

- Accounts Payable Supervisor is replacing the cost center Manager since he is responsible on tracking and controlling departmental budgets in cooperation with the Director of the Financial Affairs.
- Cost Centers are used for all expenditures and tracking of revenue
- Banner supports Cost Center system

Note: Please refer to Attachment 8.2.1 (Financial Affairs Organizational Chart) and sample budget report per cost center generated from the Banner System.

Opportunities for improvement:

- At this time, Cost Center Managers are not in place. This role fulfilled by Director of Budget and Finance and the Supervisor of the Accounts Payable in the University.

8.2.5 The accounting system provides for accurate monitoring of expenditure and commitments against budgets with reports prepared for each cost center and for the institution as a whole at least once every semester.

STAR: 4

Strengths:

- Banner can easily identify and monitors if the expenditures are within or exceed the budget defined at the beginning of the year.
- A notification will appear if the transaction entered exceeds the budget.
- Banner can provide reports of expenditures against budget periodically as needed.
- Budgeting Module in Banner is linked to other related Finance modules same as GL, Purchasing, Warehouse and fixed Assets modules. Moreover, no transaction can be made if non-sufficient fund available.

Opportunities for Improvement:

- Some projects approved during the fiscal year were not included in the department budget submitted at the beginning of the year or during budget preparations.

Note: See Attachment 8.2.5- Copy of the Budgeted Income Statement showing the Actual Revenues and Expenditures against the forecasted and the copy of the Banner Finance, Budget Development Training Workbook.

8.2.6 Discrepancies from expenditure estimates are explained and impact son annual budget projections assessed.

STAR : 3

Strengths:

- Comparative reports between the actual expenses and expenditures against the budget for each year is prepared at the end of the year and presented by the Director for Financial Affairs during the Board of Trustees meeting.

Opportunities for Improvement:

- The comparative report was prepared manually since we just start using the Banner System.
- All reports will be generated automatically from Banner.

Note: See Attachment 8.2.6- Copy of the Comparative Reports between the Actual Revenues and Operating expenses against Forecasted.

8.2.7 Accounting systems comply with accepted professional accounting standards and as far as possible attribute total cost to particular activities

STAR: 4

Strengths:

- Compliance of the current accounting system with the accepted professional accounting standards is checked every year of the External Auditor.
- As mentioned in item (8.2.3) we are following GAAP (General Accepted Accounting Principles).

Opportunities for Improvement:

- Complying GAAP with the Saudi Accounting regulations is a little bit difficult because of Al Zaka issues but it is under control.
- Delayed submission of the audited financial reports by our External Auditor.

Note: Please refer to the attachment 8.2.3 Audited Financial Reports reviewed by the External Auditor.

8.2.8 The accounting and reporting systems ensure that funds provided for particular purposes are used for those purposes.

STAR: 3

Strengths:

- As mentioned before, Budgets are controlled by banner and if any new projects or programs added to it, an override needs to be done in Banner within the available fund.

Opportunities for Improvement:

- Borrowing of funds from one fund to another fund requires prior approval and can be tracked by Banner. This is to cover the fund shortage on our current account resulted by the unexpected project being approved during the year.

8.2.9 Where possibilities of conflict of interest exist, either actual or perceived, the persons concerned declare their interest and refrain from participation in decisions

STAR: 4

Strengths:

- PMU Financial Affairs are following GAAP (General Accepted Accounting Principles) which prevents any conflict of interest.
- Moreover, PMU is following a very strict procedures in its Purchasing department (attached the Purchasing policies) to avoid such conflicts.
- In keeping with the PMU Core Values, PMU Observes Islamic Values in all financial aspects

Opportunities for improvement:

- PMU is in the process of hiring an internal auditor to monitor all internal transactions including any possibilities or real or perceived conflict of interest.

Note: See Attachment 8.2.9- Copy of Administrative Decision related to procedures when following Purchase Orders, Detailed Policy on Purchasing and sample transactions.

PLAN: Projected starting date is February, 2012.

Duties will include a review of all existing policies and formulation of any new required policies to keep PMU in strict compliance with NCAAA requirements and Best Practices

8.2.10 Financial carry-forward provisions are sufficiently flexible to avoid rushed end of year expenditure or disincentives for long term planning

STAR: 5

Strength:

- Standard Operating Procedure at PMU is to fully carry forward funds left-over at the end of the financial year
- Realistic budget forecasting at PMU has been very effective

Opportunity for improvement:

- Budget and Finance will write a policy to address this issue before Spring 2012

8.3. Auditing and Risk Assessment

Risk assessment and auditing processes must provide for effective risk analysis and thorough independent verification of financial processes and reports in keeping with applicable accounting standards.

8.3.1 Planning processes include independently verified risk assessment.

STAR: 3

Strength:

- PMU has a stable income and we may consider that the PMU is stable or liquid.
- The current status of the University was always considered in the planning processes.

Opportunities for improvement:

- Hiring of internal Auditor that will focus on risk assessment since currently the External Auditor only conducts only the audit once a year after the accounting period.

8.3.2 Risk minimization strategies are in place and adequate reserves maintained to meet realistically assessed financial risks

STAR: 3

Strengths:

- External Auditor conducted an annual audit of financial statements at which time they review PMU for compliance with the Generally Accepted Accounting Principles that cover risk management.

Opportunity for improvement:

- Hiring of Internal Auditor with sufficient knowledge in risk management.

8.3.3 Internal audit processes operate independently of accounting and business managers, reporting directly to the Rector or Dean or chair of the relevant governing board committee

STAR: 2

Strengths:

- The University Secretary General was appointed also as University Auditor.

Opportunity for improvement:

- PMU is in the process of hiring Internal Auditor to ensure compliance with the Generally Accepted Accounting Principles as the University Auditor does not cover the audit of the financial statements.

Plan: Projected Starting date is February, 2012

8.3.4 External audits are conducted annually by an independent government agency or a reputable external audit firm that is independent of the institution, financial, or other senior staff in the institution, and members of the governing body

STAR: 5

Strengths:

- External Auditor conducted the audit of the financial statements every year to ensure compliance with the Generally Accepted Accounting Principles.

Note: Please refer to attachment 8.2.3 that serves as evidence for this item, Copy of the Audited Financial Reports.

Standard 9: Employment Processes

Teaching and other staff must have the qualifications and experience for effective exercise of their responsibilities. Professional development strategies must be followed to ensure continuing improvement in the expertise of teaching and other staff. Performance of all teaching and other staff must be periodically evaluated, with outstanding performance recognized and support provided for improvement when required. Effective, fair, and transparent processes must be available for the resolution of conflicts and disputes involving teaching or other staff. (Note: Teaching staff refers to all staff with responsibility for teaching classes including full and part time staff, faculty, lecturers, and teaching assistants)

Main components of this standard:

- 9.1 Policy and Administration
- 9.2 Recruitment
- 9.3 Personal and Career Development
- 9.4 Discipline, Complaints and Dispute Resolution

Comment and General Description of Good Practice

The effectiveness of any institution is highly dependent on the quality and commitment of its teaching and other staff. While this quality is influenced to a considerable extent by the financial resources available to the institution and by the availability of skilled personnel in various areas of specialization, policies and employment practices can make a significant difference and need to be carefully assessed as part of the quality assurance process.

An institution with effective staff employment processes must have a comprehensive set of policies and procedures for recruitment, retention, and staff development, and succession planning for senior positions. It must adopt strategies and establish the conditions necessary to provide satisfying and professionally rewarding careers and recognition of outstanding achievement. Turnover should be monitored and patterns of movement studied as an indicator of staff satisfaction and continuity. Employment policies should be explicitly linked to the institution's mission, and take account of particular circumstances in the environment in which the institution operates.

A desired faculty and staffing profile should be developed that takes account of financial implications, a balance of experience and new perspectives, and the desired mix of ages, gender, qualifications, levels of seniority, and diversity of background. The profile should reflect broader policy initiatives such as that of Saudization.

Mechanisms should be in place for orientation and support for new teaching and other staff to ensure familiarity with policies and regulations and any special processes followed in the institution, understanding of development strategies, and support and encouragement during early stages of employment.

Arrangements for evaluation of the performance of teaching and other, and support for their improvement, should be used throughout the institution and statistical information on participation reported on within the institution.

Effective, transparent, and equitable processes must be in place for resolution of conflicts and disputes that might arise over staffing and employment matters.

Evidence and Performance Indicators

Evidence about quality of employment processes can be obtained from documents setting out employment and promotion processes and criteria, descriptions of orientation programs for new faculty and staff, and procedures for performance evaluation and support for improvement. Records of assessments of quality of teaching, and staff participation in professional development activities relevant to their employment can provide valuable evidence, particularly when they include ratios of participation and assessments of the value of those activities by the participants. Data on staff turnover in parts of the institution can be used to indicate stability or instability in staffing. Regulations on dispute resolution combined with records of the incidence and outcomes of disputes can provide evidence about the effectiveness of those processes.

Performance indicators almost always include student/teaching staff ratios and proportions of teaching staff with levels of qualifications. However a number of others that can also be readily quantified are important such as participation ratios in professional development and scholarly activities. Some others such as rates of turnover of teaching staff, and incidence of disputes might be selected if there are problems in the institution that need to be monitored.

Standard 9: Employment Processes

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The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions

Good Practices Relating to This Standard	Is this true? Y/No/NA	How well is this done? (enter stars)
9.1 Policy and Administration		
The institution must have clearly defined staffing and employment policies. The policies should include a desired staffing profile and other matters including employment and promotion policies and procedures, workloads, performance evaluations, professional development, delegations of responsibilities and procedures for reporting on performance in relation to these matters.	Y	****
9.1.1 A desired staffing profile appropriate to the mission and nature of the institution is approved by the governing body. (The profile includes matters such as age structure, gender balance where relevant, classification levels, qualifications, cultural mix and educational background, and objectives for Saudization.)	Y	***
9.1.2 A comparison of current teaching and other staff provision with the desired staffing profile is maintained and progress towards that profile is monitored on a continuing basis.	Y	****
9.1.3 A comprehensive set of policies and regulations is established and made widely available in an employment handbook or manual. (This should include rights and responsibilities of faculty and staff, recruitment processes, supervision, performance evaluation, promotion, counseling and support processes, professional development, and complaints, discipline and appeal procedures.)	N Y Y	** **** ***
9.1.4 Effective strategies are used for succession planning for senior positions.	Y Y	**** **
9.1.5 Teaching loads are established equitably across the institution, taking account of the nature of teaching requirements in different fields of study	Y	****
9.1.6 The level of provision of teaching staff in all programs (ie the ratio of students per teaching staff member calculated as full time	Y	****
		3.4

equivalents) is adequate for the programs offered and benchmarked against comparable student/teaching staff ratios at good quality Saudi Arabian and international institutions.

9.1.7 Promotion policies and processes are clearly documented and fair.

9.1.8 The exercise of delegations relating to employment processes is monitored and coordinated to ensure equitable treatment across the institution. (These delegations may relate to matters such as junior appointments, promotions, rewards for outstanding performance, and professional development opportunities.)

9.1.9 Indicators of successful administration of staffing and employment policies are clearly specified and performance compared with successful practice elsewhere.

9.1.10 The governing board studies annual reports from the person with overall responsibility for employment practices on implementation of policies on staffing and employment practices.

Overall Assessment

Comment:

PMU system has very well defined policies and procedures for employment, promotion, workloads, performance evaluation and professional development.

These policies and procedures were created and approved during the design phase of PMU system and they are based on international practices and standards.

Priorities for Improvement:

To develop a system whereby succession to senior positions is made clear and does not impose administrative problems. A second line of leaders should always be there ready to take over in case a senior position becomes suddenly vacant.

A system for recognition and reward of excellent performance to be developed and implemented.

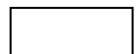
Independent Opinion

Comment

PMU has a Human Resources Department headed by a senior administrator that provides clear guidance on recruitment, hiring and employment policies.

9.2 Recruitment

Recruitment processes must be designed to ensure that capable and



appropriately qualified teaching and other staff are available for all teaching and administrative functions, administered fairly, and that new faculty and staff are thoroughly prepared for their responsibilities.

9.2.1 Recruitment processes are managed to ensure that teaching staff have the specific areas of expertise, and the personal qualities, experience and skill to meet teaching requirements.

Y

9.2.2 When appointments are to be made through promotion or transfer within the institution rather than by external appointment, the appointments made meet qualifications and skill requirements, and contribute to achievement of the desired staffing profile.

Y

9.2.3 If a particular appointment can be made either from within or from outside the institution the position is publicly advertised, internal candidates are given adequate opportunity to apply, and judgments made are equitable considering the applicants experience, qualifications, and current levels of performance.

Y

9.2.4 Candidates for employment are provided with full position descriptions and conditions of employment, together with general information about the institution and its mission and programs. (The information provided should include details of employment expectations, indicators of performance, and processes of performance evaluation.)

Y

9.2.5 References are checked, and claims of experience and qualifications verified before appointments are made.

Y

9.2.6 Assessment of qualifications includes verification of the standing and reputation of the institutions from which they were obtained, taking account of recognition of qualifications by the Ministry of Higher Education.

Y

9.2.7 In professional programs there are sufficient teaching staffs with successful experience in the relevant profession to provide practical advice and guidance to students about work place requirements.

Y

9.2.8 New teaching staffs are given an effective orientation to ensure familiarity with the institution and its services, programs, and student development strategies, and institutional priorities for development.

Y

Overall Assessment

3.5

Comment:

PMU endeavours to reach qualified faculty and staff that can fill vacant positions from internal (inside the Kingdom) and international sources. PMU publicizes its vacant positions and on its website in addition to utilizing international recruitment agencies. In every case the required qualifications and experiences are made very clear and are never compromised.

Priorities for Improvement:

Recruitment procedures to be continually reviewed and enhanced so as to reach and recruit international faculty with qualifications and experiences that perfectly fits the requirements of PMU and at the same time to fulfill faculty diversity on campus.

Independent Opinion

Comment

Recruitment of faculty is done primarily on the basis of review of vitae and telephone interviews. The process could be improved by arranging a more extensive recruitment process including routine reference checks, face-to-face interviews and on campus candidate presentations.

9.3 Personal and Career Development

Processes for personal and professional development must be fair to all teaching and other staff, designed to encourage and support improvements in performance, and recognize outstanding achievements.

9.3.1 Criteria for performance evaluation are clearly specified in advance and made known to teaching and other staff.

9.3.2 Consultations about work performance by supervisors (including heads of department, deans, and administrative supervisors) are confidential and supportive, and occur on a formal basis at least once each year.

9.3.3 If performance is considered less than satisfactory clear requirements are established for improvement.

9.3.4 Formal performance assessments of teaching and other staff are kept confidential but are documented and retained. Teaching and other staff have the opportunity to include on file their own comments relating to these assessments, including points of disagreement.

9.3.5 Outstanding academic or administrative performance at any level of the institution is recognized and rewarded.

9.3.6 All teaching and other staff should be given appropriate and fair opportunities for personal and career development.

9.3.7 Junior teaching and other staff with leadership potential are identified and given a range of experiences to prepare them for future career development.

9.3.8 Promotion criteria include contributions to achievement of the mission of the institution, and in the case of teaching staff include proper recognition of quality of teaching and efforts to improve it, and service to the institution and the community as well as research.

9.3.9 Assistance is given in arranging professional development activities to improve skills and upgrade qualifications.

9.3.10 Appropriate professional development activities are provided to assist with new programs or policy initiatives.

Y

9.3.11 Teaching staff are expected to participate in activities that ensure they keep up to date with developments in their field and the extent to which they do so is monitored.

Y

Overall Assessment

3.5

Comment:

Processes for personal and career development were considered and addressed in the early stages of PMU System design. As a result PMU system includes a

Professional Development Center that is responsible for providing services and support for faculty and staff to develop professionally. (See Professional

Development Center design report)

The basis for faculty promotion is the contribution of the faculty in the areas of teaching, Scholarly activity and service. Therefore, outstanding performance is considered as an important factor in promotion.

For staff there are appraisals of annual performance. These appraisals are discussed with staff and areas for improvement are identified.

PMU supports the participation of faculty in international and regional conferences which will result in their Career development.

Priorities for Improvement:

Procedures are to be developed to identify junior teaching and other staff with leadership potential to give them more attention to develop professionally and assume senior responsibilities in the future.

Independent Opinion

Comment

Professional development relating to teaching responsibilities is available for faculty members. Career planning assistance is less evident.

9.4 Discipline, Complaints and Dispute Resolution

Procedures for management of disputes must be efficient and fair to all parties involved

9.4.1 Procedures for dealing with complaints about or by teaching or other staff, and resolving disputes among them, are clearly specified in policies and regulations.	Y	****
9.4.2 The normal initial step in resolving disputes that cannot be settled by those directly involved is through conciliation by a person independent of the issue, with the possibility if required for referral to a committee or senior officer for determination.	Y	****
9.4.3 Disciplinary processes for neglect of responsibilities, failure to comply with instructions, or inappropriate behavior, are clearly specified in regulations and consistently followed.	Y	***
9.4.4 The regulations provide for rights of appeal against decisions to a person or committee at least one level beyond that at which the dispute occurs.	Y	****
9.4.5 Serious disputes are addressed through quasi-judicial processes including provision and verification of evidence and impartial judgments by a person or persons experienced in such procedures.	Y	***
Overall Assessment		3.6

Comment

Policies and procedures of PMU include a description of processes for discipline, complaints and dispute resolution. The University endeavors to make these processes known by all its employees and especially policies are developed for their implementation.

Priorities for Improvement

Current practices might need to be reviewed so that discipline, complaints and dispute Resolution processes as per PMU system design are carefully followed.

Both faculty and staff need to be made aware of the processes and administrators are to be strongly encouraged to adhere to them.

Independent Opinion

Comment

Procedures are available relating to discipline and dispute resolution.

Overall Assessment of Employment Processes

9.1 Policy and Administration

3.4

9.2 Recruitment

3.5

9.3 Personal and Career Development

3.5

9.4 Discipline, Complaints and Dispute Resolution

3.6

Combined Assessment

3.5

Comment

Employment processes at PMU have been designed taking into consideration international practices. These processes are very well documented in PMU design reports. However, PMU started operation just over 6 years ago. The implementation of the processes is being continuously enhanced and adjusted to adapt to local rules and regulations and be respectful of local Cultural Constraints.

Independent Opinion

Evaluators Comment

Procedures related to the recruitment, hiring and retention of faculty members are in place. These need to be strengthened to increase the ability of PMU to attract more highly qualified faculty and provide conditions to promote their retention.

Indicators Considered_____

Priorities for Improvement_____



جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

1

Information for KPI's

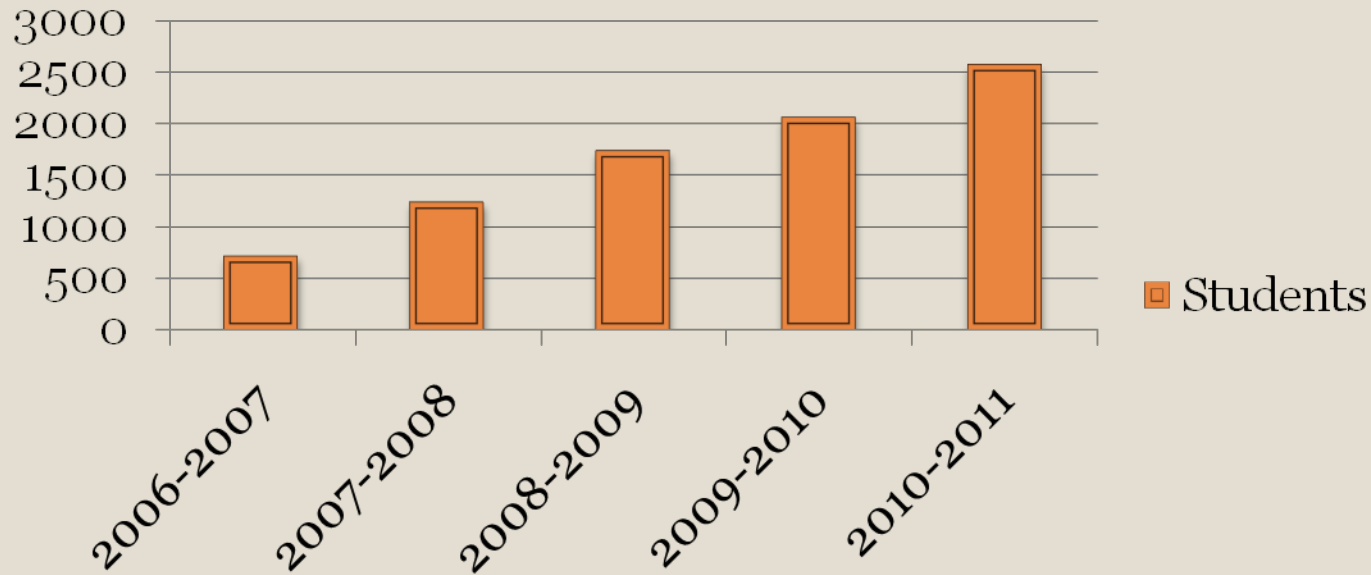
Report prepared till end of Sep,2011

HUMAN RESOURCE DEPARTMENT- 2011

No. of PMU Students

2

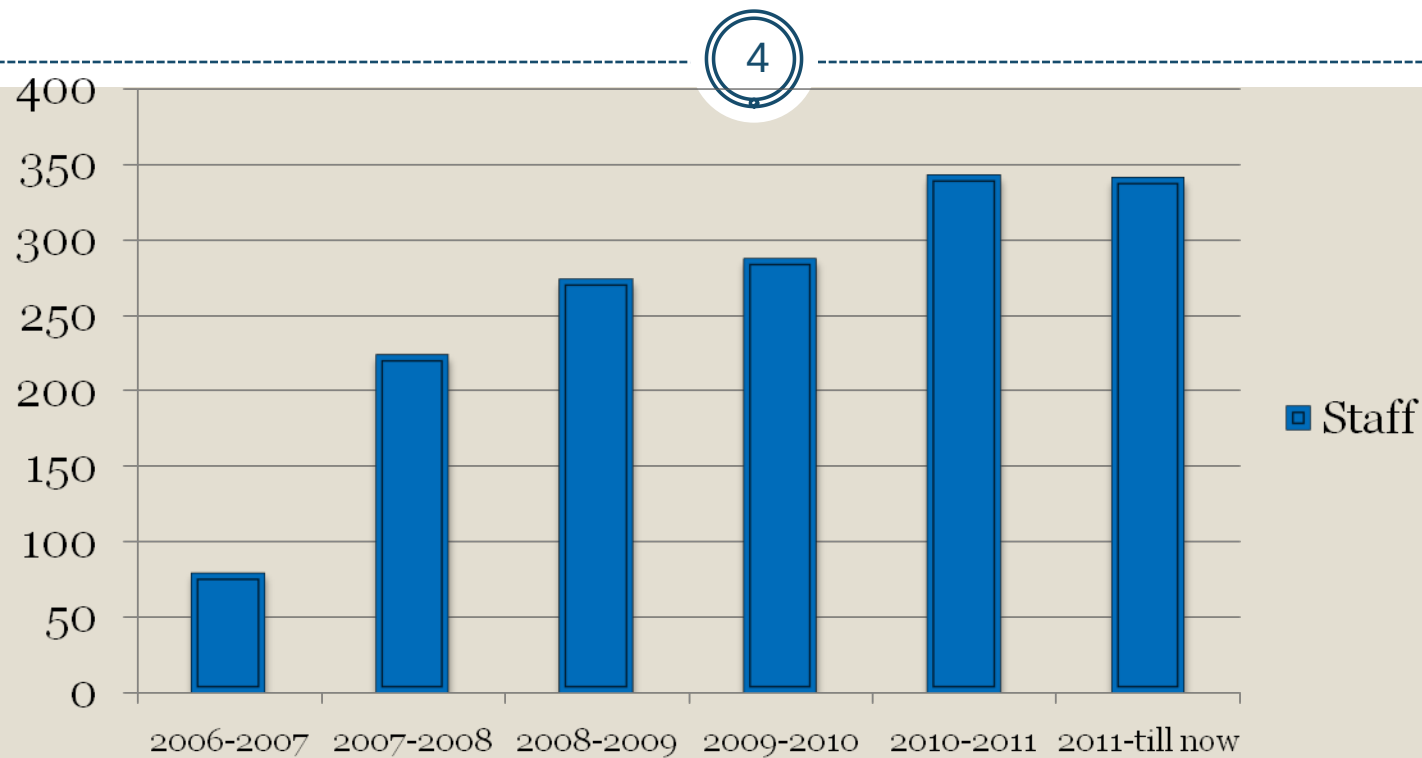
Students



		Growth
2006 – 2007	719	
2007 – 2008	1237	72%
2008 – 2009	1735	40%
2009- 2010	2062	19%
2010 – 2011	2561	24%
Average		31%

Staff breakdown

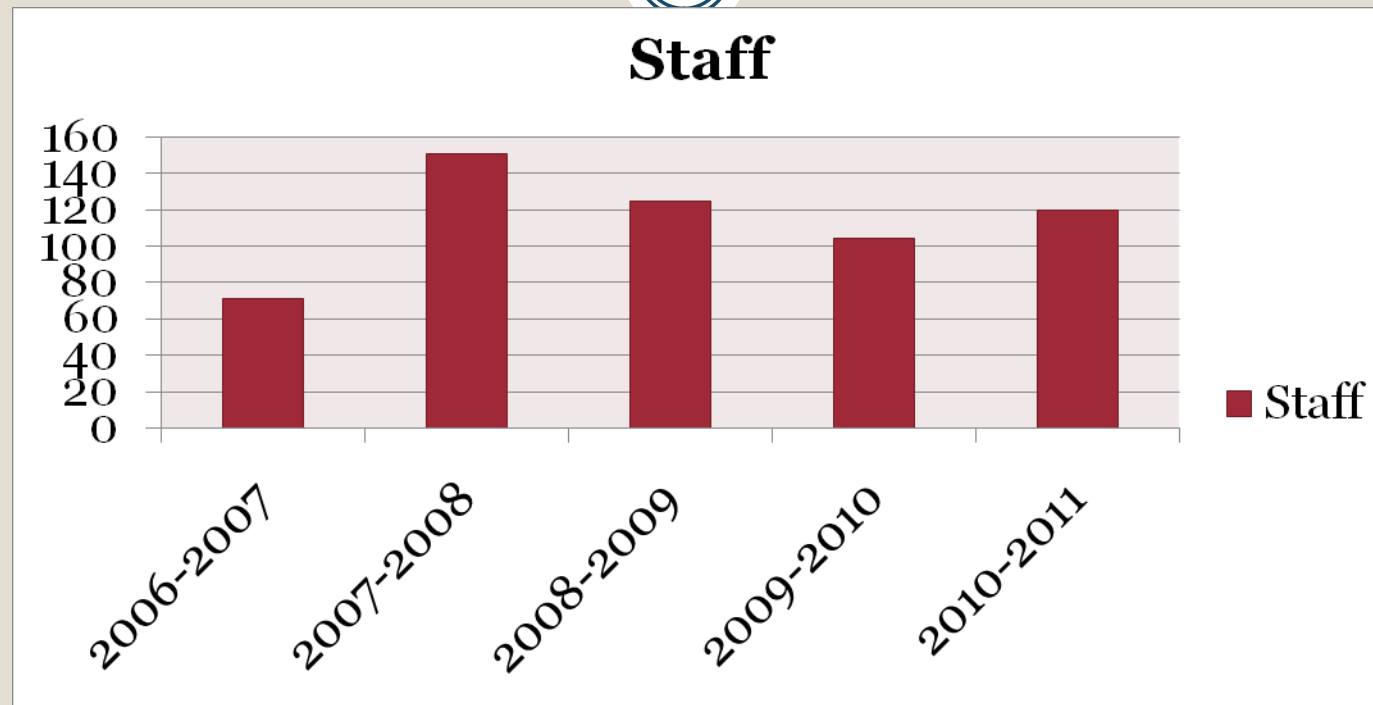
Staff Breakdown 2006- 2007



YEAR	NO. OF STAFF PER YEAR
Jan 2006 – Jan 2007	80
Jan 2007 – Jan 2008	224
Jan 2008 – Jan 2009	274
Jan 2009 - Jan 2010	288
Jan 2010 – Jan 2011	343
Jan 2011-till now	341

Staff Hired Yearly

5



YEAR	NO. OF STAFF HIRED PER YEAR
Jan 2006 – Jan 2007	71
Jan 2007 – Jan 2008	151
Jan 2008 – Jan 2009	125
Jan 2009 - Jan 2010	104
Jan 2010 – Jan 2011	120

% of International Staff

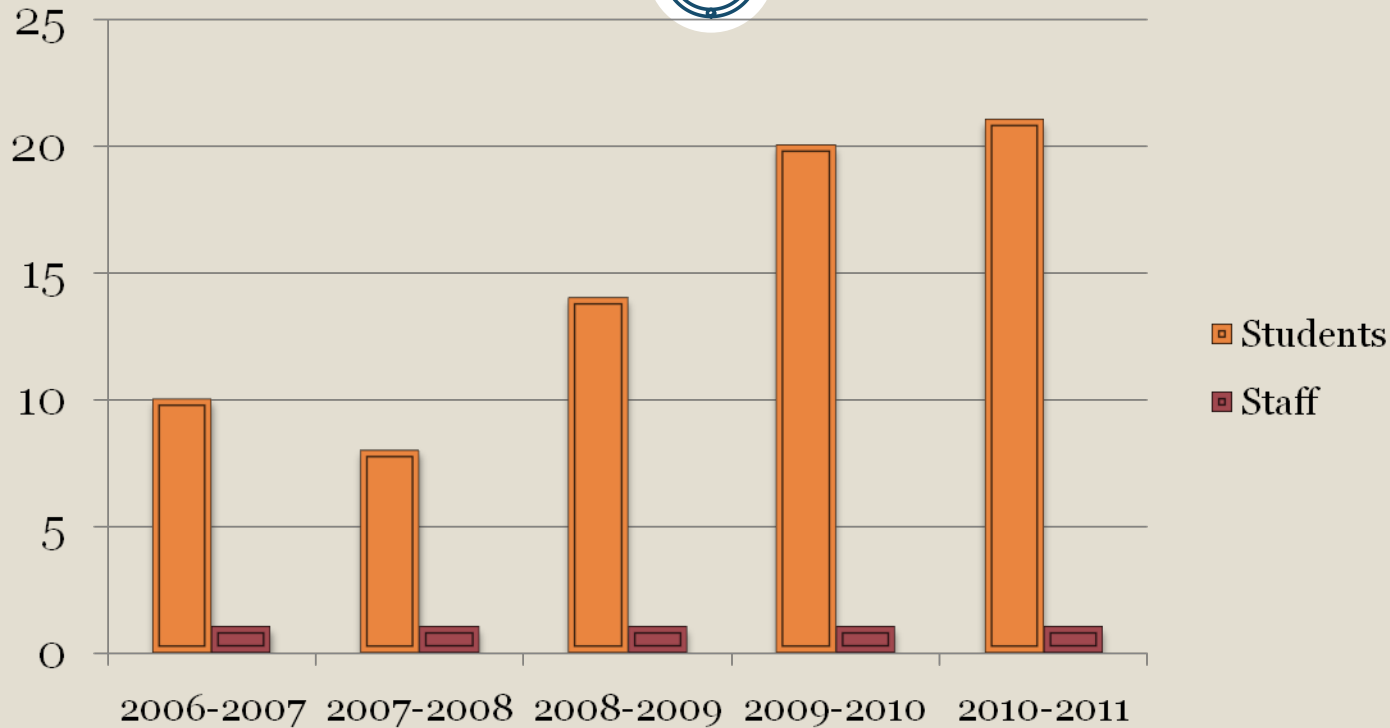
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YEAR	TOTAL NO. OF STAFF HIRED PER YEAR	NO. OF INTERNATIONAL STAFF HIRED	PERCENTAGE OF INTERNATIONAL STAFF HIRED %
2006 - 2007	71	18	25 %
2007 – 2008	151	78	51 %
2008 – 2009	125	72	57 %
2009 - 2010	104	53	51 %
2010 - 2011	120	78	65 %

Student : Staff Ratio

7

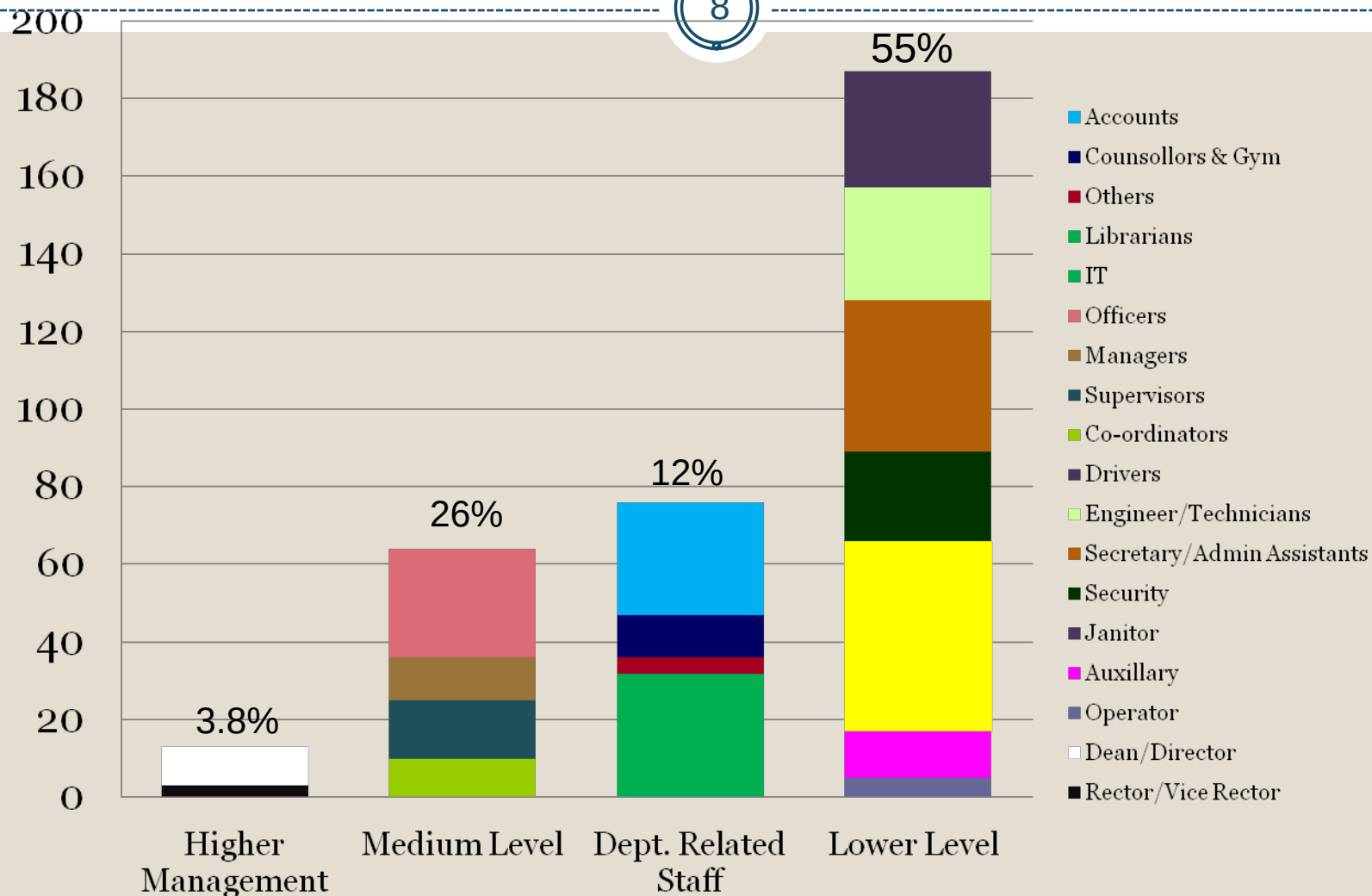


- eg. With every 21 students, only 1 staff member was hired.
- 55% of all PMU Staff are Lower level Staff.

YEAR	PMU STUDENTS : PMU STAFFS
2006 - 2007	10:1
2007 – 2008	8:1
2008 – 2009	14:1
2009 - 2010	20:1
2010 - 2011	21:1 *

Staff breakdown-by positions

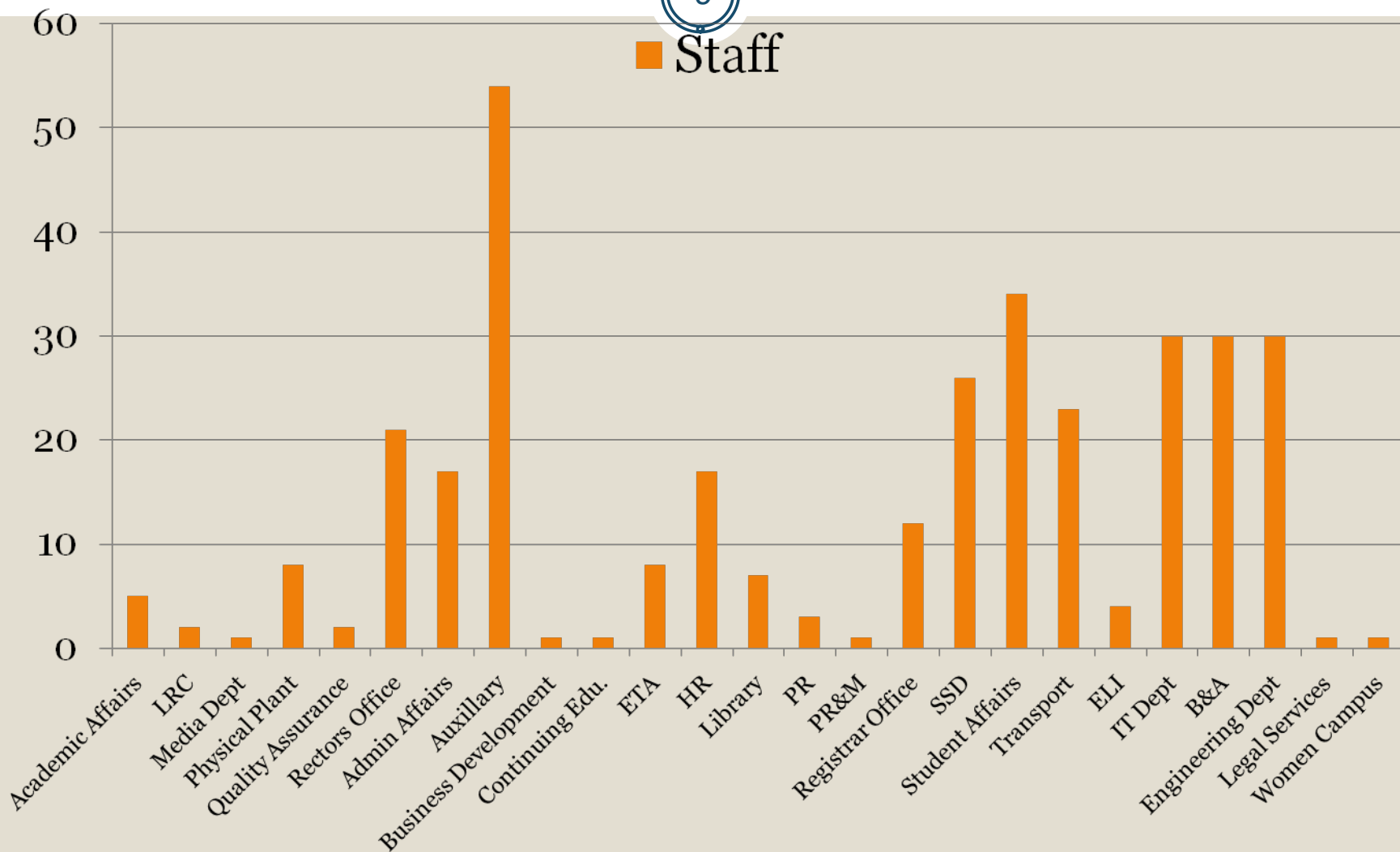
8



Staff breakdown- by department

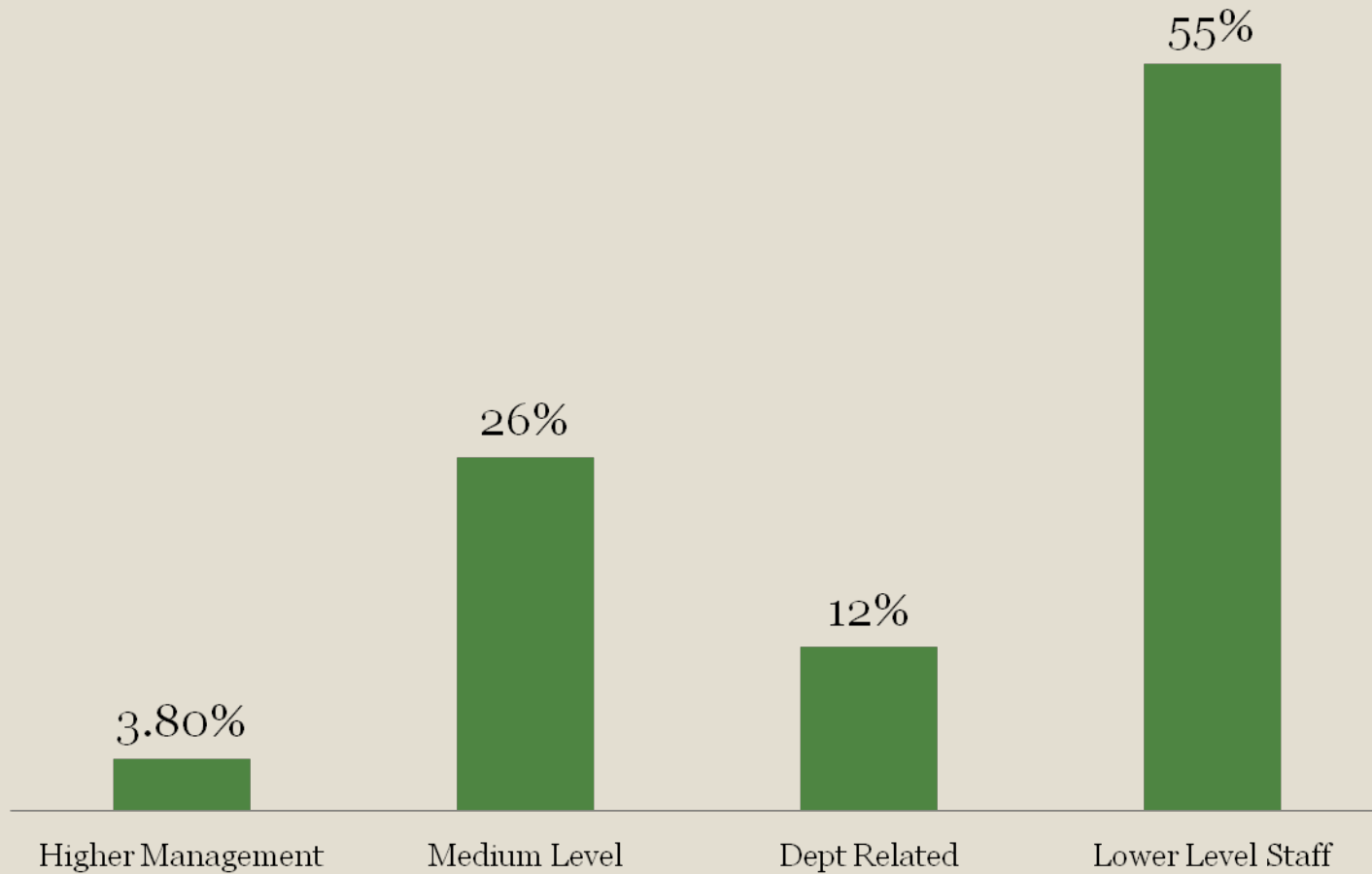
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Staff



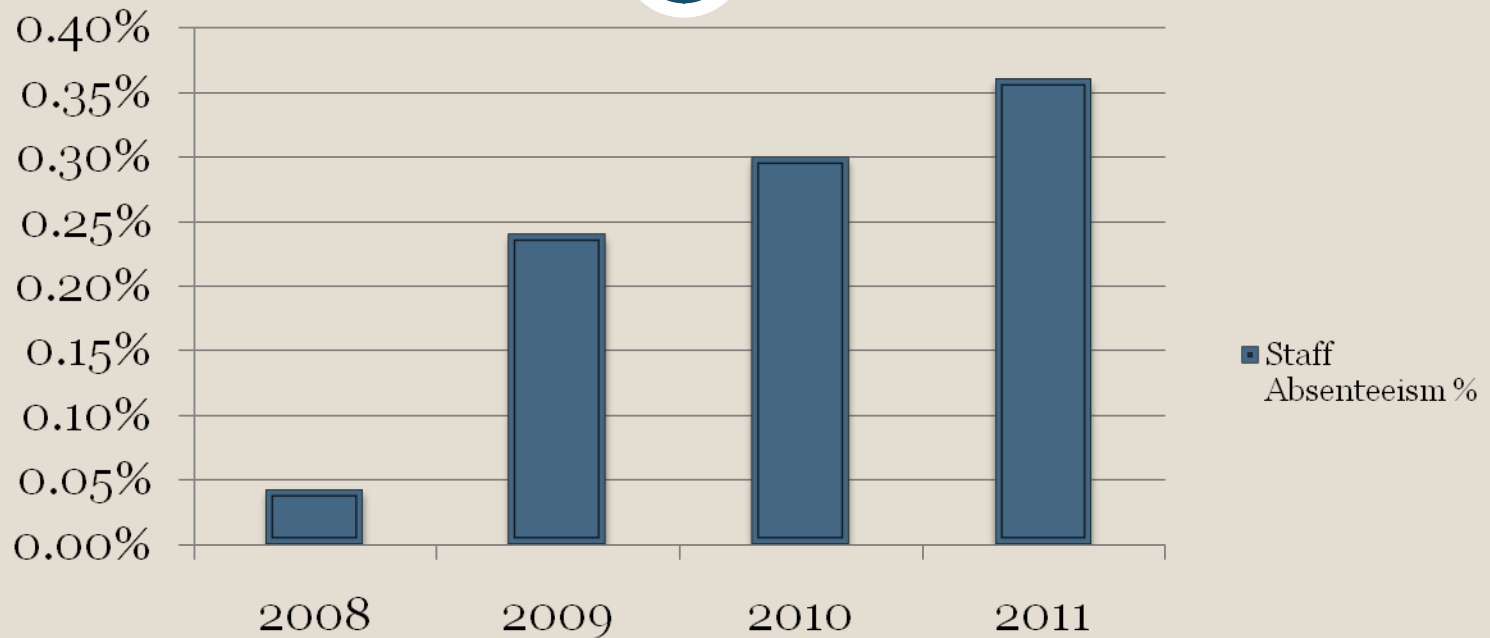
Staff breakdown percentage

10



Staff Absenteeism

11

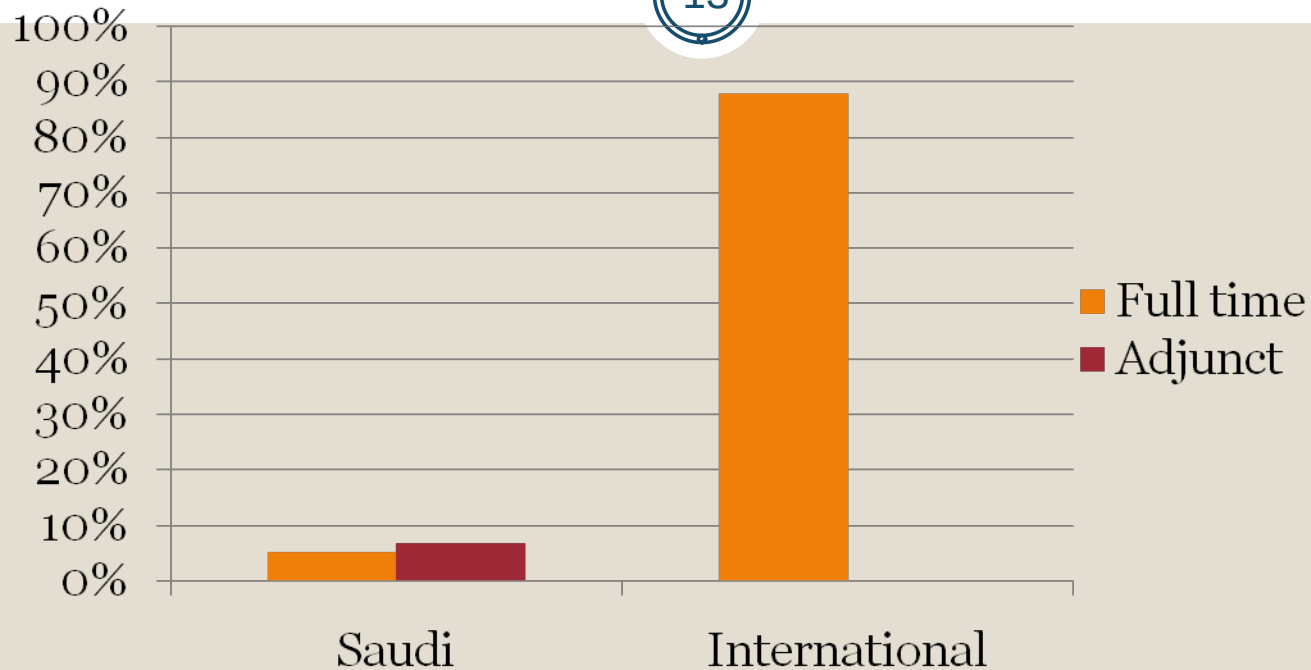


	2008	2009	2010	2011
Total Employees	274	288	343	341
Total Absence (Days)	273	1080	1161	831
Sick Days	26	103	132	257
LWOP Days	4	69	129	55
Average Sick Days per Employee	0.09	0.36	0.38	0.16
Total Work Days (Assuming 252 days a Year)	69048	72576	86436	85932
Absenteeism %	0.043%	0.24%	0.30%	0.36%

Faculty Breakdown

International Faculty

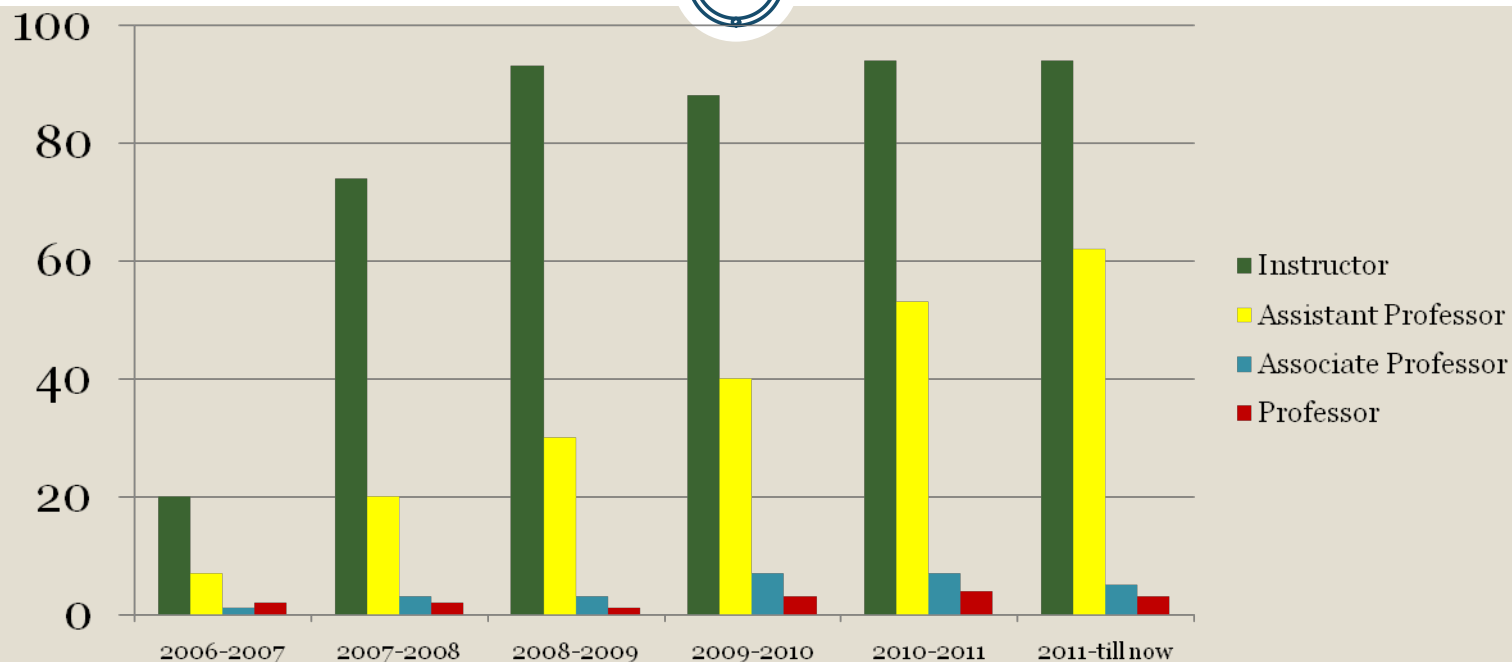
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College	Saudi		International
	Full time	Adjunct	
CCES	.	-	18
COB	.	-	26
COE	3	12	28
COAS	6	-	88
Total	9	12	151
% over Full time Faculty	6%		94%
% as a total	5.2%	7%	88%

Breakdown of Faculty 2006-2011

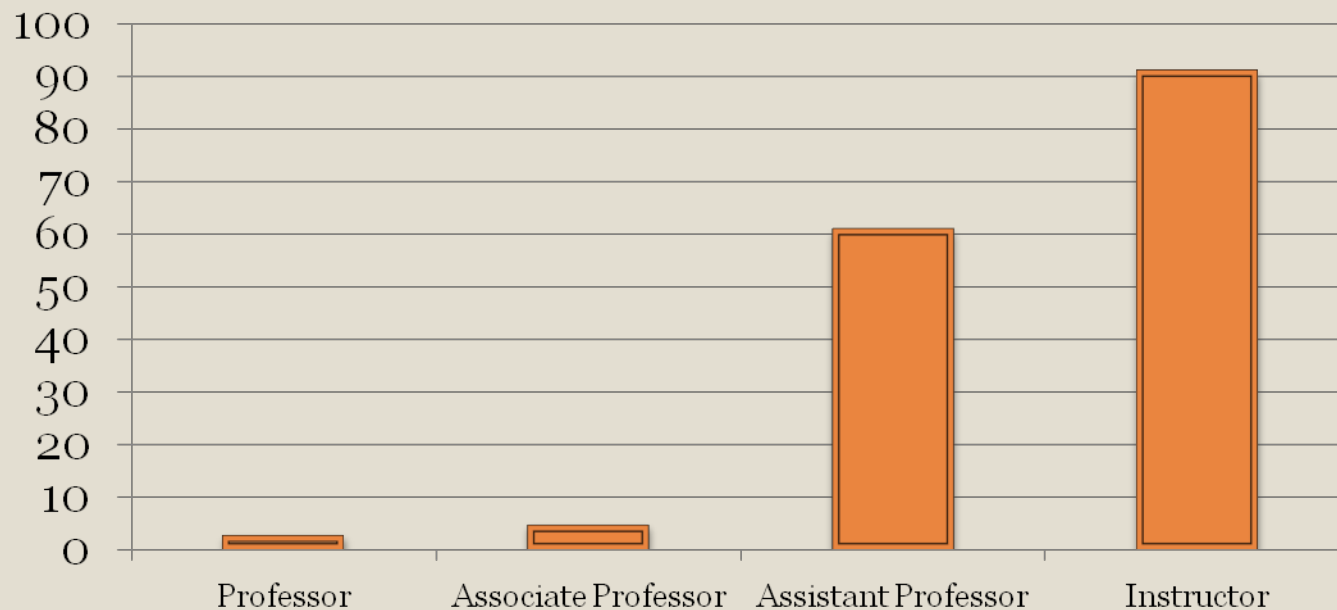
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	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-till now
Instructor	20	74	93	88	94	91
Assistant Professor	7	20	30	40	53	61
Associate Professor	1	3	3	7	7	5
Professor	2	2	1	3	4	3
Total	30	99	127	138	158	160

Breakdown of full time Faculty, 2011

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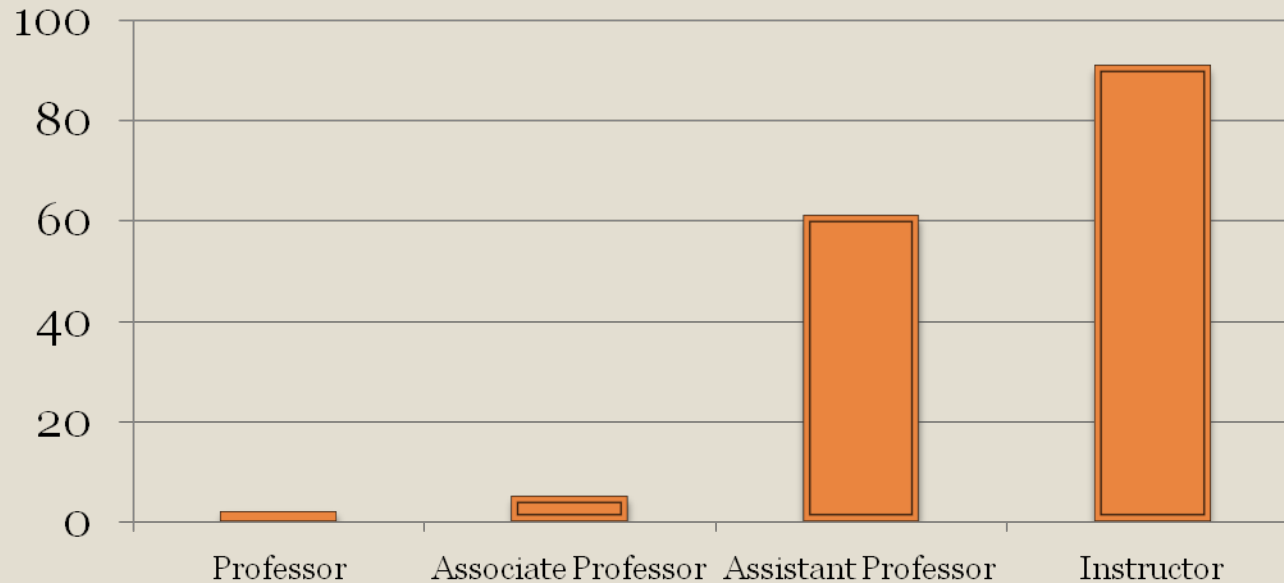


College	Rank			
	Professor	Associate Professor	Assistant Professor	Instructor
CCES	1	-	9	9
COB	-	-	16	10
COE	2	4	12	9
COAS	-	1	24	63
Total	3	5	61	91
%	2%	3%	38%	57%

Breakdown of Part time Faculty

2011

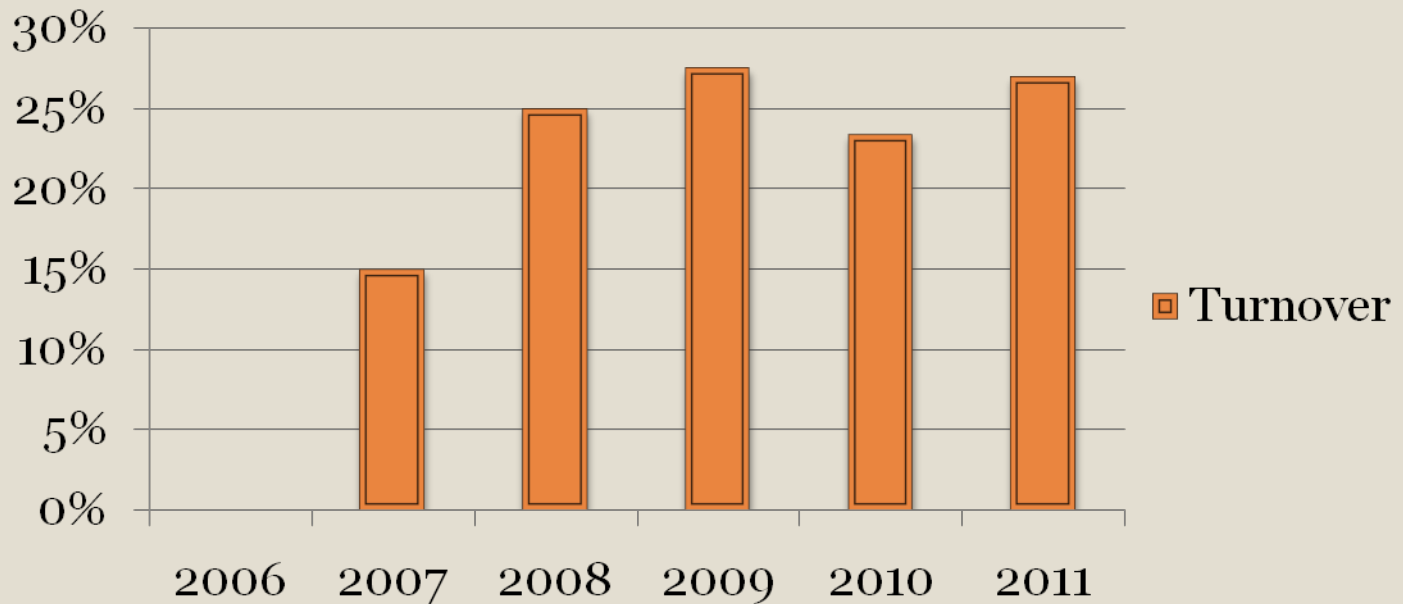
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College	Rank			
	Professor	Associate Professor	Assistant Professor	Instructor
CCES	-	-	-	-
COB	-	-	-	-
COE	2	4	5	2
COAS	-	-	-	-
Total	2	4	5	2

Turnover Ratio 2008-2011

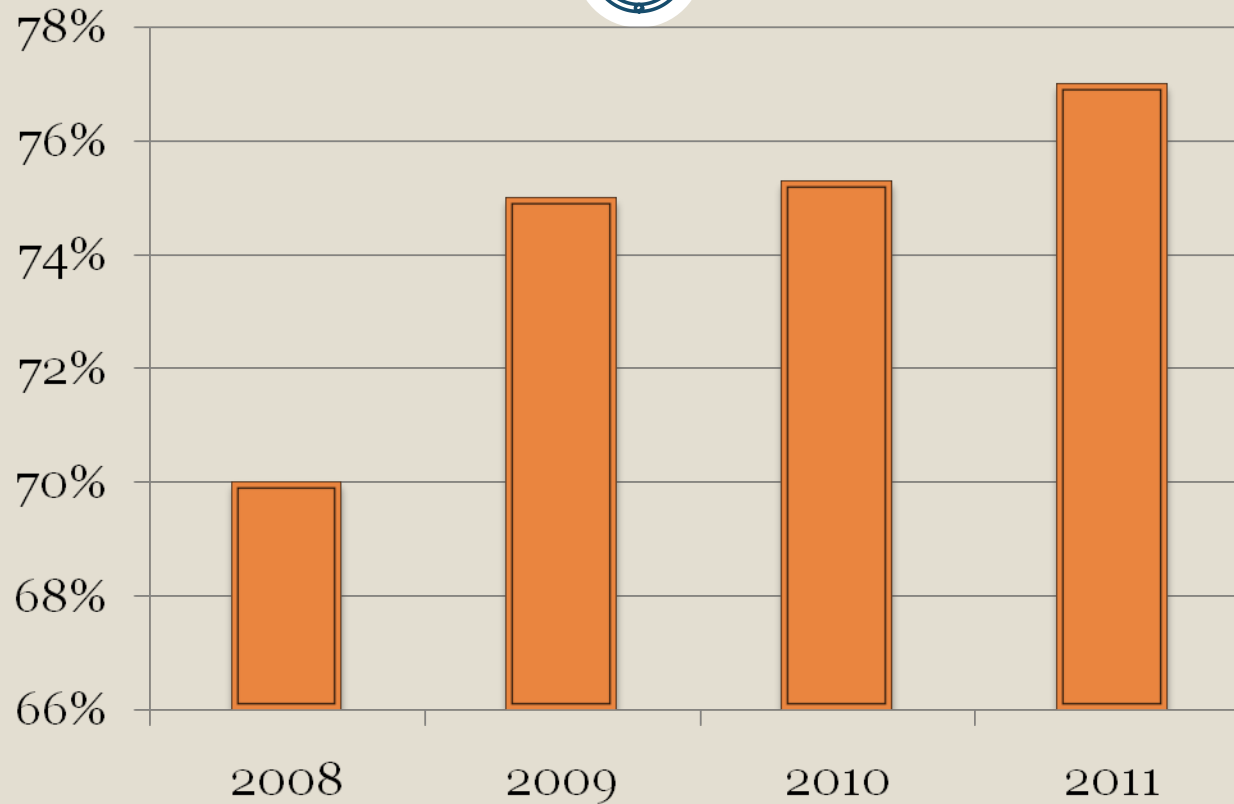
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	Turnover Ratios						Average
	2006	2007	2008	2009	2010	2011(till now)	
Hired	30	84	60	49	57	45	
Termed	-	15	32	38	37	43	
Total							
Employees	30	99	127	138	158	160	
Turnover	-	15%	25%	27.5%	23.4%	27%	20%

Retention Rate 2008- 2011

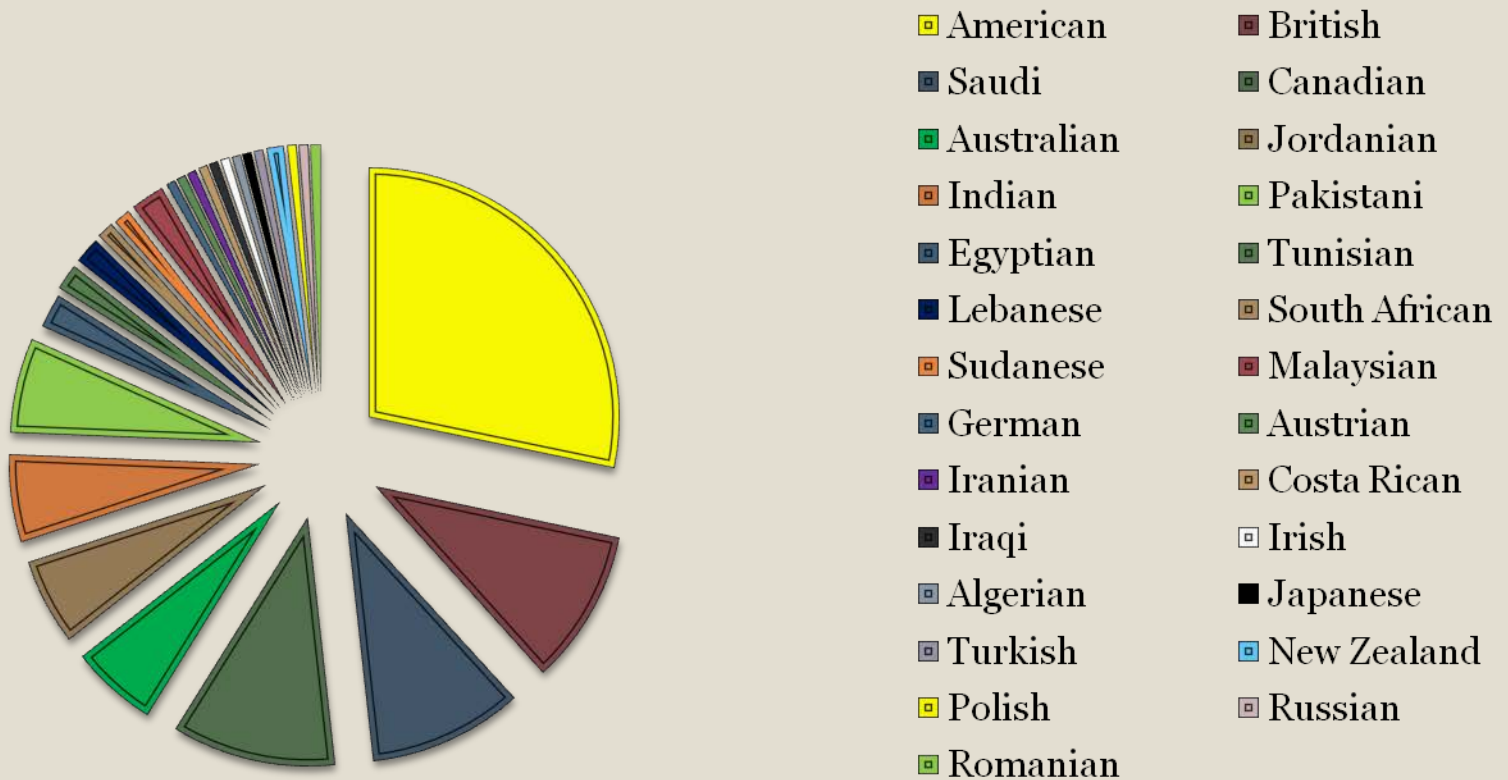
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Retention	2008	2009	2010	2011	Average
	70%	75%	75.3%	77%	74.3%

Faculty Profile- Nationality

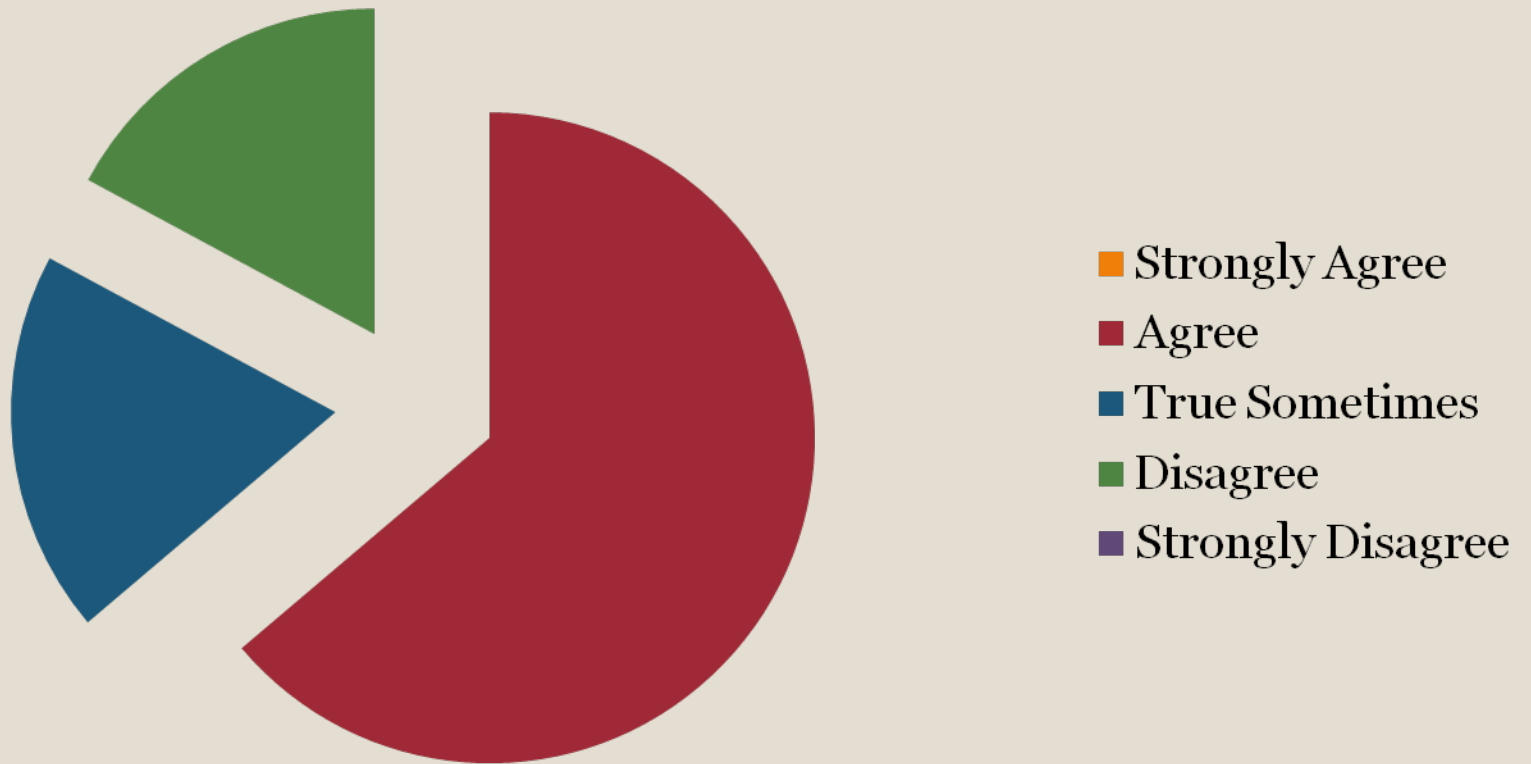
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Faculty Satisfaction Survey, 2011

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Overall Satisfaction



Facility Satisfaction Survey Results, 2011

KEY	Questions	Frequency(%)					Response	
		E	D	C	B	A	Rec.	Exp.
	Classrooms are adequate to accommodate students registered for courses	-	-	13	34	53	15	38
	Classrooms are attractive and comfortable for teaching activities	-	6	-	47	47	15	38
	Scheduling classrooms for courses are well organized	-	7	7	74	13	15	38
	Classrooms security and cleanliness are well maintained	7	20	33	27	13	15	38
	Other teaching tools (e.g. white board, roundtable) are available when needed to facilitate teaching activities	-	7	7	53	33	15	38
	Classrooms media (Smart board, Blackboard) works properly and supports are provided whenever there is a problem	-	13	34	46	7	15	38
	Training was provided for teaching staff to use classroom media effectively	6	20	27	20	27	15	38
	Provisions are available to accommodate students with special needs (e.g. physical disabilities)	7	20	27	53	-	15	38
	Cooperation from the administration is good in understanding and implementing the needs of the instructor's regarding classroom design and/or arrangement	-	29	21	50	-	14	38
	Student computing facilities are adequate for teaching activities	-	13	20	60	7	15	38
	Computers and necessary amenities used are up to date	-	7	40	53	-	15	38
	Necessary software including computer security are installed and up-to-date	-	27	13	53	7	15	38
	Support is provided promptly by IT staff whenever there is a problem	7	-	60	13	20	15	38
	Training was provided for teaching staff to use computing equipment and software for teaching activities	7	7	40	40	7	15	38
	Laboratories are sufficient to accommodate students need for laboratory exercises	7	29	14	43	7	14	38
	Laboratories are well maintained and upgraded	8	23	15	46	8	13	38
	Training is provided by department/college to operate laboratory effectively	7	36	29	14	14	14	38
	Overall, I am satisfied with the adequacy of equipment and facilities at COE		20	13	67		15	38

Thank You!

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ANNUAL RESEARCH BOOK 2012

**PRINCE MOHAMMAD BIN FAHD UNIVERSITY
AL-KHOBAR, KINGDOM OF SAUDI ARABIA**

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Business Administration

**Developing the human and social capital of the localised workforce:
The perceived importance of Adult and Community Education in a
single industry town**

Fiona Hurd

Waikato Management School, The University of Waikato

fah1@waikato.ac.nz

Barbara L'Huillier

Prince Mohammad Bin Fahd University, Saudi Arabia

bml3@waikato.ac.nz

Abstract: This paper presents one aspect of the findings from a larger doctoral study into the localised workforce and community identity, undertaken by the first author, and supported by the Human Resource Institute of New Zealand. This research found that adult and community education had a significant perceived role in the skill development of the localised workforce in the case study town. Significant cut-backs in government funding to adult and community education have significantly affected perceptions of opportunities to up-skill and to move into productive employment within this town. In this paper, we discuss the link between these findings and development of human and social capital. This research is of importance to understanding the complex issues that contribute to the skill levels of current and potential employees. Further, human and social capital are human resource attributes that have been found to be of critical importance to organisational performance. Therefore, understanding how these attributes develop, both inside and outside the organisation, is of critical importance to those in the HRM field.

Keywords: adult and community education, human capital, social capital, training, skills development, single industry towns

INTRODUCTION

It is our contention that in order to understand national productivity and skill development, it is vital to understand the complex factors that contribute to levels of skill and productivity in the localised workforce.

The understanding of such localised labour pools is of primary importance to Human Resource Management scholars and professionals. New Zealand was founded around these small manufacturing and primary industry-related towns. Further, many other towns, even if not 'single industry' by definition, were predominated by a single large employer, whether the dairy factory, meatworks or food processing plant. Whilst

government policy and many tertiary education programmes increasingly reflect a shift towards 'value-added' and 'knowledge' occupations, we still have little understanding of what this means to these primary and manufacturing based towns, or to the people living in them – many of whom have relied solely on work-related advancement, and have little formal education. The lead author's PhD research aims to explore what we might learn from those who have lived and worked in these towns. Using an emerging theme from the analysis of over 100 hours of interview data, we explore one thread of the complex fabric that makes up the localised workforce. Participants expressed the importance of Adult and Community Education, and perceived a significant gap since the 2009 funding cuts to Adult and Community Education. We posit that in the town studied, Adult and Community Education played a significant role in the development of human and social capital.

Wright and McMahan (2011) observed that, while discussions of human capital in the HRM literature were evident from the early 1990s, 'strategic HRM research quickly shifted to focus on the practices that impacted the human capital, rather than the human capital itself' (P. 93). Wright and McMahan call for future research into the complex and multiple contexts that comprise human capital development at the individual, social and task level. This research explores one such context, being the development of the human capital of the localised workforce, through adult and community education.

Human and social capital

Human capital is a concept gaining renewed popularity amongst human resource management scholars (López-Cabrales, Real, & Valle, 2011; Wright & McMahan, 2011). Human capital is a complex, multidimensional concept (Ployhart & Moliterno, 2011), in which individual attributes are transferred to organisational and societal benefits. 'It is theoretically preferable to think [of human capital] in terms of a stock of knowledge and skills which is embodied in each individual and which is, thus, distributed across the labour-force of an economy or industry or firm' (OECD Working Party on Employment and Unemployment Statistics).

Wright and McMahan (2011) suggest that human capital is imperative to organisational success. Lopez-Cabrales, Real and Valle (2011) concurs, stating 'If the company adopts appropriate procedures of personnel management, human capital can be oriented to the achievement of sustainable competitive advantages' (P.349). According to the OECD (2011) 'Human capital plays an important role in the process of economic growth and individuals' labour market outcomes are linked to their educational attainment'. This is supported by López-Cabrales et al. (2011) who suggest that human capital plays an important mediating role

between Organisational learning capability and human resource management practices

However, despite the stated advantages to the organisation of human capital, according to Schuller (2007), human capital becomes unreliable as an advantage if it is not considered alongside the wider contextual social capital. This social capital may be sourced from within the organisation, interrelationships with other organisations, or between the organisation and the wider community context.

Social capital is a term that is used to refer to that which might be assumed to generate the internal social and cultural cohesion of a society. Social capital shifts the focus away from individual attributes and action, and onto the effect that environmental factors have on the combined progress of the group (Schuller, 2007). Huang, Chou and Sun (2009) define social capital as 'an advantage that dwells in social affiliations and networks' (P.7). It is a concept deemed to express the social norms and values that are embodied in the relationships between people and, between people and the organisations they form. Wilson (1997) suggests that the presence or absence of social capital is recognised as a major determinant of a community's wealth and prosperity and ... lends legitimacy to the idea of individual-in-community: each person is defined not just alone but in relationship to others: each person seeks to be part of something larger and can realise him or herself only when part of something larger ... a web of individuals-in community (p. 756).

Social capital, as a multidimensional concept, comprises communication, sharing, social participation, informal and formal networks, co-operation, civic engagement and trust (Bryant and Norris, 2002; Giorgas, 2000; Taylor, 2004). Expressed colloquially it is represented as the 'glue' that holds a society together. Adler and Kwon (2002) take the metaphor a little further. They state: "social capital is a long-lived asset into which other resources can be invested, with the expectation of a future (albeit uncertain) flow of benefits" (p. 22).

Putnam (1993, cited in Grootaert, 1998, p. 9) claims economic growth is dependant on social capital as it "enhances the benefits of investment in physical and human capital" (p. 36). For Putnam, social capital is both a consumption good and an investment. Writing within a New Zealand context Robinson (1997) states that those communities with strong stocks of social capital contribute to greater community involvement in democratic processes. Conversely falling levels of social capital generate fragility in civil society.

Friesen (2003) writes "social interactions that do not have an explicit economic purpose may affect economic productivity in a variety of ways" (p. 183). Townsend (2008) describes how Adult and Community

Education have the potential to contribute to long-term development of social capital, particularly in multi-cultural contexts. Further, Stenberg (2007) notes the connection between adult education and human capital development, commenting that an international growth in adult education is due to 'human capital adjustments made within the existing workforce, rather than through an inflow of workers with new skills' (P. 42).

There is a clear interconnectedness between social capital, human capital and firm performance. Furthermore, Adult Education has been shown to develop both human and social capital development. Therefore, it is important to consider the role of Adult Education in the development of human and social capital at the localised workforce level.

Adult education in NZ

The OECD prioritises the importance of adult education, citing significant economic and societal benefits (Organisation for Economic Cooperative Development, 2011).

Adult Education in New Zealand became formalised during the 1974 Educational Development Conference (Barbour, 1996). Prior to this, many forms of adult education, formal and informal, had existed, but were generally contained within the umbrella of either 'hobbies' or work training. The development of the adult education sector during the mid 1970s saw a portion of the responsibility for adult education move from the domain of government and the organisation, to the community. Since this time, the adult education sector has played an important role in the training of the New Zealand workforce (Adult Education and Community Learning Working Party, 2001).

Internationally, it is noted that participation in Adult and Community Education tends to be concentrated to high skilled and middle-high income sections of the population (Crowther, 2000). However, in New Zealand, although participation of low-skilled, low-income individuals is lower in tertiary education, Adult and Community Education programme fulfil an important role in the education pathways for these groups (Adult Education and Community Learning Working Party, 2001). Therefore, Adult and Community Education has the potential to significantly contribute to increasing the human capital of localised workforces.

During the 2000s, New Zealand had over 248,000 enrolments per year in adult and community education courses (Adult Education and Community Learning Working Party, 2001). Included were school-based programmes, community programmes at tertiary education institutes, workers education associations, ESOL home tutoring and Literacy programmes. Of these, the majority (200,000) participated in school based programmes (ibid.).

In New Zealand a conservative government was elected in November 2008 amid the revelation of an emerging global economic crisis. In May 2009 the new government's first budget outlined initial strategies to address the domestic implications of this crisis. Among a number of controversial budget announcements is a proposed 'reprioritisation' amounting to a \$67 million funding cut¹ to Adult Community Education (ACE) programmes² while at the same time almost doubling funding to private schools (from \$40 million to \$75 million).³

¹ \$6 million in 2009/10, \$17 million in 2010/11, and \$22 million in both 2011/12 and 2012/13 equating to approximately 80% of State funding

²

<http://www.beehive.govt.nz/release/government+invests+124+million+community+education>

³

<http://www.beehive.govt.nz/release/budget+focus+frontline+funding+schools>

⁴ <http://www.tearohanoa.org.nz/adult-education.html>

Adult and Community Education Aotearoa (ACE) has been the national body for the adult and community education sector in New Zealand for over 80 years. It is a "not-for-profit organisation with the purpose of advancing a learning society that is democratic, nurturing, effective, and sustainable, based on Te Tiriti o Waitangi" (<http://www.aceaotearoa.org.nz>). Adult and community education encapsulates both formal and informal programmes that facilitates lifelong learning and promotes "empowerment, equality, active citizenship, critical and social awareness and sustainable development" (ibid). ACE aims to strengthen social cohesion; strengthen communities and raise foundation skills. Various programmes support learners who underachieved in formal education and wish to open new doors.

The New Zealand Ministry of Education (2007) defines the ACE sector as "a broad range of formal and informal programmes which promote and facilitate the engagement of adults in lifelong learning". In 2008 Adult and Community Education Aotearoa Inc (ACE) estimated it provided services to over 409,000 people equating to 10% of the NZ adult population through 532 service providers (<http://www.aceaotearoa.org.nz>).

Ace benefits – both economic and non-economic. In terms of non-economic benefits, health, ageing, citizenship, crime and parenting have been identified as key areas where adult and community education makes a measureable difference (Adult Education and Community Learning Working Party, 2001).

PriceWaterhouseCoopers (2008) report on the contribution of ACE and

its focus on adult education as a way to “improve people’s productive lives through learning” affecting “all areas of an individual’s life, whether as employees, parents or members of the community” (p. 5-6). Their report suggests that the average ACE participant was from the “lower socio-economic demographic”.

The PriceWaterhouseCoopers (2008) report also illustrates the disproportionate amount of participant in ACE programmes are women (82%). A key economic benefit of ACE was the opening of a path to an “increased income for adult users because of subsequent involvement in paid or higher paid employment”. Benefits were also realised “through saving in government welfare benefits, savings in crime and health, [and] value added through enhanced community participation” (p. 5). In dollar terms the economic benefit of ACE is estimated at between \$4.8 billion and \$6.3 billion annually. In this type of assessment, every dollar the government ‘invests’ generates ‘a return’ of between \$16 and \$22. Although this ‘return on investment’ sounds almost too good to be true the report noted that the lower the socio-economic backgrounds of participants the greater the marginal return when improving the outcomes for these individuals.

The PriceWaterhouseCoopers (2008) report indicates that a primary benefit to individuals learning through adult education courses is “the social and intellectual experience as they engage in a particular learning activity” (p.16). For example, ACE provider Te Aroha Noa⁴ primary objectives is to:

- ☐ Encourage continued education and further study
- ☐ Break down barriers to learning
- ☐ Improve self confidence & self esteem
- ☐ Improve life choices and chances

Inkeles (2000) posits that “cultural patterns of different communities play a critical role as a form of social capital in affecting the chances for those communities success in economic ... and other endeavours” (p. 22-23). In addition to job-based skills, ACE provides individuals with an opportunity to engage in a range of educational programmes that are community or iwi⁵ based that encourage empowerment, equality, active citizenship and social awareness including: literacy and numeracy, English as a second language, Maori language and culture, personal development and enrichment, education for social justice. PriceWaterhouseCoopers (2008) report that ACE “has an important role to play in the Government’s goal for a prosperous and confident knowledge society as outlined in the Tertiary Education Strategy 2002/07” (p. 11).⁶

5 Iwi is a collection of whanau. 6 The wider outcomes of providing ACE

programs can be found in figure 1 in the appendix.

Our aim in this paper is to examine the perceived importance of adult and community education in a localised workforce, represented by residents of a single industry town.

Case

Tokoroa is in the South Waikato region, approximately 1-hours drive from Hamilton, and has a population of approximately 12,000 (Waikato District Health Board, 2009). This region provides an excellent example of workforce development/change throughout the past 100 years, from the post WWI employment initiatives which led to the planting of the Kaiangaroa forests, to the post WWII state-planned industrial development which led to the opening of the Kinleith Pulp & Paper Mill (Healy, 1982). For the next 50years, Tokoroa was a bustling single-industry town, attracting workers from many other areas of New Zealand. Tokoroa was also one of the first sites of employment migration from the Pacific Islands in the 1960s, when the demand for employment at the Mill was such that national demand could not satisfy the needs of the industry. Throughout this period, Tokoroa had a higher population growth rate than the national average.

In 1980, the population of Tokoroa was 19250, and the number of full-time employees at Kinleith Pulp and Paper Mill (the Mill) was 5456. For Tokoroa residents, the 1980s was a decade characterized by industrial disputes and redundancy. One of the key incidents in the towns industrial relations history was the strike in 1980, which lasted three months, and divided the town based on union and employment affiliation. The first employment downsizing at the mill came in 1986, and was quickly followed by successive workforce downsizing. By 2003, the Mill employed just 380 employees (Thompson, 2003). The structure of the workforce has moved from a model of full-time employees, to a core/periphery model, with many functions outsourced to independent contractors. The employment history in the town can be seen as a micro-level example of the macro-level changes occurring in the New Zealand business/society relationship. Many of the trends shown in Tokoroa have been repeated throughout New Zealand, and globally.

Adult Education has a longstanding history in Tokoroa. Being the centre of industrial development in the 1950s, with the concurrent construction of both the Kinleith Pulp and Paper Mill and the Waikato River Dams Project, the town also provided a key industrial training role. Additionally, the town boasted the highest number of clubs and associations per capita in New Zealand (Chapple, 1976). These would no doubt have been places of skill-transference and social capital development. These characteristics led to Tokoroa being a highly skilled

workforce up until the period of redundancies and population decline in the 1980s and 1990s. Tokoroa now has significantly lower skill-levels than the national average, with only 7.2% of population having post-secondary school qualification, compared to national average of 9.5% (NZ Statistics, 2006).

Since the 1970s, there has been an active community education programme in place, coordinated from Tokoroa High School, but with activities taking place at a variety of schools and community facilities. According to the Community Education coordinator, prior to the 2009 funding cuts, approximately 1200 individuals accessed this programme each year, and 50 tutors were employed by the programme.

Objectives

How do small communities experience changes to localised work and skill needs, and how do they adapt to these changes? While prior international research has examined the development and growth of single industry towns and the types of communities that develop within them, the impacts of corporate downsizing and dramatic population decline on the understandings and experiences of those living in small towns, and the community identity, remains unknown. Despite many projects covering the broad statistical trends and demographic changes, we are still yet to see a comprehensive understanding of the complex factors that lie behind New Zealand's workforce statistics. Understanding the experiences of those individuals who are living and working in towns that were built around 'employment' may be the key missing factor in understanding and improving productivity in these towns, as these towns are microcosms of the wider NZ workforce and society.

Method

For this research, we choose semi-structured interviews and a key informant and snowball sampling technique to gain insight into aspects of the single-industry workforce and community identity. The semi-structured interview enabled us to explore themes of interest about changes to work and the implications of these changes for the wider workforce and community, as well as being flexible enough to allow follow-through with issues raised by the participants (Kvale, 1996; Maykut and Morehouse, 1994). The themes were chosen based upon secondary research detailing the historic, political and economic context of the town (as briefly summarized above). The semi-structured interview allowed us to gain an understanding of these changes from the participants' perspective and provided us the opportunity to clarify respondents meaning (Fontana and Frey, 1994; Kvale, 1996). Each interview took approximately one hour.

The participant criteria of having permanently resided in Tokoroa for at least one year was applied to generating a mixed sample of 17 women and 15 men, aged between 30-85 years. Of the participants, three were currently living outside of Tokoroa, with the remaining 29 currently residing in the town. All had resided in the town for at least four years. The participants were from a broad range of ethnicities, with 10 identifying as NZ European. Of the remaining, six identified as NZ Maori, eight as Cook Island Maori, one as Fijian, one as Samoan, seven as continental European.

The participants were also of a wide variety of skill and employment backgrounds. Seven were retired, 12 employed full time, six employed part time, one was a full-time student, and two are currently unemployed. All had experience working within the local workforce, in a variety of occupations, including skilled trades people, forestry workers, administration, management, education. Four were university degree-qualified, one held a PhD, 10 had formal trade qualifications.

An inductive thematic analysis was performed using NVIVO VIII. One of the key themes to arise was the importance of skill building to employment prospects in the town, and the role of Adult and Community Education. This is the key theme this paper will focus on.

Findings

Unsolicited comments relating to Adult and Community education began being noted in the first interview. This was despite the researcher being unaware of the presence, or perceived importance, of ACE within the case community. It was not until the fifth interview that the topic was implicitly discussed, and this was at the instigation of the participant. Furthermore, it was not until the results of the preliminary NVIVO analysis that the thematic prevalence of adult and community education became apparent. Further exploration found a number of social characteristics which could be seen to support the value placed on Adult Education in the case community.

Social context

Characteristics of the social context are inherent in discussions of social capital. In the case town, we found a specific socio-cultural history which shapes the way in which development activities are perceived. Firstly, the majority of participants who came to the town during its development period (1950-1965) commented on the egalitarian nature of the town. Some posited that this was due to everyone coming for a single purpose – work, or due to the fact that the entire town was in a state of construction.

‘It was evenly balanced, because nobody had very much in material

possessions, and everybody was pretty much on the same journey' (Participant 22, 06/03/2011)

'Because we all came from throughout New Zealand and throughout the world, suddenly forming a town that grew like a mushroom, that creates a society that is all from a strange place, and therefore you're... I suppose in a way you could visualise being in a refugee camp, but in a nice way - that you're all strangers and that you all work together, because you're all in the same situation.' (Participant 5, 28/02/2011)

This egalitarian characteristic led to a lack of social stratification based on wealth or education status, but rather, separation was made based on occupation. This appears to have instilled in the town the valuing of job-related skills and community-based education.

Another aspect of the local workforce is the historical and multicultural identity. We found that the value of 'work' was strongly embedded, perhaps due to the fact that all original members of the town had come specifically for employment, so this had become a very strongly held value within the town. This is contradictory to outside perceptions of the town and the workforce (Scanlon, 2003; Thompson, 2003), and to the rising unemployment statistics in the town. Despite a perceived lack of employment prospects (96% mentioned this), the desire to work, and the value placed on 'work' was still evident.

Additionally, the migration of other cultures to Tokoroa specifically for work seemed to significantly impact on how individuals from these cultures perceived the importance of 'work'.

'We had one of our staff members die, he was Samoan... As employers, we went round and saw Sam at home, and the family, you know, open casket. I guess one of the things that it is lucky is that I have been exposed to a little bit of Maori culture, where going and visiting a body is a good thing, rather than a bad thing to do, and so we went and spent some time with Sam. And it taught me, in the Samoan community, the employers are everything. They are higher than family. They are treated with unbelievable respect. And I know that through the process - you know they had a big feast one night, and [the owner] wasn't able to go but I was there, and I sat at the top table, in the number one seat. And before anyone got up to get any food I was served all my food, it was all bought to me - I didn't get up. You know, I was embarrassed, unbelievably embarrassed, but I was learning quite quickly, because at the end of the day, you can't be embarrassed, you've got to - you know, that is their culture, and yes I got unbelievably well looked after. We took [the deceased] from home to church - that was as employers...and when we buried him, we were very involved in filling the hole... and then at the end, the shawl that was over Sam's body was presented to Les at the

funeral. And you know, I just think that that's an unbelievable honour and it was special.' (Participant 1, 22/02/2011)

Adult Education

It is reasonable to suggest that, due to this strongly felt work ethic, most participants perceived that training and education was most useful if it fitted around work and family responsibilities. Additionally, five participants mentioned the wide range of skills and abilities possessed by young people in the town, and felt that while the students abilities were such that they could succeed in tertiary education, that many would require non-traditional paths to education and training.

Teacher: 'We're pushing every student, we're alongside everybody, these kids have the same abilities as the best in New Zealand... if there's one legacy I want for our kids, that we should've learnt from the 70s and 80s, is that, our parents came here to offer us better education, better opportunities, better work opportunities... and our kids can do it' (Participant 9, 11/03/2011)

Despite the perceived importance of a variety of education pathways in the town, 16 participants spoke directly of a perceived education gap in the town, not covered by available secondary and tertiary options.

The value of informal learning was also high, with most participants involved in non-formal skill based activities in the community – community drama, sports, hobbies, toastmasters, and volunteer work-based training (e.g. to become a volunteer St Johns Ambulance officer).

In terms of Adult and Community Education programme, based at local high schools, five participants had themselves accessed school-based ACE prior to the 2009 funding cuts, and a further two expressed a desire to access these courses, and thought that these were still available. In three cases, this training had led to new employment, and in another case, to significant skills to be used in existing employment. In the case of the individuals who expressed a desire to train, the perception was that this would lead to future employment opportunities. The perceived importance of adult education as a pathway to employment for those on welfare, or low skilled workers, is contrary to the predominant view that it is highly skilled and educated who generally access adult education (Crowther, 2000)

C: We decided that technology was advancing and we needed to know a little bit about that, so D went to night school, for computers

D: 'Yes, they'd introduced computers out at the mill, and they said that they were going to train us, but they never ever did. And I thought to

myself 'well, I don't know how to work a computer', so I went on an 8-week course at night school up at Tokoroa high.'

C: So D did the 8-week course, and then I did the 8-week course. And then I said to [the tutor] that I'd enjoyed what I did and wanted to enrol in another course, and he said 'why dont you come in as a day student', and that's what I did, and I did 3 years...(Participant 13 & 14, 30/03/2011)

One surprising finding was that two of the study participants had themselves started their own private ACE programmes, one literacy-based, and the other trade-training. When asked of their motivation, both commented that it was not as the result of a perceived commercial opportunity, but rather as the result of a perceived community need. This is reflective of the development potential of social capital within a local workforce. Additionally, participants noted a trend of skilled workers leaving the town, not for other urban areas in New Zealand, but to Australia. This in itself is perhaps unremarkable, as this is a trend seen throughout New Zealand's labour pool (Fallow, 2011). However, the interesting observation was that these individuals often returned to the town after a period of employment in Australia, and this re-migration was perceived to be primarily for cultural and community reasons. In the case of Tokoroa, it would seem that social capital holds an important role in the development and retention (or re-recruitment) of skilled workers.

Perhaps the most telling account of the role of Adult Education in this community, and the impact of the cuts, came from an individual involved in coordinating the Adult Education programme. A short narrative excerpt from his account is below.

In NZ, Ace had 200,000 individual enrolments, a 16m dollar budget, and the government cut 14m. The programmes utilised facilities already there in high schools, computing, welding facilities, woodwork facilities. To me, it's a case of knowing the cost of everything and the value of nothing. Why they would cut a thriving and productive community education programme, I'm not sure of.

So many adults would come in and use it as a stepping stone - mums, who'd been out of employment for many years. It would give people confidence. We had a huge range of formal and non-formal courses. Our very, very, limited budget now focuses on literacy and numeracy, and that has value, but there's not that many illiterate and innumerate people, most people have basic literacy and numeracy, so we really struggle to fill those courses... for the government 14 million is a drop in the bucket, but the quality of life that it just eliminated and impacted on, in our communities.

The popular perception was of the Thai cooking and Pottery classes, but

our courses were very, very practical. I mean, we did cooking classes, and we still have a self-supporting Indian cooking class, but all those tutors, the Pilates tutors, the yoga tutors, they're all self employed now, they had a huge following. But I had something like 50 tutors on my books, and I only employ half a dozen of those tutors now - and I've brought in a lot of literacy specialists that I didn't employ before, they had their own programmes. So there are 40 people with lots of skills, in a whole range of subjects who are basically just unemployed. I'm thinking of my welding tutors now, and both those guys had something like 40 years of welding experience - and it was interesting, we had people come and do our welding certificate, a year long, intensive course, and some of those guys got jobs straight away, they were so well trained. And while they didn't have the advanced certificates, the employers would give them a go, and they did really well and got jobs.

And we had truck driving courses, and they'd leave here and get a job driving a truck - we'd do the theory and the practical... before the cuts, across the four schools, we'd have 1000 - 1200 people per year... and now we're lucky to get 400-500 per year, and we're down to back driving license, sign language, basic literacy and numeracy course, ESOL, Te Reo, French, German. So it's a fairly limited offering really.

It provided so many people in this community with an opportunity to get out and meet people, and people were up-skilling and enriching their lives. Sure, some were going to pottery, and they didn't want to become full-time potters, and they were doing woodworking, but its adding value to people's lives... and in the middle of a recession... there were something like 3000 tutors [nationwide] laid off, and for many they were working four nights a week, and the occasional weekend workshop, and that was their main source of income.

I still get lots of phone calls, you know 'are the welding courses still going? Are the carpentry courses still going?' and I have to say 'no, we can't offer those now'. But I always give them the name of the teacher, in case they can afford to pay one-to-one, or form a little group. I'm working with a chap in Tokoroa, and we're working on a website where we're trying to list all the people in the area who can pass on any skills. Often people don't have the where-with-all to pay a tutor one-to-one, but if we can get people together and form a group perhaps, because there are still people who want to access these things. But it's just not happening. (Participant 6, 02/03/2011)

Implications for HRM

Although the issue of Adult and Community Education falls outside the organisational boundaries, it has significant implications for Human Resource Management strategy, a few of which are now outlined. Our

research has shown that adult and community education has a significant role in work-related skills and training, for some as pre-employment training, and for others to gain additional skills to enable a career change. If this skill building does not occur outside the organisation, the responsibility for much of this training may fall on the organisation. Additionally, in terms of recruitment, the reduced opportunity for potential employees to gain basic skills prior to application for some jobs may need to be taken into consideration. For example, rather than making an assumption of minimum skills, and perceiving such ‘unskilled’ applicants as lacking in initiative due to not gaining these skills, HR managers may need to more carefully assess an applicant’s *potential* to be trained in these areas. Finally, for organisations looking to expand operations into such locations, this study highlights how important extra-organisational factors are to the assessment of the potential local workforce, and how matters of context – in this case political – can significantly impact on the training needs of the workforce.

Conclusion

In the case of Tokoroa, we found that a reduction in the funding, and consequent offering of Adult and Community education resulted in a significant reduction in perceptions of opportunities for training and skill development. It is reasonable to presume that the impact of this perceptual change on the development of social and human capital is significant, given the contextual value placed on egalitarian values and labour-intensive work. We found that these characteristics made community-based education a more attractive first pathway to employment and re-employment than formal tertiary education. Additionally, as a town with a lower than average level of tertiary qualified individuals, adult and community education was perceived as a less-intimidating entrance to formal education.

The reduction in ACE course offerings, as a result of the 2009 Adult education funding cuts, were perceived by participants to have a significant impact on the availability of training and skill development in the town. Additionally, these were seen as a further weakening of the town’s social fabric. These aspects could be seen to impact significantly on both the social and human capital of the town.

According to the Ministry of Economic Development, ‘The government’s principal economic goal is to deliver greater prosperity, security and opportunities to all New Zealanders.’ (MED Development Strategy Statement, 2011). However, the decision to cut funding to Adult and Community Education seems at odds with this goal.

Adult and Community Education has been shown to help develop both social and human capital, which in turn positively impacts on both

regional economic development and organisational performance. It has been shown that the external training and social context are important factors in the levels of social and human capital available to organisations. Therefore, it is of key interest to organisations to examine the external context which may be developing, or conversely inhibiting, the social and human capital of employees (or future employees).

Our study has shown that adult education has a significant perceived role in the development of both human and social capital in the localised workforce we examined. The reduction in adult and community education was perceived to significantly reduce the opportunities for skill development in the town.

For Human Resource professionals, this study is of significant importance. In an era of global and strategic HRM, the skill levels of the localised workforce is imperative when making decisions about future investment. Additionally, the implications of the reduction in training in the wider context places a further training burden on the organisation. Finally, it is important to recognise the complexity of factors that contribute to human and social capital development, which although immediately appearing as distinct from the organisation, have the potential to significantly impact on organisational performance.

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Global Supply Chain Management, the Middle East & Culture

Kimanthi Ali Thompson

Prince Mohammad Bin Fahd University, Saudi Arabia

Abstract

Globalization has created a need for cultural acceptance within the business environment. Organizations leading the charge for redesigning the “supply chain” must prepare their employees to not only accept internal changes within the organization, but external factors that include cultural differences as well. The traditional supply chain consists of a network of suppliers, manufacturers, distributors, retailers and consumers. For many years American manufacturing companies dominated the S.C.M. process and therefore, little attention and/or concern was given to macro factors such as culture. Today, the new “global supply chain” involves countries Asian and Middle Eastern countries and the dominance once held by American firms is fading. As a result, acceptance is a crucial aspect of any organization’s sustainability strategy in today’s global landscape.

The Middle East and the West arguably share the biggest gap in terms of cultural ignorance and acceptance. However, despite many ill-conceived notions about each other the need to work together has reached its greatest point. Unlike many countries whose economies are directly tied to the U.S. the Middle East is greatly shielded because of its largest asset – “oil & gas”. As a result, Middle Eastern countries, like Saudi Arabia are thriving economically while other countries like the U.S. and U.K. are struggling. Recognizing this fact, many U.S. and U.K. based companies now have a sustainability strategy that involves partnering with Middle Eastern businesses who help to create the new “supply chain”. In doing so, these partnerships are also helping to erase the cultural bias that exists between Western and the Islamic culture.

Keywords: *Culture; Oil and Gas, Middle East, Saudi Arabia, Economy, Supply Chain, Energy, Strategy.*

1. Introduction

As global competition and advancing technology render borders irrelevant and link companies, as well as countries more closely, supply chains — the network of suppliers, plants, distributors, retailers and others that participate in the sale, delivery and production of goods and services are growing increasingly complex. The Boston Consulting Group issued a

report discussing strategies for maximizing the value of supply chains, avoiding inefficiencies, managing the omnipresent risk of disruption, and evaluating the pros and cons of supply chain enterprise systems. In their report, the authors state that a supply chain is essentially a network consisting of suppliers, manufacturers, distributors, retailers and customers, and the network supports three types of flows that require careful design and close coordination: 1) material flows, which represent physical product flows from suppliers to customers as well as reverse flows for product returns, servicing and recycling; 2) information flows, which represent order transmission and order tracking, and which coordinate the physical flows; and 3) financial flows, which represent credit terms, payment schedules and consignment arrangements (B.C.G., 2009).

Manufacturing companies have two basic options in the manufacturing of their products; they can own and operate the factories or they can subcontract production out to secondary manufactures. By manufacturing products overseas, in particular third world countries, tremendous efficiencies are gained in the form of reduced wages, shifting of risk, reduced capital requirements and the ability to focus on core competencies (Dusen, 1998). Although this form of strategic change management has benefits for the organization, there are also negative consequences for those directly involved in the supply chain. In 1984, Nike Inc., the world's largest and most recognized sporting apparel company closed its last U.S. factory and moved its entire production to Asia. As a result, 65,000 U.S. Nike shoe workers lost their jobs and the local economy that was largely supported by the plant suffered as a result (Glenn, 2004). On November 21, 2005, General Motors Corporation (GM) announced plans to cut 30,000 jobs and close nine manufacturing plants across North America (Morley, 2006). Nike & GM's stories are not unique; in fact, they represent a common practice for manufacturing plants located in many large and small American cities.

S.C.M. at Nike, and G.M., involves an outsourcing strategy that includes the whole supply change; however, solely manufacturing products overseas is not a sufficient strategy. In order for American business to survive in today's global landscape, they must find opportunities that will allow them to both manufacture and sell their products and services overseas. Admirers of globalization contend that freer access to foreign markets and cheap labor increase corporate profits and thereby benefiting the U.S. economy, however the long-term effects can be seen by rising GDP in foreign countries and declining growth with increased debt in the United States. The vitality of the business environment within the United States has created the need to identify emerging markets whose economies are not dependent on the economic stability of the American economy. Therefore, emerging Middle Eastern markets are ideal because their economies have been fueled by their own industrial revolution

predicated from oil and natural gas resources.

2. It is only culture!

According to Kriyda the bigger challenge of pursuing a global S.C.M. strategy is cultural and human issues. Developing relationships with offshore manufacturing personnel, which involves adequate training and cultural understanding, is a critical step in developing the whole supply chain (Kriyda, 2005). Professor Yan concluded in his publication, "Problems & Countermeasures for Implementing Supply Chain Management in China", that S.C.M. implementation is not an easy task anywhere, but there are special obstacles to it in China. Culture and historical heritage often prevent an open forum of communication within the workplace. He further states that the process of implementing change within the organization is hampered because senior workers maintain power by withholding information that would otherwise be beneficial for interdepartmental communication. In some cultures the more knowledge you withhold translates into the more power an individual maintains.

Like China, doing business in the Middle East can also present major challenges for American business organizations pursuing S.C.M. strategy overseas. Western and Middle Eastern culture differs in many ways and the Muslim religion governs both personal life and business practices in Middle Eastern countries. However, for many Western organizations - doing business in the Middle East is a necessary strategy for future sustainability. Of all the factors affecting economic growth, the Oil & Gas industry holds a stronghold on the American and World's economy.

3. The economy is Oil and Gas!

Oil has been unique as a vital resource owing to its pervasiveness in the civilian economy and its continuing centrality to military power, and maintaining access to the great oil-producing areas of the world has been a key goal of U.S. foreign policy since World War I ("Foreign oil policy", 2011). From now to 2020, world oil consumption will rise by about 60% and global consumption of gasoline could double (IAGS, 2004). Today, 66% of global oil reserves are in the hands of Middle Eastern regimes: Saudi Arabia (25%), Iraq (11%), Iran (8%), UAE (9%), Kuwait (9%), and Libya (2%) (IAGS, 2004). Although America and the World's prosperity can be tied to the Middle East, the relationship is not mutually shared.

Barring the discovery of a new energy supply that renders oil obsolete, Saudi Arabia, along with other Middle Eastern countries will be able to maintain their economies through the production and sell of oil for at least another century. Using positive examples of Western capitalism, the Saudi government has made steps to decentralize their economy and the entrepreneurial spirit has begun to take shape within the Kingdom.

Evidence of this transformation can be seen by the number of recognizable brands already located within Saudi Arabia. Over the past five years, franchising has tremendously grown and many brand names are already well entrenched in the market. Industry sources state that fast food franchises already account for more than 60% of the total Saudi franchise market ("Saudi Arabia Franchise Statistics", 2010). American firms have the lion share with more than 70% of all franchised operations in Saudi Arabia from fast food, clothing outlets, hotels, car leasing, laundry services and printing ("Saudi Arabia Franchise Statistics", 2010). Some of the franchises that are currently present in Saudi Arabia include McDonalds, Burger King, Popeye, TGI Friday, Pizza Hut, Saks Fifth Avenue, Ann Kleine, Guess, Floresheim, Sheraton, Hilton, Four Seasons, Avis, Hertz, Budget, Mail Boxes and Alphagraphics.

4. What does it takes to succeed?

Nike, G.M. and the franchises presented in this case study all realize that successful S.C.M. involves networking suppliers, manufacturers, distributors, retailers and customers. In addition, a sustainable strategic management strategy also includes identifying emerging markets to sell their products and services. For over a half century, American manufacturing has dominated the globe while meeting all the material needs of the American people. High paying manufacturing jobs helped to develop a middle class that supported a robust American marketplace. Today, the decline in U.S. based manufacturing has led to a decline in the U.S. economy and the displacement of disposable income. It's this displacement that has left a void within the open market where products are services are sold and bought.

The Middle East, with its vast oil reserves, is mostly sheltered from the economic disparity that is inflicting many nations today. These oil reserves have created the catalyst for a new industrial revolution taking place within many Middle Eastern countries. The majority of research about U.S. and Middle Eastern relations enters on Oil & Gas. However, doing business 2011 data for Saudi Arabia shows that out of 183 economies Saudi ranks 1st in registering a property, 6th in paying taxes, 13th in starting a business, 14th in dealing with construction permits, 16th in protecting investors and 18th in trading across borders (World Bank Group, n.d.). These statistics show an economy that is becoming less dependent on oil revenues and more focused on non-oil economic dependence. Meanwhile, as the Saudi economy continues to grow, so does the need for more products and services.

The Middle East and more specifically countries within the GCC look towards the West for both positive and negative examples from which to learn. Today, American corporations have open invitations to enter these markets that have been previously closed to Western style capitalism for

centuries. Evidence of this can already been seen by the growing number of franchises and strategic partnerships already located within the Kingdom. Industry leading organizations such as McDonalds, Hilton and Hertz don't enter a market unless they foresee long term sustainable growth potential; therefore the mere fact they are now doing business in countries like Saudi Arabia means soon others will follow.

5. A simple conclusion

As globalization continues to dictate the business landscape, global competition will continue to grow and improvements in S.C.M will become increasingly necessary for American business to compete. This means that pressure on supply chain managers and everyone else involved in the supply chain will intensify. As organizations lose experienced personnel due to retiring baby-boomers, technology improvements and production efficiencies will continue to play an important role in S.C.M. strategy. However, adjusting for cultural differences will always require a human element and accepting/respecting the fact we are all different will be necessary for any S.C.M strategy to survive within the global landscape.

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A model of brand switching by lead users of high-tech capital equipment

Osama Sam Al-Kwafi
Assistant Professor of Management
Prince Mohammad Bin Fahd University
College of Business
P.O. Box 1664
Al Khobar 3195
Kingdom of Saudi Arabia
oalkwafi@pmu.edu.sa

Rod McNaughton
Professor and Eyton Chair in Entrepreneurship
Conrad Business, Entrepreneurship and Technology Centre
University of Waterloo
295 Hagey Blvd., Suite 240
Waterloo, Ontario Canada N2L 6R5
rmcnaughton@uwaterloo.ca

Abstract:

This study investigates the antecedents of brand switching by lead users of high-tech capital equipment. In markets for capital equipment, the incumbent is usually assumed to have an advantage because of high switching costs. However, much of the research on brand switching focuses on mass-market consumers of competitive products, where switching barriers are manageable. A model of the factors behind brand switching for capital equipment is developed and tested with data gathered by a survey of research centers around the world that use magnetic resonance imaging (MRI) equipment. The results confirm the expectation that lead users are willing to overcome high switching barriers to obtain a new technology when it is essential to renew

organizational capabilities that are important to sustaining their competitive advantage. The decision to replace high-tech capital equipment is primarily influenced by the features and capabilities associated with the new product.

Key words: Brand Switching, Lead Users, Capital Equipment Technology, Product Features, Internal Capabilities.

1 Introduction

The long-term success of a firm depends in part on retaining customers because satisfied users are likely to repurchase, thus reducing customer recruitment and servicing costs (Mittal, et al., 2005; Rust, Moorman, and Dickson, 2002). However, ensuring user satisfaction requires continuous improvement in product features and capabilities to meet changing preferences, especially for high-tech products in business markets where access to the latest features can help purchasers to secure a competitive position (Pae and Hyun, 2006). Lead users demand cutting-edge technological features that help them to achieve their objectives and maintain their competitive position (Teplensky et al., 1993; Von Hippel, 1986). Suppliers that are slow to develop new technologies can lose existing users to more innovative competitors (Henard and Szymanski, 2001). Brand switching (defined as purchasing a new technology from a new supplier) is important because it can shrink the market share of an incumbent and make it costly to win back customers (Zins, 2001). Thus,

an understanding of the factors behind brand switching is important for strategy-making by producers of high-tech capital equipment.

The marketing literature reports considerable research that investigates brand switching. However, most of it focuses on mass-market consumer goods where switching costs are generally low (e.g., Low and Johnston, 2006; Wathne, Biong, and Heide, 2001; Heide and Weiss, 1995). In contrast, there is a paucity of knowledge about what influences lead users of high-tech capital equipment to switch between suppliers. We define high-tech capital equipment as a technology-based product that is acquired infrequently, significantly exceeds the cost of an average purchase in a customer's organization, and has an extended and complex purchasing process. Magnetic resonance imaging (MRI) equipment is the example studied in our research. In addition to costs that range into the multiple millions of dollars, MRI equipment is characterized by rapid technological change, technology heterogeneity, absence of a standard design (Anderson and Tushman, 1990), and significant differentiation between brands (Kreig, 2004).

We use the concepts of organizational resources and dynamic capabilities to explain why an organization might switch technologies even in the presence of high search and switching costs. Eisenhardt and Martin (2000) argue that organizations, particularly those operating in a rapidly changing environment, need to possess "dynamic capabilities" to achieve competitive advantages. These capabilities include the ability to build, integrate, or reconfigure organizational resources (Teece, Pisano,

and Shuen, 1997). An incumbent technology might fail to support an organization's strategy to secure competitive advantage because of slow technological improvement. In this situation it is difficult for an organization to meet its objective using the old technology, so it searches for new equipment that will help it to renew its resources and enhance organizational performance (Wang and Ahmed, 2007).

The dominant logic is that because of high search and switching costs incumbents have a strong advantage when customers consider upgrading or replacing high-tech equipment (Heide and Weiss, 1995). However, the literature also suggests that cutting-edge users are willing to meet the costs of acquiring new technology because they have the capabilities needed to lever significant advantages (Morrison, Roberts, and Midgley, 2004). We reviewed the literature to identify additional influences on the decision to switch between brands of high-tech capital equipment. The result is a model of the decision to switch that we test using data gathered from MRI research centers around the world. The empirical test identifies the most important influences on the decision to switch. We conclude by discussing implications for further theory development and management practice.

2 Model and hypotheses

In this section, we develop a model and related hypotheses about the antecedents of brand switching in the context of high-tech capital equipment. We argue that the primary motive for switching, especially by

lead users, is the need for state-of-the-art product features and capabilities that help to sustain a competitive advantage. Thus, our overarching expectation is that aspects of product design, especially product features, are the most important among a set of criteria purchasers may consider. To test this, we searched the literature for variables associated with brand switching, and organized these into four categories: product design, switching costs, marketing strategies and institutional factors. In the sections that follow, we explain how each set of variables may influence the likelihood of switching and summarize this with a testable hypothesis. By including additional variables we are able to demonstrate the relative importance of product features in the switching decision.

2.1 Product design

2.1.1 Product features

Product features are expected to be the most important factor in the product design category and the major stimulus behind switching. In rapidly changing markets where product features quickly become dated, users continuously evaluate existing features and their role in creating a competitive position. This assessment determines whether more features can be added, or if the product is reaching its utmost capacity, and switching to a new brand is the only solution to sustaining a competitive advantage (Hogan and Armstrong, 2001). Determining the attractive features to include in capital equipment is a challenging task for suppliers (Krieg, 2004; John, Weiss, and Dutta, 1999) because technology is

changing rapidly and users' preferences are difficult to predict (Bhattacharya, Krishnan, and Mahajan, 1998). Thus, product designs that incorporate the widest range of features associated with high performance are expected to provide more incentive to switch.

H₁: The likelihood of switching to a brand is positively associated with the range of product features offered by that brand.

2.1.2 Product variety

Meeting the requirements of several market segments using a single product increases design sophistication and product cost (Meyer and Lehnerd, 1997). Thus a common strategy is to produce a variety of products under the same brand to meet the preferences of different customer segments (Ramdas, 2003). From a customer's perspective, a brand that has a wide range of products with distinctive functionality increases the incentive to switch as these may provide additional competitive advantages (Athanasopoulos, 2000). Functionalities that provide exceptional capabilities help users to distinguish themselves from others in the market (Meyer and Lehnerd, 1997). Since the high technology market is changing rapidly, users evaluate existing technology and its ability to create value for the organization in order to decide whether they should move to a new brand to increase their competitiveness. Increasing product variety is therefore an effective strategy for meeting wider preferences while increasing users' incentives to switch.

H₂: The likelihood of switching to a brand is positively associated with the product variety offered by that brand.

2.2 *Switching costs*

2.2.1 *Technology incompatibility*

Previous studies show that users frequently repurchase technological products and add features from existing suppliers. The main reason behind this repeated purchasing is technology compatibility (Low and Johnston, 2006; Heide and Weiss, 1995). A user's prior investment influences their commitment to obtain related upgrades from the same vendor, particularly for products that lack a standard design (Anderson and Tushman, 1990). In such cases, it is not possible to purchase attractive features or applications from other suppliers unless the entire product is ordered. In the case of MRI equipment, the costs associated with overcoming technology incompatibility are exceptionally high, and this cost could inhibit users from renewing internal resources and capabilities with more attractive ones from another supplier.

H₃: Technology incompatibility with the incumbent brand is negatively associated with the likelihood of switching.

2.2.2 *Relationship incompatibility*

Over time the supplier-user relationship may become close leading to profitable outcomes for both (Gadde, Huemer, and Hakansson, 2003). If the relationship changes users have to develop new practices and

procedures (Heide and John, 1990), and occasionally the entire set of working and personal interorganizational relationships need to be rebuilt with a new supplier. This might include rearrangement of technical support personnel and application specialists (Weiss and Heide, 1993). Previous research shows that a long relationship creates pressure to stay with the same supplier to maintain the accumulative value of the relationship (Wathne, Biong, and Heide, 2001). In the context of research hospitals, switching to a new MRI supplier would create a major disruption of regular operations. Therefore, established relationships are expected to create a strong barrier to switching.

H₄: Relationship incompatibility with a new brand is negatively associated with the likelihood of switching.

2.2.3 Cost of verifying technology

The decision-making process used to purchase a new MRI product is complex (Kreig, 2004). It begins by establishing a special committee that includes different members of the medical imaging department. The committee gathers extensive information about the current status and potential development of existing and emerging MRI products. MRI products are information intensive and it is sometimes difficult to evaluate the performance of product features (Glazer, 1991). This may force users to engage in extensive search efforts and to act on information quickly before it becomes outdated (Glazer and Weiss, 1993). This condition

makes switching complicated and costly from the verifying stage to the final decision.

H₅: The likelihood of switching to a brand is negatively associated with the cost of verifying its technology.

2.2.4 Cost of learning technology

While users find it difficult to verify the functionality of different products, they also have a problem in learning how to use the new technology after switching (Jones, Mothersbaugh, and Beatty, 2002). Each MRI product has a different platform and the way to operate it is different. MRI equipment has multiple features to diagnose various diseases, and many features are complex and require considerable time to learn how to use them effectively (Pae and Hyun, 2006). For high-tech capital equipment products in general, difficulties associated with learning and training may favor the incumbent.

H₆: The likelihood of switching is negatively associated the cost of learning how to use the technology provided by a brand.

2.3 Marketing strategies

2.3.1 Price

Price is an important variable in the switching equation because it represents a large proportion of the total switching costs (Jones, Mothersbaugh, and Beatty, 2002). Suppliers have control over this variable: by lowering the price suppliers can influence the economic value of switching. In rapidly changing technology markets, lower prices are an

effective strategy to encourage users to switch. Wathne, Biong, and Heide (2001) found that price dominated all other factors that influence switching behavior because it directly impacts the total switching costs.

H₇: A lower price increases the probability of switching to a new brand.

2.3.2 *Product bundling/breadth*

Product bundling is an effective marketing strategy to attract more users because it offers users more options and services than those provided by the core product. Bundling may refer to extra services or components to be used with the same product, or to the inclusion of separate supporting devices that enhance overall product capabilities (Ranganathan, Seo, and Babad, 2006). Wathne, Biong, and Heide (2001) found that product breadth has a significant effect on the decision to switch. In the MRI case, bundling could include adding more software packages or providing external units for image storage or processing. Each feature enables additional capabilities; therefore, bundling makes the product more attractive and increases the incentive to switch brands.

H₈: The product breadth offered by a brand is positively associated with switching to that brand.

2.3.3 *Research collaboration*

Conducting research is an important activity in research hospitals. Thus, research collaboration with MRI suppliers is central to overcoming

research-related challenges and utilizing the technology to test new innovative applications (Lee, 2000). This is especially the case when the technology contains many complicated capabilities that are difficult for users to modify (Athaide, Meyers, and Wilemon, 1996). For MRI research centers, this is an important issue for implementing various research projects and generating reputable research. Therefore, the extent to which an MRI supplier is willing to collaborate in research has a positive influence on switching.

H₉: The extent to which research collaboration is offered by a brand increases the likelihood of switching to that brand.

2.3.4. *Product service*

Since MRI technology contains multiple advanced features, it is a very sensitive technology, requiring a specialized engineer to fix and calibrate the system after each service. Product service is vital to ensuring that MRI equipment runs without interruption. Users of such technology are always concern about the delay in getting an engineer from the supplier's main office and the time needed to fix a sudden problem. Thus, most users prefer to use a nearby service center that can provide quick on-site service support (Athaide, Meyers, and Wilemon, 1996). Without appropriate product service, a technology cannot function competitively, which could limit the value of the internal capabilities gained by switching (Mathieu, 2001). Therefore, providing reliable service will increase incentives to switch to a new supplier.

H₁₀: The likelihood of switching to a brand is positively associated with the reliability of its product service.

2.4 *Institutional factors*

The decision-making process at the organizational level is more complicated than that at the individual level because of the organizational structure and involvement of different individuals in the process (Bunn, 1993). Heide and Weiss (1995) found that formalization of the purchasing process sometimes limits the ability to switch because bonding and routines make the process of acquiring and analyzing information tedious. In the context of research hospitals, the support of top management may play an important role in overcoming this inertia. If an MRI research center is able to attract financial support from external funding agencies to finance equipment, the decision may be less formal. However, when the funding is allocated from the hospital budget, the support of top management is crucial to facilitate the switching process.

H₁₁: Support of top management is positively associated with the probability of switching brands.

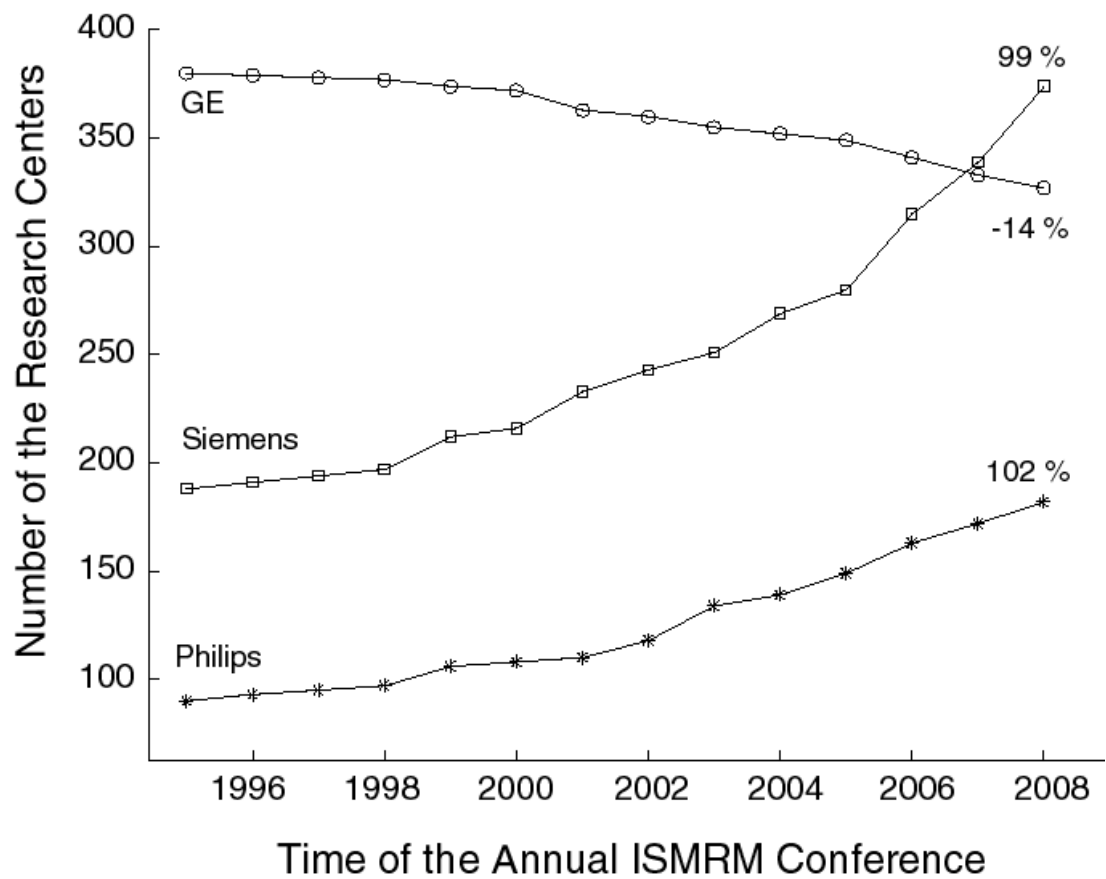
3 Method

As an example of high-tech capital equipment we studied the choice of MRI suppliers by university hospitals (or MRI research centers). This is an appropriate context because MRI research centers represent lead users that perform regular clinical operations in addition to conducting

advanced medical research to modify products and explore new solutions, and their associated switching costs are high. In university hospitals brand switching takes place at the organizational level (i.e., medical imaging departments), where MRI equipment is specialized and must respond to complex organizational requirements. Users at this level are more likely to focus on long-term relationships and engage in cooperative activities that result in greater benefits for both users and suppliers further complicating the switching process (Dabholkar, Johnston, and Cathey, 1994). In addition to the high costs of replacing old MRI equipment, MRI research centers face various challenges during the replacement process. These include: (1) training MRI technologists to operate the new equipment efficiently, (2) learning how to control different components (hardware and software) to implement new research projects, (3) building new practices and procedures with the supplier to ensure the equipment is productive, and (4) transferring research projects to the new platform, which may be difficult because of incompatibilities. In the MRI market, three suppliers - GE, Siemens, and Philips - share around 75% of the world market. To confirm that brand switching is taking place in the MRI market, we collected conference proceedings from the International Society of Magnetic Resonance in Medicine (ISMRM) annual meetings from 1995 to 2008. Lead users attend this conference to present their research findings to MRI community. The abstract of each paper was scanned to identify the research center and type of MRI equipment used in the research. This process identified 658 research centers around the

world, and the brand of MRI equipment used by those centers in each year. For some centers, it was not possible to identify the MRI brand because its name was not mentioned explicitly in the conference abstract. In addition, only the three major suppliers were included because of the small number of occurrences of the other brands.

Figure 1 uses the ISMRM conference proceedings data to illustrate the changes in market share between MRI equipment manufacturers between 1995 and 2008. In 1995, 380 research centers operated GE-MRI equipment compared with 188 for Siemens, and 90 centers for Phillips. Over time research centers expanded their operations by upgrading or by buying new MRI technology. Centers that use Siemens-MRI technology increased steadily, reaching 374 centers in 2008 (a 99% increase over 1995). The number of centers using Philips' technology increased to 182 centers (a 102% increase over 1995). However, the number of centers operating equipment from GE declined over time, ending at 327 centers (a decrease of 14%).



* The percentage at the end of each curve represents the change in value reported at 1995.

Figure 1: MRI brand switching 1995-2008

3.1 Data and sample

Our model is tested using data gathered by an online survey administrated in 2008. Potential respondents were identified using the International Society of Magnetic Resonance in Medicine membership database (ISMRM, 2007). Members of the ISMRM community (MRI research centers) represent lead users, because they are active in modifying MRI products and protocols to explore new solutions to diagnostic problems. Research findings from this community are presented in different

conferences and journals. These findings are also vital to improving the MRI products produced by different suppliers.

As the response rate is typically low in studies such as this, we included multiple participants from each MRI research center to increase the likelihood of receiving at least one response from each center. However, only one response was included in the analysis. The potential participants were Department Chair, Medical Doctor, Scientist, Physicist, and Chief Technologist. In the case of multiple respondents from the same center, the response was retained for the highest ranking individual who also indicated they were involved in or very familiar with the purchasing process of MRI technology.

From the ISMRM membership database we identified 1217 MRI research centers worldwide. The online survey was sent out to 5831 participants. As a result, 967 respondents completed the online survey for a 17% response rate. To account for multiple informants from the same MRI research center, 231 responses were removed. However, before removing them, the inter-rater reliability was calculated to check whether different participants (from the same MRI research center) were consistent in their responses. Results showed significant correlation ($p < .05$) between participants from the same center for all variables. Finally, an additional 77 cases were removed because the respondent was not sufficiently familiar with the purchasing process, and another 24 responses were removed because of missing data. The final sample consisted of 635 responses, representing 52% of the MRI research centers

worldwide. In this sample 360 participants reported switching brands, and 275 remained with the same supplier.

3.2 Measures

3.2.1 Dependent variable

The dependent variable, brand switching, has two values: “switched,” defined as purchasing new MRI equipment from the supplier of a different brand, and “not switched,” defined as repurchasing new MRI equipment from the supplier of the incumbent brand. Participants were also asked to identify the impact of buying a new technology (from the same supplier or a new one) on their organizational capabilities.

3.2.2 Independent variables

Measurement items for the independent variables were adapted from the extant literature. Appendix I contains a list of these measurement items and the results of reliability tests. To enhance scale validity and reliability, the initial survey was administered to three marketing managers and two consultants in the MRI industry. In response to their comments some items were added and others adjusted or deleted. This process took a few iterations to ensure that all measurement items reflect the study context. A second test of the measurement items was performed by considering the opinion of three academic researchers as to the appropriateness of measurement items. In the final stage of development, the modified survey was administered to 28 individuals from different MRI research centers to review items for clarity and face validity. As a result, the final online survey was created containing 34 measurement

items representing the 11 independent variables identified in our model. Items were randomly presented, and responses recorded on a seven-point Likert scale ranging from “strongly disagree” to “strongly agree”.

3.3 Preliminary data analysis

3.3.1 Non-response bias

Possible non-response biases were examined by wave analysis (i.e., comparing characteristics of the first and last quartile of respondents as suggested by Armstrong and Overton (1977)). No statistically significant ($p < .05$) differences were found between early and late participants for any of the variables included in the model.

3.3.2. Convergent and discriminant validity

A factor analysis of the 34 measurement items was conducted to check for convergent and discriminant validity, and to construct linear combinations of the individual items to represent the independent variables. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.80, indicating that the data includes distinct and reliable factors. Likewise, Barlett’s Test of Sphericity ($\chi^2 = 9983.54$; $DF = 561$; $p = .000$) is significant ($p < .001$), so factor analysis is warranted. Eleven factors having Eigenvalues greater than 1.0 were extracted, and all items had a loading of at least 0.6 with their respective factors. The high loadings within each factor indicates convergent validity. These eleven factors explain 74.9% of the variance in the data. The convergent validity was also tested by calculating Cronbach Alpha, as reported in Appendix I. Values greater than 0.7 for each factor

provides evidence of internal consistency. Finally, discriminant validity was tested by running the factor analysis with oblique rotation, and calculating correlations between all pairs of factors. There are no values greater than 0.5 in the correlation matrix, indicating that no two factors significantly overlap conceptually.

4 Findings

Table 1 provides a correlation matrix and descriptive statistics for the variables. The correlation coefficients are low (< 0.4) suggesting that collinearity is not a problem.

Table 1: Correlation matrix and descriptive statistics of measures.

Variables	1	2	3	4	5	6	7	8	9	10	11
(1) Product variety	1.000										
(2) Product features	.318*	1.000									
(3) Price	-.227*	.339*	1.000								
(4) Product breadth	-.038	-.055	.012	1.000							
(5) Research collaboration	.177*	.163*	-.141*	-.021	1.000						
(6) Product service	.161*	.235*	-.223*	-.012	.112*	1.000					
(7) Technology incompatibility	-.237*	-.270*	.254*	-.004	-.133*	-.181*	1.000				
(8) Relationship incompatibility	-.136*	-.224*	.175*	.011	-.110*	-.156*	.169*	1.000			
(9) Learning technology	-.200*	-.295*	.238*	.005	-.093*	-.206*	.200*	.088*	1.000		
(10) Verifying technology	-.106*	-.156*	.104*	-.006	-.038	-.112*	.084*	.090*	.087*	1.000	

model and the data. The Nagelkerke R^2 of 0.90 suggests that the model explains 90% of variability in switching. Further, the classification table shows a high rate of prediction (94.3%). The Wald statistics associated with the parameter estimates for the individual independent variables show that eight of the eleven variables are statistically significant ($p < .05$). The variables that do not significantly influence the likelihood of switching are product breadth, cost of verifying technology, and support of top management.

The odds ratio indicates the relative importance of each independent variable. For example, after controlling for the effect of all other variables, the odds of switching increases 3.52 times for a one unit increase in the measure of new product features, and the corresponding probability of switching is $3.521/(1+3.521) = 0.78$. Odds ratios above 1.0 increase the probability of switching, whereas values below 1.0 decrease this probability.

Table 4 demonstrates the perceived influence of brand switching on organizational capabilities. The results suggest that centers were able to enhance their organizational capability by switching brands to improve capabilities that help them to explore new clinical treatments, produce more reputable research, and attract more research funds.

Table 3: Results of maximum-likelihood logistic regression analysis

Independent Variables	b	S.E.	Wald	Odds Ratio
Product variety	1.125**	.273	16.920	3.080
Product features	1.259**	.220	32.708	3.521

Price	-1.547**	.284	29.567	.213
Product breadth	.190	.325	.340	1.209
Research collaboration	.956**	.251	14.505	2.603
Product service	.571*	.240	5.683	1.771
Technology incompatibility	-1.465**	.287	25.974	.231
Relationship incompatibility	-1.156**	.251	21.166	.315
Learning technology	-1.087**	.307	12.546	.337
Verifying technology	-.457	.352	1.683	.633
Support of top management	.241	.309	.609	1.272

* $P < .05$.
** $P < .01$.

Table 4: The impact of new technology on organizational capabilities

Organizational Capabilities	Switched brand Mean (SD)	Did not switch brand Mean (SD)
The new MRI improved our capability to investigate new clinical applications, which was not possible using the old scanner.	5.577 (.934)*	5.123 (.768)
The new MRI increased our capability to produce reputable research, which was not possible using the old scanner.	5.250 (1.184)	4.690 (.960)
The new MRI enabled us to increase the number of publications.	5.355 (1.045)	4.741 (.979)
The capabilities of the new MRI scanner helped us to attract more grants and funding.	5.427 (.976)	4.905 (.911)

*Responses recorded on a seven-point Likert scale ranging from “strongly disagree” to “strongly agree”.

5 Discussion

In this study we explored the factors behind brand switching by lead users of high-tech capital equipment. The results show that product features and product variety are the most influential factors behind switching in this

context. We argue that these characteristics reflect technological capabilities that motivate lead users to switch to renew organizational capabilities and develop or maintain a competitive advantage. The pattern of switching suggests that Siemens has more attractive features (and to a lesser extent Philips), than does the incumbent provider GE. These findings are consistent with previous research about the importance of product design in achieving market performance (e.g., Chang and Hsu 2005).

Our research also shows that switching to a new supplier imposes significant challenges, including technology incompatibility, relationship incompatibility, and the cost of learning the technology. All are barriers to switching; as is high price. If not addressed properly by suppliers, and if appropriate measures are not taken to reduce their impact, such barriers can outweigh the incentives to switch provided by new product features. Our findings are consistent with those of previous studies that identify these barriers as important obstacles to switching (e.g., Low and Johnston, 2006; Heide and Weiss, 1995).

A supplier's marketing strategies may be important to lower switching costs. For example, promising assistance during the transition process may lower some of the barriers to switching, or offering research collaboration can help overcome technology incompatibility and learning issues (Athaide, Meyers, and Wilemon, 1996). Even lead users may find it difficult to use new equipment properly without help from the supplier. Research collaboration can include networking opportunities with other

users to share experiences and best practices. Another effective marketing strategy is the provision of product service and reliable technical support to mitigate concerns about building new and effective relationships (Athaide, Meyers, and Wilemon, 1996; Mathieu, 2001). This strategy is essential to ensure the equipment runs without interruption, as disruptions in research or clinical operations have significant financial and other consequences.

Interestingly the cost of verifying technology is not statistically significant. An explanation may be that MRI lead users spend considerable time and effort to verify different technologies regardless of the final decision: stay or switch. Also lead users may feel that the cost of verifying different technologies is manageable and/or rely heavily on their own experience. Lead users appear to be more worried about the post-switching costs related to building a new relationship, technology incompatibility and learning to use the equipment effectively.

Product breadth had no statistically significant effect, suggesting this is a weak approach to encouraging switching. It appears that lead users are primarily focused on having a specialized technology that provides specific features (capabilities) to achieve certain objectives. Additional components (i.e., product bundles) that are not related directly to the core capabilities of the product have a minor influence on the switching decision. In contrast, some prior literature shows that bundling has a significant influence on the decision to switch. An example is Wathne, Biong, and Heide's (2001) study of switching between banks.

However, banking is a very different context. It is a highly competitive industry in which users are often indifferent to choice and are usually motivated by service costs or promises of financial return. Top management support for the decision to switch is also not significant. A likely explanation is the extent to which departments influence the purchasing decision; especially if funding comes from an external agency that supports research activities.

Overall, the results provide evidence that substantial switching occurs, despite high switching costs, and that in aggregate switching is significantly altering the market shares of the leading manufacturers of MRI equipment. This will be magnified when lead users also influence the purchase decisions of clinical users. In addition, the results provide evidence that the switching behavior of lead users is strongly influenced by product features, which contrasts with the findings of several studies conducted in the context of highly competitive products for mass-market consumer goods (e.g., Low and Johnston, 2006; Wathne, Biong, and Heide, 2001).

6 Contributions

This research contributes to the technology marketing literature by identifying the influence of product design on the brand switching decisions of lead users of high-tech capital equipment. Previous studies have rarely mentioned the influence of product design on user switching, putting emphasis on factors such as marketplace characteristics (Heide

and Weiss, 1995), switching costs (Low and Johnston, 2006), and marketing strategies (Wathne, Biong, and Heide, 2001). The selection of these factors to explain users' decisions can be due to product characteristics and competitive market conditions. However, this research shows that lead users of capital equipment focus mainly on enhancing their internal capabilities by obtaining a product that contains the best features to provide these capabilities.

There is no universal model in the literature that describes or predicts brand switching behavior. Each study adopts different independent variables to explain this behavior based on the industry or product under investigation. Our research contributes a model that explains the switching behavior of lead users of high-tech capital equipment. This model clarifies our understanding of brand switching in a context where successful product design plays a significant role. This contrasts with the dominant assumption that the incumbent has a distinct advantage because of switching costs.

Managers should find a reliable model to assess antecedents underpinning brand switching for their industry. They should not rely on their expectation to predict these antecedents, because previous research shows that users and suppliers often have different perceptions of the determinants of switching (Wathne, Biong, and Heide, 2001). Determining the main factors behind switching is a critical matter when defining the appropriate strategy to keep their market share from eroding. In capital equipment markets, these factors are related to product features

and technological capabilities, which enhance the internal capabilities of the buying organization and maintain its competitiveness.

In general managers should continuously identify and work with lead users as a trusted source of new product ideas, reliable source of market research, and influence on others to adopt the same technology (Hassan, Mourad and Tolba, 2010). Targeting lead users as part of a supplier strategy to launch a new technology is an effective tactic for capturing the main market, because those early switchers will provide other users with solid motivation to pursue the same behavior later after they discover the value of the new product.

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Appendix I: Measurement items, factor loadings and reliability tests

Measurement items / scale origin / reliability test	Factor loading
Product features (Calantone, Chan, and Cui 2006) ($\alpha = .844$)	
• Since our department is working on different clinical applications, we selected a scanner that provides a wide range of software applications with the highest hardware performance in market.	.628
• We selected a scanner that has new pulse sequences that are not available on other scanners.	.807
• Overall, the new scanner provided unique features and capabilities that are not offered by other scanners, which are important to generate reputable research (or clinical findings) compared to other MRI users.	.638
• The new scanner provided better work flow, post processing, post analysis and reporting tools compared to other MRI scanners.	.601
Product variety (Stump, Athaide and Joshi 2002) ($\alpha = .781$)	
• We selected the scanner because it is more dedicated (or specialized) to serve specific applications (for example cardiac or neuro-imaging), which is not offered by other suppliers.	.673
• We selected the scanner because of its wider range of RF coils for different applications, which are not offered by other suppliers.	.784
• Since our department is working on different clinical applications, it is essential to have a variety of advanced RF coils for different areas of research.	.615
Technology incompatibility (Heide and Weiss 1995) ($\alpha = .869$)	
• Incompatibility of the new MRI scanner with existing MRI scanner(s) is a critical issue in our department.	.864
• Existing research projects (including pulse sequences) could be incompatible with the new MRI scanner.	.862
• Incompatibility could restrict our collaboration with other departments or hospitals.	.851

Relationship incompatibility (Bonner and Calantone 2005) ($\alpha = .870$)	
• Because we have a close working relationship with the old supplier, it would be difficult to build a similar relationship with a new supplier.	.869
• Developing new procedures to deal effectively with a new supplier would take a lot of time and effort, which could negatively impact our regular operations.	.861
• We are concerned that the new relationship will not be as effective as that with the old supplier.	.876
Cost of verifying technology (Burnham, Frels, and Mahajan 2003) ($\alpha = .826$)	
• It takes significant time to complete the installation and calibration process of a new scanner.	.860
• We independently verify MRI features and performance for different MRI scanners by visiting different sites, in addition to relying on the technical reports given by suppliers.	.881
• It takes significant time and effort to evaluate and compare different MRI scanners, and then determine which one matches our department objectives.	.841
Cost of learning technology (Burnham, Frels, and Mahajan 2003) ($\alpha = .853$)	
• It takes significant time for technologists to learn how to operate the new scanner effectively.	.860
• After switching, continuing effective research operations on the new scanner requires learning the new pulse sequence language and hardware communications.	.843
• Transferring existing research projects (including previous pulse sequences) onto a new scanner would require significant time and effort.	.853
Price (Wathne, Biong, and Heide 2001) ($\alpha = .830$)	
• To achieve our department objectives, we focus on having the optimal MRI scanner regardless of price.	.712
• Having the best MRI scanner is important, but the price is a critical issue due to limited financial resources.	.658
• Since we focus on general (or less advanced) clinical applications, we are in less need of the most expensive MRI scanner.	.836
Bundling (Wathne, Biong, and Heide 2001) ($\alpha = .824$)	
• Offering additional medical equipment (as bundling) or free scanner upgrades will increase the probability of buying the new MRI scanner.	.832
• We are not interested in any additional bundling offers, our main goal is to buy the optimal scanner that achieves our objectives.	.847
Research collaboration (Athaide, Meyers, and Wilemon 1996) ($\alpha = .865$)	
• Offering good research collaboration will significantly increase the probability of buying the new MRI scanner.	.777
• Since our department is heavily focused on research, we need to have a strong research collaboration in order to solve technical problems.	.820
• The old supplier offers limited research collaboration when we face any research related difficulties.	.803 .699
• Facilitating collaboration with other MRI users (through community of users support) will increase the probability of buying the new MRI scanner.	
Product service (Liu, Leach, and Bernhardt 2005) ($\alpha = .836$)	
• Offering a good service contract will significantly increase the probability of buying the new MRI scanner.	.841
• Having immediate response service is important to reduce scanner downtime, which negatively	.827

impacts our regular operations.	
• The scanner service provided by the old supplier was not satisfactory and causes significant interruption to our regular operations.	.858
Support of top management (Heide and Weiss 1995) ($\alpha = .769$)	
• Final decision to buy a new scanner was determined only by higher-level management.	.789
• Higher-level management was supportive of the medical team in finding the best scanner, regardless of price.	.822
• To a large extent, the medical team was in full control of the process to buy a new scanner.	.847

Engineering Sciences

Introduction to Environmental Site Assessment (ESA) in Canada

Dr. Omar K.M. Ouda, P.Eng., LEED AP

Department of Civil and Environmental Engineering,
Prince Mohammad Bin Fahd University

Introduction:

Soil and groundwater contamination is a growing problem in Canada and worldwide. As population and economy grows, commercial and industrial land is being redeveloped and expanded to satisfy increasing needs of services. The new needs and demands meant that Canadians had to deal with past contaminants that have been dormant for many years. A continuing challenge, in addition to past contaminants, is the ability to control contamination of the commercial and industrial sites despite well developed and implemented environmental regulations in Canada.

This article briefly presents the problem of properties contamination in Canada and the Canadian Environmental Site Assessment (ESA) approach. The current article is a part of a series of articles related to this topic and will be followed by another three articles in the future issues of ETMA newsletter. These four articles are intended to provide an overview of the ESA approach, report contents and application methodologies. The main objective of the series of articles is to share best environmental practices with environmental specialists in the Kingdom of Saudi Arabia.



Figure 1 : Underground Storage Tank

Contamination Extent

Contaminant is a substance that, when existing in a concentration above a specific threshold could be harmful to both humans and environment. The consequences of contamination can be very serious; causing both acute and long term human health effects and has alarming safety concerns and detrimental effects on our precious ecosystem. Contaminants enter the soil and groundwater in several ways and from different sources includes. These include but are not limited to:

- Accidental spills and careless waste disposal in industrial and commercial facilities. Chemicals spilled years ago, linger in the soil and groundwater and still may be a problem today.
- Leakage of petrochemical products from underground storage tanks is common especially in gasoline stations.
- Landfill leachate leakage to surrounding environment
- Past usage of pesticides and fertilizers or illegal dumping of hazardous wastes in agricultural lands



Figure 2 Landfill Leachate

In Canada, about 10,000 spills are reported each year.

Petrochemical products comprise about two thirds of the reported spills.

Environmental officials estimate that the total number of unreported spills could be as high as 40,000. It is estimated that between 7,500 to

20,000 underground storage tanks across Canada are leaking. There are at least 10,000 landfill sites across Canada. Contaminants may be seeping out of many of these.

Why Conduct ESA?

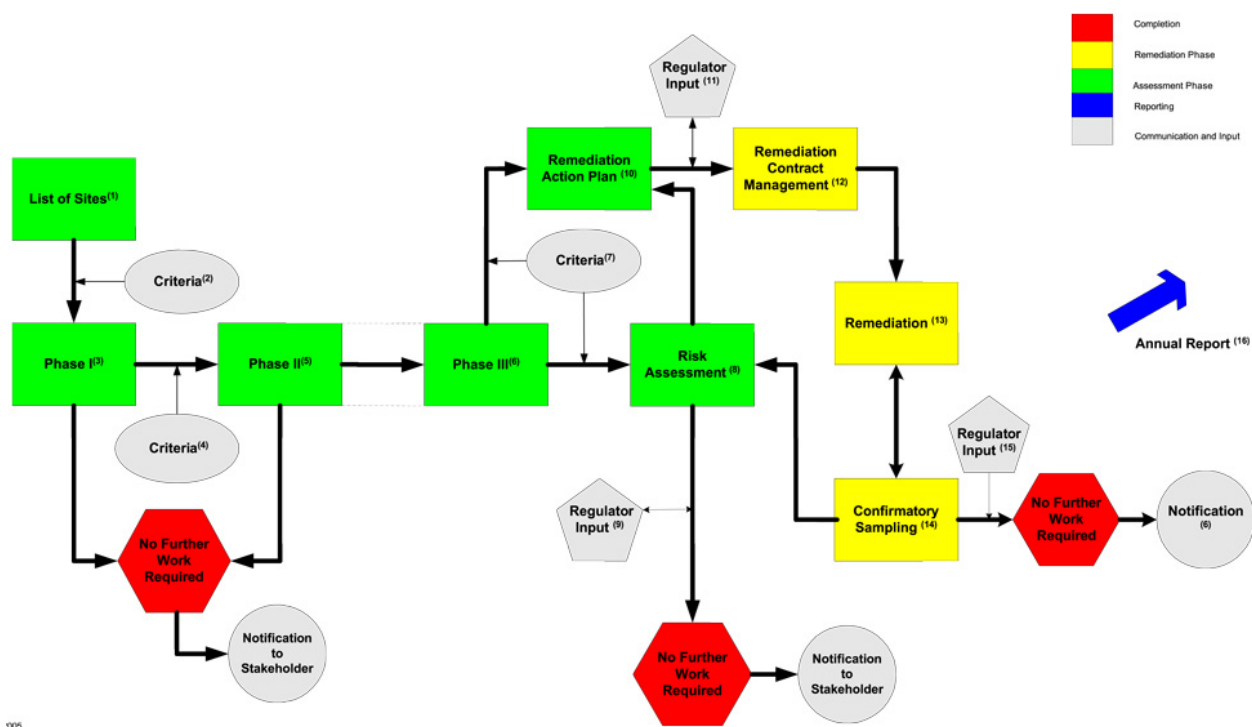
There are currently no legal requirements in Canada to conduct ESA, however organizations and individuals who provide mortgages (home purchasing loans) or invest in real estate's insist on conducting an ESA before completing the transaction. Conducting an ESA is requested for many reasons fall into three categories: environmental, legal and financial.

It may help reduce the environmental damage inflicted by contamination and can alert the official to the need for a cleanup or management of contamination. A demonstration of due diligence (the care that a reasonable person exercises to avoid harm to other persons or their property) has been used successfully as a defense strategy in legal cases dealing with environmental problems. ESA report may help support a claim of due diligence from a lender or a landlord in legal proceedings. The costs associated with cleanup or contaminated site management can

be substantial. The lender or landlord should ensure that the site does not carry with it an unmanaged risk of contamination.

ESA Components:

A comprehensive ESA should determine whether or not a site is contaminated and determine the nature, location, extent, and depth of any contaminations if exist. It should provide information about possible corrective action and any constraints that may worsen or complicate the cleanup. The ESA process consists of up to three distinct phases: *Phase I:*



Environmental Site Assessment; Phase II: Contaminants characterization and Delineation; and Phase III: Site Remediation. Many private sector organizations and public agencies have adopted a well defined and tailored ESA Process System that fits their *management setup*. For example; Figure 3 shows the Newfoundland and

Figure 1: Newfoundland and Labrador Hydro company ESA Process Flow Diagram

Labrador Hydro Company ESA process system

Phase I: Environmental Site Assessment

This phase is intended to help in determining the potential environmental liabilities and in establishing the basis for further investigation works. It is an information collection process which includes records review; site visits; interviews; and evaluation of information and reporting. This Phase

takes one to three weeks to complete. The cost ranges from \$3000 to \$5000.

Phase II: Contaminants characterization and Delineation

This phase is only conducted if the report from phase I show evidence of contamination or possible contamination. The objective of this phase is to characterize and delineate environmental conditions related to the site. The environmental Engineer or Scientist is responsible to carry out a detailed thorough investigation to identify, characterize, and delineate the nature and extent of contamination both above and below grade. This phase may include soil, groundwater, and ambient air sampling, testing and monitoring. This phase takes one to three months to complete. The cost ranges from \$10,000 to \$50,000 or sometimes even much more.

Phase III: Site Remediation

The result of Phase II assessment should provide a representative description of the contamination, including nature, quantity, area, vertical distribution and location. The objective of this phase is either to return an impacted site to the intended reusable conditions or to secure the site in a manner that mitigates future adverse impacts. The Ontario Ministry of Environment sets three main approaches for site remediation:

- 1- *Clean up to background condition:* it is essentially a remedial strategy that restores the site to an environmental condition consistent with the ambient or background conditions. This approach is rarely adopted
- 2- *Clean up for compliance with generic criteria:* The clean up criteria have been developed by several provincial government agencies that are protective of human health and environment. Generic criteria has been developed for such media such as soil, groundwater, surface water, air, and sediment. This is approach is the most common.
- 3- *Clean up to criteria developed using site-specific risk assessment techniques:* a site management or remedial approach based on site-specific risk assessment may be used to optimize the remediation for a particular site based on the site conditions. This approach is applied for situations where the cost of remediation is very high. It may include comprehensive modeling and optimization techniques.

Information Technology

An Agile Software Development Framework

Malik F. Saleh

msaleh@pmu.edu.sa

Management Information Systems

Prince Mohammad Bin Fahd University

Al Khobar, 31952, Saudi Arabia

Abstract

Agility in software projects can be attained when software development methodologies attain to external factors and provide a framework internally for keeping software development projects focused. Developer practices are the most important factor that has to cope with the challenges. Agile development assumes a project context where the customer is actively collaborating with the development team. The greatest problem agile teams face is too little involvement from the customer. For a project to be agile, the developers have to cope with this lack of collaboration. Embracing changing requirements is not enough to make agile methods cope with business and technology changes. This paper provides a conceptual framework for tailoring agile methodologies to face different challenges. The framework is comprised of three factors, namely, developer practices, customer collaboration, and predicting change.

Keywords: agile framework, tailored framework, software development, developer practices, customer collaboration, predicting change

1. INTRODUCTION

Different software development approaches share common principles such as improving customer satisfaction, adopting to changing requirements, delivering working software, and creating a collaboration among stakeholders and developers [1]. An investigative study by [2] found evidence of staffing stability and design compatibility that affect the success of software projects that use incremental and iterative development. The basic idea behind iterative development is to develop a software system incrementally, allowing the developer to take advantage of what was learnt during the development of earlier deliverable versions of the system. Therefore, iterative and incremental software developments are viewed as the cornerstone of the agile methodologies [3].

One of the main reasons for using agile methodologies is to satisfy the needs of the users. The informal communication among stakeholders and developers sometimes raises problems such as inability to cope with system complexity and rapidly changing requirements, or inability to add new members to the development team [4]. Agility can be attained when software development methodologies attain to external factors and provide a framework internally for keeping software development projects focused. Those methodologies can be applied in different units of the organization with minor modifications. It is important to note that there is no best-fit methodology for an organization [5].

Agile methodologies appeared as a reaction to traditional ways of developing software and acknowledged the need for an alternative to documentation driven, heavyweight software development processes. Different agile methodologies are in use such as Extreme Programming, Scrum, Cockburn’s Crystal family, and Feature Driven Development. These different methodologies have less documentation and more code-oriented features that are common among them [6]. Extreme Programming (XP) tends to be best accepted by the developers [7].

Extreme Programming is the most popular of the various types of agile methodologies. It takes many of the best well-known software development practices and applies them during system development. XP is a set of values, principles and practices for rapidly developing high-quality software by preaching the values of community, simplicity, feedback and courage [6, 8]. According to [8] XP has twelve core practices (see Table 1).

Table 1: Extreme Programming Core Practices

	Description
Planning Game	The customer and development teams decide on what features will be of implemented
Simple Design	The simplest design that meets the business requirements is selected
Small Releases	Release a useful set of features into production and update them frequently in short cycles
Metaphor	Choose system names that helps you understand the parts of the system and help you communicate more effectively
40-Hour Week	Maintain productivity and avoid burn out of the development team
On-site customer	On-site customer ensures effective communication as a result less documentation will be required
Coding standard	Coding standard is a way of communication and documentation
Continuous Integration	frequent code integration means less chances that there will be diversion and it will result in more testing
Refactoring	Applying small updates in small steps reduces the risk of introducing errors
Pair Programming	Programmers are paired to write code using a single machine. This helps the code to be constantly reviewed while being written and will produce high quality code with little decrease in productivity
Collective Code Ownership	The code belongs to every member of the team
Testing	Test-driven development. Code is validated at all times and before new features are added

In this paper we provide a conceptual framework for modifying the agile methodologies to cope with changing requirements. This model is tailored to the needs of the developers and the needs of the software project which makes the agile methodologies themselves flexible. In section 2 we discuss the related work that enhances or negatively affects agile methodologies. Section 3 introduces the motivation for this paper and the framework for improving agility in software development. Section 4 discusses the conclusion and our future work.

1. BACKGROUND AND RELATED WORK

Little research has been undertaken into what is meant by agility and how a supposed agile method can be evaluated with regard to its agile approach [9]. Agile methods are labeled as agile because of their ability to handle changing requirements. It is also expected that the agile methods themselves are flexible and can be tailored to the needs of the developers and the needs of the software project. There is also acknowledgement in the literature that software methods should be tailored if they are to achieve optimum effect [10]. Researchers believe that flexibility is one of the key selling points of agile methods [8]. The suitability of more or less agility or planning depends on the context of development as well as on the kind and size of the software to be developed [11].

Adoption of agile methods seems to need an all-or-nothing approach. They are often welcomed by both managers and programmers as providing a much needed release from the overheads typically perceived as being imposed by traditional software development approaches [12]. But managers are faced with challenges. Software development managers may be unsure how to adopt agile methods incrementally and which approach to choose as most appropriate for their situation [13]. Another challenge for the managers is how to ensure that their adopted method can mature and grow as the development team's skills mature and how to ensure that the development team doesn't resist change [12].

Various agile development methods include documented procedures that involve tasks and milestone, and product development strategies that involve requirements, designs, and architectural plans. Compared to unplanned methods, agile methods emphasize a fair amount of planning. Their general view places more value on the planning process than the resulting documentation, so these methods often appear less plan oriented than they really are [11]. While the agile methods have less documentation and more code-oriented feature they are knowledge-intensive. Knowledge is gained and shared within the different aspects of the methodology.

There are four factors that determine the success of software development projects: Quality is to deliver a good software product to the customer or a project outcome as perceived by all stakeholders. Scope is meeting all requirements and objectives that the customers wants in the software. Time is delivering the final product to the customer on time. Delays in delivering releases, as long as the final product is delivered on time, will not affect this factor. Finally, the last factor is cost which is delivering the product within the estimated cost and effort [14].

A framework was developed by Qumer and Henderson-Sellers which has four areas to crystallize the key attributes of agility. The framework has the following dimensions: flexibility, speed, leanness, learning and responsiveness. Flexibility is the ability to respond to change and leanness accentuates lower cost, reduced timeframe and quality production [9].

Another framework was developed by [10] that is comprised of two factors that can improve method tailoring effectiveness. The first area is the characteristics of the method, and the second is developer practices. The framework was developed to overcome some of the problems traditionally associated with software development's tendency to replace older methods with new apparently improved alternatives. In addition, the framework assesses how amenable Extreme Programming is to tailoring, and it developed a set of recommendations for its improvement.

1. MOTIVATION AND THE CONCEPTUAL FRAMEWORK

A decade ago, a group of software practitioners agreed on some software development principles. The Manifesto was launched and it was a breakthrough that had implicit goals of producing working software that values meeting the requirements of the customer while having little documentation. Therefore, the Manifesto inspired developers to produce software that was responsive to customers' needs and employ a light-weight development methodology.

In this decade, there is a shift from producing working software to improving the experience of the customer with the software and instead of responding to change, agile developments have to predict the change. The third shift in software development is that the software is developed before the customer asks for it. Companies develop software and they compete for the customer. Therefore, collaboration with customers is not possible. In effect, companies have to find the customer after the software has been developed.

The motivation for this research is that agile methodologies are flexible enough to be adopted by software developers but they need tailoring to provide a one size fit-all approach. We proposed a conceptual framework drawn from the existing method tailoring literature. The main pillar of agile methodologies involves the interaction between developers and customers. The greatest problem agile teams face is too little involvement from the customer. For a project to be agile, the developers have to cope with the challenges. The framework is comprised of three factors that can improve agile method tailoring effectiveness and they are used to cope with challenges in agile methodologies, namely, developer practices, customer collaboration, and predicting change.

This conceptual framework contributes in three areas: first, it provides a tailored approach to agile methods. Second, it provides a solution for a one size fit-all approach for agile methods. Finally, it provides flexibility in choosing agile methods without following the exact principles that agile methodologies require from the development team.

3.1 Developer Practices

Agile methods are often seen as providing ways to avoid overheads typically perceived as being imposed by traditional software development environments [12]. The fact that agile methods are focused on the people rather than on reporting deliverables is often seen as a welcome shift of balance towards the most important factor in software development: the personnel involved [9]. Agile methods actively involve the customer in the development process. However, it is important to consider the involvement and input from all stakeholders such as partners, and suppliers. In addition to external sources, other business units within the organization should be involved [15]. Two aspects of the personnel

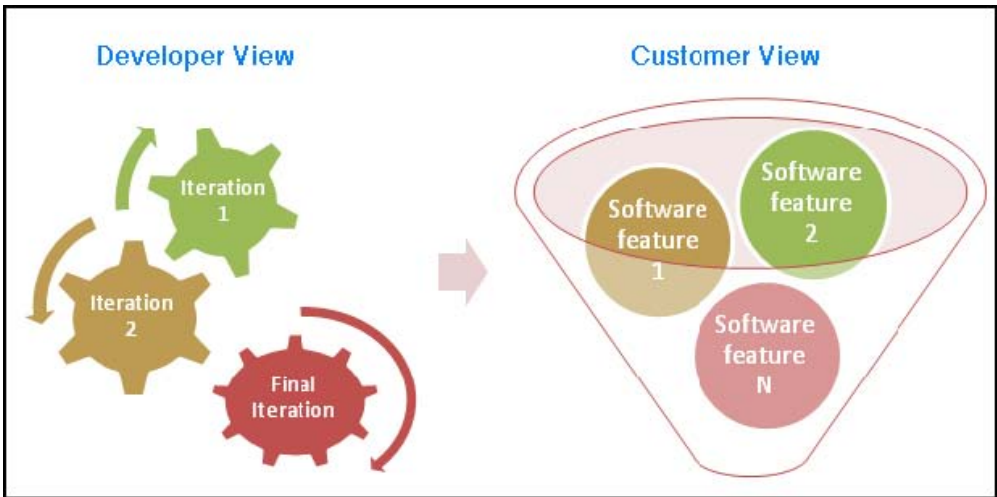
involved in the development of agile software projects are highlighted in this framework: The developer and the customer.

Developers are likely to face challenges as they are required to change their work habits and acquire new skills. The developers should work in self-organized teams. Where each leader and his team members decide which task to work on or how a problem will be solved. This self-organizing structure will encourage the developers to fully own the problem and provide the best solution for it. The team should be cross-functional so that everyone can take a feature from the project idea and have its implementation. It is important to remember when selecting an appropriate team structure that it is not permanent. While you don't want to continually change team structures, if the current structure is clearly wrong, change it [16].

The team must select an iterative and adaptive approach to complete the project. The team will decide the length of the iteration and the list of potential goals for that iteration. Each member of the team is asked for the list of needed resources and an estimate to complete the tasks. The list of goals comes for the customers, the team members, and the project leader. Team members need to brainstorm to find the details of the tasks and how to implement them.

The iterative approach depends on an adaptive planning. Iterations in the development are to be adapted based on feedback from all stakeholders rather than predicting the project plan. As a result, each development's iteration will create a plan for the next iteration that will adjust as the project features unfold. This approach does not eliminate project objectives and milestones, rather, it encourages flexibility in planning the entire projects details. In addition, the team will manage the details of the projects while the customer is involved in the project features that will be delivered. Figure 1 illustrates this approach.

Figure 1: Developers iterations and customers view



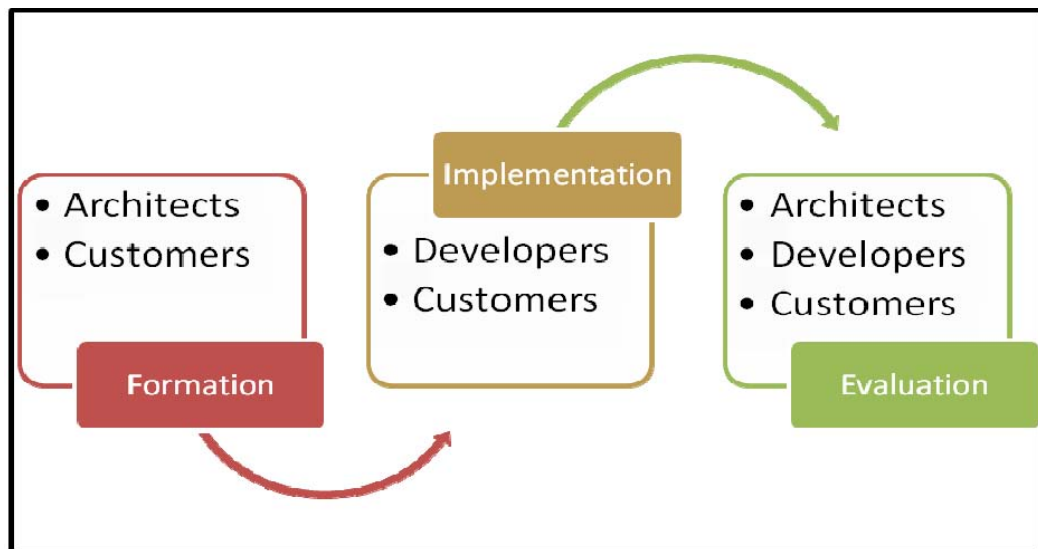
Each leader of a team is a member of the other teams that affect the group that he/she is leading. So, output from one team is delivered as input to another team and the team leader is ensuring that the implementation is according to the plan.

The development team should separate the interfaces from implementations. The responsibilities between developers and architects should be divided around the interfaces and implementations. Collaboration should occur between these two groups. Architects should become more like developers with respect to accepting changes that occur within the life cycle of a system. Developers should be given standard interfaces to work with that were created by interface design experts and finally developers shouldn't be overwhelmed with too much architectural complexity [17]. Therefore, the first practice that the agile team should adopt is dividing responsibility to allow the developers to focus on Implementations.

The team structure depends on the organizations and the project. Large teams may include members with more diverse skills, experiences, and approaches and, as such they are not as much at risk to the loss of a key person. In addition, large teams provide more opportunities for individuals to specialize in a technology or a subset of the application. On the other hand, there are even more advantages to a small team that would support agile methods. In small teams, developers need less time coordinating the efforts of the team members and an individual developer is less likely to take on distinct roles [16].

The development of software by large teams of developers requires a steady flow of elicited requirements. Without this steady flow of requirements, the project run the risk of delaying new software iterations and bad code due to badly specified requirements, all resulting in the waste of large amounts of resources. For the development to remain agile, the requirements are defined and implemented quickly, while others move through their lifecycle at a regular pace [18]. Whether the project consists of large teams or small teams the responsibilities are divided and three processes are created: Formation of the system, implementation by the developers and evaluation by the developers, the architects, and the customers (See Fig. 2).

Figure 2: Dividing and sharing responsibilities



The interaction between the customer and the development team is a vital feature and an important success factor in agile software development [19-21]. Agile methods expand the customer role within the entire development process by involving them in writing user stories, discussing product features, prioritizing the feature lists, and providing rapid feedback to the development team on a regular basis [21].

A study found that the greatest problem agile teams face is too little involvement from the product owner or customer [20]. For a project to be agile, the developers have to cope with the challenges. The following agile approach is used to cope with challenges:

- **Communication Challenges:** e-Collaboration is to be used when the customer is having little involvement in the project or the involvement is not on a regular basis.
- **Clarification Challenges:** When developers are waiting for scenarios, stories, or clarification from the customer, the development stops until the developers receive the required customer's clarification. Therefore, the solution is changing priority to keep the project on time and within the scope. They have to change the priorities of the features and the iteration.
- **Onsite Customer Challenges:** A situation is faced where the developers don't have an on-site customer. One of the developers is chosen to play the role of a fulltime customer or an agile Tester. His role is to develop and run system tests and develop and run acceptance tests. This developer will coordinate with the customer to provide stories to the development team.

Agile methods actively involve the customer in the development process. For agile projects, the customer is not only the one requesting the software, it also includes partners, suppliers, and other business units inside the organization. The developers in the project internally need to gain external knowledge and ideas about the project that they will develop.

3.2 Collaboration

The involvement of team members in a project depends on the information provided. Communication plays a fundamental factor in the success of a project. Communication according to [22] acts as the glue that links together all work by the team members. Everyone should communicate with everyone else. Problems arise if the team leader withholds information from the developers. The project leader should provide mentoring and sharing of relevant project information with all members. While the leadership role is important to coordinate and lead the project, it is more important to create a culture that fosters a collaboration, rather than communication between all team members. Additionally, developers are more involved in the project if the team members share relevant project information with each others, not just the project leader. Therefore, how the work is coordinated in the project is an important factor that affects the success of the project.

Another success factor that affects the project is the feedback that team members receive from each other. Developers can benefit from this feedback to improve their skills and to produce better code that has been shared with others. Therefore, when pair programming is employed each person in the team shares the ownership of the code and the feedback improves the skills of the other team member. When the entire team participates in giving feedback to other members, a group ownership of the code will be employed and as a result the skills of every team member are improved. If the skills of all the developers are enhanced, developers can collaborate by face-to-face communication, which is the best method of conveying information, or they can collaborate in the code that they write. Code communication is essential for group ownership of the project. Developers have to understand the code that was written by others in order to modify it if there is a need. Another essential enhancement for the collaboration among team members is to provide cross training. Cross training enhances the development and creates a shared team-interaction model [23].

The greatest problem agile teams face is too little involvement from the customer. What if the customer does not exist when the software was being developed? It is a normal business practice for software development companies to develop software first and then compete for

the customer. Companies find the customer after the software has been developed therefore collaboration with customers is not possible.

For agile methods to be used with software projects that don't have a specific customer, tailoring is needed. First, requirement gathering has to employ survey and brainstorming techniques to gather the requirements. Survey is conducted based on potential customers and brainstorming is conducted among the team members. One of the developers, or a group, is chosen to take on the distinct role of the customer. The role of this developer will have the story telling role of the customer, running system tests and running acceptance tests.

Finally, the agile Manifesto values individuals and interactions over processes and tools, working software over comprehensive documentation, and customer collaboration over contract negotiation [24]. While collaboration is an important principle, e-collaboration can be used when the customer cannot be onsite. Therefore, agile projects have to create a culture where everyone is putting ideas in the project as well as taking them out regardless of the medium being use. Collaboration can be face-to-face, phone conferencing, web conferencing, emails, or using the many e-collaboration tools.

3.3 Predicting Change

When implementing change, different method for requirement elicitation can be used. Interviews are widely used when the developers elicit information from system experts and each other about the structure and the behavior of the system [25]. Agile methods embrace changing requirements, even late in the development cycle. Projects most responsive to change will offer support for future changing requirements. Other than requirement changes, software face two types of change: technology infrastructure and business processes. Utilizing of technology requires alignment of technology strategies with the business strategies. This alignment reflects the view that the business success depends on the linkage of business strategy with information technology.

When faced with the challenge of predicting future changes in technology, an agile team has to distinguish between operational technology and strategic technology. The acceptance of new technologies by their intended users persists as an important issue for the developers. Therefore, support for new technology should be built-in in the design of the software. For example developers should use software components that support the latest technology. Developers use reusable components to produce high quality software systems. These systems need to satisfy not only the initial demands of the customer, but they need to also offer support for future, changing requirements [26]. A good example to

support this idea is providing applications that run on different operating systems in the Smartphone ecosystems.

Finally, software development should focus on the business models and business processes before they focus on technology infrastructure or applications. The software team has to be aware of market trends when implementing software projects. The software industry shifted from the client-server to the distributed model then from the services oriented architecture to the Cloud. Therefore, keeping an eye on demand for future trends will make the transition to new changing requirements manageable for software developers.

1. ANALYSIS OF THE TAILORED FRAMEWORK

One of the main reasons for using agile methodologies is to satisfy the needs of the users and to address the issue of changing requirements. Agile developments introduced new concepts for effective communication such as on-site customer to ensure effective communication with the developers. As a result of this communication, less documentation is required for agile projects.

Ultimately, communication is at the center of solving problems in agile developments. However, certain agile development projects cannot have an on-site customer because the project is being developed without a customer or for other reasons. Tailoring of agile developments to satisfy the needs of different situations is therefore required to keep the communication at the core of practices for agile methods. While the argument is that agile development cannot be used without a customer, tailoring of the agile methodologies is proof that development projects can use agile methodologies even if the project does not have an on-site customer. Other communication challenges can be solved in different ways. E-Collaboration is to be used when the customer is having little involvement in the project or the involvement is not on a regular basis. While the developers wait for scenarios, stories, or clarification from the customer, the development stops until the developers receive the required customer's clarification. The solution is to change priorities to keep the project on time and within the scope

Following a coding standard is another way of communication among developers and for documenting the project. Communication through a coding standard is not affected because this is an internal factor and it is not affected by the different situations that the projects might face. Therefore, a coding standard is enforced and developers have to use a coding standard that can be understood by all members of the development team.

Some projects require small teams while others require large teams with diverse skills and experiences. Large teams provide opportunities for a developer to specialize in a technology or a subset of the application. One of the core practices of agile methodologies is collective code ownership. Developers who specialize in a technology or a subset of the application must share their knowledge with the development team to facilitate the collective code ownership practice.

Projects most responsive to change will offer support for future changing requirements. Software projects face two types of change: technological infrastructure and business processes. Utilizing of technology requires alignment of technology strategies with the business strategies. Agile projects are mandated to keep the developers aware of the latest technology changes and developers are mandated to implement the latest technology.

Therefore, agile methodologies are flexible to cope with external factors such as changing requirements while the core practices are not affected. Coping with external factors requires flexibility in the developer practices without changing the core practices of agile developments. Core practices that are internal in the projects are not affected by the different situations that agile projects face.

1. CONCLUSIONS

Projects don't have to follow a formal, well-established methodology to be successful in software development projects. Most agile methodologies institutionalize the same set of practices. It often does not matter which one you choose, as long as you follow it diligently. Areas that agile development focuses on are the communication among all stakeholders, iterations with continuous integration, and feedback. One of the main reasons for using agile methodologies is to satisfy the needs of the users. The informal communication among stakeholders and developers sometimes raises problems such as inability to cope with system complexity and rapidly changing requirements. Agile methods are labeled as agile because of their ability to handle changing requirements. It is also expected that the agile methods themselves are flexible and can be tailored to the needs of the developers and the needs of the software project.

Agility is attained when software development methodologies attain to external factors and by being flexible internally in software development. This framework proposed three factors for making agile frameworks agile in their practices. We showed evidence that developers practices and eliciting the requirements play a major role in making the software development successful. Therefore this conceptual framework created two customized practices for making agile methodologies handle different

situations when the original practices do not accounting for these situations.

The third factor was introduced because there is a shift from producing working software to improving the experience of the customer with the software and instead of responding to change, agile developments have to predict the change. The third shift in software development is that the software is developed before the customer asks for it. Companies develop software and they compete for the customer. Therefore, collaboration with customers is not always possible.

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Information Security Maturity Model

Dr. Malik F. Saleh
msaleh@pmu.edu.sa
Management Information Systems, Chair
Prince Mohammad Bin Fahd University
Al Khobar, 31952, Saudi Arabia

Abstract

To ensure security, it is important to build-in security in both the planning and the design phases and adapt a security architecture which makes sure that regular and security related tasks, are deployed correctly. Security requirements must be linked to the business goals. We identified four domains that affect security at an organization namely, organization governance, organizational culture, the architecture of the systems, and service management. In order to identify and explore the strength and weaknesses of particular organization's security, a wide range model has been developed. This model is proposed as an information security maturity model (ISMM) and it is intended as a tool to evaluate the ability of organizations to meet the objectives of security.

Keywords: Maturity Model, Security Maturity Model, Security Measure, Security self study.

1. INTRODUCTION

The traditional information security objectives are confidentiality, integrity, and availability. Achieving these three objectives does not mean achieving security. Security is achieved by the prevention of attacks against information systems and from achieving the organization's mission despite attacks and accidents. One problem with organizations' security is that it is often viewed in isolation and organizations do not link the security requirements to the business goals. The rationale for these organizational problems is linked to the financial obligations that organizations face for unnecessary expenditure on security and control. Some of the information security efforts may not achieve the intended business benefit, resulting in lack of security and financial investments in systems that do not represent the core systems of an organization. For example managers can justify the need for a system that manages the resources at an organization. It is a relatively simple task to identify a

system that adds value to an organization but to justify a second system to protect the first one might result in cancelling the investment of both systems. Any additional security investments are thought of as future projects that can wait until the business prospective is improved. Then, organizations are faced with the challenging task of recovering from an attack that disrupts the business process.

To ensure security, it is important to build-in security in both the planning and the design phases and adapt a security architecture which makes sure that regular and security related tasks, are deployed correctly [1]. Security requirements must be linked to the business goals through a process-oriented approach. The process must take into consideration many of the factors that affect the goals of an organization. We identified four domains that affect security at an organization. First, organization governance is one factor that affects the security of an organization. Second, the organizational culture affects the implementation of security changes in the organization. Third, the architecture of the systems may represent challenges to the implementation of security requirements. Finally, service management is viewed as a challenging process in the implementation.

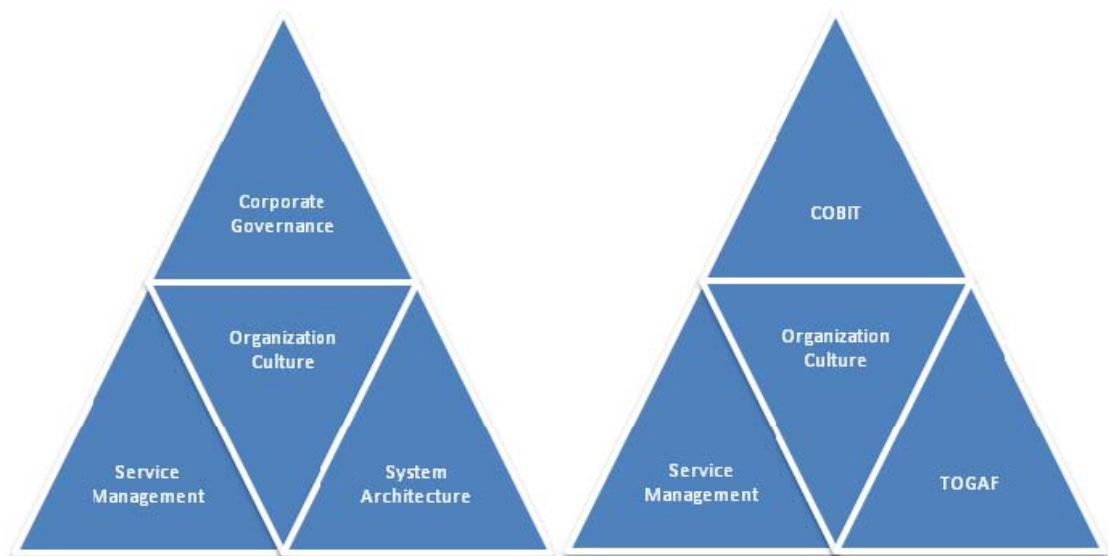


Figure 1: Domains mapped to implementation standards

This research narrows the gap between theory and practice for information security management by following the process of a security maturity model and by identifying the benefits of implementing a standard for organization security needs. We stress the fact of using a domain based approach to develop a model that can be widely used by organizations. This approach, if developed without an understanding of the organizational culture, will impact the effectiveness of the implementation and the human reaction to the use of new technologies. The organization culture often hinders the success of this approach and

the delivery of the intended benefits of the implemented security model or standard.

1. BACKGROUND AND RELATED WORK

The motivation for this paper was due to challenges of assessing the implementation of security at organizations. In addition to implementation challenges, accomplishing best practices in the implementation of security is needed and it was undertaken in this research in the form of a self study that organizations would use to measure their information security practices.

Some attempt were undertaken to establish information security management maturity model. The ISM3 system was introduced to prevent and mitigate attacks, errors, and accidents that jeopardize security [2]. While this attempt recognized three levels of management responsibility, it did not provide best practices for the implementation of security.

An information assurance model was introduced based on none risk assessment model. It is based on diligence model where assurance is achieved by using threat and vulnerability reviews and countermeasures based on tangible best practices. The model did benchmarking, risk assessment and followed a diligence model [3]. This model introduces benchmarking but it did not provide best practices for security.

A certification and accreditation model through the identification of operational risks and the determination of conformance with established security standards and best practices was introduced by [4]. Its idea was to effectively establish trustworthiness for security services. While an organization policy and defined processes will introduced by [5] with appropriate accountability standards to facilitate compliance, monitoring and enforcement of security guidelines.

2.1 Domain-Oriented Approach

Senior management at organizations must become more IT literate to effectively synergize business strategy. In security, people, information, systems, and networks affect each others. These four domains provide a vital link to all of the dynamic interconnections at an organization. Inside each domain, there are processes that identify, measure, manage and control risk.

Connecting different domains together requires securing each domain and securing the interconnection between the different parts. For the purposes of creating a widely used model that has good practices, security is looked at as domains, where each particular category of security represents

knowledge in the organization. According to [6] there is no one-size-fits-all approach for maximizing the alignment of IT with the business and all of its components. Much depends upon the nature of the business, its size, markets, culture, and leadership style. Additional factors that help dictate the organization's alignment components and structure include the in-house IT capabilities and the dependence upon outsourcing.

2.1 Maturity Model

The concept of maturity models is increasingly being applied within the field of Information Systems as an approach for organizational development or as means of organizational assessment [7-9]. Any systematic framework for carrying out benchmarking and performance improvement can be considered as a model and if it has continuous improvement processes it can be considered a maturity model. Maturity implies a complete system. Generally, in the constituent literature maturity implies perfect or explicitly defined, managed, measured, and controlled system [10]. It is also a progress in the demonstration of a specific ability or in the accomplishment of a target from an initial to a desired end stage.

The Total Quality Management (TQM) maturity models is a structured system for meeting and exceeding customer needs and expectations by creating organization-wide participation in the planning and implementation of breakthrough and continuous improvement processes. It integrates with the business plan of the organization and can positively influence customer satisfaction and market share growth [11]. This structured system encompasses the entire organization and the goal is communicated on a regular bases while practicing what is being breached [12]. Quality can take many forms but its perception is dependant on the beholder. However, the emphasis is on things being done right the first time.

In order to identify and explore the strength and weaknesses of particular organization's security, a wide range model has been developed. The purpose is to identify a gap between the practice and theory which then can be closed by following a process-oriented approach. We introduce a maturity model that provides a starting point for security implementation, a common and shared vision of security, and a framework for prioritizing actions. Moreover, this information security model has five compliance levels and four core indicators to benchmark the implementation of security in organizations.

1. INFORMATION SECURITY MATURITY MODEL (ISMM)

This proposed information security maturity model (ISMM) is intended as a tool to evaluate the ability of organizations to meet the objectives of

security, namely, confidentiality, integrity, and availability while preventing attacks and achieving the organization’s mission despite attacks and accidents. The proposed model defines a process that manages, measures, and controls all aspect of security. It relies on four core indicators for benchmarking and as an aid to understanding the security needs in the organization. These indicators are goal-driven to achieve the security needs.

3.1 Levels of Compliance

It is hard for security practitioners and decision makers to know what level of protection they are getting from their investments in security. It is even harder to estimate how well these investments can be expected to protect their organizations in the future as security policies, regulations and the threat environment are constantly changing [13]. An information system would transition between several distinct vulnerability states. The first state is hardened and it occurs when all security-related corrections, usually patches, have been installed. The second is vulnerable and it occurs when at least one security-related correction has not been installed. The final state is compromised and it occurs when it has been successfully exploited [14]. Within these states, metrics need to indicate how secure the organization is so that the window of exposure can be minimized by the security operations teams in an organization by following a standard patching process to eliminate vulnerability and any associated risks. The security team either deploys patches after vulnerability was first disclosed or updates signatures that are associated with attacks.

The longer the window of exposure, the more the organization is exposed to attacks and exploits. The magnitude of risks is minimized if organizations are conscious about their security needs. Therefore the proposed ISMM considers five levels of compliance. Security is believed to improve as the organization moves up these five levels:

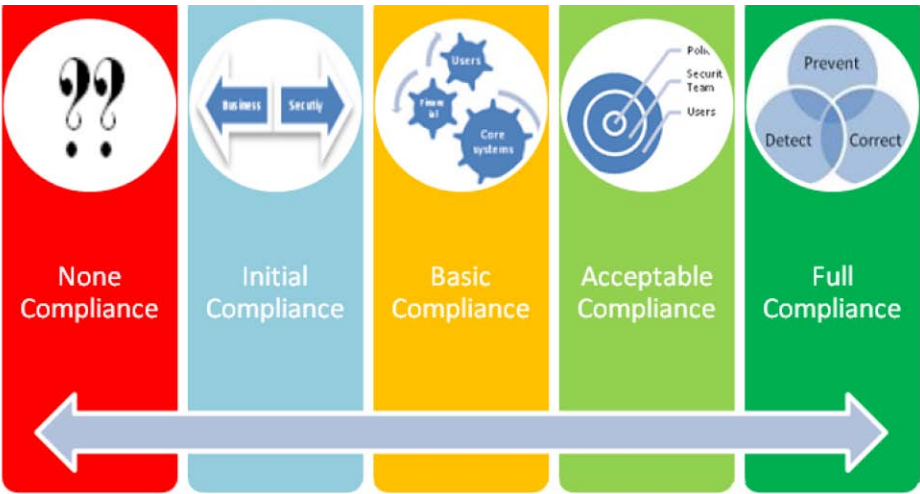


Figure 2: Levels of Compliance

3.2 None Compliance

This state is characterized by none existence of policies and procedures to secure the business. Management does not consider investing in security related systems necessary for the overall business strategies. In addition, the organization does not assess the business impact of its vulnerabilities and it does not understand the risks involved due to these vulnerabilities.

3.3 Initial Compliance

This state is the starting point for any organization. As long as an organization is conscious about the threats that their information systems face then that organization is considered in the initial state of compliance. This state is characterized by being chaotic, inconsistent, ad hoc, and in response to attacks and possibly because of losing resources due to an attack. Organizations recognize the business risks due to vulnerabilities but have no defined policies or procedures to protect the organization. In addition, the organization would have little practical implementation in security systems. Most implemented control will be reactive and not planned.

The goals at the initial state are usually centered on the business activities of the organization and little attention is focused on securing the organization. The goals will change in response to attacks by implementing some kind of protection but it will not be continuous.

3.4 Basic Compliance

This state is the starting point for any organization that wants to protect its investment and ensure continuity. Application and network security is implemented but changes are not centrally managed and ad hoc security requests are common. In this state, organizations trust the interaction between the user and the systems. Security awareness programs are being considered for key resources only. IT security procedures are informally defined and some risk assessments taking place. In addition, responsibilities for IT security have been assigned but enforcement is inconsistent. Some intrusion and detection testing can also be performed.

A fundamental process to most systems is the interaction between the system and the user. According to [15], this interaction is the greatest risk. Organizations don't classify their users as threats to their systems. The user does not always cause a threat in isolation; rather, the actions of users are the starting point for some attacks, and in some cases, the users themselves may launch the attacks. Weak passwords, susceptibility to social engineering attacks, and failure to install security updates are some

examples of why the user is classified as the weak human factor and the user's interaction with the systems create threats [16].

The goals at this level are usually centered on the business activities of the organization and the protection of core systems. Usually, an organization will consider the security of a system after the system's implementation. Two restrictions are faced at this stage: First, financial restriction and spending on systems that don't add value to the income of the business. Second, organizations classify their initial investments in security as completed. Organization will have a perception that their systems are protected and they become unaware of the threats and vulnerabilities.

3.5 Acceptable Compliance

This state is characterized by central management of all security related issues and policies. Users are trusted but their interactions with the systems are viewed as vulnerability. No ad hoc changes and central configuration models, from which all configurations are derived, are implemented. Security policies and procedures are now in place together with adequate delivery mechanisms to aid awareness and compliance. Access controls are mandatory and are closely monitored. Security measures are introduced on a cost/benefit basis and ownership concept is in place.

There is a school of thought that maintains that it is not the users' fault that they perform the easiest action; rather, it is the designers fault to have made the most insecure operation the easiest operation [16]. Since the actions of users are the starting point for some attacks, there is a need to inculcate a "culture of security" in users. Many users have to remember multiple passwords. They use different passwords for different applications and have frequent password changes, which reduces the users' ability to remember passwords and increases insecure work practices, such as writing passwords down [17]. For organizations to secure the interactions with their systems, communication between the security team and the users must take place to keep the users informed of possible threats. In addition, the users do not understand security issues, while the security team lacks an understanding of users' perceptions, tasks, and needs. The result according to [16] is that the security team typecast the users as threats that need to be controlled and managed, at worst, they are the enemy within. Users, on the other hand, perceive many security mechanisms as an overhead that gets in the way of their real work.

The goals at this state are usually centered on the business activities, the users, and monitoring security threats and all related patches are tested and implemented. Usually, organizations at this state are conscious about

their security needs and they invest in systems that protect the organization.

3.6 Full Compliance

This state is characterized by having control over the security needs of the organization, monitoring the systems, being aware of threats and benchmarking by comparing the organization itself to other similar organizations and to international standards. In addition, a comprehensive security function has been established that is both cost effective and efficient which delivers high quality implementation. This comprehensive plan has formal policies and procedures in place to prevent, detect, and correct any security related issues. Also, corporate governance is aligned with the security needs of an organization. Corporate governance has policies for internal auditing which is independent and objective activity designed to add value and improve the security of the organization. The result of any audit activity is published and actions are implemented.

For organization to have full compliance security is managed by identifying the security concerns and security incidents are tracked in a systematic way. The organization must have proper policies for security in a formal sense and business plans would have items for security. The use of specific technologies throughout the organization is in a uniform manner and the implementation came to existence out of a business plan.

Full compliance also considers the security architecture in an organization. While the business architecture considers all external factors in an organization, the security architecture considers all users in the implementation. Policies are created to meet the needs of the users but information in or out of the organization is captured. A system for providing traceability through the organization is in place. Users are also involved in architectural analysis and the organization offers training for the users in security related issues.

As for management of security, policies in the full compliance state have preventive, detective and corrective control. The organization must have a system for reporting security incidents and for tracking the status of each incident. Installing anti-virus software and firewall is not enough to control the threats the organizations face. Email filters and intrusion detection systems must also be used to prevent many types of incidents.

1. MEASUREMENTS

Metrics are often used to predict future behaviors, based on historical data and trends.[13] argue that Security metrics are created and monitored as a way to get insights about the performance of these controls and to identify failure points or anomalies. However, the metrics are collected across

organizations and they are operational metrics without the context of the overall security processes. On the other hand, measurement of any complex, operational system is challenging and security risks introduce another dimension of complexity. Risk management and the availability of different measurements and their properties will vary during the overall system lifecycle. Any measurement framework needs to be able to adapt to both the changes in the target of measurement and in the available measurement infrastructure. Security assurance measurements often require aggregation of several metrics, because direct measurement of the relevant properties is not often possible in practical complex systems and aggregation strategies can change from time to time, depending on the environment and the many risk factors [18].

4.1 ISMM Metric and Core Indicator

The principle that is followed here is what you can't measure, you can't manage. Therefore four core indicators are developed to manage and measure the compliance with this maturity model. Each indicator has its own key performance indicators that show the overall compliance with the model. These four indicators are domain specific rather than being process specific but they measure the aspect of structure, the management, the practices and the overall performance of the of the organization in term of its security.

The specific practices are intended as a guide for those responsible for the activities to draw their attention to good practices and to assist them to evaluate the practices at their organization. For each individual item, two responses are called for, but some items may not be applicable to the organization, therefore it should be marked with NA and ignored. The second response if applicable should be measured in term of assigning a five points rating scale to evaluate how well the practices are carried out. Certain activities require combining ratings to develop a broader rating. An overall rating of all domains would reflect the compliance with this maturity model according to table 1.

1. LIMITAION, IMPLICATION, AND RECOMMENDATION

The results of this paper clearly showed that there are metrics that can assess the implementation of security at organization. However, the use of a qualitative method incorporates various disadvantages and it is often criticized for being subjective and it lacks criteria to judge the trustworthiness and relevance of the results.

Much more research needs to be undertaken to accomplish best practices in the implementation of security by using a combination qualitative and quantitative research. Quantitative work will be undertaken to demonstrate the effectiveness of the proposed model. A survey of will be

distributed to different organization and the result will be published in the near future.

1. CONCLUSION AND CONTRIBUTION

A systematic framework for carrying out benchmarking and performance improvement was developed. This model of best practices can be considered a maturity model which implies a complete system with continuous improvement. The objective of the proposed solution is to provide an organization with a way to conduct a self study of its implementation of security. The result will be measured in terms of compliance to the model. There are five compliance levels and each level consists of goals. An organization that continuously measure and audit its security implementation will achieve the highest level and it will achieve the objectives of security.

Full compliance to the model is characterized by having control over the security needs of the organization, monitoring the systems, being aware of threats and benchmarking by comparing the organization itself to other similar organizations and to international standards. Acceptable compliance is characterized by central management of all security related issues and policies. Other levels exist to raise a red flag for organizations that their security is weak and improvements are required.

The measurement indicators were domain specific rather than being process specific but they measure the aspect of the structure, the management, the practices and the overall performance of the of the organization in term of its security.

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Modeling and Analyzing MAC Frame Aggregation Techniques in 802.11n Using Bi-dimensional Markovian Model

Nazeeruddin Mohammad & Shahabuddin Muhammad
College of Computer Engineering and Science,
Prince Mohammad Bin Fahd University (PMU),
Al Khobar, Kingdom of Saudi Arabia
{nmohammad,smuhammad}@pmu.edu.sa

Abstract:

Increased expectations and demand for higher rates led to the development of new physical layer technologies in Wireless LANs. However, the current medium access control (MAC) needs to be improved to fully utilize higher physical-layer transmission rates. Several aggregation mechanisms have been recently proposed to improve the MAC layer performance of 802.11n. In this paper, we analyze some of the key aggregation mechanisms proposed. For analysis we adapted widely used Bianchi's analytical model and applied it for various aggregation techniques. We also compare the analytical details of various strategies and provide a unified analytical framework for continued research in this direction.

Keywords: 802.11n, Aggregation, CSMA/CA, MAC, WLANs

1 Introduction

Wireless LANs (WLAN) are becoming increasingly ubiquitous because of the flexibility and the freedom they offer to the users. Their popularity has led to several improvements in the physical layer technologies for wireless networks. The latest IEEE 802.11n [1] standard has utilized MIMO (multiple-input and multiple-output) and OFDM (orthogonal frequency division multiplexing) techniques to achieve transmission rates up to 600 Mbps [2, 3]. However, several studies have shown that the improvements in the physical layer data rates will not be sufficient to improve the overall throughput [4]. The primary reason behind this is the overheads related to physical layer headers and contention time. These overheads do not decrease proportionately with the increase in physical data rates and dominate frame transmission time at higher physical data rates.

The throughput at MAC layer can be improved by mitigating frame overheads & contention time. One way of achieving this is by aggregating several frames in a single large frame, thereby minimizing channel idle time (fewer SIFS and backoffs) and frame overheads (fewer PHY headers). Few schemes [5, 6] tried to improve MAC efficiency by sending

a train (burst) of frames after winning.

DCF contention window, and hence sharing contention overhead across multiple frames. In BlockAck strategy [7] a train of frames are transmitted without waiting for individual acknowledgments (ACK), and then the whole block is acknowledged (BACK) with single acknowledgment frame, thereby reducing the overhead due to ACKs and SIFS.

IEEE 802.11n Task Group (TGn) has adopted frame aggregation to improve the MAC layer efficiency and throughput. Frame aggregation schemes attempt to improve MAC efficiency by reducing waiting time during CSMA/CA back-off period for successive frame transmissions, and minimizing the transmission time for preamble and frame headers [8]. IEEE 802.11n TGn has defined two frame aggregation schemes, namely aggregate MAC Service Data Unit (A-MSDU) and aggregate MAC Protocol Data Unit (A-MPDU). A-MSDU mechanism joins several MAC Service Data Units (MSDUs) to form a single big MAC Protocol Data Unit (MPDU). On the other hand, A-MPDU concatenates several MSDUs (each with their own MAC header and FCS) to form Physical-layer Service Data Unit (PSDU). However, transmitting large frames is not encouraged in error-prone channels because single bit-error causes all frames to be retransmitted. Aggregation with Fragment Retransmission (AFR) [4] scheme tries to address this issue by providing mechanisms for partial retransmission of affected frames.

In addition to aggregation, 802.11n standard specifies bidirectional data transfer method over a single transmission opportunity (TXOP)[9, 10]. When a sender is allocated a TXOP, it informs surrounding stations (STAs) the time that the channel will remain busy. However, many times the transmission finishes before the reserved time and channel remains idle. In bidirectional method, the receiver STA is allowed to send packets to the sender STA in the reverse direction for the remaining TXOP time. This feature is useful in sending small feedback packets to the sender during the actual data transmission period.

802.11 has been extensively analyzed and various models have been proposed in order to better understand the performance of 802.11 DCF throughput. DCF is a carrier sense multiple access with collision avoidance (CSMA/CA) scheme with binary slotted exponential backoff. Bianchi's analytical model [11] is one of the widely used schemes that is not only simple but it can also predict accurately system throughput for a number of wireless stations in ideal channel conditions. Bianchi's model treats the backoff window size in the protocol as bi-dimensional Markovian chain. Using this chain, Bianchi attempts to compute the probability that a station transmits in a randomly chosen slot time and ultimately derives normalized system throughput as the fraction of time

the channel is used to successfully transmit payload bits.

We have used Bianchi's analytical model to analyze various schemes proposed to enhance the saturation throughput in 802.11n. Our contribution is the comprehensive analytical treatment of 802.11n by exploring several enhancement schemes proposed for the latest protocol. Our analysis encompasses the following important scenarios:

1. DCF two-way handshake
2. DCF four-way handshake
3. Aggregation with fragment retransmission (AFR)
4. Aggregated-MPDU (A-MPDU)
5. Aggregated-MSDU (A-MSDU)
6. A-MPDU and A-MSDU with bidirectional data transfer

Fig. 1: DCF two-way handshake transmission sequence



In each of the above scenarios, we investigate the key parameters involved in the equation for saturation throughput and highlight the changes in those parameters for the case of ideal as well as error-prone channels.

2 Throughput Analysis

For the throughput analysis of 802.11n, we adopt Bianchi's model [11] which models the bi-dimensional process $\{s(t), b(t)\}$ with discrete-time Markov chain. If $W_i = 2^i CW_{min}$ and the maximum contention window $CW_{max} = 2^m CW_{min}$ then $s(t)$ represents the stochastic process for backoff stage ($0 \dots m$) and $b(t)$ represents the stochastic process for the backoff time counter. Using this model, we analyze the probability of successful transmission and the MAC throughput in the various proposals suggested for 802.11n. In the entire analysis, we will assume that there are fixed number of stations in the WLAN and each transmitting station has saturated traffic, that is, each station is working in full load and has attained stable condition. In other words, each transmitting station has always data to send. Also, we assume that regardless of the number of retransmissions the conditional collision probability for each frame is constant and independent.

The mathematical notation used in this paper is summarized in Table 1. We tried to maintain consistency in the symbols instead of a wide variety of notations used in the literature.

If τ represents the stationary probability that a station (STA) transmits in a randomly chosen slot time, then it can be computed as [11]

$$\tau = \frac{2(1 - 2p)}{(1 - 2p)(W + 1) + pW(1 - (2p)^m)}$$

Here, p is the unsuccessful transmission probability.

2.1 DCF with Two-way Handshake

First we consider basic Distributed Coordinated Function (DCF) which consists of two-way handshake protocol where a station sends a frame and waits for its acknowledgment in a unidirectional channel. The possible time sequence for basic DCF is shown Fig. 1. The normalized throughput (S) for ideal channel and error-prone channel are calculated as follows.

Table 1: Mathematical Notation

Symbol	Meaning
τ	Stationary probability that a station transmits in randoml
W	Minimum congestion window size
m	Maximum backoff stage, $i \in (0, m)$ where $W_i = 2^i W$
n	Total number of stations
f	Number of fragments or sub frames in an aggregated fra
$E[P]$	Expected payload
T_e	Virtual time slot length for error transmission sequence
T_s	Average time the channel is sensed busy because of su
T_c	Average time the channel is sensed busy by non-collidir
T_{sifs}	Time duration for transmitting a SIFS
T_{difs}	Time duration for transmitting a DIFS
T_{eifs}	Time duration for transmitting an EIFS
T_{ack}	Time duration for transmitting an ACK
$T_{phy\ hdr}$	Time duration for transmitting a physical header
$T_{mac\ hdr}$	Time duration for transmitting a MAC header
T_f	Time duration for transmitting one AFR frame payload
L_{frag}	Fragment length in bytes
L_{fcs}	FCS length in bytes
L	Total MAC frame length in bytes
L_{hdr}	Total length of MAC header in bytes
$L_{hdr+fcs}$	Total length of MAC header and FCS in bytes
L_{data}	Full payload of MAC frame in bytes
p	Probability of unsuccessful transmission
p_b	Probability of single bit error
p_e	Error probability for non-ideal channel
p_c	Collision probability

Ideal Channel For an ideal channel, the successful transmission means only one STA transmits out of n STAs at any given time. The probability that a STA does not transmit in randomly chosen slot time is $1 - \tau$. The probability that $n - 1$ STAs do not transmit will be $(1 - \tau)^{n-1}$. For an ideal channel, the unsuccessful transmission is because of collision and hence the probability that a transmitted packet encounters a collision (p) is given by

$$p = pc = 1 - (1 - \tau)^{n-1} \quad (2)$$

Since the probability that no STA transmits is $(1 - \tau)^n$, the probability P_{tr} that at least one station transmits will be

$$P_{tr} = 1 - (1 - \tau)^n \quad (3)$$

The probability of exactly one transmission is $n\tau(1 - \tau)^{n-1}$. Therefore, the probability P_s that a transmission is successful is given by the probability that exactly one station transmits, condition on at least one station transmits [11]

$$P_s = \frac{n\tau(1 - \tau)^{n-1}}{1 - (1 - \tau)^n} \quad (4)$$

The normalized throughput S is the ratio of expected payload transmitted in a slot time to the expected length of a slot time. If $E[P]$ is average packet payload size, then

$$S = \frac{P_{tr}P_sE[P]}{P_1\sigma + P_2T_s + P_3T_c} \quad (5)$$

Where P_1 , P_2 and P_3 are the probabilities that a slot is empty, it contains a successful transmission, and it contains a collision respectively and σ is the duration of an empty slot time. Thus, $P_1 = (1 - P_{tr})$, $P_2 = P_{tr}P_s$, $P_3 = P_{tr}(1 - P_s)$. Ignoring the transmission delay, T_s and T_c can be written as (see Fig. 1):

$$T_s = T_{data} + T_{sifs} + T_{ack} + T_{difs} \quad (6)$$

$$T_c = T_{data} + T_{eifs} \quad (7)$$

The expected payload for DCF two-way handshake under ideal channel conditions is given by: $E[P] = (L - L_{hdr} + fcs)$ (8)

Channel with Error Since the channel is error prone, the unsuccessful transmission could be due to frame collision or channel error. Hence, the unsuccessful transmission probability (p) in Eq. 1 needs to be adjusted for both collisions and transmission errors. Thus, p can be expressed as

$$p = 1 - (1 - pc)(1 - p_e) \quad (9)$$

where $pc = 1 - (1 - \tau)^{n-1}$ is the collision probability and p_e is the error probability on the condition that there is a successful transmission in the time slot.

The throughput Eq. 5 can now be written for error prone channel as

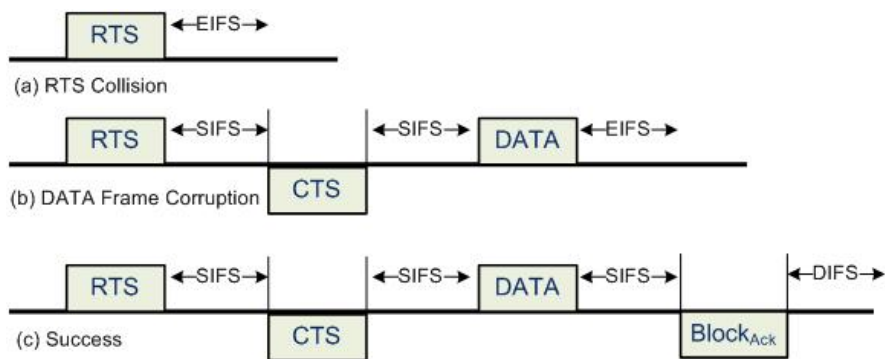


Fig. 2: RTS/CTS unidirectional access

$$P_{tr}P_sE[P]$$

$$S = (10)$$

$P_1\sigma + P_2T_s + P_3T_c + p_eT_e$ where T_e is the virtual time slot length for error transmission sequence. It can be given as $T_e = T_{data} + T_{eifs}$ (11)

T_c and T_s remain the same. Also note that in Eq. 10, P_2 is now equal to $P_sP_{tr}(1 - p_e)$.

The only unknowns left out in Eq. 10 are p_e and $E[P]$. As we are aware that any single bit error would corrupt the entire frame, thus

$$p_e = 1 - (1 - p_b)^L \quad (12)$$

$$E[P] = (L - L_{hdr} + fcs)(1 - p_e) \quad (13)$$

2.2 DCF with Four-way Handshake

DCF with four-way handshake uses RTS/CTS (Ready to Send/Clear to Send) control packets. A station that wishes to send a data frame exchanges RTS/CTS frames with the intended recipient before sending the actual data frame. This mode fixes the “hidden node” problem. The possible time sequence for DCF with four-way handshake in unidirectional data transfer is shown in Fig. 2. DCF four-way throughput analysis is similar to DCF two-way analysis of Section 2.1. The normalized throughput is given by Eq. 5 and Eq. 10 for ideal and error-prone channel conditions respectively. The only difference is in the duration of T_s , T_c and T_e , which are given by:

$$T_s = T_{rts} + 3T_{sifs} + T_{cts} + T_{data} + T_{ack} + T_{difs} \quad (14)$$

$$T_c = T_{rts} + T_{eifs} \quad (15)$$



Fig. 3: Aggregation with fragment retransmission
 $T_e = T_{rts} + T_{cts} + T_{data} + T_{eifs} + 2T_{sifs}$ (16)

2.3 Aggregation with Fragment Retransmission (AFR)

AFR [4] scheme works by combining several packets into one large frame and dividing this frame into multiple fragments. Fragmentation is done to avoid retransmission of the whole frame in case of any packet corruption during the transmission. Only the fragment containing the corrupted packet is retransmitted, thus increasing the overall performance. AFR also employs zero-waiting policy in which frames don't wait for all the fragments from upper layer to arrive. Instead, frames are transmitted as soon as a station wins transmission opportunity. Thus, AFR offers improved throughput through aggregation, fragmentation for selective retransmission and zero-waiting scheme.

AFR can also be modeled using Bianchi's model and the throughput Eq. 5 can be directly applied for ideal as well as error-prone channels as follows:

$$S_{afr} = \frac{P_2 E[L]}{P_1 \sigma + P_2 T_s + P_3 T_c} \quad (17)$$

It should be noted that AFR considers partially corrupted frames due to channel noise as successful transmission. Since $E[L]$ is the expected number of successfully transmitted bits instead of frame payload size, it can be calculated as:

$$E[L] = \sum_{i=0}^f \left(\sum_{j=0}^i \binom{f}{j} p^j (1-p)^{f-j} \right) \cdot (L - i \cdot L_{frag})$$

where fragment error rate p_e is given as

$$p_e = 1 - (1 - p_b)^{L_{frag} + L_{fcs}} \quad (18)$$

L_{fcs} is added in Eq. 18 as each fragment in AFR data frame has FCS (see Fig. 3).

3). Substituting the value of p_e in Eq. 17 and simplifying to get

$$S_{afr} = \frac{P_2 \cdot L \cdot (1 - p_e)}{P_1 \sigma + P_2 T_s + P_3 T_c}$$

$$S_{\text{afr}} = \frac{e}{(19)P_1\sigma + P_2T_s + P_3T_c}$$

The other unknown values T_s and T_c in Eq. 17 are different for DCF two-way handshake and DCF four-way handshake.

In case of DCF two-way handshake, T_s and T_c are given as:

$$T_s = T_{\text{data}}^{\text{afr}} + T_{\text{sifs}} + T_{\text{ack}} + T_{\text{difs}} \quad (20)$$

$$T_c = T_{\text{afr}} + T_{\text{eifs}} + T_{\text{data}} \quad (21)$$

where $T = T_{\text{afr phy}} + T_{\text{data hdr}}$.

For DCF four-way handshake, T_s and T_c are given as:

$$T_s = T_{\text{rts}} + T_{\text{cts}} + T_{\text{afr}} + 3T_{\text{sifs}} + T_{\text{ack}} + T_{\text{difs}} \quad (22)$$

$$T_c = T_{\text{rts}} + T_{\text{eifs}} \quad (23)$$

1.4 A-MPDU/A-MSDU Frame Aggregation

In this section, we will model A-MPDU and A-MSDU schemes using Bianchi's model [11]. Aggregated A-MPDU and A-MSDU frames can be transmitted using either DCF two-way handshake or DCF four-way handshake, and hence the analysis of A-MPDU and A-MSDU for DCF two-way handshake and four-way handshake will be similar to the standard analysis of Sections 2.1 and 2.2 respectively. The normalized throughput for A-MPDU and A-MSDU is given by Eqs. 5 and 10 respectively for ideal and error-prone channel conditions. However, the expected payload values ($E[P]$) in these equations depend upon the aggregation method and channel condition, and can be estimated as follows.

Ideal Channel A-MSDU and A-MPDU frame structure is shown in Fig. 4. Assume that there are f subframes in the each aggregated A-MSDU and AMPDU frame.

In A-MSDU, for each subframe there is an additional overhead of subframe header (14 bytes) and padding (0-3 bytes). Hence, the expected payload size for A-MSDU is

$$E[P] = L - \sum_{i=1}^f L_{\text{a-msdu}}^{\text{oh}} \quad (24)$$

where $L_{\text{a-msdu}}^{\text{oh}} = L_{\text{hdr+fcs}} + (L_{\text{subhdr}} + L_{\text{pad}})$.

On the other hand, each subframe in A-MPDU has a separate MAC header, a delimiter (4 bytes), variable size padding (0-3 bytes) and FCS. Hence the expected payload for A-MPDU is given by:

$$f E[P] = L - (L_{\text{hdr+fcs}} + L_{\text{lim}} + L_{\text{pad}}) \quad (25) \quad i=1$$

The above equation can be rewritten as

$$f(L_i - L_{oh})$$

$$E[P] = \sum_{i=1}^n (L_i - L_{oh}) \quad (26)$$

where L_i is i th subframe of the aggregated A-MPDU frame and $L_{oh} =$

$$L_{hdr} + L_{fcs} + L_{lim} + L_{pad}$$

It should be noted that T_s is slightly different for A-MPDU/A-MSDU as single block ACK will be sent instead of individual ACKs.

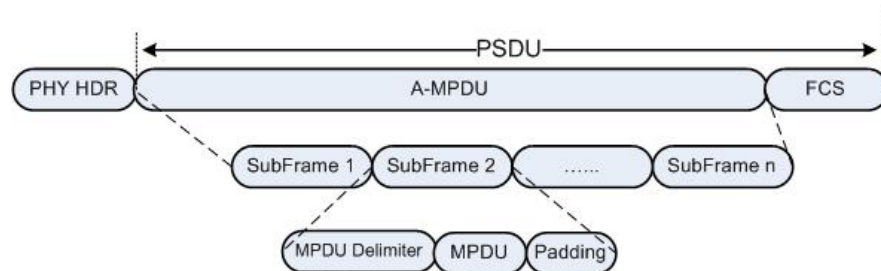
$$T_s = T_{rts} + T_{cts} + T_{data} + T_{back} + 3T_{sifs} + T_{difs} \quad (27)$$

(a) A-MPDU frame structure

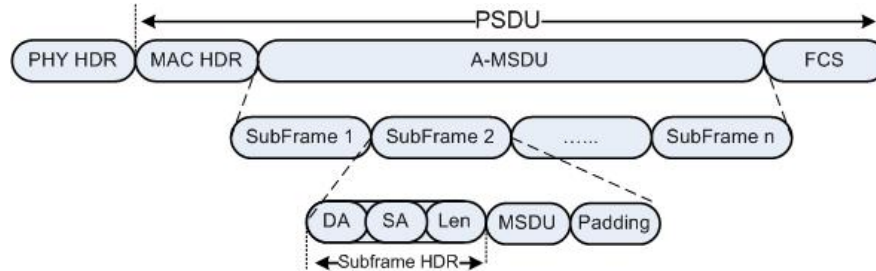
(b) A-MSDU frame structure

Fig. 4: One-level frame aggregation

Error Prone Channel In order to calculate the values for p_e and $E[P]$ in Eq. 10, we first



consider the case for A-MSDU where any single bit error would corrupt the entire frame,



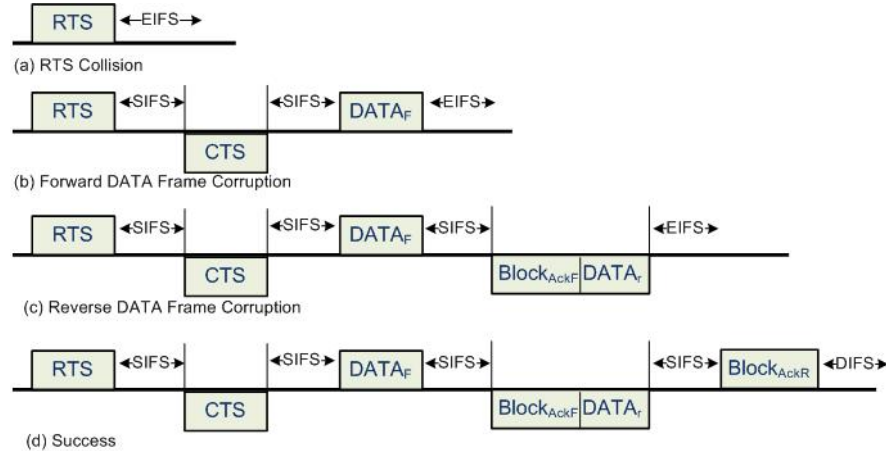
thus

$$p_e = 1 - (1 - p_b)^L \quad (28)$$

$$E[P] = (L - L_{oh}) (1 - p_e) \quad (29)$$

Fig. 5: RTS/CTS bidirectional data transfer

In the case of A-MPDU, error occurs when all the sub-frames are corrupted. Therefore, we can write



where i ranges from 1 to the total number of aggregated sub-MPDUs frames (f).

2.5 Bidirectional Data Transfer

$$p_e = \prod_{i=1}^f (1 - (1 - p_b)L_i) \quad (30)$$

$$E[P] = \sum_{i=1}^f (L_i - L_{oh}^{a-mpdu})(1 - p_b)L_i \quad (31)$$

A key enhancement in 802.11n specifications is bidirectional data transfer. In this section, we will extend the A-MSDU/A-MPDU analysis of Section 2.4 for bidirectional data transfer. The possible time timing sequence for DCF four-way handshake with bidirectional data transfer is shown in Fig. 5. The DATA frames in this figure represent A-MPDU/A-MSDU aggregated frames.

The normalized throughput equations for bidirectional data transfer remain the same and are given by Eqs. 5 and 10 respectively for ideal and error-prone channel conditions. However, the expected payload value ($E[P]$) should accommodate both forward and reverse payloads. In the ideal channel case, $E[P]$ is the sum of forward and reverse payloads. If we assume that the data in the reverse direction is also aggregated and it contains b subframes then $E[P]$ for A-MSDU and A-MPDU is given by the following equations respectively.

$$E[P] = L_f + L_b - 2 * L_{oh}^{a-mpdu} \quad (32)$$

$$E[P] = \sum_{i=1}^f (L_i - L_{oh}^{a-mpdu}) + \sum_{i=1}^b (L_i - L_{oh}^{a-mpdu}) \quad (33)$$

Also T_s should be modified to accommodate the reverse payloads, and it is given by:

$$T_s = T_{rts} + 4T_{sifs} + T_{cts} + T_f + T_r + T_{ff}^r \quad (34)$$

$$\text{data back back}^{+T_{\text{difs}}} + T^r$$

Error Prone Channel In this case, an error can occur during the forward or reverse transmission. Hence the error probability has two components (pe,f , pe,r) corresponding to figure 5(b) & 5(c). The virtual time slots corresponding to error transmission in the forward and reverse directions are given by:

$$T_{e,f} = T_{rts} + 2T_{sifs} + T_{cts} + T^f + T_{eifs} \quad (35)$$

$$T_{e,b} = T_{rts} + 3T_{sifs} + T_{cts} + T^f + T^r_{data} + T_{eifs} \quad (36)$$

The error probabilities in the forward and reverse directions are dependent on aggregation method.

For A-MSDU, the error probabilities in the forward sequence and reverse sequence are given by

$$pe,f = 1 - (1 - Pb)^{L_{for}} \quad (37)$$

$$pe,r = (1 - Pb)^{L_{for}} (1 - (1 - Pb)^{L_{rev}}) \quad (38)$$

The expected payload for A-MSDU in the bidirectional mode is:

$$E[P] = (E_p^f + E_p^r)(1 - pe,f - pe,r) + E_p^f pe,r \quad (39)$$

where E_p^f and E_p^r are the expected payloads given by Eq. 24.

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In case of A-MPDU, the error probability in the forward direction can be calculated as:

$$pe,f = (1 - (1 - pb)^{L_{i,f}}) \quad (40)$$

The error probability in the reverse direction (pe,r) is dependent upon the success of the forward transmission. Assuming the reverse data is also aggregated:

$$pe,r = (1 - pe,f) [1 - (1 - pb)^{L_{i,r}}] \quad (41)$$

The expected payload for A-MPDU in bidirectional transmission is given by Eq. 39, where E_p^f and E_p^r are the expected payloads in the forward and reverse

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directions. These can be calculated by using Eq. 26.

2.6 Conclusion and Future work

In this paper we analyzed and compared the normalized MAC throughput for various aggregation schemes in 802.11n using Bianchi's analytical model. The following are some conclusions that can be drawn from the analysis.

In ideal channel conditions A-MSDU performs very well since there is no overhead of MAC headers & FCSs. Conversely, when BER increases A-MPDU outperforms A-MSDU where single bit error corrupts the whole A-MSDU aggregated frame. A-MPDU obviates the need to resend the entire aggregated frame since the receiver can delineate a received A-MPDU frame and sends a BlockAck allowing individual data frames to be acknowledged or retransmitted.

Bidirectional data transfer provide significant improvement over unidirectional data transfer when receiver has always data to send in the reverse direction (for example, applications like voice chatting). On the other hand, it won't add any advantage over unidirectional data transfer in terms of MAC throughput if the data is predominantly unidirectional, except that higher layer protocol can benefit from reverse data in terms of timely acknowledgments.

Larger frame size increases the probability of collision (P_3) thereby decreasing the throughput. Since aggregation schemes employ larger frame size, they can benefit from four way handshake (RTS/CTS) to reduce the probability of collision because of smaller RTS/CTS control frames. AFR scheme reduces the probability of error (P_{frag}) by fragmenting the frame and selectively retransmitting the erroneous fragment thus improving the overall throughput.

In future, we would like to simulate aggregation schemes and compare the simulation results with our analysis. We would also like to analyze and simulate multi-level aggregation schemes and compare them with the existing schemes.

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Management Information Systems

The Three Dimensions of Security

Malik F. Saleh

msaleh@pmu.edu.sa

Management Information Systems, Chair

Prince Mohammad Bin Fahd University

Al Khobar, 31952, Saudi Arabia

Abstract

Security is an issue of generally recognized importance. Security starts with you, the user. It is well known that a formal security policy is a prerequisite of security. Having a policy and being able to enforce it is a totally different thing. This paper explains the three aspects of security that should be combined to create a well-rounded solution for securing organizations. This solution examines people, policy and enforcement as three dimensions in the world of security. This paper serves as 1) a conceptual framework for securing organization 2) the basis for formal policy-to-enforcement; 3) It raises awareness that the users should be informed of their roles and responsibilities in protecting the organization; and 4) evidence for writing policies that can be implemented and enforcement involves understanding the policies by the users.

Keywords: dimensions of security, Security, Policy, People, enforcement of security.

1. INTRODUCTION

Security is an issue of generally recognized importance. Protecting an organization means securing the organization. Security is achieved from the prevention of attacks and from achieving the organization's mission despite attacks and accidents. The traditional information security objectives are confidentiality, integrity, and availability. Achieving these three objectives does not mean achieving security [1].

It is well known that a formal security policy is a prerequisite of security. Having a policy and being able to enforce it is a totally different thing. The security policy is the first line of defense. Without a well-designed policy, the security of the system becomes unpredictable and governed by the system administrator [2]. Employees are the greatest threat to an organization's security. Their non-compliance with security policies not only threatens the integrity of the system, but also costs the organization a significant amount of money due to the loss of information or due to fixing problems that the user causes [3]. Therefore, Security starts with you, the user.

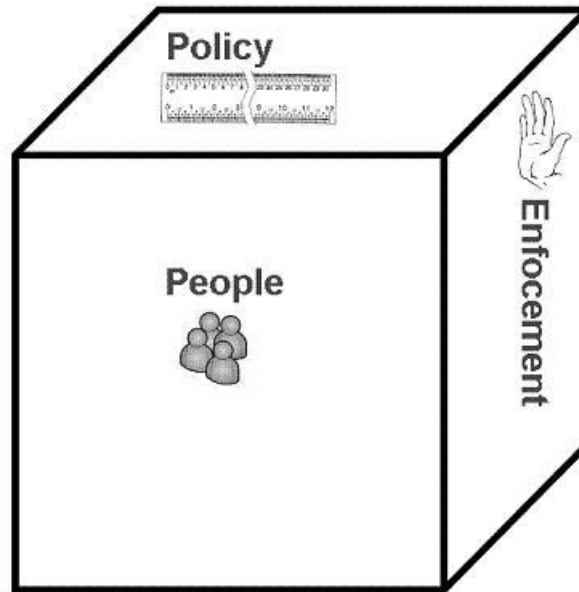
Does added security make things more difficult to use? Will people always resent the extra steps? Norman [4] argues that the answer to both questions is the same: not necessarily.

Both are design issues that require understanding of the need for security and the workings of the mechanisms that enforce them. We tolerate the added security because it seems necessary and the amount of effort it demands usually seems reasonable.

Effective policy enforcement involves many steps such as ensuring that the policies are understood by all the users, regularly checking to see if the policies are being violated, and having well-defined procedures and guidelines to deal with incidents of policy violation [3]. Looking at protecting the information at an organization we found that all organizations share a common risk, the users. To achieve security, different elements in this risk should be dealt with individually as well as in unity.

This paper explains the three aspects of security (see Fig.1) that should be combined to create a well-rounded solution for securing organizations. This solution examines people, policy and enforcement as three dimensions in the world of security. It serves as 1) a conceptual framework for securing organization 2) the basis for formal policy-to-enforcement; 3) It raises awareness that the users should be informed of their roles and responsibilities in protecting the organization; and 4) evidence for writing policies that can be implemented; and enforcement involves understanding the policies by the users. In order to make effective protection, organizations need to have an overall policy. That policy needs to be implemented in multiple ways and it should be a simple policy.

Figure 1: The Three Dimensions of Security



1. BACKGROUND AND RELATED WORK

Users, policies, and enforcement are important topics for the security and audit community and each part has received a fair amount of research attention. To frame the discussion on

the combination of the three parts, we categorize the prior research into work that addresses each part individually but in relation to the other parts. We also discuss research from the computer policy community and the availability of enforcement products from different vendors.

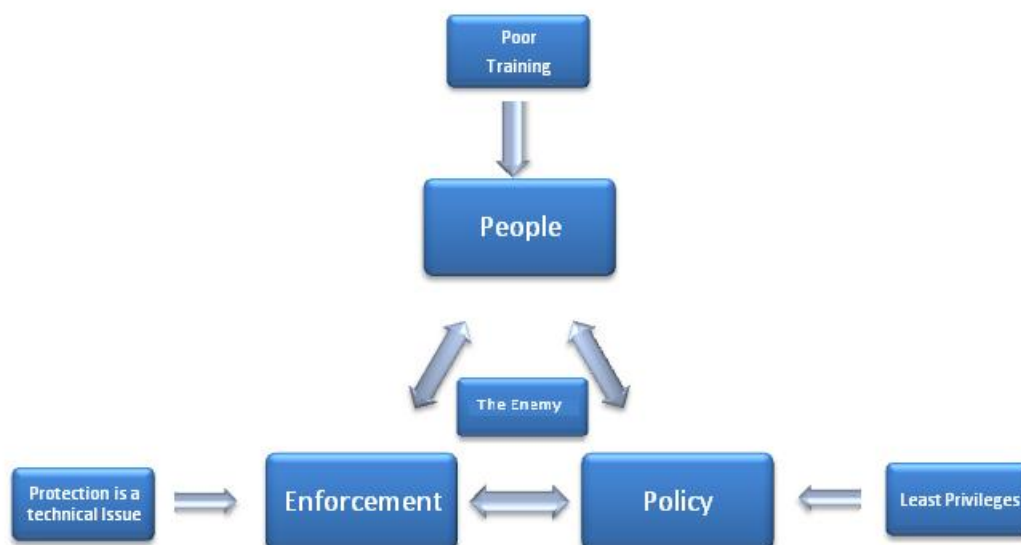
The motivation for this paper was due to the challenges of enforcing policies on the users that the users don't understand. We acknowledge that security is still heavily reliant on technological solutions, but the vulnerability and the risk is attributed to the users. We argue that these challenges are due to writing policies without getting users involved in policy writing and due to lack of training to the users. Further, policies should inform the users of their roles and responsibilities in protecting the organizational assets.

This paper is organized in different sections. Section 2 discusses briefly the related work and the fact that each of the users, the policy and enforcement are covered in detail in the literature. Section 3 examines the users; section 4 examines the policies in relation to the users. Section 5 examines enforcing policies on the users. We conclude that the three dimensions of security are of a non-technical nature. All these dimensions must be taken into account in designing and creating a comprehensive information security plan for organizations.

1. THE PEOPLE DIMENSION

Who are the users? According to [5], the users are the enemy. The interaction between the users and the system is responsible for the functioning of the system and in most cases, this very interaction, according to [6], is the greatest risk. The threat posed by legitimate users in an organization has been labeled as "The Enemy Within" [7]. Most users put their firms at risk through either their sense of security or their ignorance. A small minority of users are believed to be actively seeking to damage the company from within [7]. Figure 2 explains this risk.

Figure 2: Issues affecting security



According to [8] the users are not the enemy. Users are often told as little as possible because they are seen as “inherently insecure.” The inadequate knowledge lies at the root of users’ “insecure” behaviors. Users perceived threats to the organization to be low because of their own judgments and because their roles in the system was not important

Many users do not understand the technical issues associated with privacy and security management [6, 9]. User behavior plays a part in many security failures, and it has become common to refer to users as the “weakest link” in the security chain [10]. Blaming the users will not lead to effective security systems. To address the weakest link in the security chain, organizations have to address this issue by transforming the end-users from users of the system to the enforcers of security by training end-users on security related issues. In general, users tolerate the added security because it seems necessary and the amount of effort it demands usually seems reasonable.

Phishing attacks that exploits user vulnerabilities rather than taking advantage of system vulnerabilities, take advantage of users’ inability to distinguish legitimate company websites from fake ones. A great deal of effort has been devoted to solving the phishing problem by prevention and detection of phishing emails and phishing Web sites [11]. With all these efforts, phishing is still an issue for users and organizations. Automated detection systems should be used as the first line of defense against phishing attacks, but since these systems are unlikely to perform flawlessly, they should be complemented by warning users about the threat, through toolbars and browser extensions, and training users not to fall for attacks.

Research shows that training continues to have a significant organizational impact. Surveys have also found that the computer literacy requirements have skyrocketed in almost every end-user category. End-user training has three phases: initiation, formal training and learning, and post-training [12,13]. For security related issues, a discovery and disclosure approach should be followed. The disclosure should provide users with a sense of security that raises their awareness of the threats that their information systems face. While the discoverer may never disclose the finding, it educates the users. According to [13], the post-training phase has focused on the evaluation of training and learning immediately after training. However, organizations are more interested in long-term effects of training and the areas of end-user learning, rather than training. Organizations want to know if the training has been transferred to the workplace, and whether learning continues after formal training has ended.

Training according to [14] should:

1. Change the way the users think and act when it comes to security
2. Measure the success of the training program and
3. Continually address the importance of security.

The training program should consist of static topics that will be evaluated on a yearly basis, while a dynamic monthly component would consist of topics that were relevant at the time. Both components of the training are solicited opinions from different stakeholders. The idea of getting users involved in security related issue has a long-term impact on the culture of the organization and it will enforce all security policies of the organization.

1. THE POLICY DIMENSION

It is well known that formal security policy is a prerequisite of security. According to [15] the security policy is a direction-giving document for security within an organization. The policy defines the role information security has to play in reaching and supporting the organization's vision and mission. It should complement the organization's business objectives and reflect management's willingness to operate the organization in a controlled and secure manner. If a special-purpose security policies is defined, it is according to [16], perhaps best explained in terms of the principle of least privilege which holds that each user be granted the minimum access needed to accomplish their task. End-users therefore, will have the least privileges in the organization, but does a one size hits all work for all end-users!

It is argued [3] that policies should be written so that they are clear, concise and easy to understand. A security policy should be measurable, achievable, realistic, traceable and enforceable. Vague policies will increase the occurrence of non-compliance. Therefore, the security policy should inform the end-users of their roles and responsibilities in protecting the organizational assets. It is also argued by [15] that the roles and responsibilities in the security policy is one of the most important components of the policy, as this part tells exactly what is expected of users in terms of information security in the organization. The roles and responsibilities should cover all aspects of information security, as well as the individual responsibilities of all parties using the organization's information resources.

For example, the Security rule codified in the Code of Federal Regulations (CFR) has special information security implications that cannot be ignored. A comprehensive security awareness and training program is delineated as a standard to meet, with periodic updates as part of the program. Further, the CFR addresses controls that involve personnel, including clearance procedures for hiring and termination, and other human resources related matters [17].

Two challenges are faced when writing policies in natural language and implementing the technical details. First, the design of policy languages that allow flexibility and maximum expressivity is a popular research direction. In order to have all representation from different stakeholders when writing security policies, it is important to use flexible policy languages to demonstrate that a wide range of enforceable policies that can be specified [18]. Second, end-users are not technical to know the details of the policy therefore users have to approve the implemented policy by testing the implementation and experiencing the impact on their work.

There are a growing number of strict security and privacy audit and compliance

requirements. This creates a need for policy-based systems [18]. Although an information security policy is a vital part of an organization's strategy for achieving information security, it is not always easy to put this document together. There are often differing opinions within the organization as to what constitutes a policy [15]. Organizations create policies to eliminate risk. Assessing risk can be seen as a three-phase process: identification, estimation, and evaluation. In the security world, the entire risk assessment process is called certification. Certification includes identification of risks, estimation of the consequences of accepting the identified risks, and evaluation of proposals for mitigating those identified risks [19]. Therefore the more strict the policy, the less risk organizations are willing to take for their resources.

1. THE ENFORCEMENT DIMENSION

One of the deadly sins of information security according to [20] is not realizing that the protection of information is a business issue and not a technical issue. Information security enforcement is an essential and integral part of corporate governance. The driving force for making security part of corporate governance has seen several documents on corporate governance such as the ISACA's Control Objectives for Information and Related Technologies (COBIT). These documents have been supported by a growing set of laws and legal requirements. Organizations implementing COBIT, and other standards for corporate governance, will realize the benefits of a proven solution for corporate governance. Therefore, policy enforcement starts at the top of the pyramid.

The practicality of any security policy depends on whether that policy is enforceable and at what cost [16]. Users cannot always see what effect a policy might directly have on them. The ability of the end-user of an organization to understand its policy is important to ensuring that the policy is followed. It is argued [3] that effective policy enforcement involves assuring that the policies are understood by all users, and having well-defined procedures to deal with incidents of policy violation.

Effective policy enforcement involves several elements and the policies need to be implemented in multiple ways: Monitoring, documenting, training, implementing enforcement technologies, and others. Organizations must have a unified way of enforcing policies in different products that the organization acquires.

5.1 Monitoring of the Working Environment

Constant monitoring of the working environment, the configuration, and the network to ensure that violations have not occurred is the first step in enforcing policies. Constantly monitoring the configuration of computers is a valuable practice to identify breaches of security. A computer may be infected or suddenly out of compliance at any time it is connected to the network. For instance, consider using a policy enforcement system to isolate computers from the network if its antivirus application isn't running [21].

5.2 Documenting All Security Incidents

While documenting all security incidents, organizations also need to document the methods used to detect and deal with security violation. Part of the monitoring of the work environment should be on generating reports and possible trends in security violations and analyzing trends of security related issues.

5.3 Implementing Enforcement Technologies

Policy enforcement technologies extend the familiar notion of granular access control beyond user and machine identity, into the endpoint computer's configuration and network environment. This capability for enhanced examination of a target machine is generally implemented through a proprietary software agent [21]. For instance, implementing a data loss prevention product when sending an e-mail, the product will check the policy and it would require approval before allowing data to be sent in an email. Another application may be implemented to allow you not to copy data into removable media.

Enforcement technologies exist from many vendors. The Trusted Computing Group has created an open architecture for endpoint integrity. The architecture enables network operators to enforce policies regarding endpoint integrity at or after network connection. This standard architecture ensures multi-vendor interoperability across a wide variety of endpoints, network technologies, and policies [22]. Other products are available from different vendors such as: Cisco Network Admission Control [23], Microsoft Network Access Protection [24], Endpoint Security Mailing List, and others.

Cisco Network Admission Control (NAC) enables Cisco routers to enforce access privileges when an endpoint attempts to connect to a network. This access decision can be on the basis of information about the endpoint device, such as its current antivirus state. It allows noncompliant devices to be denied access, placed in a quarantined area, or given restricted access to computing resources, thus keeping insecure nodes from infecting the network. The decision is made based on a policy that exists on Cisco Secure Access Control Server [23].

Microsoft Network Access Protection (NAP) solution enforces the policy by constant monitoring and assessing the health of client computers when they attempt to connect or communicate on a network. Computers that are not in compliance with the policy can be provided with restricted network access until their configuration is updated and brought into compliance with the policy. Noncompliant computers can be quarantined or automatically updated so that users can quickly regain full network access without manually updating or reconfiguring their computers [24].

5.4 User Training

Training continues to have a significant organizational impact. End-user training takes the largest portion (38.4%) and it deals with the teaching of skills to effectively use computer applications [12]. Training and user education should focus on procedural issues rather than effective use of computer applications. A procedural attack takes the form of a social engineering attack. It is argued by [25] that a social engineering attack manipulates people

into performing actions or giving confidential information. While [26] argues that an appearance of authority may be interpreted as having actual authority in social engineering attacks. The study in [26] also supports the concept that understanding of the value of information as well as proper usage of information is as important as an awareness of social engineering efforts.

It is typical for organizations to mandate that users declare and acknowledge receiving the information security policy. In signing a user declaration upon employment before access to electronic information is granted, the user acknowledges his/her responsibility with regard to information security. A user should know his individual responsibilities in protecting information assets within his organization [15]. One way to ensure that users know their responsibilities in protecting the organization is by training them on how to protect the organization.

Enforcement technologies make enforcement possible for physical and computer security. But for protecting the organization from the vulnerabilities of its users, it requires more than an automated system. Social engineering attacks bypass the enforcement technology by attacking the weakest link, the users. Such attacks according to [27] can occur on both a physical and psychological level. The physical setting for these attacks occurs where a victim feels secure: often the workplace, the phone, even around the water cooler. Psychology is often used to create a rushed situation that helps the social engineer to get information about accessing the system from an employee. In both cases the attack is possible due to inadequate education of the users.

1. CONCLUSION AND CONTRIBUTION

It is clear that the three dimensions of security are of a non-technical nature. All these dimensions must be taken into account in designing and creating a comprehensive information security plan for organizations, because no single dimension, or product or tool on its own will provide a proper all inclusive solution. While it is the responsibility of organizations to provide physical and computer security, organizations should take responsibility in providing training and education in security related issues and against social engineering attacks. This type of attack is preventable by training and educating users of the threats.

The topics of users, policies, and enforcement have received a fair amount of research attention but each part was viewed in isolation of the other two complementary parts. Both the users and security policy are important factors for organizations to fulfill the goals and objectives. Although the goal of automating the enforcement of security policy from higher-level objectives remains worthy, it is not practical for all but the most trivial scenarios. However, this does not preclude that partial automation of the enforcement by using tools that can assist users is not needed.

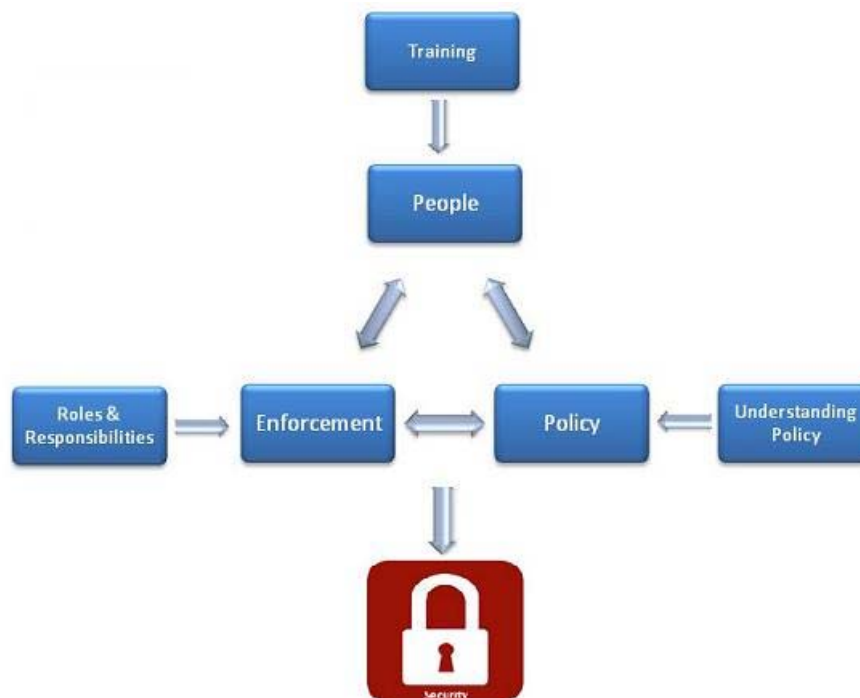
In the security and audit community each part has received a fair amount of research attention and the most promising approach seems to investigate the requirements and relies on identifying, recognizing, and instantiating refinement patterns. While a much simpler

approach of integrating the users with policies is described in detail. It is desirable to maintain the properties of consistency and completeness when refining and enforcing policies.

Users are often the weakest link in an otherwise secure organization and, consequently, are targeted by social engineering attacks. The only protection against social engineering attacks is to educate the users. A discovery and disclosure approach should be followed. The disclosure should provide users with a sense of security that raises their awareness of the threats that their information systems face. Organizations are more interested in long-term effects of training and the areas of end-user learning, rather than training. Organizations want the training to be transferred to the workplace. Signing and acknowledging the receipt of an information security policy should be after educating and training the users. The user declaration and acknowledgement should also be read and signed again on an annual basis.

We provided evidence for writing policies that can be implemented. Implementation requires understanding of those policies by the users. A formal security policy is a prerequisite of security. Vague policies will increase the occurrence of non-compliance. Therefore, the security policy should inform the end-users of their roles and responsibilities in protecting the organizational assets. Organizations should enforce policies in a unified way. The ability of the end-user of an organization to understand its policy is important to ensuring that the policy is followed. Effective policy enforcement involves assuring that the policies are understood by all users, and having well-defined procedure to deal with incidents of policy violation.

Figure 3: Model for the three dimensions of security



The basis for a formal policy-to-enforcement was shown to consist of:

- . Constant monitoring of the working environment, the configuration, and the network to ensure that violations have not occurred is the first step in enforcing policies.
- .
- . Analyzing possible trends in security violations and analyzing trends of security related issues.
- . Implementing enforcement technologies
- . Training in security related issues will have a significant organizational impact

This conceptual framework combined the users, the policies and the enforcement into a solution that transformed the users from being the weakest link, the enemy within, in an organization into responsible users who play a role in organization security. This role begins with training the users in security related issues and participants in writing security policies. This role ends in users enforcing policies and transforming organization into secure ones (see Fig. 3)

1. FUTURE WORK

For the future work, we propose tracking the usage of social networking websites like Facebook and Twitter in aiding social engineering attacks. A social engineering attack gathers information about users before performing actions against an organization.

In addition to social engineering attacks, we propose protecting the configuration systems. It is also desirable to encrypting the exchange of messages between systems to avoid eavesdropping. Many systems implement automatic updates that require downloading and installing new software. Many implementations are implemented without the users being involved. An investigation that compares automatic updates versus manual updates by the users will be carried out.

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Natural Sciences

Heavy Metals Contents in Kidney and Heart Tissues of *Scarus Ghobban* Fish from the Arabian Gulf

Waqar Ashraf and Zahid Nazeer
Department of Natural Sciences,
Prince Mohammad Bin Fahd University,
P.O Box 1664, Al Khobar 31952,
Kingdom of Saudi Arabia
(mashraf@pmu.edu.sa)

&

Center for Environment & Water,
King Fahd University of Petroleum & Minerals,
Dhahran 31261, Kingdom of Saudi Arabia

Abstract:

Levels of selected heavy metals (Pb, Co, Cu, Ni, Zn, Mn and Cu) in the heart and kidney tissues of parrot fish, collected from the Arabian Gulf, Eastern Province of Saudi Arabia, were determined by wet-digestion based atomic absorption method. The results showed that accumulation pattern of analyzed metals in the kidney tissues followed the order; $Zn > Cu > Co > Pb > Ni > Mn > Cd$, with Pb at 1.05 ± 0.63 ppm and Cd at 0.27 ± 0.20 ppm. In the heart tissue the analyzed metals followed similar pattern of metal accumulation. The average Pb (0.85 ± 0.50 ppm), Cd (0.12 ± 0.07 ppm), Ni (0.92 ± 0.35 ppm) and Mn (0.86 ± 0.43 ppm) were significantly lower in the heart tissue whereas Zn (26.4 ± 12.9 ppm) and Cu (3.29 ± 2.18 ppm) were higher in the kidney tissues. In general, the data indicated that marine fish from the sampling site of the Arabian Gulf contain relatively less burden of heavy metals in their tissues.

Keywords: Arabian Gulf; Fish; Kidney & Heart Tissue; Heavy Metals

Introduction

Marine organisms accumulate pollutants from the surroundings and therefore, have been extensively used in marine pollution monitoring programs. In many developing countries increase in industrial agglomerations has led to an increased discharge of chemical effluents into the ecosystem. Owing to their toxicity and accumulative behavior, heavy metal discharges into the marine environment can damage both specie diversity and ecosystem. Over a few decades there has been growing interest to determine heavy metal levels in the marine environments and attention was drawn to find the contamination level of public food supplies particularly fish. Therefore, marine environments are occasionally monitored for heavy metal contamination in water, sediment and animals. It is well known that heavy metals accumulate in tissues of aquatic animals and therefore, the levels measured in tissues of aquatic animals can reflect the past exposure. The accumulation

patterns of metals in fish depend both on their uptake and elimination rates. These heavy metals are taken up through different organs of the fish and many are concentrated at different levels in different levels of the body (Endo et al., 2008; W.Ashraf 2005). Tissue concentrations of heavy metals can also be a reasonable measurement for public health standards and for animal's health point of view (Kalay et al, 1999). The environment of the Arabian Gulf region has been a subject of study in recent years due to the accidental oil spills in 1991, the uncontrolled discharge of the sewage and industrial waste waters as well as human activities. Refineries and petrochemical industry wastes contribute significantly to metal pollution of the Arabian Gulf marine environment. Total fishery production of Saudi Arabia in 1997 was 53170 metric tons where the catches in the Arabian Gulf was 22875 metric tons (Fisheries Statistics of Saudi Arabia, 1997). Several papers have indicated the possible extent of heavy metal build up or accumulation in marine organisms taken from Red Sea and Arabian Gulf (Sadiq et al 1982; Kureishy 1993; Al-Ghais 1995; Kalay et al. 1999; Al-Saleh & Shinwari 2002).

In the present paper, the levels of the heavy metals Pb, Cu, Co, Ni, Zn, Mn and Cd in the kidney and heart tissues of blue barred orange parrot fish (*scarus ghobban*) were examined after the long term environmental effects of the 1991 Gulf War to determine whether these levels constitute a threat to health of the consumers. *Scarus ghobban* (*parrot fish*) fish are frequently and largely eaten in Saudi Arabia, so their toxic metal content should be of concern to human health. Kidney and heart tissues of fish are rarely studied for their heavy metal contents. Moreover, these tissues are expected to contain lower levels of metals as compared to liver and gills which are considered as storehouse of metals (Kalay & Canil 1999). The present study was therefore, carried out in view of the scarcity of information about heavy metals in the marine organisms from this region. The contents of these elements in marine fishes are often used as indicators of marine pollutants in addition to monitor the source points and site of dumping ground (Kendrick et al 1992).

Materials and Methods

Fish samples of both sex of *scarus ghobban* were collected from the Arabian Gulf (Dammam, Eastern province, Saudi Arabia). The samples were purchased from local fishermen at the spot as soon as their boats landed. Samples were packed in ice and brought to the laboratory on the same day. In the lab. their standard length and weight were recorded. The weight and length of samples lied within 500 ± 100 g and 100 ± 5 cms. No significant difference ($p > 0.05$) regarding the size and weight of animals was found among the stations sampled. Samples were dissected with clean stainless steel equipment. The tissues (kidney or heart) to be analyzed were separated and grounded with stainless steel kits and glass equipment. Each sample analyzed was composed of several individuals at least 5-8 of fish tissues pooled together. Destruction of organic matter was carried out by wet digestion (Mason and Barak 1990). Exactly 3-4 gms of defrosted sample weights were placed in a 50mL Erlenmeyer flask and 10mL of concentrated nitric acid were added. After 15 minutes digestion at room temperature, 10mL mixture of concentrated HNO_3 : HClO_4 (4:1 v/v) was added and the reaction was maintained on a hot plate stabilized at 70 ± 5 °C for 24 hours with gentle shaking until the digestion was completed. The resulting residue

was finally redissolved with deionized distilled water and transferred to 25mL measuring flask and diluted with deionized water to the mark. For each series of ten samples two blanks were run to check the possible contamination.

The same digestion procedures were applied to standard reference material, TORT lobster hepatopancreas, NRC Canada. Metal concentrations in all the samples were measured using a Varian Spectra AA plus flame atomic absorption spectrophotometer. Average values and $\pm$ SD of reference material measured in this study lied within 10% ranges of the reference values. Statistical analysis of the data was carried out by using MSTAT program.

Results and Discussion

The results of trace metal analysis (mean ppm wet weight) in kidney tissues of *Scarus Ghobban* are summarized in Table 1. The data indicated that the accumulation pattern of the analyzed metals follows the order: Zn > Cu > Co > Pb > Ni > Mn > Cd. The high accumulation of Zn (26.4 ± 12.9 ppm; wet weight) could certainly be based on specific metabolism process and coenzyme catalyzed reactions involving zinc taking place in kidney (Jaffar and Pervaiz, 1989). Zinc also acts as a catalyst in metal biomolecules bound to amino acid side chains containing N, O and/or sulfur donor legends (Vinikour *et al* 1980 and Kendrick *et al* . 1992) to form tetrahedral zinc metalloproteins and metalloenzymes in kidney tissues (Shriver *et al* 1994). Zinc is generally thought to be non-toxic except at very high concentrations.

The mean cadmium concentration was 0.27 ± 0.20 ppm in kidney tissues (Table I). Cadmium species have low tendency towards the available active sites (N and/or O donor atoms) in kidney tissues to form tetrahedral or square planer cadmium(II) complex species (Shriver *et al.*, 1994). The complex species of Cd are kinetically inert to ligand substitution and, therefore, its accumulation as metalloprotein complexes is expected to be low. However, the binding rate of sulphurhydryl groups, feeding habits, excretion rate, solubility of Cd species, the restricted relocations of different elements and the available number of coordinating sites in the fish kidney to form stable cadmium chelates are possible contributing factors accounting for such behavior (Jaffar and Pervaiz, 1989 and. Kendrick *et al.*, 1992).

Cadmium levels reported in this study (Table 1) were found within the ranges reported by other investigators (Sharif *et al.*, 1993 and Wood and Van Vleet, , 1996). In another similar study (Kalay & Canil, 1999), cadmium levels in liver of *mullus barbatus* caught from the coasts of Mediterranean sea has been found to be $1.98 \pm 0.49 \mu\text{g/g}$. Jaleel *et al* (1993) have reported Cd ($0.35 \pm 0.09 \mu\text{g/g}$), Cu ($0.89 \pm 0.12 \mu\text{g/g}$), Pb ($0.59 \pm 0.07 \mu\text{g/g}$) and Zn ($4.99 \pm 0.36 \mu\text{g/g}$) levels in *chactadon jayakeri* fish from the Arabian sea. The mean concentration of lead (1.05 ± 0.63 ppm) in kidney was found high as compared to cadmium (0.27 ± 0.20 ppm). Probable explanation for this trend is as follows; the metallothionein protein is ubiquitous and is in highest concentration in fish kidney (Amdur, 1991), and it is able to form stable chelates with lead as compared to cadmium. The solubility of lead species in natural water in the area of fish catching is also a factor in the observed trend. The excretion rate of lead is rapid and it has greater tendency to bioaccumulate in the nucleus at an early stage of fish growth as reported by Sharif *et al.* (1993); this behavior is

not common for cadmium. In fish, cadmium is also less regulated and it can enter fish through food chains as solid granules (organometallic) which are then stored or excreted.

Lead and cadmium levels in kidney of the examined samples ranged from 0.27 ppm to 1.98 ppm and 0.05 ppm to 0.63 ppm respectively, on wet weight basis. Concentrations close to this value have been reported for tropical species from other areas of the world (Babji *et al.*, 1979). However, much higher concentrations ($4.73 \pm 2.74 \mu\text{g/g}$) have been reported for lead in liver of caranx crysos (Kalay & Canil, 1999).

Copper, manganese, cobalt and nickel levels in kidney tissues (Table 1) reported in this study were significantly lower or within the ranges reported by other researchers (Sharif *et al.* 1993 and Kureishy, 1993) and followed previously reported trends: $\text{Zn} > \text{Cu} > \text{Ni} > \text{Co} > \text{Mn}$. Higher copper concentrations 1.25 - 8.56 ppm, have also been observed. This appears to be a result of fish kidney contains a cystine rich copper binding protein, which is thought to have either a detoxifying or storage function (Luckey and Venugopal, 1977).

The data on trace metals Zn, Cu, Mn, Ni, Co, Cd and Pb in the heart tissues of *Scarus Ghobban* has also been summarized in Table 1. The data indicated that the mean concentration of the tested elements in the heart tissues followed the order, $\text{Zn} > \text{Cu} > \text{Co} > \text{Pb} > \text{Ni} > \text{Mn} > \text{Cd}$. The higher accumulation of Zn (23.0 ± 8.36 ppm) is possibly attributed to the fact that zinc is a bioessential element, so the fish tissues maintain the concentration within a specific range by homeostasis (Falconer *et al.*, 1983). These data are in good agreement with the results reported by Law *et al.*, (1991) for Zn (22.19-42.49 ppm) in the heart tissues in common fish. The reason for this behavior in the heart tissues could be based on specific metabolism process, a cystine-rich copper binding protein and enzyme catalyzed reactions involving Zn and Cu taking place in the heart tissues of *Scarus Ghobban* fish.

In the heart tissues the distribution of Pb (0.84 ± 0.50 ppm) was found high as compared to Cd (0.12 ± 0.07 ppm). Thus, the heart of parrot fish (*scarus ghobban*) accumulated more Pb than Cd. The prevalence of lead as compared to cadmium in the heart tissues is attributed to the ability of lead to form stable chelates with the available binding sites than cadmium. Cadmium contents showed a minimum level in the heart. This content was found to be lower than the corresponding value reported by Kureishy, 1993. The zinc, cobalt, nickel and copper content agreed well with the data reported by Kureishy, 1993 for *Epinephelus* fish in the same region. In another study (Yousaf & Shahavi, 1999) levels of Cu, Pb and Cd in heart tissue of *lethrinus lentjan* were found to be $3.87 \pm 1.26 \mu\text{g/g}$, $3.22 \pm 1.94 \mu\text{g/g}$ and $0.34 \pm 0.23 \mu\text{g/g}$, respectively.

Figure 1 shows a comparison of the mean concentrations of the tested elements in kidney and heart tissues. All the determined metals showed high levels in kidney as compared to heart tissue, copper being the only exception. The prevalence of Pb as compared to Cd in both fish organs appears to be a result of the initial increase in lead during the first year of life followed by maintenance of a fairly constant concentration throughout the life span of the fish (Vinikour *et al.* 1980). Similarly, significant increase in

zinc (26.43 ± 12.9 ppm) and manganese (0.46 ± 0.30 ppm) in kidney were found high as compared to zinc (23.0 ± 8.36 ppm) and manganese (0.41 ± 0.37 ppm) in heart tissues, respectively.

Similar distribution patterns of heavy metal accumulation have been reported in marine mammals and seabirds reported by other workers and followed previously published trends with mean metal concentrations decreasing in the order heart>kidney for all elements except zinc and manganese (Sharif et al 1993, and Wood and Van Vleet 1996).

Acknowledgements: Author(s) acknowledge the cooperation of Dr. Rahim Karimpour for the accomplishment this work. Thanks are also due to Dr. Sufyan Akram, National University of Singapore, for the provision of SRM, TORT.

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Table 1: Heavy metal levels ($\mu\text{g/g}$; wet weight) in pooled kidney and heart tissues of Parrot Fish(*scarus ghobban*)

Metal	Kidney X*	±SD	Std. Error	Heart X	±SD	Std. Error
Pb	1.05	0.63	0.19	0.85	0.50	0.23
Cd	0.27	0.20	0.05	0.12	0.07	0.02
Co	1.08	0.34	0.09	0.92	0.35	0.14
Ni	1.02	0.42	0.12	0.86	0.43	0.06
Mn	0.46	0.30	0.07	0.41	0.37	0.08
Zn	26.43	12.90	1.97	23.00	8.36	2.28
Cu	3.29	2.18	0.18	3.85	1.93	0.12

**X average of quadruplet measurements*

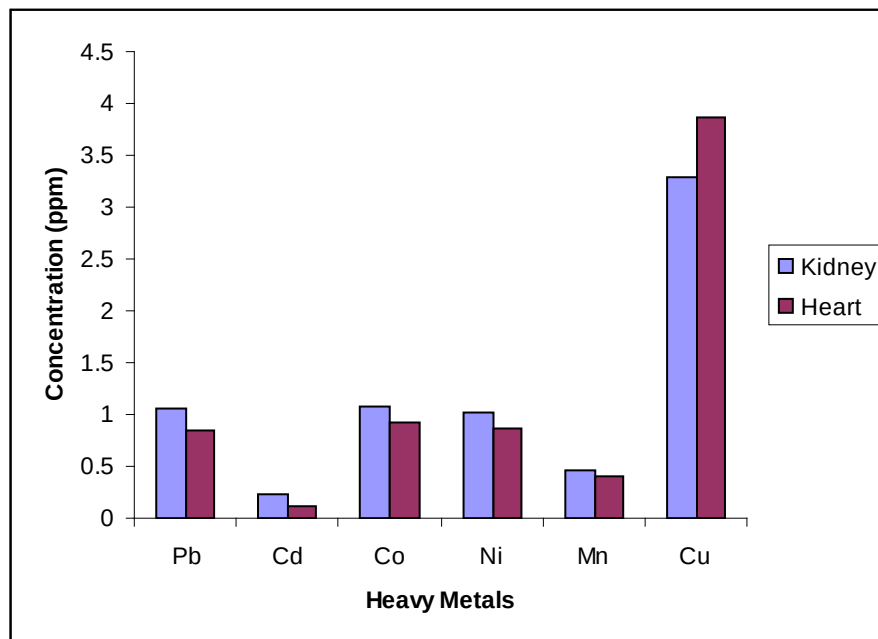


Figure 1: Comparison of heavy metal levels in the kidney and heart tissues of Parrot Fish (*scarus ghobban*)

The Elimination of Cadmium (II) from Aqueous Environment by Supported Liquid Membrane Method Using the Basic Carrier

M. Waqar Ashraf

Department of Natural Sciences & Mathematics,
Prince Mohammad Bin Fahad University, Al-Khobar 31952,
Kingdom Of Saudi Arabia (mashraf@pmu.edu.sa)

&

A. Bukhari

Center for Environment & Water,
King Fahd University Of Petroleum & Minerals, Dhara 31261,
Kingdom Of Saudi Arabia

Abstract: *The transport of cadmium ions through a supported liquid membrane containing triethanolamine (tea) as a mobile carrier has been studied. The effects of cd(ii) concentration, hcl in feed and carrier concentration in membrane has been studied. Cd(ii) concentration increase in feed leads to an increase in flux from 2.1×10^{-7} to 8.4×10^{-7} mol-cm⁻²-sec⁻¹ within cd(ii) ions concentration range (2.7×10^{-4} m - 16.37×10^{-4} m) at 2.0m hcl in the feed and 3.0m triethanolamine in the membrane. Increase in h⁺ ion concentration from 0.5m to 3.0m results in an increase in cd(ii) ions flux but a decrease is observed beyond 2.0m hcl concentration in feed. Increase in carrier concentration in the liquid inside the membrane enhances the flux with its maxima at 3.0m carrier. Further increase in the concentration of tea leads to a decrease in transport due to increase in viscosity of membrane liquid. The optimum conditions for cd(ii) ions transport are, 2.0m hcl in feed, 3.0m tea in membrane and 0.1m naoh as strip solution. Similar transport characteristics have been observed for cd-edta complexed anions across tea-cyclohexanone based slm, thus indicating a cadmium anion transport coupled with protons and chloride or edta co-ions.*

Key words: Cadmium, Triethanolamine, Supported Liquid Membrane, Waste Effluent

1. INTRODUCTION

Heavy metals often appear in high concentrations in all kinds of industrial effluents giving rise to hazards of pollution because of their high toxicities and wide environmental spreading. Small quantities of cadmium occur naturally in air, water and soil. It can leach into water bodies from pipes and solder, or may enter water from chemical waste disposal sites [1-2]. Cadmium is a heavy metal that is naturally present in the environment. Exposure to cadmium can be detrimental to health. Like lead, cadmium accumulates in the body and has a varying degree of toxicity. Cadmium replaces the body's stores of the essential mineral zinc in the liver and kidneys. Not surprisingly, therefore, cadmium levels rise in people who have zinc deficiencies.

Cadmium is present in the environment in different chemical forms, such as cadmium sulfide, cadmium oxide, cadmium sulfate, cadmium carbonate and cadmium chloride. It is used in the production of colored inks and dyes, as well as in many industrial applications such as metal plating, engraving and soldering. Cadmium is also used in plastics and in the production of nickel-cadmium (Ni-Cad) batteries, which are in widespread use in cell phones, portable computers, and in many toys. The human body can tolerate low levels of cadmium but long term chronic exposure can lead to serious health problems. Elevated levels of cadmium may result in hypertension, a dulled sense of smell, anemia, yellow discoloration of the teeth, inflammation of mucous membrane of nose (rhinitis), joint soreness, hair loss, dry scaly skin, and loss of appetite. Cadmium toxicity threatens the health of the body by weakening the immune system. According to Canadian Water Quality Guidelines, 0.01mg/L is allowed level for Cd in water for irrigation. US-EPA has also fixed a limit of 0.01mg/L as MCL (Maximum Contaminant Level) for cadmium [3]. The clean-up of polluted waters requires the development and use of cost effective and efficient technologies.

Facilitated transport of cations from an aqueous solution using supported liquid membranes (SLM) represents a powerful tool in separation science. The liquid membrane technology is based on inserting a selective immiscible organic liquid barrier between two miscible liquid phases. The separation of the compound of interest is accomplished by the

transport of solute through the liquid membrane from the aqueous feed to the aqueous stripping phase. The importance of these processes has been shown by a number of researchers [4–11], with a variety of carrier agents incorporated into the membrane. Their high specificity and potential for industrial-scale processes with economic advantages made them useful to solve some important problems, such as processing dilute metal ions solutions for recovery of the metals ions of metallurgical importance. In addition, separation by this technique offers several advantages over the classical solvent extraction processes, due to reduced inventory of organic carrier for extraction. Hence, highly selective and expensive extractants can also be used, which would not be economical in conventional solvent extraction.

Tripathy et al [12] have used TOPS-99 (di-2-ethyl hexyl phosphoric acid) for the selective separation of Cd(II) ions from aqueous medium. Daud et al [13] studied the permeation of Cd(II) ions from aqueous medium through a SLM consisting of Cyanex-302 in hexane as a carrier. Nowier et al [2] have reported the transport of Cd(II) from high salinity chloride medium through SLM containing TBP in cyclohexane as carrier. Uritaga et al [14] have reported comparison of liquid membrane processes for the removal of cadmium from wet phosphoric acid. The transport of cadmium (II) across a flat sheet SLM containing Cyanex 923 supported on a PVDF membrane into a strip solution with water have been reported Alguacil and Tayibi [15]. He et al [16] have studied the comparison of transport rates of Cd(II) from an aqueous feed solution to an ammonium acetate strip solution through a bulk liquid membrane containing trioctylamine (TOA) or tricaprylamine (TCA) as carriers.

In the present paper, coupled transport of cadmium ions using triethanolamine-cyclohexanone liquid membranes have been studied. Previously, we have investigated the SLM extraction of Cr(VI) ions from aqueous solution by using commercial amine, Alamine 336 [17]. The EDTA-complexed Cd ions also were studied to see the behaviour of complexed metal ions across the TEA-cyclohexanone SLM. The SLM study was extended to Cd battery industrial wastes to recover cadmium ions to indicate the practical and environmental importance of this work.

2. THEORETICAL ASPECTS

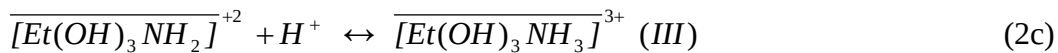
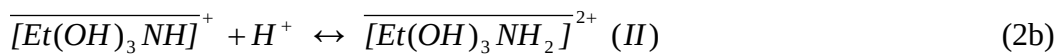
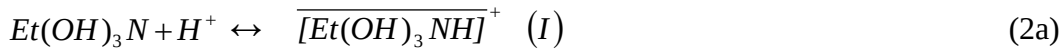
A number of mathematical models, which describe the behaviour of supported liquid membrane separation processes, have been worked out by other authors [18–21]. The system in the present study consists of two aqueous phases and an organic phase, which contains the carrier, triethanolamine (TEA), confined within the membrane pores by capillary action. The membrane serves both as a support for the organic phase and as a barrier between the two aqueous phases. This results in two aqueous-organic interfaces with well-defined transfer area. Figure 1 shows the expected mechanism of transport of Cd ions.

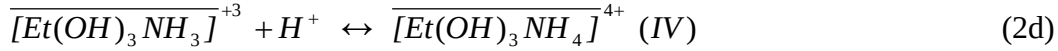
The extraction of cadmium (II) ions by TEA is supposed to be based on the formation of Cd(II) anionic complex in the membrane interface. The transport of the metal ions through the supported liquid membrane system is considered to be composed of many elementary steps [12, 22]. In our theoretical considerations the following three steps are taken into account, i.e.: (i) diffusion of metals ions from feed bulk solution into membrane face; association of Cd(II) ions with TEA molecule, (ii) diffusion of complex in the organic membrane phase to the other side of membrane through membrane liquid and (iii) dissociation of Cd(II) ions after coming in contact with stripping solution.

The reaction taking place between the metal ions and the carrier on the membrane interface is governed by the equilibrium:

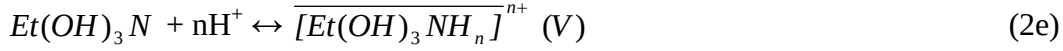


Following are the main possibilities of protonation of TEA molecule at N and O sites under the acidic conditions;





or in the generalized form,



Species I, II, III, IV and V may be formed as a result of protonation of TEA, which will associate with cadmium ions in the anionic form associated with chloride ions. Species with overbar represent the organic phase entities.



and complexes can be formed as;



Now species taking part in ions pair formation may be I, II, III and IV and in general form V, having 1, 2, 3, 4 or 'n' protons and the ion-pair complexes will be $Et(OH)_3N [Hn.CdCl_{2+n}]$, which is the same species as indicated by reaction (1).

On the stripping side, this complex will break to release the $(EtOH)_3N$ carrier. The mechanism of cadmium ion transport is, therefore, coupled co-ion transport type, with the complexing of H^+ and Cl^- ions both moving to the stripping phase through membrane phase along with Cd (II) ions.

The relationship which correlates the membrane flux (J) to concentration (C), to the aqueous feed volume V, and to membrane area A is given below.

$$J = - \frac{d[Cd(II)]}{dt} \frac{V}{A} \quad (4)$$

the integrated form of flux equation is

$$\ln \frac{[Cd(II)]_{f,t}}{[Cd(II)]_{f,0}} = - \frac{A}{V} Pt \quad (4a)$$

where $[\text{Cd(II)}]_{f,0}$ is initial cadmium concentration in feed; $[\text{Cd(II)}]_{f,t}$ is total concentration of Cd(II) at time t and P is permeability [23].

3. EXPERIMENTAL

3.1. MEMBRANES

The support for the organic phase was a Durapore microporous PVDF film. This support has porosity 75%, thickness 125 μm , pore diameter 0.2 μm and tortuosity 1.67. This is a chemically stable and hydrophobic synthetic polymer support. The supported liquid membrane has an organic phase that contains the carrier, in the polymeric porous medium. In the present study, triethanolamine was selected as a carrier because it is a good extracting agent of divalent transition metals. Cyclohexanone was used as organic solvent/diluent. The organic solvent containing the carrier was incorporated into the support membrane by capillary action, by soaking the film in the carrier/diluent solution for 24 hours.

3.2 LIQUID MEMBRANE CELL

The permeation cell used for SLM experiments consisted of 2 compartments separated by the membrane. Each compartment, feed and strip, had a maximum volume of 140 mL. A membrane of effective surface area 14.2 cm^2 could be fixed amid the two chambers. The agitation of the solutions was carried out by 2 synchronized motors that relied on variable power supply with a stirring rate of 1000 rpm. The stirring rate was high enough to minimize boundary layer resistances. The experimental temperature was 25 ± 0.5 $^{\circ}\text{C}$. Figure 2 shows the schematic diagram of the permeation cell.

3.3 FLUX MEASUREMENT

The feed and stripping solutions were filled in their respective cell compartments with the membrane separating the two chambers. The solutions were kept agitated with stirrers at a speed greater than 1500 rpm to avoid concentration polarization at the membrane interfaces. Samples from feed and strip solutions were taken after regular intervals of time and analyzed on an atomic absorption spectrophotometer (Solaar M6 Thermo Elemental). All concentrations are reported in molarity $[\text{M}]$ (mole/dm^3).

3.4 REAGENTS

Following chemicals were used during this study. CdCl_2 (AR grade, Fluka), triethanolamine (Fluka), NaOH (Extra Pure grade, E. Merck), HCl 37% (pure, E. Merck). All other chemicals used were of at least analytical reagent grade. Deionized water was used to make the solutions.

4. RESULTS AND DISCUSSION

A series of permeation experiments were performed to investigate the effect of feed concentration (Cd^{2+}), carrier concentration (TEA), acid concentration (HCl) and stripping solution (NaOH), on metal transport.

4.1 EFFECT OF CADMIUM ION CONCENTRATION

The effect of cadmium(II) concentration in the feed solution, as a function of time is shown in Figures 3 to 6. It is clear that the transport is affected by the concentration of cadmium ions present on the feed side of the membrane. The stripping solutions used were 0.5M, 1.0M and 2.0M NaOH. As the concentration of feed solution is increased, the extraction of cadmium(II) ions also increases. It can also be seen that Cd(II) ions are transported uphill across the membrane, even when the concentration of Cd ions in the feed solution is less than that in the stripping phase. It is possible due to the higher membrane phase concentration on the feed side face of the membrane.

Figure 5 shows the effect of feed solution concentration on the transport of cadmium(II) ions through the membrane using 2.0M NaOH as a stripping solution. It is clear from Figure 6 that there is a marked increase in flux with increase in cadmium concentration and maximum flux is found when 16.3×10^{-4} M cadmium concentration is used. This is in accordance with reaction (1). The amount of stripping reagent (NaOH) concentration slightly influence the flux. About 0.5 – 2M NaOH concentration is sufficient to strip cadmium ions.

4.2 EFFECT OF HCL CONCENTRATION

Figures 7 – 8 represent the effect of HCl concentration in the feed on the transport of cadmium ions through the present membrane. It is seen that the flux of metal ions increases up to 2M HCl concentration and then decreases. The concentration range studied for HCl is from 0.1 to 3.0M. According to Equations 2a to 2d, the cadmium ions get converted into $[\text{CdCl}_{2+n}]^{n-}$ in the presence of HCl. So the cadmium anions associate with TEA ions in the presence of protons to form the $(\text{EtOH})_3\text{NH}]_n\text{CdCl}_{2+n}$ type complex which diffuses towards the other side of the membrane, resulting in Cd(II) transport. The data showed that the flux of cadmium ions first increases with an increase in HCl concentration and then decreases after passing through a maximum value. Equation 5 indicates that the flux of metal ions is a function of hydrogen ion concentration and hence there is an increase in its value with an increase in its value with an increase in proton or HCl concentration as the concentration of Cd-carrier complex at the feed membrane interface increases according the equilibrium relationship shown by reaction (1).

$$\log J = A + \log T - \log \eta + \log [\text{H}^+]^2 + 2\log [\text{R}_3\text{N}]^2 + \log C^0 \quad (5)$$

where J is flux, A is a constant, η and T are viscosity and absolute temperature at which transport takes place and C^0 is concentration of Cd in feed [25].

To study the transport of hydrogen ions with time, pH of feed solution was measured at regular intervals of time. It was observed that pH of this solution increases with time (Figure 8) what reason can be attributed to transport of hydrogen ions from feed to strip solution.

Cadmium (II) chloride in the presence of HCl in feed solution is changed to $\text{H}_{n-2}\text{CdCl}_n$ species which reacts with triethanolamine on the surface of membrane on feed side to form an ionic complex of approximate composition of $[(\text{EtOH})_3\text{NH}]\text{CdCl}_3$. This complex diffuses in the membrane to the stripping side resulting in Cd(II) ions transport.

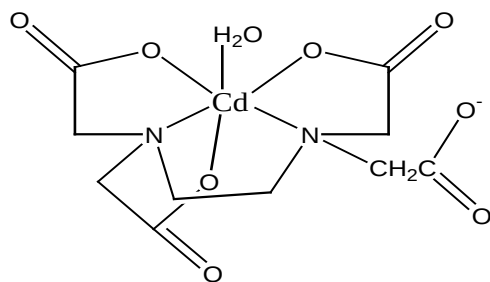
To see the transport of Cd(II) ions complexed with a chelating agent, EDTA, an experiment was conducted with 0.01M EDTA in the feed solution with 6.31×10^{-4} M Cd(II) ion concentration and 1.0 M HCl in the feed solution and 0.50M NaOH as stripping solution. The results are depicted in Figure 9. It is clear from results that Cd(II) ions have been transported to stripping solution showing that EDTA is also complexed like other anions with Cd ions to make the transport of these metal ions possible. The results can be explained as follows;

EDTA is the molecule with four acetic acid groups, and in the aqueous medium it ionizes to furnish four hydrogen ions [26]:

If $(\text{CH}_2\text{COOH}) = \text{XH}$, EDTA can be represented as $\text{ED}(\text{XH})_4$ and this may associate with Cd^{2+} ions either as $[\text{CdED}(\text{XH})_2\text{X}_2]$ or $[\text{CdED}.\text{X}_3.\text{XH}]^-$ or as $[\text{CdED}.\text{X}_4]^{2-}$ and the complex formed with protonated TEA molecule represented as $[\text{EtOH})_3\text{NH}]^+$ or $[\text{EtOH})_3\text{NH}_2]^{2+}$ or $[\text{EtOH})_3\text{NH}_n]^{n+}$ to form the species like $[(\text{EtOH})_3\text{NH}).\text{CdEDX}_3.\text{X}]$ or $[(\text{EtOH})_3\text{NH})_2.\text{CdEDX}_3.\text{X}_2]$ which is neutral and extractable into the organic membrane. This complex diffuses to the other face of the membrane and is stripped off the protons by OH^- ions present in the stripping phase, dissociating this neutral complex, resulting into back diffusion of TEA molecules to the membrane feed side to complex once again with Cd(II) ions. Cd(II) ions are stripped to stripping phase along with EDTA associated ions. The Cd(II) ions are transported as such coupled with EDTA ions and protons. The mechanism of transport, therefore, will be a coupled co-ion transport type.

With six unshared pairs of electrons available, EDTA is expected to complex with Cd(II) ion having a co-ordination number 6 [27]. Usually only four rings are formed due to steric hindrance and the sixth pair of electrons is supplied by the water molecule as shown below.





4.3 EFFECT OF CARRIER CONCENTRATION

The concentration of the TEA in the organic solution has a marked effect on the cation flux. Figures. 11-12 show that, with the increasing TEA concentration in membrane, Cd(II) transport gradually increases, reaching a maximum value at approximately 3.0M and then decreases. This effect can be accounted for by considering the influence of increasing viscosity of TEA solution upon the diffusion of the metal complex in the SLM.

The data showed that the flux increases with increasing triethanolamine concentration in the liquid membrane reaching an optimum value at 3.0M triethanolamine. It drops continuously with further increase in its concentration.

This may be explained keeping in view the increasing availability and formation of extractable complex with Cd(II) ions and hence its extraction into membrane (organic) phase, at the feed solution membrane.

Increase in triethanolamine concentration will lead to more $\text{CdCl}_3(\text{EtOH})_3\text{NH}$ anionic complex formation and hence increase in its concentration gradient within the membrane along the membrane thickness but the viscosity of the organic phase also increases resulting into decrease in its diffusion through membrane phase. The flux of Cd(II) ions through the membrane as a function of triethanolamine concentration is shown in Figure 12. Maximum flux under optimum conditions is observed at 3.0M triethanolamine concentration.

4.4. EXTRACTION OF CADMIUM(II) IONS FROM A CADMIUM BATTERY PLANT EFFLUENT

To apply the SLM for Cd(II) removal, one experiment was carried out with the cadmium alkaline battery plant waste solution in the feed compartment and 0.5M NaOH as the strip solution. All other conditions were kept the same as optimized above. It was clearly shown that almost all the cadmium ions transferred to the stripping solution within 7 hours of experiment (Figure 13). Analysis of the waste effluent was performed on atomic absorption spectrophotometer, results are given in Table 1. Analysis of stripping solution shows that along with cadmium, nickel ions are also transported at the completion of experiment, which means that removal of cadmium and nickel can be made simultaneously from cadmium alkaline battery waste effluent.

5. CONCLUSIONS

1. The cadmium ions are transported across TEA-cyclohexanone membrane by coupled co-ion transport mechanism.
2. The optimum conditions of transport are 3.0 M TEA in the membrane and 2.0M HCl in the feed.
4. Increase in Cd(II) concentration in the feed enhances the flux, so transport of Cd(II) ions are fast.
5. EDTA molecules also help to form complexed Cd(II) ions and facilitate the transport of this metal ions.
6. TEA is a useful carrier for cadmium extraction, therefore, can be applied either to the recovery of the metal but not for their separation. Other quaternary amines like aliquat 336 will be tried in future works for the better separation of Cd/Ni mixtures.

Acknowledgements: Authors are thankful to KACST for sponsoring this research under project No.AR-23-18. Thanks are also due to Dr. R. Karimpour, Chairman, Department of Natural Sciences, PMU for supporting and encouraging this research work.

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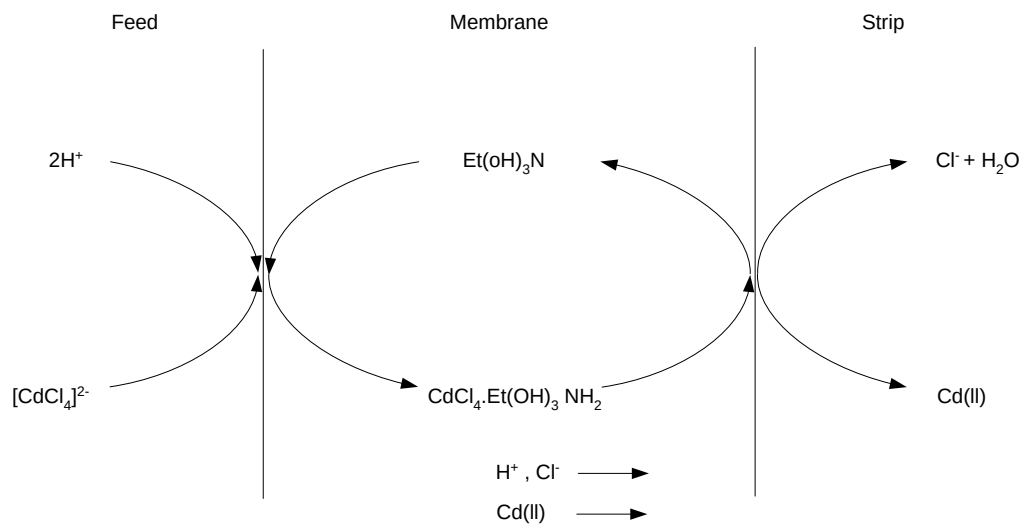


Figure 1: Coupled co-ion transport of Cd(II) ions

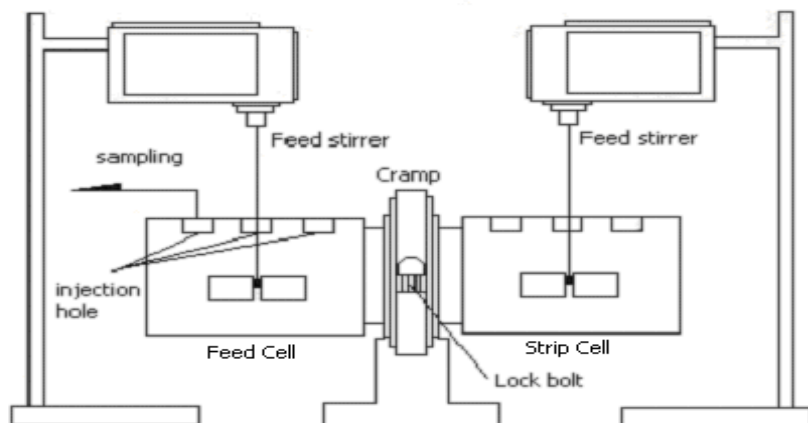


Figure 2: Schematic diagram of the permeation cell

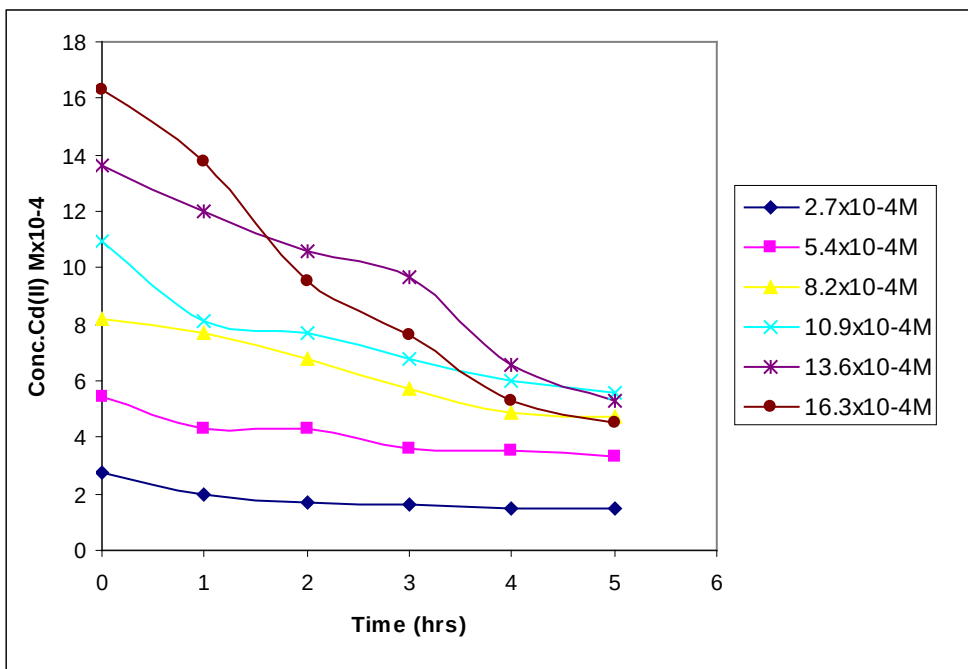


Figure 3: Decrease in Cd^{2+} ions concentration in feed vs. time, with NaOH as stripping solution. $[\text{NaOH}]=0.5\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=2.7\times 10^{-4} - 16.3\times 10^{-4}\text{M}$

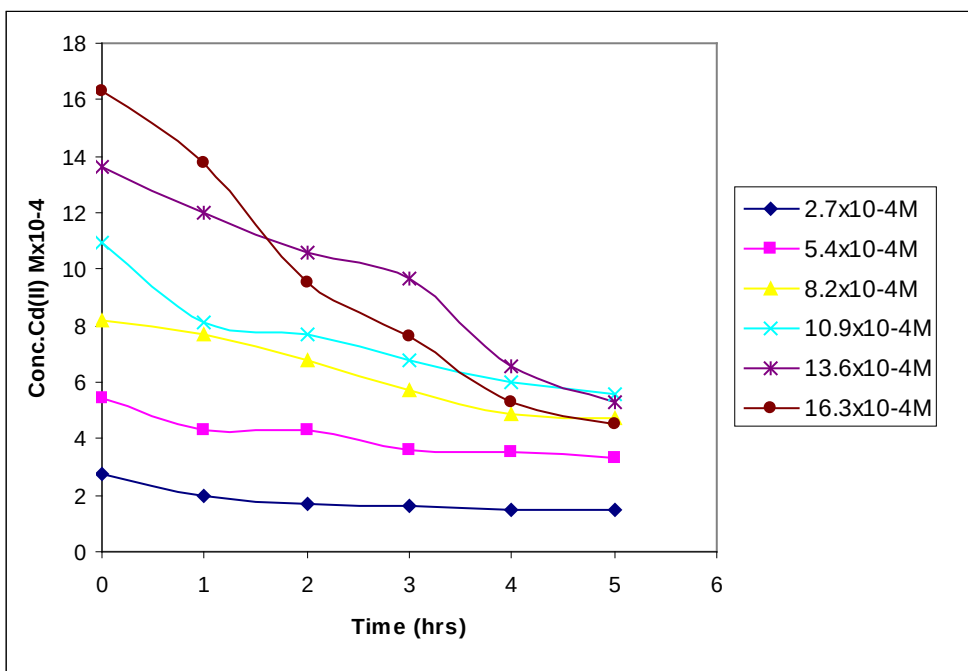


Figure 4: Decrease in Cd^{2+} ions concentration in feed vs. time, with NaOH as stripping solution. $[\text{NaOH}]=1.0\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=2.7\times 10^{-4} - 16.3\times 10^{-4}\text{M}$

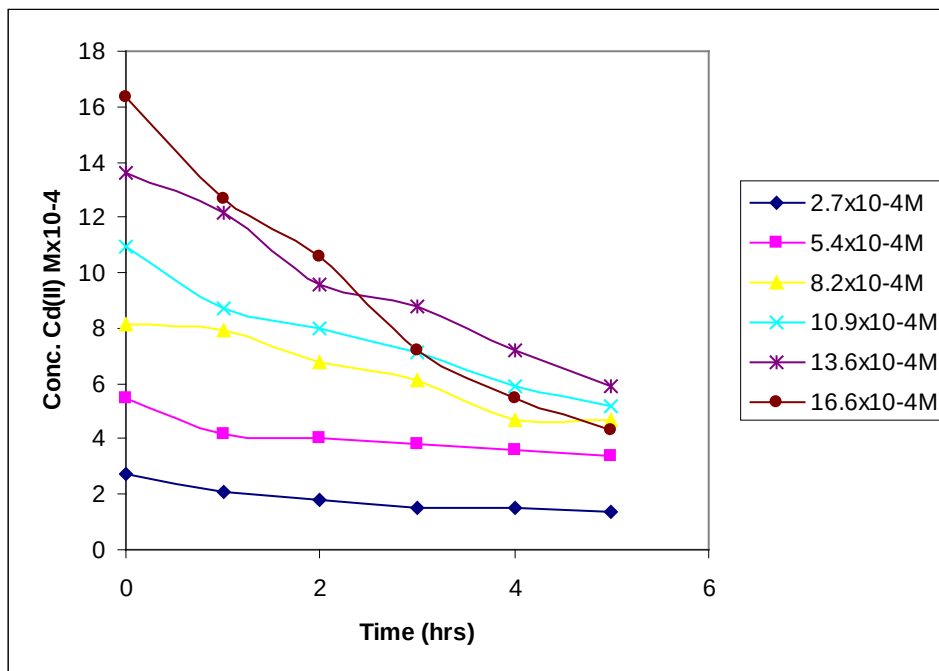


Figure 5: Decrease in Cd^{2+} ions concentration in feed vs. time, with NaOH as stripping solution. $[\text{NaOH}]=2.0\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=2.7\times 10^{-4} - 16.3\times 10^{-4}\text{M}$

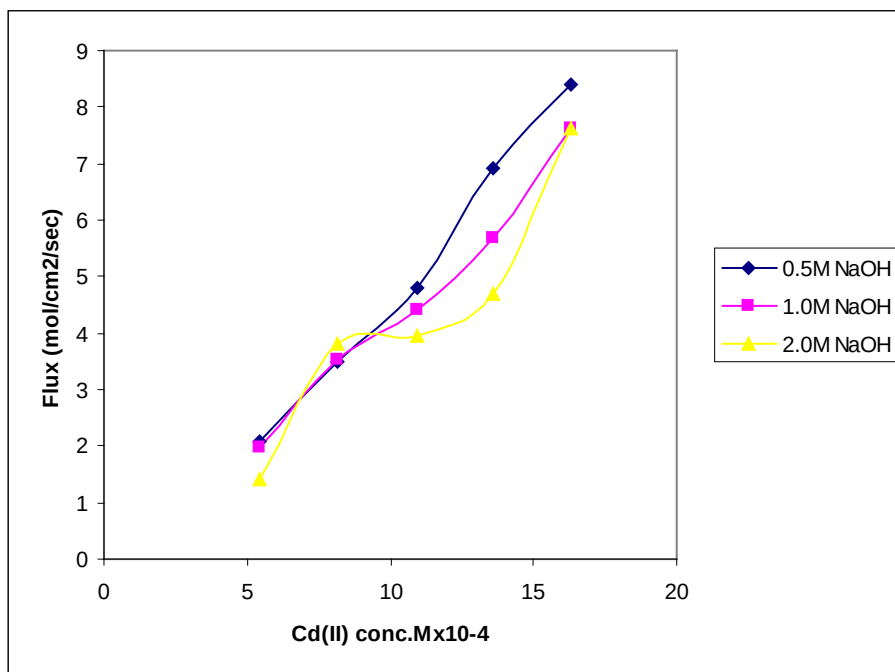


Figure 6: Effect of Cd^{2+} concentration on flux with different strip concentrations

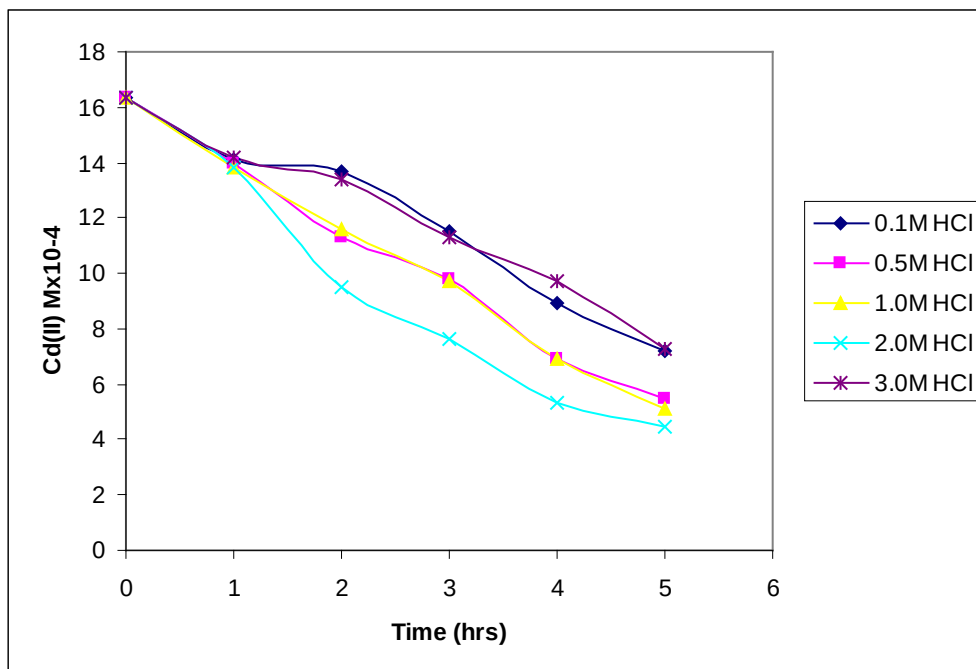


Figure 7: Decrease in Cd^{2+} ions concentration in feed vs. time, with different HCl concentration in feed. $[\text{NaOH}] = 1.0\text{M}$, $[\text{TEA}] = 3.0\text{M}$, $[\text{HCl}] = 0.1\text{--}3.0\text{M}$, $[\text{Cd}^{2+}] = 16.3 \times 10^{-4}\text{M}$

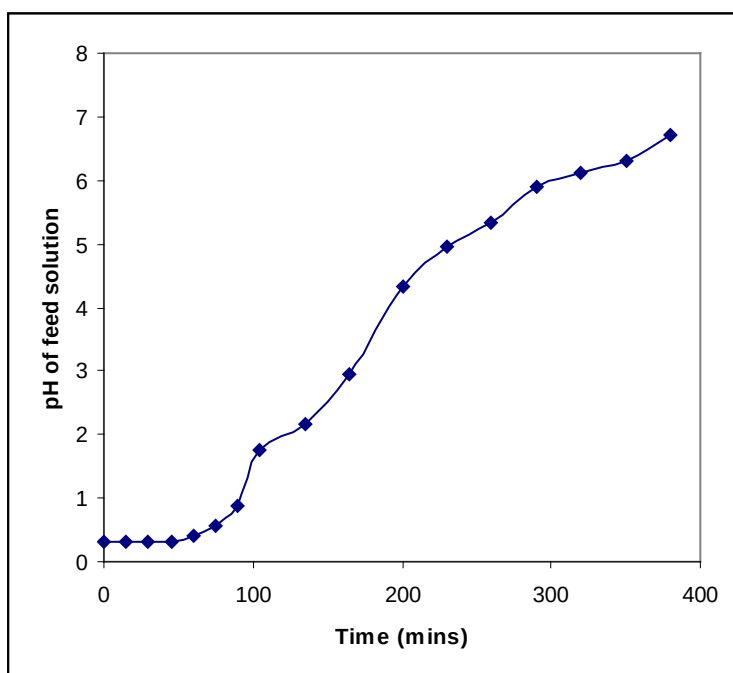


Figure 8: Variation of pH in feed solution vs. time. $[\text{NaOH}]=1.0\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=16.3\times 10^{-4}\text{M}$

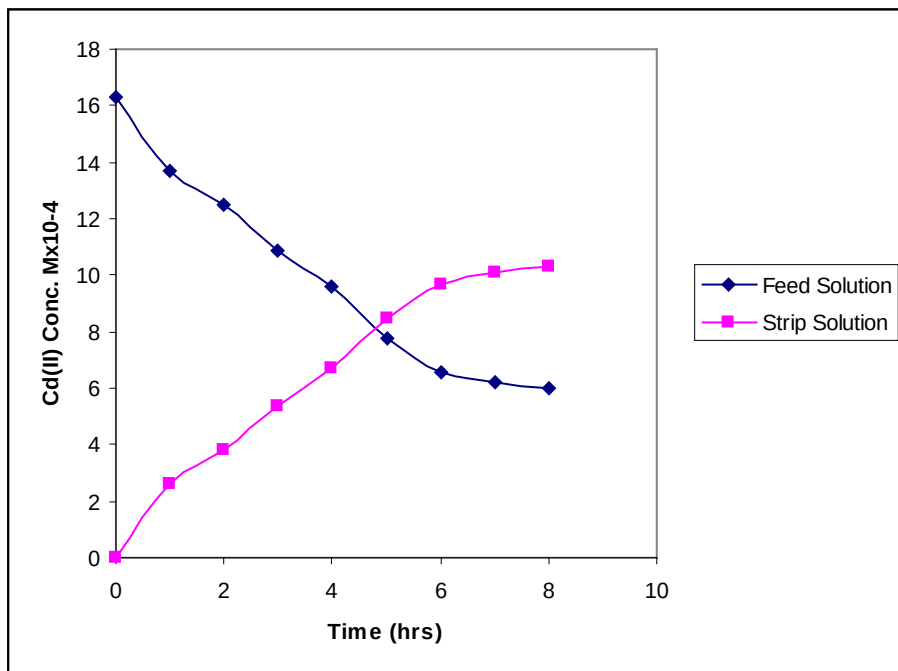


Figure 9: Cd^{2+} concentration in feed and strip solutions vs. time with 0.05M EDTA solution in feed. $[\text{NaOH}]=1.0\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=16.3\times 10^{-4}\text{M}$

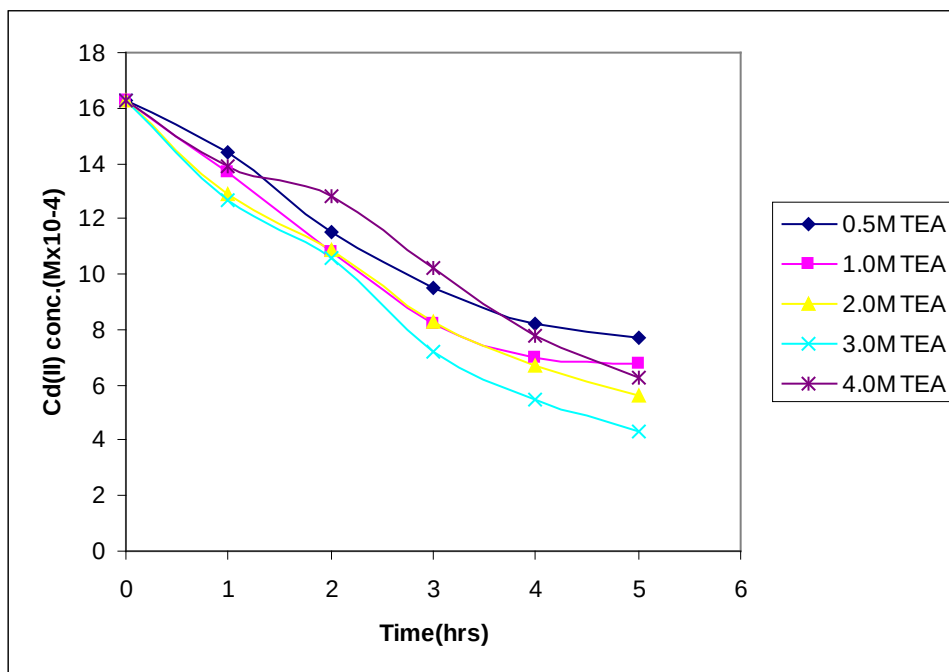


Figure 10: Decrease in Cd^{2+} concentration in feed vs. time with different TEA concentrations in SLM. $[\text{NaOH}]=1.0\text{M}$, $[\text{TEA}]=0.5\text{-}4.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=16.3\times 10^{-4}\text{M}$

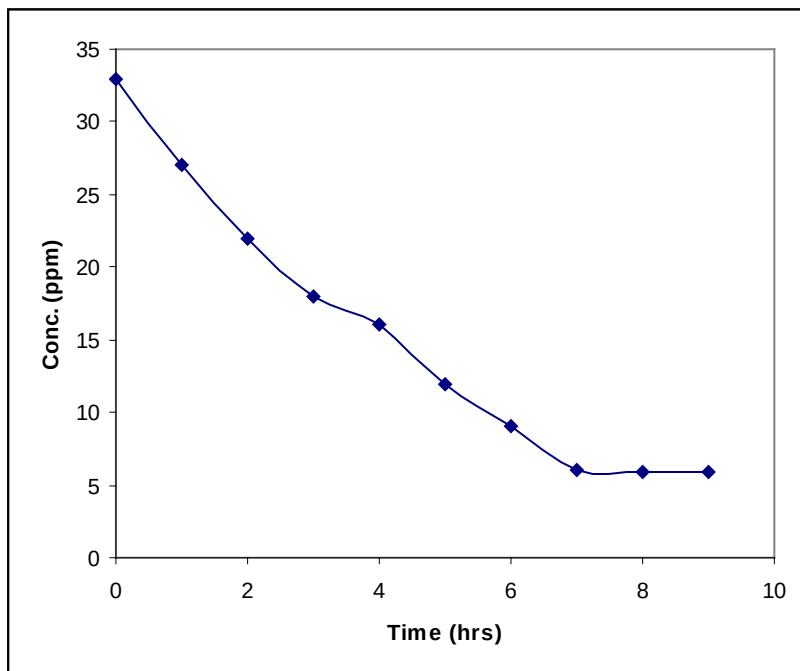


Figure 11: Decrease in concentration of Cd^{2+} ions in feed vs. time for aqueous effluent. $[\text{NaOH}]=0.5\text{M}$, $[\text{TEA}]=3.0\text{M}$, $[\text{HCl}]=2.0\text{M}$, $[\text{Cd}^{2+}]=33\text{ppm}$

Polycyclic Aromatic Hydrocarbons in Vegetables and Fruits produced in Saudi

Arabia

Muhammad Waqar Ashraf

Department of Mathematics & Sciences,
Prince Mohammad Bin Fahd University,
Al Khobar 31952, Kingdom of Saudi Arabia (mashraf@pmu.edu.sa)

Abstract:

Popular varieties of vegetables were collected from Eastern Province, KSA and analyzed for polycyclic aromatic hydrocarbons (PAH) contents. Eight important PAH congeners were analyzed; most of them are suspected carcinogens. Total PAH contents of the root vegetables like potato and carrot showed higher values ($\sim 13 \mu\text{g/kg}$), whereas turnip showed relatively lower contents at $10.9 \mu\text{g/kg}$. For the fruit vegetables, all the peels were found to be more contaminated than cores. The ratios of total PAH concentrations in peels to those of cores are 1.45, 1.26, 1.31, 1.44, 1.40 and 1.36 for potato, turnip, carrot, eggplant, cucumber and bitter gourd, respectively. For leafy vegetables, maximum PAH level was shown by cabbage ($11.6 \mu\text{g/kg}$), which turned out to be more than any of the cores of fruit vegetables. Among individual PAH congeners, anthracene showed higher levels in all vegetables. For benzo(a)anthracene, maximum concentration ($3.44 \pm 2.10 \mu\text{g/kg}$) was encountered in turnip cores. Highest benzo(e)pyrene concentration was found in potato ($3.19 \pm 1.67 \mu\text{g/kg}$) followed by turnip ($2.74 \pm 1.22 \mu\text{g/kg}$). Benzo(b)fluoranthene and benzo(k)fluoranthene showed relatively lower levels in all samples studied. Human exposure to PAH by consumption of these vegetables is estimated, by using typical Pakistani intake rates. The study revealed that cumulative dietary exposure of Saudi population to PAHs ranges from $0.25 \mu\text{g-p}^{-1}\text{-d}^{-1}$ to $1.16 \mu\text{g-p}^{-1}\text{-d}^{-1}$.

Keywords: PAH; Vegetables; Risk Assessment; Human Exposure

Introduction

Polycyclic Aromatic Hydrocarbons (PAHs) are group of fused aromatic ring compounds formed during incomplete combustion of fossil fuels and garbage. PAHs are originated from both natural and anthropogenic sources, the later providing, by far, the

major contribution. These compounds are found throughout the environment in the air, water and soil, and can remain in the environment for months or years. PAHs are recognized class of carcinogenic compounds and many studies have been carried out to identify the human exposure sources. There is sufficient evidence about carcinogenicity of PAHs like benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(ah)anthracene (IARC 1983). Recently, the Joint FAO/WHO Expert Committee on Food Additives have declared that, B(a)A, B(b)F, B(k)F, B(a)P and D(ah)A are clearly carcinogenic and genotoxic (JECFA, 2005).

PAHs occur as contaminants in different food varieties and beverages. The sources of PAHs in food are predominantly from environmental pollution and food processing steps. There are many studies showing uptake of PAHs by plants (Kipopoulou et al 1999; Vousta & Samara 1998; Wild et al 1992) and contamination of PAHs was often found in various food categories including vegetables (Tao et al 2004; Camarago & Toledo 2003; Zhong & Wang 2002). In plants, PAHs are present mainly due to deposition of airborne particulates on their exposed surfaces. The waxy surface of vegetables and fruits is able to concentrate low molecular mass PAHs through surface adsorption and particle-bound high molecular mass PAHs can contaminate the surface due to atmospheric fall-out (EFSA, 2008). Moreover, despite of poor solubility in water, PAHs, they can be taken up and bio-accumulated by plants (Meudee et al 2006). Since the gaseous deposition is the main pathway for the accumulation of PAHs in vegetables, the emissions from the fossil fuels combustion was shown to influence the PAHs levels and profiles in vegetables and fruits grown nearby. In some cases, however, direct relationship between soil and plant PAH

concentrations were also observed suggesting a possible pathway from contaminated soil and to plant roots (Meudee et al 2006; Wild et al 1992).

Since diet is believed to be the major source of human exposure to PAHs (Philips 1999), and vegetables happen to be the basic food in Saudi diet, it is a major concern of scientists and local authorities that how and to what extent PAHs are accumulated in the vegetables grown in agricultural areas. The Kingdom of Saudi Arabia produces a variety of vegetables and fruits for local consumption and export to neighboring states. However, the potential for agricultural production is limited in Saudi Arabia due to the lack of arable land and renewable water resource. Saudi Arabia, being the biggest oil producer in the Gulf, extensive activities regarding exploration, refining and petrochemicals production go on throughout the year. Extensive use of fossil fuels in all walks of life appears to be the most important reason for the prevalence of PAHs in the environment. However, so far, no viable efforts have been made in Saudi Arabia to determine levels of PAHs in vegetables produced in major agricultural farms. This paper presents the results obtained from a study on selected vegetable crops cultivated in various parts of Saudi Arabia. Nine important vegetables varieties were chosen for this which account for about 80% vegetables consumption in the region. The results obtained were used to calculate a preliminary estimation of the contribution of these vegetables as source of PAHs exposure in Saudi population.

Materials and Methods

Sampling

More than half of the Kingdom's cultivated area (57%) is in the central Riyadh and Qasseem Regions. In the south of the country, Jizan, Asir, Al Baha and Najran combined

rank second with nineteen percent of the cultivated land, while Al Jouf, Tabouk and Hayel in the north rank third with thirteen percent. The Eastern and Western Regions together account for eleven percent of the cultivated land.

Vegetables grown in this area supply the local as well as neighboring markets. Nine varieties of vegetables namely, potato, turnip, carrot (root vegetable), cabbage, spinach (leafy vegetables), tomato, cucumber, eggplant and bitter gourd (fruit vegetables) were selected. In total 259 samples were collected. Samples description is given Table 1. The samples were procured from local wholesale markets. In order to have clear picture of the levels of PAH, care was exercised to grab samples grown locally. After purchase, the vegetation samples were bagged and kept refrigerated at 4°C, till analyzed.

Reagents

Eight PAH congeners selected for this study were procured from Aldrich Chemical Company and Supelco Inc. (USA). Methylene chloride, acetonitrile (HPLC Grade) and sodium sulfate were purchased from E.Merck. Doubly distilled, deionized water was used throughout the study.

Sample Treatment

Fresh samples were washed with tap water, deionized water, air dried and then carefully weighed. Potatoes, turnip, carrot, eggplant, cucumber and bitter gourd were separated into peel (<1mm) and cores with a normal kitchen peeler and carefully weighed. The concentrations of PAHs in peels and cores were determined separately. Other vegetables were measured totally according to Pakistani dietary habits. For each vegetable, a composite sample of at least ten individuals was used (Table 1). All the composite samples were analyzed in triplicate. Dry matter content of the vegetables was measured by

heating the samples at 95°C for 30 hours (Table 1). After washing and peeling, the samples were chopped into small sections and homogenized in a blender mill.

Sample Extraction

50.0g of homogenized sample were mixed with 100 to 150g (depending upon water content) of preheated anhydrous sodium sulfate and extracted with a mixed solvent (cyclohexane/acetone, 2:1) for 8 hours in a full glass Soxhlet extractor. The concentrated extract was purified by column chromatography on silica gel, as described by Camargo & Toledo (2003). A glass column (i.d 1.5cm) was packed with silica gel and anhydrous sodium sulfate, 7.5cm and 2cm respectively, from top to bottom. The PAH extract was applied at the top of the column and eluted with 75mL of methylene chloride. The clean extract was evaporated under gentle nitrogen flow and finally dissolved in 2mL acetonitrile.

Sample Analysis and Validation

Analysis was conducted on Alliance HPLC system by Waters Associates (USA), equipped with a UV detector ($\lambda=254\text{nm}$) on ODs column (5 μm ; 250x4.6mm, 5 μm , C18 Waters PAH Column) at 30°C. A mobile phase composed of acetonitrile-water (75:25v/v). at a flow rate of 1.5mL/min was used to separate the PAHs. Blank samples were prepared to prevent and detect contamination during the treatment operation (Camargo & Toledo, 2003).

During analysis, two injections of a mixture of PAHs standards were made every five pairs of vegetable samples to correct any possible variation in compound responses. All the samples were analyzed for eight PAH congeners, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(ah)anthracene, benzo(e)pyrene and dibenzo(ghi)anthracene (Table 2). These PAH congeners were chosen

because of availability of standards and proven carcinogenicity of five of them (JECFA, 2005). Recoveries of PAHs from vegetables by this method were tested by analyzing vegetable samples spiked at the level of 5 times limits. The PAH standards were spiked into the samples after the homogenization step. Average recoveries of PAHs and limits of detection attained by the present methodology are shown in Table 2. Peak identities were confirmed by running samples and standards under identical conditions (Zhong & Wang, 2002).

Results and Discussion

Analytical Results

The mean concentrations of PAHs in selected vegetables are presented in Table 3 on fresh weight basis. Normally vegetables are consumed a fresh the discussion here will be based on the results expressed on a fresh weight basis. The fact that almost all samples in the current study contained PAHs demonstrates the widespread nature of these persistent compounds. A look at total PAH contents (Table 3) reveals that root vegetables like potato and carrot showed higher values ($\sim 13 \mu\text{g/kg}$), whereas turnip showed relatively lower contents at $10.9 \mu\text{g/kg}$. For the fruit vegetables, all the peels were found to be more contaminated than cores. The ratios of total PAH concentrations in peels to those of cores are 1.45, 1.26, 1.31, 1.44, 1.40 and 1.36 for potato, turnip, carrot, eggplant, cucumber and bitter gourd, respectively. It can fairly be concluded that peeling of root and fruit vegetables and the removal of outer part of the leafy crop can substantially reduce the ingestion of these compounds. Lise et al. 2002, have reported elevated levels of B(a)P in potato, lettuce and carrot with peel, from Denmark. For leafy vegetables, spinach and cabbage were analyzed as a whole. Maximum PAH level was shown by cabbage ($11.6 \mu\text{g/kg}$), which

turned out to be more than any of the cores of fruit vegetables. Similar levels (11.5 µg/kg) were shown by spinach as well. These results demonstrated that due to large surface area of cabbage and spinach leaves, the absorption of airborne PAH was quite higher. This is also in accordance with Joint FAO/WHO Expert Committee on Food Additives, whereby, the PAHs that are airborne (either in the vapor phase or adhered to the particulate matter) become deposited on crops, especially crops with broad leaves (JECFA, 2005). Among individual PAH congeners, Ant showed higher levels in all vegetables. For B(a)A , maximum concentration (3.44±2.10 µg/kg) was encountered in turnip cores. Highest B(e)P concentration was found in potato (3.19±1.67 µg/kg) followed by turnip (2.74±1.22 µg/kg). B(b)F and B(k)F showed relatively lower levels in all samples studied. D(ah)A could not be detected in spinach, carrot and tomato, whereas B(ghi)P could not be detected in bitter gourd, turnip, carrot and eggplant. Both are declared carcinogens (JECFA, 2005; IARC, 1983). Zhong & Wang (2002) have reported B(a)A levels in cabbage (5.46±10.8 µg/kg), cucumber (2.33±2.02 µg/kg) and eggplant (2.39±1.82 µg/kg) grown in China. Camargo & Toledo (2003) have reported B(e)P and B(a)P levels in cabbage grown in Brazil. Their results for B(e)P (2.10±1.21 µg/kg) were comparable to our findings, whereas B(a)P levels (0.12±0.08 µg/kg) were comparable to levels in Pakistani tomato (0.11±0.06 µg/kg).

Dietary Exposure

Irrespective of pathways of such accumulation, information on potential exposure of PAHs is of particular interest due to the fact that the general population is most frequently exposed to PAH through food. Second objective of the present study was the determination of average PAHs potential human exposure through vegetables. In order to accomplish this, the mean PAH concentrations in vegetables were used in combination with average daily

consumption of the vegetables. We have estimated the average daily consumption of different vegetables by adult population in Saudi Arabia, with the cooperation of Nutrition Division, KFTH Dammam. Among the vegetables studied, consumption of potato was maximum ($75 \text{ g-p}^{-1}\text{-d}^{-1}$), followed by carrot ($60 \text{ g-p}^{-1}\text{-d}^{-1}$) and cabbage ($55 \text{ g-p}^{-1}\text{-d}^{-1}$). Incidentally, potato contained the maximum total PAHs levels as well. Therefore, among the vegetables studied potato ($1.157 \text{ }\mu\text{g-p}^{-1}\text{-d}^{-1}$) was the biggest source of PAHs exposure (Table 4), followed by carrot ($0.812 \text{ }\mu\text{g-p}^{-1}\text{-d}^{-1}$) and cabbage ($0.629 \text{ }\mu\text{g-p}^{-1}\text{-d}^{-1}$). According to a food survey carried out in Netherlands, the total dietary intake of B(a)P was 0.12-0.29 $\mu\text{g/day}$. In the same study, the maximum concentrations of B(a)P in leafy vegetable and potato were 0.2 $\mu\text{g/kg}$ and 0.4 $\mu\text{g/kg}$, respectively. An estimated value for the average human intake of B(a)P in United Kingdom in 1979 was 0.25 $\mu\text{g/kg}$, and in Italy the daily intake of B(a)P from food was 0.17 $\mu\text{g/kg}$ (Turrio-Baldassari et al. 1996; Vos et al. 1990; Dennis et al. 1983). These reported values, although older, are similar to our findings (Table 4).

However, it should be noted that these calculations are based upon the fact that vegetables are consumed raw. In fact, vegetables are cooked, which may substantially affect the final PAH content of eaten vegetables. According to food habits of Saudi people, cucumber, carrot, cabbage and tomato are eaten as raw, without cooking. On the other hand, potato, turnip, spinach, egg plant and bitter gourd are consumed after thorough cooking. Keeping this in view, the data in Table 4 should be carefully handled to represent potential PAH exposure to consumers. It can safely be concluded from the present study, that all the vegetable samples analyzed contained PAHs. However, the levels of these compounds are not yet at alarming levels. These values can be considered by concerned

authorities as indicative values and could be averaged to estimate the Saudi PAHs human exposure, as they are the only data available on dietary intake of PAHs by local population.

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Table 1: Vegetable description used in this study

Vegetables	Samples #	Part1	Part2	DMC(%)
Potato	28	Cores	Peels	22.1
Spinach	27	Total		7.2
Turnip	32	Cores	Peels	5.3
Carrot	30	Cores	Peels	5.1

Cabbage	26	Total		6.2
Tomato	31	Total		4.7
Eggplant	30	Cores	Peels	7
Bitter gourd	26	Cores	Peels	5.6

DMC Dry Matter Content

Table 2: Average recovery and limits of detection ($\mu\text{g/kg}$; fresh weight) of various PAHs

PAH	Abbreviation	Average Recovery(%)	RSD(%)	Limits of Detection
Anthracene	Ant	89	9.5	0.22
Benzo(a)anthracene	B(a)A	94	8.6	0.18
Benzo(e)pyrene	B(e)P	93	11	0.09
Benzo(b)fluoranthene	B(b)F	89	6.8	1.07
Benzo(k)fluoranthene	B(k)F	96	7.5	0.76
Benzo(a)pyrene	B(a)P	94	4.5	0.07
Dibenzo(ah)anthracene	D(ah)A	88	6.9	0.17
Benzo(ghi)perylene	B(ghi)P	92	8.9	0.20

Table 3: Concentrations ($\mu\text{g/g}$; fresh weight) of various PAHs in vegetable parts

Vegetable	Parts	Ant	B(a)A	B(e)P	B(b)F	B(k)F	B(a)P	D(ah)A	B(ghi)P	Σ PAHs
Potato	cores	2.01 $\pm$ 1.90	0.80 $\pm$ 0.09	2.90 $\pm$ 1.10	1.02 $\pm$ 0.91	1.06 $\pm$ 0.90	1.50 $\pm$ 1.01	0.12 $\pm$ 0.09	1.05 $\pm$ 0.50	10.46
	peels	3.80 $\pm$ 2.90	2.01 $\pm$ 0.21	4.01 $\pm$ 2.20	1.05 $\pm$ 0.97	1.06 $\pm$ 0.20	1.73 $\pm$ 0.14	0.28 $\pm$ 0.16	1.07 $\pm$ 0.30	15.01
	total	2.85 $\pm$ 1.39	1.09 $\pm$ 0.76	1.05 $\pm$ 0.70	0.30 $\pm$ 0.16	0.66 $\pm$ 0.21	2.12 $\pm$ 1.20	1.7 $\pm$ 0.75	0.40 $\pm$ 0.29	10.17
	cores	1.10 $\pm$ 1.01	2.21 $\pm$ 0.75	2.09 $\pm$ 1.09	0.90 $\pm$ 0.79	0.50 $\pm$ 0.25	1.01 $\pm$ 0.70	1.16 $\pm$ 0.66	0.29 $\pm$ 0.15	9.26
Turnip	peels	1.53 $\pm$ 0.89	1.30 $\pm$ 0.92	2.18 $\pm$ 1.07	1.34 $\pm$ 0.76	0.73 $\pm$ 0.68	1.90 $\pm$ 1.12	0.13 $\pm$ 0.02	0.19 $\pm$ 0.07	9.3
	cores	1.91 $\pm$ 1.42	2.02 $\pm$ 0.99	1.30 $\pm$ 0.66	1.33 $\pm$ 0.01	0.95 $\pm$ 1.02	2.50 $\pm$ 1.99	0.98 $\pm$ 0.55	0.59 $\pm$ 0.50	11.58
	peels	2.29 $\pm$ 1.92	2.49 $\pm$ 2.16	2.16 $\pm$ 1.19	2.09 $\pm$ 1.32	2.05 $\pm$ 1.47	3.14 $\pm$ 2.89	1.98 $\pm$ 0.43	1.19 $\pm$ 0.90	17.39
	total	2.35 $\pm$ 1.92	1.04 $\pm$ 0.45	1.09 $\pm$ 0.46	0.47 $\pm$ 0.29	0.29 $\pm$ 0.09	1.27 $\pm$ 0.85	0.38 $\pm$ 0.13	1.45 $\pm$ 0.95	8.34
Cabbage	total	3.45 $\pm$ 2.80	1.66 $\pm$ 0.99	1.15 $\pm$ 0.46	0.16 $\pm$ 0.09	0.22 $\pm$ 0.12	0.19 $\pm$ 0.09	0.38 $\pm$ 0.23	0.74 $\pm$ 0.21	7.95
	cores	1.08 $\pm$ 1.08	1.90 $\pm$ 1.26	1.26 $\pm$ 0.78	0.78 $\pm$ 0.10	1.02 $\pm$ 1.68	1.68 $\pm$ 0.76	0.76 $\pm$ 0.34	0.34 $\pm$ 0.88	8.8

t	es	.87	.3	.45	.42	0.46	1.02	0.07	0.21	2
	pee	2.07±1	2.99±1	1.92±0	1.02±0	1.05±	1.39±	0.21±	0.34±	10.
	ls	.70	.29	.33	.36	1.01	0.33	0.05	0.11	99
Cucumb	cor	0.69±0	1.37±0	1.03±0	0.78±0	0.87±	1.85±	0.33±	0.66±	7.5
er	es	.14	.77	.92	.56	0.65	0.99	0.05	0.36	8
	pee	1.06±0	2.26±1	2.12±0	0.92±0	1.34±	2.08±	0.77±	1.03±	11.
	ls	.88	.2	.78	.65	0.79	1.56	0.53	0.57	58
Bitter	cor	0.55±0	0.56±0	0.57±0	0.97±0	0.57±	1.03±	0.95±	0.09±	5.2
gourd	es	.71	.32	.44	.21	0.34	0.44	0.21	0.07	9
	pee	0.65±0	0.24±0	0.68±0	1.03±0	0.61±	1.99±	1.07±	0.11±	6.3
	ls	.23	.09	.12	.76	0.64	0.17	0.87	0.37	8

Table 4. Average consumption of vegetables versus potential exposure of PAHs

Vegetable	Consumption (g-p-1-d-1)	Ant	B(a)A	B(e)P	B(b)F	B(k)F	B(a)P	D(a)
Potato	81	0.163	0.065	0.234	0.083	0.086	0.122	0.0
Spinach	43	0.122	0.046	0.045	0.013	0.028	0.091	0.0
Turnip	45	0.050	0.099	0.094	0.041	0.023	0.045	0.0
Carrot	58	0.111	0.117	0.075	0.077	0.055	0.145	0.0
Cabbage	50	0.118	0.052	0.055	0.024	0.015	0.064	0.0
Tomato	47	0.162	0.078	0.054	0.008	0.010	0.009	0.0
Eggplant	43	0.046	0.082	0.054	0.034	0.044	0.072	0.0
Cucumber	39	0.027	0.053	0.040	0.030	0.034	0.072	0.0
Bitter gourd	38	0.021	0.021	0.022	0.036	0.022	0.039	0.0
Total	444.000	0.819	1.198	0.673	0.346	0.317	0.659	0.3

Total Petroleum Hydrocarbon (TPH) Burden in Fish Tissues from the Arabian Gulf

Waqar Ashraf

Department of Natural Sciences, Prince Mohammad Bin Fahad University, Al Khobar

31952,

Kingdom of Saudi Arabia (mashraf@pmu.edu.sa)

&

Atiq Mian

Center for Environment & Water,

King Fahad University of Petroleum & Minerals, Dhahran 31261,

Kingdom of Saudi Arabia

Abstract:

The levels of total petroleum hydrocarbons (TPH) and lipid contents have been reported for eight commercially important fish species from the Arabian Gulf. GC-FID has been used as quantification technique. Out of the species analyzed, Scarus Ghabon showed the highest level of TPH ($7.4 \pm 3.2 \mu\text{g-g}^{-1}$) in the muscle tissue followed by Epinephelus Tauvina ($6.8 \pm 3.6 \mu\text{g-g}^{-1}$). Except for Epinephelus Microdon ($4.8 \pm 2.1 \mu\text{g-g}^{-1}$), all other fish species showed a similar level of TPH concentration. Significant correlations were obtained between lipid contents and TPH levels in the muscles of the fish. Body weight of the fish was also found to be strongly correlated with TPH concentration in the muscle tissue. There is a tendency of accumulating higher TPH in the winter season as compared to in the summer season.

Key Words: TPH; Lipids; Fish; Muscle Tissue; Seasonal Variation; Gulf

Introduction

The Arabian Gulf has been subject to inputs of oil pollution from a variety of sources and it has been estimated that oil pollution in the Gulf represents 4.7% of total oil pollution in the world. This figure has increased even more after the Gulf war. The Gulf region has approximately two-thirds of the world's proven oil reserves (Khan 2002). Problems associated with oil pollution appear to be of greater importance in the Gulf compared with other regions. This region has undergone considerable development,

increased urbanization, industrialization and refineries have become major sources of pollution to the marine environment. Accidental spills and increasing tanker traffic are also contributing factors.

One of the characteristics of the Gulf is that it is relatively shallow, semi-enclosed sea with poor flushing characteristics. Consequently, pollutants undergo slower dispersion than would occur in open oceans (Sheppard 1993). Maintaining good marine environmental quality is important for several economic reasons. The sea food is of value for both local consumption and export revenue. Also, the region relies heavily upon sea water as a source of fresh water through desalination (de Mora et al 2004). Oil may enter fish through the skin or gills. In addition, pollutants such as tar balls may ingress through the intestine by water gulped in the physiological process of desalination (Al-Zarouni 1997). Although risks to human health, due to presence of petroleum hydrocarbons are not well documented, the possible consequences of bioaccumulation should not be ignored especially in communities consuming large quantities of fish. Saudi Arabia has coast lines on the Red sea and Arabian Gulf. While the coast lines are long neither areas are marked by great productivity. Total fishery production of the Kingdom of Saudi Arabia in 1997 was 53170 metric tones where the production in the Arabian Gulf was 22875 metric tones (Fisheries Statistics of Saudi Arabia 1997). In the present study we report the levels of total petroleum hydrocarbons (TPH) in several fish species commonly consumed by population in the Gulf. The paper also reports the data pertaining to relationship of TPH concentrations in fish tissues with seasonal variation and lipid changes in fish.

Materials and Methods

Fish samples of 8 commercially important fish species were collected from the Arabian Gulf (Qateef, Eastren Province, Saudi Arabia). All the samples were procured from local fishermen at the spot as soon as their boats landed. Samples were packed on ice and brought to lab as soon as possible. In the laboratory, the standard length and total body weight of each fish were measured before dissection. About 100g of the dorsal muscle from a single individual was dissected for sample and kept frozen until extraction process. Samples were soxhlet extracted, in duplicate, for 8 hours with 250mL of methanol.

Saponification of the extracts was carried out by adding 20mL of 0.7M KOH and 30mL of water and refluxing for about 2 hours. The resulting mixture was transferred to separating funnel and extracted thrice with hexane. Then, the extracts were combined, filtered through glass wool and dried with anhydrous sodium sulfate. Concentration of the extracts was carried out by rotary evaporation down to 15mL, which was further reduced to 5mL under a gentle flow of pure nitrogen (Tolosa et al, 2005). Finally, the extract was cleaned up and fractionated by passing it through a silica/alumina column (Law et al. 1988). For the determination of lipid contents, 50g of fish tissues were extracted with 100mL of dichloromethane for 24 hours. After evaporation, the extractable organic materials were weighed with an analytical digital balance.

The quantification of petroleum hydrocarbon compounds was carried out using a Agilent 6890N gas chromatograph with a flame ionization detector (FID). The carrier gas was nitrogen at flow rate of 1.5mL/min. The column used was DB-1, length 30 meters, I.D 0.25 mm, film 0.5 μ m. Column temperature was programmed with initial temperature 60 $^{\circ}$ C followed by an increase at the rate of 8 $^{\circ}$ C per minute up to the final temperature of 275 $^{\circ}$ C. The detector temperature was set at 275 $^{\circ}$ C. The sum of all aliphatic and aromatic hydrocarbons measured by GC-FID provides a measure of total hydrocarbon concentration. Appropriate blanks were run with each set of fish samples. Standard reference material, IAEA-142, was also processed and run to ascertain quality control and quality assurance in our methodology. Precision of measurements, determined from triplicate measurements of the reference material was better than 8%.

Results and Discussion

The results for the body weight, length, lipid contents and concentration of total petroleum hydrocarbons in the selected fish species are presented in Table 1. *Scarus Ghabon* showed the highest level of TPH (7.4 $\pm$ 3.2 μ g-g $^{-1}$) in the muscle tissue followed by *Epinephelus Tauvina* (6.8 $\pm$ 3.6 μ g-g $^{-1}$). Except for *Epinephelus Microdon* (4.8 $\pm$ 2.1 μ g-g $^{-1}$), all other fish species showed a similar level of TPH concentration. Higher concentration of hydrocarbons in these species is probably due to the higher lipid content of their muscle tissue (Shriadah 2001). Pruell et al (1988) have showed that hydrocarbons are accumulated

by simple equilibrium between sea water and body lipids. Moreover, higher TPH concentration in the muscle of the fish may also reflect differences in the marine habitat, feeding habits and the different depths in which they live in the marine environment. Significant correlation coefficients ($p > 0.70$) between lipid contents-TPH and between body weight-TPH were observed for *Scarus Ghabon* (0.91 and 0.89) and *Epinephelus Tauvina* (0.85 and 0.88). This showed a strong positive evidence that ability of fish to accumulate hydrocarbons in their tissues is directly related to lipid content and body weight.

In order to see the seasonal impact on TPH and lipid content of fish tissue, sampling was conducted in winter (December – February) and in summer (June – August) of 2007. The relevant data is presented in Table 3 and Figure 1. It was observed that most fish species acquire higher concentration of TPH in winter season as compared to in summer season. This indicated an important fact that TPH concentration not only varies between the tissues of different fish species but it also varied in the same specie depending on the season. The increased hydrocarbon concentration in winter is probably due to the active intake during the cooler season and as a result, large amounts are stored. El-Deeb (1998) has reported that slackness in movement of fish in winter, particularly demersal species, near the bottom provides a favorable condition for the accumulation of hydrocarbons in their muscle tissue. Another factor contributing towards the seasonal variations in the hydrocarbons in fish tissue is the changes which took place in the environmental conditions of the habitat (Shriadah 1999 & 2001).

The results obtained for *Lethrinus Nebulosus* ($3.6 \pm 2.8 \mu\text{g-g}^{-1}$) were much less than reported for the same specie ($10\text{-}31 \mu\text{g-g}^{-1}$) from the oil-impacted coastline of Saudi Arabia after Gulf War oil spill (Fowler et al 1993), but are comparable with those from sites in Bahrain ($0.8\text{-}3.8 \mu\text{g-g}^{-1}$) and Oman ($2.4\text{-}7.3 \mu\text{g-g}^{-1}$) that were not impacted by the 1991 spill (Fowler et al 1993). Tolosa et al (2005) have reported TPH concentration in tissues of *Epinephelus Coioides* ($2.07 \mu\text{g-g}^{-1}$) and *Lethrinus Nebulosus* ($3.40 \mu\text{g-g}^{-1}$) caught from Al Marfa, UAE. Relatively higher values have been reported in the same species with higher weight from Bidaiya, Bahrain (Tolosa et al 2005).

The present values compared well with uncontaminated fish tissue, $0.33 - 3.7 \mu\text{g-g}^{-1}$, from the north and central Arabian Sea collected in 1991 (Sen Gupta et al 1993), and are also similar to those reported for fish collected in 1990 from coastal waters of Oman (Badawy et al 1993). From the present study it can be concluded that TPH levels are not as high as could be expected in the Gulf, therefore, consumption of these fish species does not pose a significant health risk to the local population.

Acknowledgements: Authors gratefully acknowledge the support of Dr.Rahim Karimpour, Department Chair. Thanks are also due to Dr.Sufyan Akram for the provision of Standard Reference Material IAEA-142. Generous help of Zahid Nazir is also acknowledged for collection and identification of fish samples.

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Table 1: Levels (ranges & $\bar{X} \pm \text{SD}$) of TPH ($\mu\text{g-g}^{-1}$) and lipids content (%) along with length and body weight of selected fish species from the Arabian Gulf

Fish Species	Common Name	n	Length (cm)	Weight (gm)	Lipid (%)	TPH ($\mu\text{g-g}^{-1}$)
<i>Scarus Ghabon</i>	Bluebarred Parrot Fish	36	39.8-66.9	357.8-565.6	1.9-3.2	3.6-11.2
			55.2 $\pm$ 12.2	560.4 $\pm$ 32.2	2.4 $\pm$ 0.2	7.4 $\pm$ 3.2
<i>Epinephelus Microdon</i>	Grouper	32	33.4-47.4	357.9-778.9	0.8-2.0	2.8-6.9
			38.8 $\pm$ 11.6	418.5 $\pm$ 78.9	1.3 $\pm$ 0.7	4.8 $\pm$ 2.1
<i>Epinephelus Coioides</i>	Orange Spotted Grouper	38	41.7-52.0	420.7-679.6	0.3-3.2	2.4-5.6
			47.2 $\pm$ 9.5	544.8 $\pm$ 65.6	1.7 $\pm$ 0.3	3.9 $\pm$ 2.8
<i>Epinephelus Tauvina</i>	Greasy Grouper	41	40.9-55.2	515.7-657.3	1.7-2.9	3.5-9.7
			47.9 $\pm$ 12.0	585.7 $\pm$ 88.9	2.1 $\pm$ 0.6	6.8 $\pm$ 3.6
<i>Acanthoparagus Bifasciatus</i>	Doublebar Bream	28	29.8-43.6	267.8-378.5	1.7-2.9	2.7-6.2
			36.9 $\pm$ 12.3	320.5 $\pm$ 56.6	1.8 $\pm$ 0.3	3.7 $\pm$ 1.8
<i>Siganus Canaliculatus</i>	Rabbit Fish	27	13.1-19.5	93.2-318.7	0.8-2.7	2.3-5.2
			15.2 $\pm$ 1.8	123.5 $\pm$ 36.3	1.8 $\pm$ 0.2	3.4 $\pm$ 2.3

<i>Lethrinus Miniatus</i>	Emperors	29	23.5-30.7 25.7±3.2	228.7-265.9 245.6±34.6	0.9-2.7 1.6±0.6	2.1-4.7 3.2±1.9
<i>Lethrinus Nebulosus</i>	Spangled Emperor	30	20.6-33.4 27.3±7.1	198.6-245.8 220.2±19.6	0.7-1.2 0.9±0.7	2.9-5.5 3.6±2.8

Table 2: Correlations between total fish body weight & TPH as well as between lipid contents & TPH in selected fish species

Fish Species	n	Correlation Coefficients	
		Weight-TPH	Lipid-TPH
Scarus Ghabon	36	0.91	0.89
Epinephelus Microdon	32	0.64	0.55
Epinephelus Coioides	38	0.44	0.32
Epinephelus Tauvina	41	0.85	0.88
Acanthoparagus Bifasciatus	28	0.57	0.45
Siganus Canaliculatus	27	0.65	0.71
Lethrinus Miniatus	29	0.43	0.51
Lethrinus Nebulosus	30	0.68	0.47

Table 3: Seasonal variations of TPH ($\mu\text{g}\cdot\text{g}^{-1}$) levels and lipid (%) contents in selected fish species

Fish Species	n	Winter	Season	n	Summer	Season
		Lipid	TPH		Lipid	TPH
Scarus Ghabon	17	2.7±0.6	8.6±1.2	19	2.2±0.7	6.9±1.3
Epinephelus Microdon	16	1.3±0.5	6.8±1.9	16	0.9±0.2	5.3±2.1
Epinephelus Coioides	20	1.7±0.4	6.3±2.1	18	1.5±0.6	4.1±2.8
Epinephelus Tauvina	20	2.8±0.9	9.7±2.5	20	2.1±1.4	7.5±3.1
Acanthoparagus Bifasciatus	15	1.2±0.5	4.1±1.9	13	0.9±0.7	3.5±2.2
Siganus Canaliculatus	16	1.9±0.7	4.7±1.5	11	1.7±0.5	4.1±1.8
Lethrinus Miniatus	16	2.1±0.3	5.7±2.3	14	1.8±0.9	3.5±2.1
Lethrinus Nebulosus	14	1.6±0.5	5.3±1.9	16	1.1±0.3	4.7±2.3

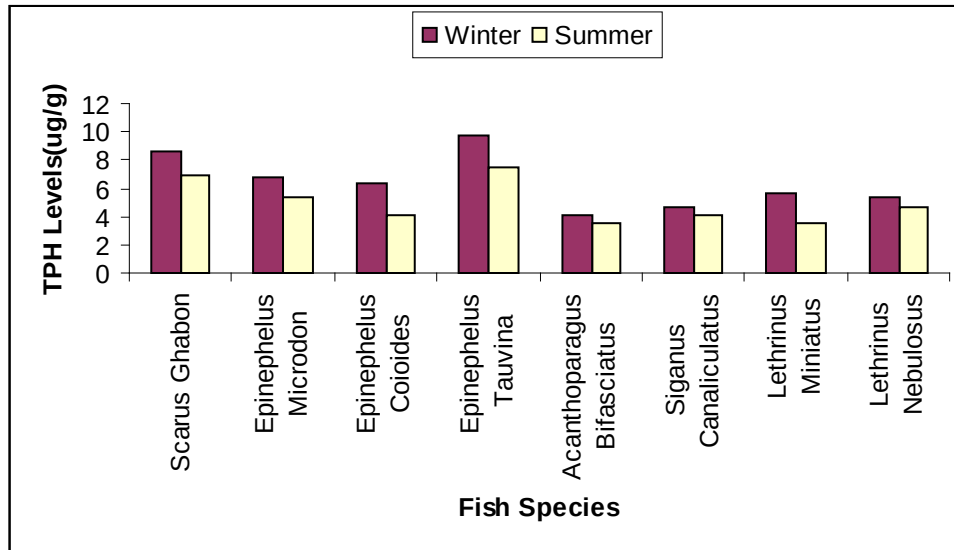


Figure 1: Seasonal variation of TPH in selected fish species

Levels of Selected Heavy Metals in Black Tea Varieties Consumed in Saudi Arabia

Waqar Ashraf

Department of Natural Sciences, Prince Mohammad Bin Fahad University,

Al Khobar 31952, Kingdom of Saudi Arabia

e-mail: mashraf@pmu.edu.sa

&

Atiq A. Mian

Center for Environment and Water, Research Institute,

King Fahd University of Petroleum and Minerals,

Dhahran 31261,

Kingdom of Saudi Arabia

Received: 12 August 2007 / Accepted: 17 March 2008 / Published online: 30 March 2008

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Bull Environ Contam Toxicol (2008) 81:101–104

Abstract: The metal contents (Fe, Cu, Zn, Mn, Cr, Pb, Ni, Cd, Co) of 17 black tea samples were analyzed by using Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES). Among the investigated metals Mn was the highest (1,071.7 lg/g), whereas Pb showed minimum levels (0.30 lg/g). Iron was the second highest element found in black tea samples. Lowest Pb concentration (0.30 lg/g) was found in Abu Jabal tea; whereas maximum (2.2 lg/g) was found in Manasul tea. Lowest Cd concentration was found in Lipton whereas maximum level was observed for Al-Diafa tea. The concentrations of Co and Zn in the analyzed samples were in the range of 4.5–17.4 and 23.7–122.4 lg/g, respectively. Metal-to-metal correlation studies showed strong correlations between iron–chromium, iron–cadmium and lead–copper pairs. The data obtained in the present work compared well with the counterpart data reported internationally. Based upon the present safety standards, the tea versions selected in the present study were found to be safe for human consumption.

Keywords: Heavy metals . ICP . Black tea . Saudi Arabia

Tea is one of the heavily consumed beverages in the world which is prepared from the leaves of a shrub *camellia sinensis*. It is also regarded as the most served beverage in the world. Black and green teas are the popular versions. Drying and roasting produces green tea whereas black tea is obtained after a fermentation process. Economic and social interest in tea is clear from the fact that about 18– 20 billion tea cups are consumed daily in the world (Pedro et al. 2001; Marcos et al. 1998). The medicinal value of tea for prevention and treatment of many health problems has become more and more commonly known (Naithani and Kakkar 2005). Tea contains flavonoids, minerals and trace elements that are essential to human health. Current studies show that tea contains specific antioxidants and health

promoting ingredients, lowering the risk of heart diseases, stroke and certain types of cancer like oral, pancreatic and prostate. The main source of trace metals intake by the shrubs is their growth media, consequently, some differences in the metal contents are expected. Therefore, tea drinking could be an important source of some essential minerals such as manganese, which activates numerous enzymes. The levels of manganese in other foods/beverages are relatively small (Pedro et al. 2001). Owing to the great importance of the minerals present in tea, many studies have been carried out to determine their levels in tea leaves and their infusions. Various analytical techniques that have been used for this purpose include atomic absorption spectrometry (AAS), inductively coupled plasma atomic emission spectrometry (ICP-AES), inductively coupled plasma mass spectrometry (ICP-MS) and total reflection X-ray fluorescence spectrometry (TR-XRF) (Narin et al. 2004; Han and Li 2002; Matsuura et al. 2001; Xie et al. 1998).

With a long tradition of drinking tea, Saudi Arabia boasts the second largest retail tea market in the Middle East. Along with other popular hot beverages, tea continues to play an integral part in family and social occasions in Saudi Arabia. Drinking tea is a traditional habit amongst Saudi people. It is consumed throughout the day and at all social occasions. Given the prohibition of alcohol, tea and coffee are seen as socializing tools in the Kingdom. Determination of heavy metals in tea samples is important from two aspects; to judge their nutritional value and to guard against any probable ill-effect, they may cause to human health. In the present paper the contents of heavy metals Fe, Cu, Zn, Cd, Ni, Pb, Co, Mn and Cr in black tea samples has been determined by using acid digestion followed by ICP-AES technique.

Materials and Methods

A Thermo ICP-AES was used for metal determinations. The operating parameters are shown in Table 1. Nitric and perchloric acids (E.Merck) were of ultrapure grade. Working standard solutions were prepared by serial dilutions of the stock solutions. All aqueous solutions and dilutions were prepared with ultrapure water (Milli-Q, Millipore).

Seventeen commercial tea samples were selected for this study. All of them were procured from local markets and hypermarkets.

All glassware was cleaned by soaking in dilute nitric acid and was rinsed with milli-Q water. Each tea sample of 0.50 g was accurately weighed into a clean 100 mL beaker.

Concentrated nitric acid (10.0 mL) was added, the Table 1 The operating conditions for ICP-AES instrument

ICP-AES IRIS Itrepid II XDL

Plasma conditions Rf frequency 30 MHz Rf power 1.0 kW

Gas flow rate Carrier gas Ar 0.5 L/min Auxiliary gas Ar 1.0 L/min Coolant gas Ar 20 L/min

Sampling conditions Observation height 18 mm above coil Nebulizer Cross-flow type

Sample uptake rate 1.2 mL/min

Spectrometer conditions Polychromator Paschen-Runge mounting Focal Length 75 cm

Entrance slit 25 lm Exit slit 50 lm

Data acquisition Integration time 10 s Repetition 3 times

beaker was covered with a watch glass and material was boiled gently on a hot plate provided with a tunable thermostat until digestion was complete. The complete digestion took about 1 h. A 1.0 mL portion of 70% perchloric acid was then added and gentle heating was continued for another 1 h. Small aliquots of milli-Q purified water were added to prevent dryness due to evaporation. After the digest was cooled, it was filtered and transferred to a 100 mL volumetric flask that has been rinsed with ultrapure water. Three replicate digestions were made for each sample. The average of blank signals was subtracted from analytical signals of digested samples. All necessary precautions were adopted to avoid any possible contamination of the sample as per AOAC guidelines (1998). To express the results on a dry weight basis the moisture of the samples was removed by keeping them at 60°C for 6 h.

The accuracy of the digestion procedure was evaluated by heavy metal determination in the SRM NIES #7. The results were in good agreement with certified values and lied within the 95% confidence limit. The recoveries of the metals in the SRM were in the range of 95%–103%. The relative standard deviations were less than 10% for all metals determined. A recovery test of the analytical procedure was carried out for some of the metals in selected samples by spiking with aliquots of metal standards and then analyzing them as usual. Acceptable recoveries, [96%, were obtained for the analyzed metals.

Table 2 Levels (lg/g) of selected metals in black tea samples consumed in KSA

Results and Discussion

The results of tested metals in 17 tea versions are given in Table 2. Among the investigated metals, manganese was the highest whereas cadmium showed minimum levels. The levels of manganese were in the range of 447.8– 1,071.7 lg/g (X = 750.9). The highest and the lowest levels of manganese were found in Tata Tea A and Manasul, respectively. Yasmeen et al. (2000) have reported 175 lg/g manganese in tea samples from Pakistan. The levels of Mn in black tea samples from China have been reported by Xie et al. (1998) as 607 ± 200 lg/g. Iron was the second highest element found in black tea samples. The range being 88.7–946.7 lg/g with an average value of 250.5 lg/g. Pedro et al. (2001) have shown Fe to be in the range of 74–1,000 lg/g for black tea samples. Average concentration of Cr in our samples was found to be 9.8 lg/g; minimum being for Deemah (2.3 lg/g) and maximum being for Al-Diafa (17.5 lg/g). Ferrara et al. (2001) have reported the levels of Cr in black tea samples from different parts of the world as 17.9–115.4 lg/g.

Table 3 International comparison of the data Levels of Pb in the tea samples analyzed ranges between 0.3 and 2.2 lg/g. Lowest concentrations of Pb were found in Abu

Brand	Fe	Cu	Zn	Mn	Cr	Pb	Ni	Cd	Cd
Deemah	251.7	16.8	26.9	976.3	2.3	0.4	22.5	0.9	4.5
Al-Rabea	246.2	24	29.6	853.7	6.8	1.7	18.9	1.3	9.7
Panda	239.5	9.4	31.2	564.6	11.5	0.8	14.5	1.4	8.3
Dilmah	115.8	18.9	23.7	750.3	3.2	0.5	17.5	0.7	4.5
Al-Diafa	946.7	29.8	36.8	865.3	17.5	1.3	11.4	2.2	1.3
HiTea	388.2	12.7	76.3	651.7	16.8	0.7	25.3	0.4	7.4
Red label	351.6	19.3	46.7	932.6	5.3	1.8	19.7	1.8	5.3
Tata Tea A	175.3	12.5	88.2	1007.8	6.5	1.5	13.5	0.6	2.4
Tata Tea D	122.5	13.8	112.7	664.4	9.7	0.6	9.2	1.2	9.3

Jabal, Deemah and Dilmah. The highest Pb concentration was encountered in Manasul (2.2 lg/g) (Table 2). Xie et al. (1998) have reported average Pb contents in some Chinese black tea samples as 1.42 ± 0.8 lg/g. Narin et al. (2004) has found maximum lead in Turkish tea samples at the levels of 27.3 ± 0.1 lg/g. The higher levels of Pb in tea samples could be attributed to dust particles during tea processing and solder being used in packaging. The lowest Ni level was found in Tata Tea D as 9.2 lg/g, while the highest was 25.3 lg/g in HiTea. The mean concentration of Ni was 16.8 lg/g. Narin et al. (2004) have reported 38.8 ± 6.3 lg/g Ni in Turkish black tea Caykar GAP. Marcos et al. (1998) have reported Ni levels in tea samples as 2.89–22.6 lg/g.

Cadmium levels in black tea samples included in the present study were in the range of 0.32–2.17 lg/g (lowest in Lipton; highest in Al-Diafa). The mean cadmium levels were 1.1 lg/g. In a study by Ferrara et al. (2001), cadmium levels were found below detection limit by using flame

This work Turkey Spain Japan China India (Narin et al. 2004) (Pedro et al. 2001) (Matsuura et al. 2001) (Han and Li 2002) (Naithani and Kakkar 2005) Fe 250.5 ± 199 NA 946.2 134 ± 48 32.5 446.6 ± 22.8 Cu 18.1 ± 6.9 24.8 ± 1.4 31 27.7 ± 0.7 NA 13.2 ± 0.96 Zn 65.7 ± 31.3 140.9 ± 9.1 43.2 36.6 ± 0.7 25.5 39.5 ± 0.75 Mn 750.9 ± 185 806.0 ± 34.2 1004.1 503 ± 7 1519 140.0 ± 5.29

607 (Xie et al.

1998) Cr 9.8 ± 4.5 11.7 ± 0.1 NA NA NA NA Pb 1.7 ± 0.8 8.3 ± 0.1 NA 0.71 ± 0.02 3.30; 1.42 NA

1.42 (Xie et al.

1998) Ni 16.8 ± 4.5 20.9 ± 1.5 NA 8.06 ± 0.19 NA NA Cd 1.1 ± 0.5 2.0 ± 0.8 NA

NA NA NA Co 11.0 ± 3.4 21.8 ± 1.1 NA NA NA NA

All levels in lg/g NA, Not available

Table 4 Metal-to-metal correlation coefficient matrix for tea samples ($r = 95\%$)

	Fe	Cu	Zn	Mn	Cr	Pb	Ni	Cd	Co
Fe	1.000	0.359	-0.332	0.108	0.450	0.304	-0.085	0.420	0.109
Cu	0.463	1.000	0.090	0.288	0.038	0.129	-0.079	-0.120	0.187
Zn	0.008	0.119	1.000	-0.046	0.033	0.010	-0.164	-0.093	0.199
Mn	0.008	0.119	-0.046	1.000	0.010	-0.164	-0.093	0.199	0.128
Cr	0.450	0.038	0.010	0.288	1.000	-0.070	0.420	0.109	0.128
Pb	0.304	0.129	-0.164	-0.093	-0.070	1.000	0.420	0.109	0.128
Ni	-0.085	-0.079	-0.164	-0.093	0.420	0.109	1.000	0.420	0.109
Cd	0.420	-0.120	-0.093	0.199	0.109	0.128	0.420	1.000	0.109
Co	0.109	0.187	0.199	0.128	0.128	0.128	0.109	0.109	1.000

atomic absorption spectroscopy. However, Narin et al. (2004) have found 2.0 ± 0.2 lg/g Cd in Turkish Lipton tea sample. The mean copper contents of the analyzed samples were 18.1 lg/g. The lowest level of copper was found in Panda tea as 9.4 lg/g, whereas highest in Ahmad tea as 31.0 lg/g. Similar results for copper have been reported by other workers (Narin et al. 2004; Ferrara et al. 2001; Xie et al. 1998). The concentrations of Co and Zn in the samples were in the range of 4.5–17.4 lg/g and 23.7–122.4 lg/g, respectively. Marcos et al. (1998) have reported average Co and Zn concentrations in black tea samples as 0.2 and 28.2 lg/g, respectively. On the other hand, much higher levels have been reported by Narin et al. (2004) as 30.2 and 147.5 lg/g for Co and Zn, respectively. Matsuura et al. (2001) have reported mean Zn level in black tea as 36.6 ± 0.7 lg/g (Table 3).

The whole data was subjected to statistical analysis and correlation coefficients were

determined. Metal-to-metal correlation coefficient matrix is given in Table 4. The correlation between iron–chromium, iron–cadmium and lead–copper were significant whereas all other correlations of metal concentrations were not significant ($[0.400]$).

Acknowledgements Authors gratefully acknowledge the support of Chairman, Department of Natural Sciences, PMU. Thanks are also due to Research Institute, KFUPM in carrying out this work.

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Characterization of Saudi Arabian floral honeys by their physicochemical characteristics and heavy metal contents

M.Waqar Ashraf

Department of Natural Sciences & Mathematics,
Prince Muhammad Bin Fahad University, Al-Khobar 31952,
Kingdom of Saudi Arabia (mashraf@pmu.edu.sa)

&

SUFYAN AKRAM

National University Medical Institute,
National University of Singapore, Singapore 117621

Abstract: *The quality of floral honey produced in Saudi Arabia was evaluated. All samples were analyzed for common physicochemical parameters like moisture contents, acidity, ash, pH, conductivity and heavy metal contents. All samples showed proper maturity, considering the low moisture percentage. The total acidity, below 50 meq/kg, in all the samples indicated the absence of undesirable fermentation. Also, the mean pH around 4.0, is usual for floral honeys. The value for ash and conductivity (0.33% and 402 μ S/cm) were within the European Community Standards. Among heavy metals, Fe and Zn were detected in all samples, with the mean levels of 2.65 μ g/g and 0.77 μ g/g. Nickel was detected only in 20% of samples analyzed. The heavy metal contents of Saudi Arabian floral honey were either comparable or lesser than internationally reported values. Therefore, these can be regarded as safe for human consumption.*

Key Words: Floral honey; Heavy Metals; ICP-AES; Saudi Arabia; Physicochemical parameters

Introduction

There is an increasing interest in the verification of foodstuffs, particularly of natural origin like honey. Honey is one of the most complex foodstuffs produced by nature which is consumed by humans without processing. Honey possesses valuable nourishing and healing properties. These properties result from its chemical composition. As honey is the result of a bio-accumulative process, it is also useful for collecting information of the environment within the bees forage area. Honeybees (*Apis mellifera*) accretions are related to air, water and soil. They travel from flower to flower; touch branches and leaves, drink water from ponds and aerosol particles scavenge on their hairy bodies. They are continuously exposed to contaminants present in the wide spread area surrounding the apiary for the duration of their foraging activity. The area of foraging activity associated with an apiary extends over a surface of 7sq.km (approx). Owing to this large surface area, honey has been proposed as suitable bioindicator of chemical pollution [1]. The composition of honey varies with the feeding of the bees; it may be naturally from nectar of flower or artificially by feeding bees with sugar or syrup. Bee honey can be a good source of major and trace elements needed by human body. Their presence in human food is very important, but if they exceed safety levels, they can be toxic. According to some Italian workers, honey may be viewed as an environmental marker [2]. They found large amounts of heavy metals in honeys. Contents of Na, K, Ca, Mg, Cu, Fe, Mn and total ash were determined in 21 samples of Spanish commercial honeys [3]. Cu, Cd, Mn, Fe and Mg were determined in Turkish honey by AAS [4]. They suggested honey is useful for assessing the

presence of environmental contamination. Rashid & Soltan (2004) determined trace elements in different floral honeys from Egypt by using flame AAS[5]. Nozal et al (2004) have carried out classification of Spanish floral honeys depending upon trace elements and physico-chemical parameters analysis [6]. Similarly, Terrab et al (2004) have characterized Spanish thyme honeys by their physicochemical characteristics and mineral contents [7].

In Saudi Arabia honey is intrinsic to culture. The Quran, Islam's holy book, refers to honey's medicinal and healing properties. Whether used for its medicinal value, as a restorative or simply for sweetening, a Saudi family consumes 1Kg of honey per month, on average. While honey is used daily, consumption is greater during traditional, religious and festive occasions. Saudi statistics show that Saudi Arabia produces almost 90 tons of honey a year; only 2 to 4 percent of what it consumes. Mostly floral honey is produced in Saudi Arabia. The goal of the present study is the physico-chemical characterization of the floral honeys produced at different farms in Saudi Arabia, by the analysis of 7 physico-chemical parameters (pH, moisture, ash, conductivity, free acidity, lactic acidity & total acidity) and the 8 trace elements (Cu, Fe, Zn, Cr, Ni, Pb, Mn, Cd).

Experimental

The present study was conducted using 25 floral honey samples from the Eastern Province (KSA), that were collected from beekeepers. All samples were unpasteurised and were taken no more than three months after extraction, stored in air tight jars, transferred to the lab. and kept at 5°C till analyzed.

Determination of trace elements

Accurate multi-element analysis at trace levels is dependent upon prevention of element contamination. All laboratory equipment used for analysis was made of Pyrex, washed with nitric acid, rinsed twice with triply distilled water and dried in a clean environment. All reagents used for sample preparation were of specpure grade (Merck, Darmstadt, Germany). A Thermo IRIS Intrepid II XDL inductively coupled plasma atomic emission spectrometer was used for metal determinations. The operating conditions are given in Table 1. Five mL of nitric acid (0.1M) were added to the resultant ash, and the mixture was stirred on a heating plate until complete dryness. Then, again, 10.0mL of the same acid were added and brought up to 25mL with ultrapure water (Milli-Q, Millipore). This solution was used for instrumental analysis. A recovery test of the analytical procedure was carried out for some of the metals in selected samples by spiking with aliquots of metal standards and then analyzing them as usual. Acceptable recoveries, >96%, were obtained for the analyzed metals.

Determination of physicochemical parameters

Seven physicochemical parameters were analyzed using the Harmonized Methods of the International Honey Commission [8] and Association of Official Analytical Chemists [9]. The ash percentage was determined by sample (≈ 10 g) calcinations at 500°C in an electric furnace until a constant weight was achieved. Moisture levels were determined by noting the refractive index at 20°C by an Abbe Refractometer, and then using the Wedmore table to convert the measurement to percent moisture. pH was measured with pH meter (Horiba), from a solution containing 10.0 g of honey sample in 75.0mL of ultrapure water. Electrical conductivity of the honey solution (20%) in ultrapure water was measured at 20°C by a conductivity meter (Horiba) and the results are expressed as $\mu\text{S}/\text{cm}$. The free and

lactonic acidities were determined by titrimetric procedure. Free acidity was determined by titrating to pH 8.5 by adding 0.05M NaOH. Lactonic acidity was determined by immediately adding a volume of 10.0mL 0.05M NaOH and back titrated with 0.05M HCl to pH 8.3. Total acidity was obtained by adding the two.

Results and Discussion

The concentration of eight elements determined in the floral honey samples is shown in Table 2. The most abundant element in the honeys analyzed was Fe ($X=2.65\mu\text{g}\cdot\text{g}^{-1}$); whereas Cd showed minimum levels ($X=0.05\mu\text{g}\cdot\text{g}^{-1}$). From the previous studies it was shown that industrial emissions, automobile exhausts, mining, etc. may cause metallic contamination in honey [10,11,12]. In the study of Morse and Lisk [10], 16 elements were determined in the honey from the US, Mexico, El Salvador and China. They reported rather high levels of trace elements in honey. For example, the levels of Cd 0.102-0.267, Fe 5.8-183, and Ni 0.304-1.25 $\mu\text{g}\cdot\text{g}^{-1}$. The source of these metals was considered as steel or galvanized containers used in processing, shipping or storage. Crane [13] determined the concentrations of Fe, Cu, Mn and other minerals in floral honeys; the mean values were Fe 2.4, Cu 0.29 and Mn 0.30 $\mu\text{g}\cdot\text{g}^{-1}$. The values obtained in the present work ($X=2.65\mu\text{g}\cdot\text{g}^{-1}$) were lower than those reported earlier [5,10] but comparable to the ones reported for Spanish honeys [6] (Table 4). Feryal and Ozlem [4] have reported quite high cadmium concentrations (0.31-0.34 $\mu\text{g}\cdot\text{g}^{-1}$), compared to our values at (0.05-0.1 $\mu\text{g}\cdot\text{g}^{-1}$). Similarly, they have reported Cu as 0.0-0.09 $\mu\text{g}\cdot\text{g}^{-1}$ as against our values at 0.06-0.17 $\mu\text{g}\cdot\text{g}^{-1}$. However, Nozal et al [6] have reported 0.2 $\mu\text{g}\cdot\text{g}^{-1}$ Cu in the Spanish honey whereas Rashed [5] have reported 1.70 $\mu\text{g}\cdot\text{g}^{-1}$ Cu in the Egyptian floral honeys. Lead concentrations found in the present study (0.06 $\mu\text{g}\cdot\text{g}^{-1}$) compared well with the values reported by Przybytowski

in the Polish honeys ($0.070 \mu\text{g-g}^{-1}$) [1] and Spanish honeys ($0.03 \mu\text{g-g}^{-1}$) [6]. However, lead was detected in 28% honey samples only. Nickel was detected in 20% samples only with the average levels of $0.06 \mu\text{g-g}^{-1}$. Very low Ni levels in honey have been reported in literature (Table 4). Zinc was detected in all the samples with an average of $0.77 \mu\text{g-g}^{-1}$. Przybytowski have obtained significantly higher levels of Zn in Polish honey samples ($22.3 \mu\text{g-g}^{-1}$), exceeding the Polish standard limit of $15 \mu\text{g-g}^{-1}$ [1]. Tuzen et al [19,20] have reported concentration of Pb and Cd in Turkish honey ranging from $8.4\text{-}105.8 \mu\text{g/kg}$ and $0.9\text{-}17.0 \mu\text{g/kg}$, respectively.

Table 3 shows the data pertaining to the analysis different physicochemical parameters of honey samples. Moisture content, a parameter that is related to climate, season and degree of honey maturity [14] was found within 14-20.5%. Only one sample exceeded the permitted limit of 20%, set by European Community Directive [15]. The values found show mature honeys, may be due to use of modern hives by beekeepers and giving proper time of extraction. Ash content, the parameter used for the determination of botanical origin (floral, mixed or honeydew) showed values between 0.13 to 0.56%. None of the samples surpassed the permitted value (0.6%) for floral honey [15]. The mean value was 0.33%, similar to the one reported by Terrab et al [7] and Nozal et al [6] but quite higher than the value found by Sanz et al ($X=0.18\%$) [16].

pH value is of great importance during the extraction and storage of honey. It influences the texture, stability and shelf life of honey. Our samples showed the range 3.5-4.8 with a mean value of 4.0, which is slightly lower (4.2) than the one found by Terrab et al in Spanish honey [7] and higher than the one reported by Accorti et al (3.8) in Italian honey [17]. The electrical conductivity of the honey is directly related to the concentration

of inorganic salts, organic acids and proteins. This parameter shows great variability according to the floral origin and considered best for differentiating between honeys of different floral origin [7]. This parameter showed values between 280 to 523 $\mu\text{S}\cdot\text{cm}^{-1}$ the mean value being 402 $\mu\text{S}\cdot\text{cm}^{-1}$; quite similar to the one reported in Spanish honeys (395 $\mu\text{S}\cdot\text{cm}^{-1}$) but a bit higher reported for the Italian thyme honeys ($X=380 \mu\text{S}\cdot\text{cm}^{-1}$).

Due to the presence of organic acids in equilibrium with their corresponding lactones, or internal esters, and some inorganic ions such as sulphate or phosphate, the values of the free acidity ranged between 18.3-41.7 $\text{meq}\cdot\text{kg}^{-1}$. The lactonic acidity is the reserve and is used when the honeys become alkaline, ranged between 4.2 to 9.6 $\text{meq}\cdot\text{kg}^{-1}$; while the mean of the total acidity was 34.7 $\text{meq}\cdot\text{kg}^{-1}$. None of the samples exceeded the acidity limit established by European community regulations [15]. The results obtained for the acidity compared well to those obtained for Spanish floral honeys [7] but were slightly lower than those reported for Italian honeys ($X=43.3 \text{ meq}\cdot\text{kg}^{-1}$).

The physicochemical parameters such as moisture contents, acidity and electrical conductivity showed values in agreement with legal limits set by European Union (The Council of European Union, 2002). Among heavy metals Saudi Arabian floral honey showed levels either comparable or lesser than internationally reported values. Therefore, these can be regarded as safe for human consumption.

Acknowledgements: The authors wish to acknowledge the support of Chairman, Department of Natural Sciences, PMU, in carrying out this work. Thanks are also due to Bait Al-Asal for their help in sample collection.

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Table 1: The operating conditions for ICP-AES instrument

ICP-AES	IRIS Itrepid II	XDL
Plasma Conditions		
	Rf Frequency	30MHz
	Rf Power	1.0kw
Gas Flow Rate		
	Carrier Gas	Ar 0.5L/min
	Auxiliary Gas	Ar 1.0L/min
	Coolant Gas	Ar 20L/min
Sampling Conditions		
	Observation Height	18mm above coil
	Nebulizer	cross-flow type
	Sample uptake rate	1.2mL/min
Spectrometer Conditions		
	Polychromator	Paschen-Runge mounting
	Focal Length	75cm
	Entrance slit	25µm
	Exit slit	50 µm
Data Acquisition		
	Integration Time	10sec
	Repetition	3 times

Table 2: Levels of selected heavy metals ($\mu\text{g-g}^{-1}$) in floral honey from Saudi Arabia

Cu	Fe	Zn	Cr	Ni	Pb	Mn	Cd
0.08	2.63	0.83	ND	ND	0.06	0.07	ND
0.06	4.12	0.65	ND	ND	ND	0.07	ND
0.13	3.78	1.77	0.12	ND	ND	0.05	ND
0.11	7.89	0.55	0.09	ND	0.05	0.11	0.05
0.07	5.66	0.38	0.07	ND	ND	0.08	ND
0.08	1.63	0.5	ND	0.06	ND	0.13	0.05
ND	2.33	0.47	ND	0.07	ND	0.1	0.08
0.07	0.97	0.63	0.08	ND	ND	ND	ND
0.06	1.35	0.51	0.06	ND	ND	ND	ND
ND	1.6	0.95	ND	ND	ND	0.06	0.1
0.1	2.11	1	ND	ND	0.08	ND	ND
0.09	1.86	0.7	0.05	ND	ND	ND	ND
0.11	0.75	0.68	ND	ND	ND	0.09	0.06
0.06	2.53	2.11	ND	ND	0.06	0.14	0.06
0.17	1.42	0.78	0.07	0.05	ND	ND	0.07
0.09	3.37	1.35	0.05	ND	ND	0.08	ND
0.15	2.89	0.19	0.11	ND	ND	ND	ND
0.16	3.36	0.68	0.08	ND	0.05	0.19	0.06
0.12	4.12	0.33	ND	0.06	0.05	0.06	0.05
0.08	2.78	0.87	0.18	ND	ND	ND	ND
0.13	1.56	1.53	0.05	ND	ND	ND	ND
0.15	1.08	0.48	0.06	ND	0.07	0.05	ND
0.09	2.47	0.71	ND	0.05	ND	0.18	ND
0.12	1.96	0.4	ND	ND	ND	ND	0.05
0.07	2.13	0.29	ND	ND	ND	ND	ND
R 0.06- 0.17	0.75-7.89	0.19-2.11	0.05- 0.07	0.05-0.07	0.05-0.08	0.05-0.19	0.05- 0.10
X 0.10	2.65	0.77	0.06	0.06	0.06	0.10	0.06

ND Not Detected; R Range; X Average

Table 3: Distribution data for common physicochemical parameters for Saudi floral honey

Moisture(%)	Ash(%)	Conductivity ($\mu\text{S}/\text{cm}$)	pH	Free Acidity (meq/kg)	Lactonic Acidity (meq/kg)	Total Acidity (meq/kg)
16.3	0.25	375	4.3	19.3	8.3	27.6
16.8	0.31	480	4.2	31.2	7.2	38.4
16.2	0.19	410	3.6	30.3	5.3	35.6
16.9	0.16	315	3.6	23.7	6.9	30.6
16.5	0.45	300	4.4	27.4	7.1	34.5
17.5	0.51	366	4.5	21.8	6.9	28.7
18.8	0.36	488	4.0	19.7	7.1	26.8
15.8	0.56	510	3.6	29.8	8.3	38.1
16.7	0.39	323	3.5	25.2	9.1	34.3
15.3	0.28	389	3.9	31.3	5.3	36.6
15.0	0.30	362	3.9	18.3	6.1	24.4
14.0	0.26	518	4.0	41.7	4.3	46.0
14.5	0.44	451	4.6	24.5	4.2	28.7
17.8	0.27	497	4.3	31.7	6.3	38.0
20.5	0.30	410	4.8	27.8	5.8	33.6
19.3	0.14	280	4.6	33.5	7.2	40.7
17.2	0.17	379	4.2	29.9	5.4	35.3
16.5	0.30	351	4.1	37.9	9.6	47.5
16.0	0.13	523	3.9	32.3	8.1	40.4
16.9	0.52	341	3.7	26.7	7.5	34.2
15.3	0.31	455	3.5	34.9	6.6	41.5
18.3	0.53	463	3.6	25.7	9.0	30.7
18.7	0.41	353	4.1	23.5	8.5	32.0
17.5	0.44	341	4.2	24.7	6.3	31.0
16.9	0.37	370	4.0	26.3	5.6	31.9
<i>X$\pm$SD</i> 16.8 $\pm$ 1.5	0.33 $\pm$ 0.13	402 $\pm$ 73.1	4.0 $\pm$ 0.3	27.9 $\pm$ 5.7	6.8 $\pm$ 1.5	34.7 $\pm$ 5.8

Table 4: International comparison of the present data

	This Work	Turkey [4]	Spain [6]	Poland [1]	Eg
Cu	0.06-0.17	0.0-0.09	0.1-0.3	NA	
X±SD	0.1±0.03	0.01	0.20		
Fe	0.75-7.89	0.04-1.21	1.0-3.3	NA	
X±SD	2.65±1.59	0.36	1.97		
Zn	0.19-2.11	NA	0.3-1.5		
X±SD	0.77±0.47		1.07	22.3	
Cr	0.05-0.18	NA	0.0-0.2	NA	
X±SD	0.08±0.04		0.13		
Ni	0.05-0.07	NA	0.0-0.1	NA	
X±SD	0.06±0.01		0.03		
Pb	0.05-0.08	NA	0.0-0.1		
X±SD	0.07±0.01		0.03	0.07	
Mn	0.05-0.19	0.0-0.09	0.1-0.4	NA	
X±SD	0.1±0.04	0.03	0.30		
Cd	0.05-0.1	0.31-0.34		0.50	
X±SD	0.06±0.02	0.32			

X Mean; SD Standard Deviation; NA Not Available

Publication Details????

Determination of Aflatoxin Levels in Some Dairy Food Products and Dry Nuts Consumed in Saudi Arabia

Muhammad Waqar Ashraf

Department of Mathematics & Natural Sciences,
Prince Muhammad Bin Fahd University,
P.O Box 1664, Al Khobar 31952,
Kingdom of Saudi Arabia

Abstract: Three hundred and ninety-three samples of dairy products (124 samples of white cheese, 61 samples of cream cheese, 76 samples of Kashar cheese, and 132 samples of butter), 91 samples of cashew nut and 97 macademia nut marketed in Eastern Province, Saudi Arabia during September 2010-September 2011, were analyzed for aflatoxin M1 (AFM1), total aflatoxin and AFB1 by microtitre plate enzyme linked immunosorbent assay (ELISA). The incidence of AFM1 contamination in dairy products analyzed was 82%. Total aflatoxin contamination was determined in 84 (92.3%) of 91 cashew nut and in 88 (90.7%) of 97 macademia nut whereas total aflatoxin contamination was not detected in 3 (3.2%) of 91 cashew nut samples and in 12 of 97 macademia nut samples. AFB1 was found in 84 (92.3%) of 91 cashew nut and in 83 (85.5%) of 97 samples of macademia nut samples. AFM1 levels in 3 (2.4%) white cheese, 4 (3.0%) of butter, 2 (3.2%) in cream cheese and 5 (6.5%) of Kashar cheese samples were found higher than the maximum acceptable levels as set by European Union. Continuous surveillance program may be warranted to monitor regularly the occurrence of aflatoxins in foodstuffs.

Keywords: Aflatoxins; Dairy Products; Dry Fruits

1. Introduction

Incidences of food contamination have become increasingly frequent in recent years raising question about their human health and economic consequences. Aflatoxins (AFs) are highly toxic secondary mould metabolites. Mycotoxins, which can occur in both industrialized and developing countries, arise when environmental, social and economic conditions combine with meteorological conditions (humidity, temperature) which favor the growth of moulds. Aflatoxins are a group of structurally related toxic compounds produced by certain strains of the fungi *Aspergillus flavus*, which produce only B aflatoxins and *Aspergillus parasiticus* which produces both B and G aflatoxins. The major aflatoxins of concern are designated B1, B2, G1 and G2. These toxins are usually found together in various foods and feeds in various proportions. Aflatoxins M1 and M2 are oxidative metabolic products of aflatoxin B1 and B2 produced by animals and is usually excreted in the milk, urine and faeces of dairy cattle and other mammalian

species that have consumed aflatoxin-contaminated food or feed. Aflatoxinol is reductive metabolite of aflatoxin B1 (Kumar et al, 2008; Bakirci, 2001; Galvano, Galofaro, & Galvano, 1996; Galvano et al. 2001; Kotsonis, Burdock, & Flamm,

* Corresponding author:
mashraf@pmu.edu.sa (Muhammad Waqar Ashraf)

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1996; Stubblefield & Shannon, 1974). Many researchers reported that there was a linear relationship between the amount of AFM1 in milk and AFB1 in feed consumed by the animals (Bakirci, 2001).

The most pronounced contamination has been encountered in the tree nuts, peanuts, and other oil seeds, including corn and cottonseed. Therefore, data on the occurrence of aflatoxins in foods and feeds are needed to enable exposure assessment and estimate the effects of regulatory limits. AFM1 may or may not be present in dairy

products in a particular year depending on the weather conditions for that period. Hence, widespread and frequent monitoring should be carried out (Galvano et al., 1996). Aflatoxins are acutely toxic, immunosuppressive, mutagenic, teratogenic and carcinogenic compounds. The main target organ for toxicity and carcinogenicity is the liver (Aflatoxins in Foods: Risk Assessment Studies, 2001; Kocabas & Sekerel, 2003; Kotsonis et al., 1996; Peraica, Radic, Lucic, & Pavlovic, 1999).

Milk and milk products are a major nutrient for human especially children. However, at the same time these products may be contaminated with AFM1 residues, a human health hazard. For this reason, many countries have regulations to control the levels of aflatoxin B1 in feeds and to propose maximum permissible levels of AFM1 in milk to reduce this risk (Rastogi, Dwivedi, Khanna, & Das, 2004; Sarımehtmetoglu, Kuplulu, & Celik, 2004).

A number of survey and monitoring programs have been carried out in several countries attempting to obtain general pattern of extent of food contamination (Abdulkadar, Abdulla, & Jasim, 2000; Aycicek, Yarsan, Sarımehtmetoglu, & Cakmak, 2002; Galvano et al., 1996; Gunsen & Buyukyorkuk, 2002; Oruc & Sonal, 2001; Rastogi et al., 2004).

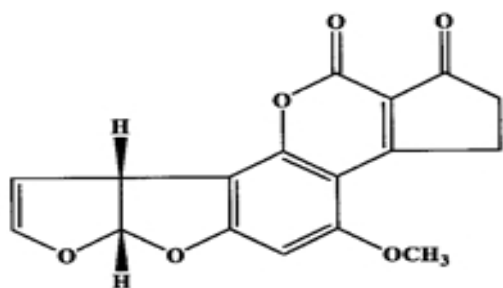
Current aflatoxin analysis is done by various methods including thin layer chromatography (TLC), liquid chromatography (LC), high-performance liquid chromatography (HPLC) and ELISA (Abdulkadar et al., 2000; Bakirci, 2001; Dagoglu, Keles, & Yildirim, 1995; Garden & Strachan, 2001; Sarımehtmetoglu et al., 2004). The European Commission have set limits for maximum levels of total aflatoxin and AFB1 allowed in groundnuts, nuts, dried fruit and their products. For foods ready for retail sale, these limits are 4 µg/kg (total aflatoxins) and 2 µg/kg (AFB1), and for nuts and dried fruit to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs the limits stand at 10 µg/kg (total aflatoxins) and 5 µg/kg (AFB1). The EU Commission legal limits for AFM1 in milk, butter and cheese are 0.05 µg/l (Codex Alimentarius Commission, 2001; Commission Regulation, 2002; Turk Gıda Kodeksi Tebliği, 2002). Saudi Arabia is the largest consumer of dry fruits in the GCC. On the other hand, dairy products have been produced and consumed widely in Saudi Arabia. Purpose of this study was to determine occurrence and levels of aflatoxins in some dairy products and dry fruits consumed by Saudi people.

2. Materials and Methods

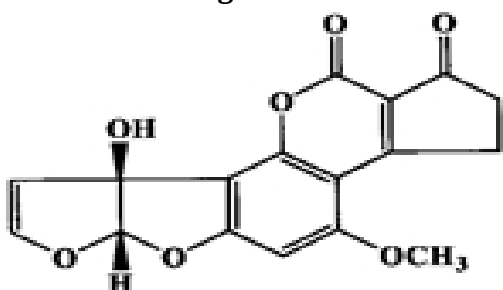
A total of 124 samples of white cheese, 61 samples of cream cheese, 76 samples of Khashar cheese, 132 samples of butter (393 dairy products) and 91 samples of cashew nut and 97 samples of macadamia nut (total 188 samples) were obtained randomly from markets in Eastern Province were analyzed from September 2010 to September 2011 and aflatoxin concentrations were determined by enzyme linked immunosorbent assay, ELISA (Ridascreen, aflatoxin M1-r-biopharm) in our laboratories. All samples were collected and analysed before their expiration dates exceeded. The samples were analysed as procedure which described by R-Biopharm GmbH (Enzyme immunoassay for the quantitative analysis of aflatoxins, 1999). Immunoaffinity columns were used for samples (RIDA-Aflatoxin column-r-biopharm) clean up prior analysis of aflatoxin M1 and B1 levels in dairy products (cheese and butter) and dry fruits (cashew nut and macadamia nut). The basis was antigen-antibody reaction. The column contained a gel suspension to which monoclonal antibodies were attached covalently. The antibodies were specific for the aflatoxin B1 and M1 (Figures 1 & 2).

For aflatoxin M1 analysis, 2 g of samples and 40 ml dichloromethane were used for extraction. The suspension was filtered and a 20 ml extract was evaporated under nitrogen. The extraction procedure was repeated with 0.5 ml phosphate buffered solution (PBS) and 1.0 mL heptane and centrifuged for 15 min at 2500 rpm and 15°C. The methanol layer was used for AFM1 testing. Detection limit was <10 ppt.

For total aflatoxin analysis, 2.0g of sample was weighed into a screw-top glass vial. Ten milliliter methanol/distilled water (70/30) was added and mixed by using shaker for 10 min at room temperature (20-25°C). Extract was filtered by using Whatman 41 filter paper, 100 µL of the filtrate diluted with 600 µL of sample dilution buffer and 50 µL of diluted filtrate was transferred per vial in the assay. The mean recovery rate has been determined to be 85% with a coefficient of variation of 15%.



Aflatoxin B1

Figure 1.

Aflatoxin M1

Figure 2.

Similarly, for aflatoxin B1 analysis, 2.0 g of sample and 7 ml methanol (100%) were used for AFB1 extraction (shacked for 10 min). Two milliliter of filtrate was transferred into a screw-top centrifugal vial, 2 ml distilled water and 3 ml of dichloromethane were added and mixed for 5 min and centrifuged for 5 min/3250 rpm/15oC. The upper aqueous layer was removed and entire dichloromethane layer was used. The dichloromethane layer was evaporated at 50-60oC. The extraction procedure was repeated with 0.4 ml PBS and 1.5 ml heptane as depicted above. The upper heptane layer was removed and the methanol layer was used for AFB1 testing. Detection limit was 625 ppt and recovery rate was 50-70%.

3. Results and Discussion

In this study, AFM1 contamination in the dairy products (cream cheese, butter, white cheese and Kashar cheese) was 80.4% (316 samples of 393) whereas AFM1 was not detected in 77 samples (19.4%). AFM1 levels in the cream cheese, butter, white cheese and Kashar cheese samples were 80.3% (49 of 61), 71.2% (94 of 132), 84.6% (105 of 124) and 96.0% (73 of 78), respectively. AFM1 contamination was not detected in 12 (19.6%) cream cheese, 19 (15.3%), white cheese, in 5 (6.5%) Kashar cheese, and in butter 41 (31.0%) samples (Table 1). AFM1 levels in 3 (2.4%) white cheese, 4 (3.0%) of butter, 2 (3.2%) in cream cheese and 5 (6.5%) of Kashar cheese samples were found higher than the maximum acceptable levels (cheese: 250 ng/kg, butter: 50

ng/kg) of the Turkish Food Codex (Turk Gıda Kodeksi Tebliği, 2002).

Total aflatoxin contamination was determined in 84 (92.3%) of 91 cashew nut and in 88 (90.7%) of 97 macademia nut whereas total aflatoxin contamination was not detected in 3 (3.2%) of 91 cashew nut samples and in 12 of 97 macademia nut samples. Total aflatoxin level in one of the cashew nut (1 of 91) and three of macademia nut (3 of 97) samples were found higher than the EU(European Union) and Turkish legal limit (10 µg/kg) (Commission Regulation, 2002; Turk Gıda Kodeksi Tebliği, 2002).

AFB1 was found in 84 (92.3%) of 91 cashew nut and in 83 (85.5%) of 97 samples of macademia nut samples. AFB1 was not detected in 7 (7.6%) of cashew nut and in 14 (14.4%) of macademia nut samples. AFB1 level of only six cashew nut samples (6 of 91) exceed the legal limits (5µg/kg), whereas six of macademia nut was higher than legal limits (Table 2). Results of the present study were compared with the ones reported from other parts of the world. Bakirci (2001) reported AFM1 in 79 (87.77%) of 90 of the milk samples. Thirty five (38.89%) of the positive samples were found higher than the maximum limit (0.05 ppb) accepted by EU, Turkey and some other countries. Sarımehtemoglu et al. (2004) detected AFM1 contamination in 327 (81.75%) of 400 cheese samples. The number of cheese samples which exceed the legal limits of 250 ng/kg were 110 (27.5%). Oruc and Sonal (2001) examined AFM1 levels in milk and cheese from Bursa, Turkey and found 89.5% of cheese samples with range of 0-810 ng/kg were contaminated. We found AFM1 in 80.4% of dairy product samples whereas AFM1 contamination in white cheese was 80.3%. Aycicek et al. (2002) studied on occurrence aflatoxin M1 in 183 sample of white cheese and butter in Istanbul in 2001 and incidence of AFM1 in white cheese and butter samples were found as high as 65% and 81%, respectively. Dagoglu et al. (1995) analysed 75 white cheese samples and AFM1 contamination was 42%. Gunsen and Buyukyoruk (2003) analysed 86 fresh Kashar cheese for AFM1 and 28 (32.5%) of samples exceed allowed limits. These results were higher than reported in the present study. Pietri, Bertuzzi, and Piva (1997) checked 223 samples of Grana Padano cheese manufactured in 4 years (1991-1994) and it has emerged that only one sample exceeded the maximum tolerated level in cheese in some European countries (250 ng/kg). Most samples (91%) were found in the range 5-100 ng/kg and only 15 (6.7%) was found in the range 100-250 ng/kg. Abdulkadar et al. (2000) analysed

edible nuts for aflatoxin contamination which imported in Qatar between June 1997 and December 1998. Eighty-one nut samples were analysed in the second half of 1997 and contamination was detected in 19 samples with total aflatoxin varied from 0.53 to 289 lg/kg. Aflatoxin B1 levels in common Egyptian foods was determined by reversed-phase liquid

chromatography with UV detection and the highest prevalence of AFB1 contamination was found in nuts and seeds (82% of 17 samples) (Selim, Pependrof, Ibrahim, Sharkawy, & Kashory, 1995). Gunsen and Buyukyoruk (2002) analysed 25 cacao hazelnut cream and found AFB1 asaverage of 1076.5 ± 194.4 ng/kg.

Table 1. AFM1 concentrations in dairy products

AFM1 Level	Cream Cheese	White Cheese	Kashar Cheese	Butter
ND	12 (19.6%)	19(15.3%)	5 (6.57%)	41(31.0%)
<1 ng/kg	19 (31.4%)	27 (21.7%)	19 (25.0%)	24(18.1%)
1-10 ng/kg	3 (4.9%)	32 (25.8%)	11 (14.4%)	37(28.0%)
11-50 ng/kg	12 (19.6%)	19(15.3%)	16 (21.0%)	29(21.9%)
51-100 ng/kg	7 (11.4%)	9 (7.2%)	13 (17.1%)	4 (3.0%)
101-250 ng/kg	6 (9.8%)	15 (12.0%)	9 (11.8%)	0
>250 ng/kg	2 (3.2%)	3 (2.4%)	5 (6.5%)	0
Total Samples	61	124	78	132
Detected	49 (80.3%)	105 (84.6%)	73 (96.0%)	94(71.2%)

Table 2. Total and AFB1 concentrations in cashew nuts and macademia nuts

Levels	Cashew Nut		Macademia	
	AFB1	Total AF	AFB1	Total AF
ND	7 (7.6%)	3 (3.2%)	9 (14.4%)	12 (12.3%)
<1 µg/kg	53 (58.2%)	41 (45.1%)	38 (39.1%)	46 (47.4%)
1-5 µg/kg	25 (27.4%)	39 (42.8%)	34 (35.0%)	33 (34%)
5-10 µg/kg	6 (6.5%)	7 (7.6%)	11 (11.3%)	3 (3.1%)
>10 µg/kg	0	1 (1.0%)	0	3 (3.1%)

It is likely that a level set as low as this will have an impact on world trade and so it is important that society, both producers and consumers, is confident that it is justified. Clearly, any risk assessment of a naturally occurring toxic compound must be based on information about occurrence, exposure and toxicology (Moss, 2002).

In conclusion, AFM1 incidence in cream cheese, butter, white cheese, and Kashar cheese was found high. In addition, AFB1 and total aflatoxin occurrence in the most of cashew nuts and macademia nut were also detected. Finally, the results of the present study clearly show the need of periodically monitoring the occurrence of aflatoxin in dairy products and dry nuts.

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Publication Details????

Concentrations of Cadmium and Lead in Different Cigarette Brands and Human Exposure to these Metals Via Smoking

Muhammad Waqar Ashraf

Department of Natural Sciences & Mathematics,

Prince Mohammad Bin Fahd University,

Al Khobar 31952, Kingdom of Saudi Arabia

(mashraf@pmu.edu.sa)

Abstract: The concentration of Cadmium (Cd) and lead (Pb) in different cigarette brands sold and/or produced in Saudi Arabia were determined by atomic absorption spectrometry (AAS). Average levels of Cd and Pb in different cigarette brands in Saudi Arabia were 1.81 and 2.46 $\mu\text{g g}^{-1}$ (dry weight), respectively. The results obtained in this study estimate the average quantity of Cd inhaled from smoking one packet of 20 cigarettes to be in the range of 0.22-0.78 μg . Results suggest that the quantity of Pb inhaled of smoking one packet of 20 cigarettes, is estimated to be 0.97-2.64 μg . The concentrations of Cd and Pb in cigarettes were significantly different between cigarette brands tested. The results of the present study were compared with other regional and international studies.

Keywords: lead; cadmium; AAS; cigarettes; KSA

Introduction

Until recently, the consumption of tobacco products and number of smokers have been increasing steadily world over. In the tobacco plantation herbicides, insecticides and fungicides are used to control the various parasites and plant diseases. Tobacco smoke has toxic, genotoxic, and carcinogenic properties and has been linked to fatal pregnancy outcomes. The cigarette smoke contains both organic and inorganic human carcinogenic compounds. Containing 4000 identified chemical compounds, cigarette smoke is very harmful and toxic for human health (IARC 1986). Of these toxic materials are heavy metals, particularly cadmium and lead through inhalation of smoking.

Several heavy metals found in tobacco smoke such as Cd, Cr, Pb and Ni also accumulate in tissues and fluids through smoking (Rey *et al.* 1997; Shaham *et al.* 1996; Paakko *et al.* 1989; Al-Bader *et al.* 1999). Tobacco smoking is the most important single source of Cd exposure in the general population. According to Al-Bader *et al.* (1999), the most important sources of Cd in humans are smoking and food. Cadmium can enter the body through tobacco smoking, diet, drinking water, and inhaling it from the air. Small amounts of Cd taken over many years may cause kidney damage and fragile bones, since Cd is mainly stored in bone, liver and kidneys (Kjellstrom 1979; Nriagu 1981). Furthermore, Cd causes stomach irritation, vomiting, and

diarrhea. Cadmium and lead, present in tobacco smoke, contribute substantially to cancer risk (Fowles & Dybing 2003). Cadmium is a group I carcinogen and lead has recently been elevated from a group IIB to a Group IIA carcinogen (IARC 2004).

Cigarette smoke contains substantial amounts of Cd. Average Cd levels in cigarettes range from 1000 to 3000 $\mu\text{g}/\text{kg}$ (Lin 1992; Watanabe *et al.* 1987; Menden 1972). One pack of cigarettes deposits 2-4 μg into the lungs of a smoker while some of the smoke passes into the air to be inhaled by smokers and nonsmokers alike (Menden *et al.* 1972; Kalcher *et al.* 1993), which means, for 20 cigarettes smoked, approximately 2-4 μg of Cd is inhaled by the smoker, and as much as a microgram of Cd spreads into the environment. Mussalo-Rauhamaa *et al.* (1986) reported that the mean contents in filter cigarette tobacco sampled from Finland were 1.7 and 2.4 μg^{-1} (dry weight) for Cd and Pb, respectively.

Lead is a highly toxic metal and is capable of causing serious effects on the brain, kidneys, nervous system and blood red cells (Harrison and Laxen 1984; Ratcliffe 1981; WHO, 1977, 1989). An increase of Pb level is associated with a decrease in the intelligence quotient (IQ) levels and potential behavioral problems (Needle *et al.* 1979). A survey of middle-aged men in 24 British towns showed a strong association between blood Pb concentrations and alcohol and cigarette smoking (Shaper *et al.* 1982). Smoking of 20 cigarettes a day has been estimated to result in the inhalation of 1-5 μg Pb (WHO 1977). The WHO estimates 2-6% of Pb in cigarettes is inhaled by the smoker (WHO 1989). It was reported that Pb in tobacco have been associated with impaired fetal growth and brain development (Neuspiel *et al.* 1994).

The consumption of tobacco products and the number of smokers have been increasing steadily throughout the world and Saudi Arabia is no exception to this. Tobacco in Saudi Arabia continued to display high growth in 2010, rising significantly in both volume and value terms. Unlike Western markets, in which smoking rates are on the decline as a result of the many concerted initiatives aimed at reducing smoking, Saudi Arabia's smoking population is rising. Pipe tobacco remains the dominant subcategory, which is unsurprising in light of the shisha culture that is deeply embedded across the Middle East (http://www.euromonitor.com/Tobacco_in_Saudi_Arabia). In an earlier report it was revealed that the overall prevalence of smoking was 21.1% for males and 0.9% for females. Most smokers (78%) were young to middle-aged (21–50 years old). Smoking prevalence was higher among married people, among uneducated people, and among those in certain occupations: manual workers, businessmen, army officers, and office workers (Jarallah *et al.* 1999).

The objectives of the present study were many fold. First, to investigate Cd and Pb concentrations in different brands of tobacco cigarettes sold and/or produced in Saudi Arabia; second, to find out if there are significant differences between different cigarette brands in their heavy metal contents; third, to estimate their (Cd & Pb) amounts in the mainstream smoke according to Mussalo-Rauhamaa *et al.* (1986) study; and fourth to compare our data with the one published for other parts of the world.

Material and Methods

Graphite furnace atomic absorption spectrometry (GF-AAS) (Shimadzu AA-6200 equipped with ASC 6100 autosampler) was used for the determination of Cd and Pb. The wavelengths for Cd and Pb were set to 228.8 and 283.3 nm, respectively and spectral bandpass to 0.7 nm. All reagents used were of specpure grade in quality. Standard solutions of 1000 ppm for Cd and Pb (E.Merck), 35-38% HCl, 70% HNO₃ (Specpure, E.Merck) were used. Glassware and PE containers were soaked in 5% nitric acid for 24 h; cleaned with de-ionized water and dried in such a manner to ensure that any contamination from glassware does not occur.

Twenty different brands of cigarettes were purchased from local market in Eastern Province, Saudi Arabia. Composites were a homogenized mixture prepared by removing the papers and filters of 20 cigarettes taken randomly from four different batches (5 cigarettes from each pack of different batch number). Care was taken to avoid any source of contamination, and this preparation was carried out in a clean environment. The weight of tobacco mixtures was then measured ranging from 600 to 700 mg per cigarette.

The method used in this study is applicable to the determination of Cd and Pb in cigarettes by GFAAS. Tobacco samples were placed and spread in covered clean glass containers until they became dry. Thus, care was taken that the samples were not directly influenced by dust during air drying. For analysis of Cd and Pb, about 0.5 g of air-dried tobacco sample was placed in a PTFE vessel and allowed to digest with a mixture of HNO₃ and HCl with a ratio of (8:2) v/v by heating the PTFE vessel in a water bath-shaker for 5 h at 100°C. After cooling, 10 mL of de-ionized water was added, and the solution was then filtered through a Whatman filter paper 40 into a 25 mL volumetric flask. The volume obtained was topped up to the mark with de-ionized water (Massadeh and Snook 2002). Quantification was achieved by interpolating the relevant calibration curves prepared from aqueous solutions of metal standards in the same acid concentration, in order to minimize matrix effects.

To validate and confirm the reliability of the method used for the analysis of Cd and Pb in cigarettes, two certified standard reference materials NIST-1575a (pine needles) and NIST-1570 (Spinach leaves) were analyzed taking into consideration the reproducibility and accuracy of the results obtained by the acid digestion method. Results obtained for the standard reference materials are displayed in Table 1.

The results were in good agreement with the certified values for Pb and Cd. Moreover, the precision, accuracy and reproducibility of results for every run was started with a control blank and testing several quality control (QC) solutions. This procedure was repeated after every seventh samples. Results were within 3% of QC values. For every sample five replicates were taken and the average value was calculated. The results were statistically analyzed using ANOVA and Student's *t*-test (Statistica 5.0). Significant differences were found between different cigarette brands in Cd and Pb contents. ANOVA analysis for Cd and Pb shows that there are significant differences in the concentrations of the 20 different cigarette brands. The obtained values for Cd and Pb in the two reference materials are in consistence with their certified values.

Results and Discussion

The results of Cd and Pb concentrations, together with other relevant details for tobacco materials sold and produced in Saudi Arabia, are given in Tables 2 and 3. The average concentration of Cd in cigarettes tested is $1.81 \mu\text{g g}^{-1}$ (dry weight) ranging from 0.83 to $2.78 \mu\text{g g}^{-1}$. This finding is in agreement with Watanabe *et al.* (1987), who reported that Cd content in cigarettes sampled from various countries ranged from 0.29 to $3.38 \mu\text{g g}^{-1}$. Compared with the reported results for Cd in the United Kingdom ($0.90 \mu\text{g g}^{-1}$) and Korean cigarettes ($1.02 \mu\text{g g}^{-1}$), Cd contents in the brands studied are double and similar, respectively (Jung *et al.*, 1998).

Lead concentrations in cigarette brands studied, ranged from 1.33 to $3.61 \mu\text{g g}^{-1}$ dry weight with an average of $2.46 \mu\text{g g}^{-1}$. These results obtained for Pb are in agreement with those results reported by Watanabe *et al.* (1987) that Pb content in cigarettes sampled from various countries ranged from 0.46 to $3.66 \mu\text{g g}^{-1}$. Compared with the Pb contents reported in the United Kingdom ($1.35 \mu\text{g g}^{-1}$) and Korea ($0.74 \mu\text{g g}^{-1}$), the average Pb contents in cigarette brands studied are 1.5 and 3.5 times higher, respectively. Our results are also comparable with the data reported for cigarettes produced and consumed in Jordan, Cd at the level of $2.64 \mu\text{g g}^{-1}$ and Pb at $2.67 \mu\text{g g}^{-1}$ (Massadeh *et al.* 2005). According to a Reuters report, a recent tobacco study conducted by researchers from the Buffalo-based Roswell Park Cancer Institute found that cigarettes produced in China contain three times the amount of heavy metals found in Canadian-manufactured brands (<http://www.whatsonxiamen.com/news15008.html>).

It has been documented in the literature that an average of 2.0 and 5.8% of Cd and Pb, respectively contained in cigarettes are passed to mainstream smoke (Mussalo-Rauhamaa *et al.* 1986). In this study, the amounts of Cd contained in 20 cigarettes passed to mainstream smoke ranged from 0.22 to $0.78 \mu\text{g}$ with an average of $0.48 \mu\text{g}$. The details are presented in Table 2. Table 3 furnished information about average amounts of Pb contained in 20 cigarettes which passed to main stream smoke. On average the estimated amount of Pb in stream smoke was to be 2.4 ($0.97 - 1.87$) μg .

It is generally accepted that Cd and Pb concentrations in cigarettes range from 1 to 3 and 1 to 2, $\mu\text{g g}^{-1}$, respectively (Mussalo-Rauhamaa *et al.* 1986; Watanabe *et al.* 1987). It was reported that Cd and Pb concentrations in filter cigarettes were 1.7 and $2.4 \mu\text{g g}^{-1}$ respectively (Mussalo-Rauhamaa *et al.*, 1986). Tobacco smoking is the most significant single source of Cd exposure in the general population. On average, cigarettes contain 1-2 μg Cd. It can be estimated that a person smoking 20 cigarettes per day takes about up to 1 μg of Cd per day. For comparison it can be mentioned that the concentration of Cd in ambient air generally is below 5 ng/m^3 and, in most cases less than $0.01 \mu\text{g}$ Cd in airborne origin is absorbed in the lungs daily (Lin *et al.* 1992). Tobacco grown in soils with higher available cadmium and lead levels has correspondingly higher levels in tobacco lamina. Thus, cigarettes brands with similar tar deliveries could yield markedly different smoke particulate levels of heavy metals depending on where the tobacco was grown and filter ventilation (Pappas *et al.* 2007).

There is no sufficient data about the heavy metal concentrations in cigarette brands in Saudi Arabia including Cd and Pb. This study provides a new data for the health authorities such as the Ministry of Health, Ministry of Environment and other world health authorities such as the UNICEF and WHO. Moreover, the results obtained gives very important information for the

smokers in Saudia to know that Cd and Pb are toxic pollutants affect adversely on their health besides to the other toxic chemicals present in cigarettes such as nicotine.

This study confirms that tobacco is a notable source of many heavy metal pollutants particularly Cd and Pb. The amount of Cd inhaled from smoking one pack of 20 cigarettes of different cigarette brands is estimated to be 1.40-2.70 μg . This value is comparable with the values from United Kingdom cigarettes (1.32-2.64 μg) and Korean cigarettes (1.54-3.08 μg). The small variation could be possibly attributed to Cd soil content, type of tobacco, growth conditions, and tobacco treatment process. The amount of Pb inhaled from smoking one pack of 20 cigarettes of the brands studied is estimated to be 1.98-3.37 μg and this value is nearly 4 times higher compared with the United Kingdom cigarettes (0.22-0.65 μg) and 3.5 times that of Korean cigarettes (0.4-1.19 μg). Smoking of 20 cigarettes per day has been estimated to result in the inhalation of 2-4 μg Cd and 1-5 μg Pb, or even more (WHO 1997; Kalcher et al. 1993; Massadeh et al. 2005).

Acknowledgements:

Author would like to thank Dr.Mohammad Najjar, Chairman, Department of Natural and Mathematics for supporting this work. Thanks are also due to Director, Center for Environment and Water, Research Institute, KFUPM for providing SRMs and facilities for interlaboratory comparison of data.

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Table 1: Results obtained for the standard reference materials together with certified value

SRM	Element	Certified value ($\mu\text{g g}^{-1}$)	Measured value
Pine Needles	Pb	0.167±0.013	0.161: ±0.102
NIST-SRM 1575a	Cd	0.233±0.009	0.214 ±0.013
Spinach Leaves	Pb	0.200±0.006	0.198 ±0.012
NIST-SRM 1570	Cd	2.890±0.070	2.830±0.095

Table 2: The weight of 20 cigarettes (g) concentration of Cd in $\mu\text{g g}^{-1}$ (dry weight) and average estimated amount of Pb passed to main stream smoke for 20 cigarettes a day in 20 different cigarette brands^a

No.	Brand Name	Weight of 20 cigarettes (g)	Mean $\pm$ S.D. ($\mu\text{g g}^{-1}$)	Estimated amount of Cd in stream smoke (μg)
1	Gold Coast	12.82	1.97 $\pm$ 0.04	0.51
2	Monte Carlo	13.95	2.66 $\pm$ 0.09	0.74
3	Gauloises	13.85	1.30 $\pm$ 0.03	0.36
4	Winston	12.75	2.60 $\pm$ 0.07	0.66
5	Dunhill	11.95	0.97 $\pm$ 0.05	0.23
6	Salem	13.72	1.93 $\pm$ 0.05	0.53
7	Merit	12.70	1.53 $\pm$ 0.03	0.39
8	Gitanes	12.87	2.51 $\pm$ 0.02	0.65
9	Camel	12.30	0.91 $\pm$ 0.07	0.22
10	Marlboro	11.77	0.78 $\pm$ 0.02	0.18
11	Kent	14.12	0.83 $\pm$ 0.06	0.23
12	Wills	12.35	1.73 $\pm$ 0.04	0.43
13	Parliment	12.61	2.13 $\pm$ 0.02	0.54
14	Carlton	14.66	2.58 $\pm$ 0.05	0.76
15	Garam	12.55	1.95 $\pm$ 0.03	0.49
16	Gold Leaf	12.89	2.11 $\pm$ 0.07	0.54
17	Davidoff	13.17	0.92 $\pm$ 0.07	0.24
18	Vogue	12.83	2.40 $\pm$ 0.04	0.62
19	Rothman	13.99	2.78 $\pm$ 0.07	0.78
20	L & M	13.10	2.13 $\pm$ 0.03	0.56

^aThe results were calculated for five replicate determinations

Table 3: The weight of 20 cigarettes (g) concentration of Pb in $\mu\text{g g}^{-1}$ (dry weight) and average estimated amount of Pb passed to main stream smoke for 20 cigarettes a day in 20 different cigarette brands^a

No.	Brand Name	Weight of 20 cigarettes (g)	Mean $\pm$ S.D. ($\mu\text{g g}^{-1}$)	Estimated amount of Pb in stream smoke (μg)
1	Gold Coast	12.82	2.83 $\pm$ 0.08	2.10
2	Monte Carlo	13.95	2.17 $\pm$ 0.04	1.75
3	Gauloises	13.85	2.33 $\pm$ 0.05	1.87
4	Winston	12.75	1.96 $\pm$ 0.06	1.45
5	Dunhill	11.95	1.88 $\pm$ 0.08	1.30
6	Salem	13.72	2.06 $\pm$ 0.05	1.64
7	Merit	12.70	2.25 $\pm$ 0.03	1.65
8	Gitanes	12.87	2.10 $\pm$ 0.08	1.57
9	Camel	12.30	1.99 $\pm$ 0.07	1.42
10	Marlboro	11.77	1.55 $\pm$ 0.05	1.06
11	Kent	14.12	2.60 $\pm$ 0.06	2.13
12	Wills	12.35	2.15 $\pm$ 0.04	1.54
13	Parliment	12.61	3.61 $\pm$ 0.03	2.64
14	Carlton	14.66	2.95 $\pm$ 0.04	2.50
15	Garam	12.55	1.33 $\pm$ 0.03	0.97
16	Gold Leaf	12.89	2.97 $\pm$ 0.06	2.22
17	Davidoff	13.17	3.14 $\pm$ 0.07	2.34
18	Vogue	12.83	3.55 $\pm$ 0.08	2.64
19	Rothman	13.92	2.58 $\pm$ 0.05	2.08
20	L & M	13.10	3.28 $\pm$ 0.09	2.49

^aThe results were calculated for five replicate determinations.

Publication Details????

Preconcentration and Analytical Separation of Silver (Ag^{+1}), Copper (Cu^{+2}) and Zinc (Zn^{+2}) Ions Using Supported Liquid Membrane Technology

Mohammad Waqar Ashraf

[\(mashraf@pmu.edu.sa\)](mailto:mashraf@pmu.edu.sa)

Department of Mathematics & Natural Sciences,
Prince Mohammad Bin Fahd University, Al Khobar 31952,
Kingdom of Saudi Arabia

ABSTRACT

Analytical separation and transport behavior of silver, copper and zinc across supported liquid membrane using crown ethers dithio-18-crown-6 (DT18C6) and dicyclohexano-18-crown-6 (DC18C6) in chloroform, has been investigated. Phase distribution studies show that selectivity of the interface is much higher when the metal cation is inserted deeper in the polyether cavity. Silver ions specie are more adaptable to the cavities of DT18C6 and DC18C6 than are copper and zinc. Transport studies showed that fluxes obtained with DT18C6 were slightly lower than those of DC18C6 for all three ions studied. Use of different solid supports revealed that fluxes increase with increasing porosity of the support but decrease with increasing thickness. Differences in molar flow rates (F) at feed and strip membrane interfaces were observed, due to the reason that decomplexation rate at the strip side is slower than complexation rate at the feed side. The magnitude of separation factor ($SF=2.51$) showed that Ag^{+} could very well be separated from Cu^{++} and Zn^{++} using DC18C6/chloroform membrane. The feasibility of preconcentration of Ag^{+} was also studied by using the hollow fiber module system. Highest enrichment factor (EF) was obtained for 40 mg/L whereby all the metal ions were transported to the stripping phase and resulting Ag^{+} concentration was 490 mg/L ($EF=12.3$).

Introduction

Heavy metals often appear in high concentrations in all kinds of industrial effluents giving rise to hazards of pollution because of their high toxicities and wide environmental spreading. The removal of heavy metal ions from waste waters is of great significance due to environmental and economical aspects. The toxic metals have been recovered with separation methods based on solvent extraction, which consume large amounts of organic extractants and solvents. Membrane processes are a reality in many industrial fields for the recovery and recycling of substances and by-products. Supported Liquid Membranes (SLM) appear particularly interesting for the treatment of dilute solutions containing metals because they allow the combination of the advantages of solvent extraction and those of other membrane processes

like ultrafiltration, RO, dialysis, etc. SLMs have the added advantage of high transport rates, selectivity and minimization of the required organic components (Waqar & Malack 2005). In a SLM the interface can selectively recognize one ion, and furthermore, facilitated transport is more effective than passive transport. Other advantages are the high permeability, possibility of separating and concentrating species at the same time and the great potential for low cost and energy savings. This type of transport has been experimentally successful in the hydrometallurgical fields for the recovery and separation of various metal ions (Araki 1990; Waqar & Atiq 2006). Many researchers have used commercially available extractants as membrane liquids for the individual separations of silver, copper and zinc ions. Oxime reagents are well known for Cu(II) extraction. Molinari et al (2006) have used D2EHPA (diethylhexyl phosphoric acid) for the selective removal of Cu(II) versus Ni(II), Zn(II) and Mn(II). Osman et al (2004) have used the same extractant for the transport of Zn(II) from aqueous solution containing Fe(II), Ca(II) and Mg(II). Canet et al (2002) have reported comparative transport data for Pb(II), Cd(II) and Ag(I) through a lasalocid supported liquid membrane. They explained the higher transport flux for Ag(I) on the basis of smaller hydration shell of silver (0.212nm).

Supported liquid membrane systems containing macrocycles of the cyclic crown ethers have been used for selective transport of cations from mixtures of two or more metal ions (Walkowiak & Kozłowski 2009). Factors affecting crown ether mediated transport of cations in bulk liquid membranes have been studied extensively, but the data related to SLM needs to be substantiated (Othman et al 2006). Improvement of selectivity of the trans-membrane transport has been the subject of much discussion. Classical routes concern synthesis of porous inorganic or hybrid membranes of well-defined pore size. More specific approaches based upon involvement of molecular recognition process, and accelerated by breakthroughs in supramolecular chemistry have provided very sophisticated chemical structures such as highly specific ion complexing agents like crown ethers. Crown ether is a molecule containing hydrogen, carbon and heteroatom. Each heteroatom is bound between two of the carbon atoms and arranged in a ring. The previous studies outlined several features of macrocycle design needed for selective extraction of specific metal cations (Waqar & Fazal 2006; Arous et al 2005; Shamsipur et al 2003). However, these studies do not allow one to make reliable predictions about cation selectivities and transport rates in SLM systems. The size of the polyether cavity and the size of the inserted ion are two of the fundamental parameters that give a selective extraction (Arous et al 2004; McDowel et al 1983).

Transport of silver, copper, and zinc ions by crown ethers can be facilitated by co-transport phenomenon (Gherrou et al 2001; Danesi 1985). The metal ion is complexed at the feed-phase/membrane interface, and the complex formed diffuses through the membrane phase to the membrane/strip-phase interface where the metal ion is removed from the complex. The complexing ability of ordinary crown ethers towards soft heavy metal ions is quite low. This weakness has been improved by substitution of some oxygen atoms of crown ethers by sulfur or nitrogen atoms which result in considerable increase in the stability of cations such as Ag(I), Au(I), Hg(II) etc. in solution. Thus, in recent years some sulfur containing crown ethers have been used as neutral carriers in solvent extraction and PVC membrane electrode studies of some heavy metal ions (Shamsipur et al 2003). In the present work, the behavior of SLM was studied through the use of dicyclohexano-18-crown-6 (DC18C6) and dithio-18-crown-6 (DT18C6) as specific carriers for Ag(I), Cu(II) and Zn(II). These ions are usually present together in metallic

ore leaching solutions. The extraction percentages of each ion were determined with both extractants, along with nature of the porous solid supports, effect of feed concentration, molar flow rates, separation factors and enrichment factors.

Experimental Materials and Methods

The solutions of each metal ion were prepared from silver, copper, and zinc nitrate (Fluka) at variable concentrations. The carriers were organic solutions of different concentrations of dicyclohexano-18-crown-6 and dithio-18-crown-6 (Fluka) dissolved in chloroform. Despite of its volatility, chloroform was used as diluent because crown ethers have low solubility in the other solvents. It has a higher dielectric constant (5.5) as compared to toluene (2.3) and xylene (2.2). Moreover, it is miscible with other organic solvents, so an environment friendly mixture of diluents can be prepared for specific applications. Many researchers have used chloroform as crown ether solvent in SLM extraction experiments (Arous et al 2004;Gherrou et al 2001;Akhond & Shamsipur 1997; Bachiri 1996; Nishizawa et al 1996). Double-distilled water was used as a stripping solution.

The permeation cell used for SLM experiments consisted of 2 compartments separated by the membrane. Each compartment, feed and strip, had a maximum volume of 140 mL. A membrane of effective surface area 14.2cm² could be fixed amid the two chambers. The agitation of the solutions was carried out by 2 synchronized motors that relied on variable power supply with a stirring rate of 1000 rpm. The stirring rate was high enough to minimize boundary layer resistances. Figure 1 shows the experimental set up.

Phase distribution studies were carried out by liquid-liquid extractions. Equal volumes (20.0mL) of the aqueous phases, containing the investigated metal (10mM of Cu⁺⁺, Ag⁺ or Zn⁺⁺ each), and of the organic phases DC18C6/Chloroform or DT18C6/Chloroform at the chosen concentrations were contacted for 3 hours on a mechanical shaker (120rpm). Then the 2 phases were completely separated by centrifugation. The metal ion concentration in the aqueous phase was determined and the extraction percent (E%) was calculated from mass balance of the ion between organic and aqueous phases (Equation 1).

$$\%E = \frac{[Me]_{org}}{[Me]_{org} + [Me]_{aq}} \times 100 \quad (1)$$

Where, Me = [Cu(II),Ag(I) or Zn(II)]

In all cases, the concentrations of silver, copper, and zinc were determined in the aqueous phase using an atomic absorption spectrophotometer (Solaar Thermo Elemental).

The immobilized interface was prepared by soaking the support in the carrier solution for 24 hours. Then the SLM was placed between the 2 half-cells. The 2 compartments were filled with the feed and the strip solutions. The concentrations of silver, copper, and zinc ions were fixed at 0.01 M except when the concentration was studied as a transport parameter. The experiments began by starting the stirring motors in the two compartments of the experimental

set up as shown in Figure 1. At different intervals of time, aliquots of 1 mL were withdrawn from the feed and strip compartments and analyzed by AAS. All the experiments were performed in a thermostat bath at 25°C.

The relationship which correlates the membrane flux (J) to concentration (C), to the aqueous feed volume V, and to membrane area Q is given in Equation 2 below.

$$J = -\frac{dC}{dt} \frac{V}{Q} \quad (2)$$

the integrated form of flux equation is Equation 3,

$$\ln \frac{C}{C_0} = -\frac{Q}{V} P t \quad (3)$$

where C_0 is value of C at time zero and P is permeability. A linear dependence of the feed solution with time is obtained, and the permeability can be calculated from the slope of the straight line that fits the experimental data (Danesi 1985).

Experiments for the simultaneous transport and enrichment of Ag(I) were conducted by using an hollow fiber module. Hydrophobic polypropylene hollow fibers from Celgard were used as solid supports for the liquid membrane, with the following characteristics; inner diameter = 240 μm , outer diameter = 300 μm , pore size = 0.04 μm , porosity = 40%, length = 5.5 inches.

The HF SLM was prepared by impregnation of the tubular microporous fiber, passing a 5% solution of DT18C6 in chloroform. Experimental set up is shown in Figure 2. The flow rate of both solutions was fixed at 0.5mL/minute. Each experiment was conducted over a period of 16 hours.

Results and Discussion

Liquid – Liquid Extraction

The distribution behavior of the metal ions was studied by means of L-L extractions. The distribution ratios obtained for Ag(I), Cu(II), Zn(II), and the 2 crown ethers are plotted in Figures 3 & 4 as a function of the initial extractant concentration. The obtained results show that the distribution coefficients reached a maximum value when the concentration of the extractant was greater than 0.05 mol/L. The selectivity of the interface is much higher when the metal cation is inserted deeper in the polyether cavity; silver (I) species are more adaptable to the cavities of DC18C6 and DT18C6 than are copper (II) and zinc (II). This is due to the silver (I) ion size (radius 126 pm), which is more similar to that of the cavities of DC18C6 (diameter 260-320 pm) and DT18C6 (180 pm). Copper (II) has a radius of 69 pm and the zinc ion has radius of 72 pm. Both carriers have a good affinity for the monovalent ion, but DC18C6 seems to be more selective for silver than for copper or zinc. This affinity can be related to the nature of the heteroatom forming the carrier. The oxygen atoms may have more affinity with singly charged species having higher charge density, than do the sulphur atoms of DT18C6. These interactions show that ion-crown association depends on several factors related to characteristic properties of the ligand, reacting ion and the solvent (Bachiri et al 1996). Substitution of oxygen atoms by

heteroatom like sulphur gives host molecules with different complexation properties. (Cox & Schneider 1992; Patai, 1980).

Influence of the Carrier Concentration

The variations of the fluxes of the three ions across the SLM vs. the concentration of the 2 carriers are reported in Figures 5 and 6. At a concentration greater than 6 mmol/L, the carrier does not affect significantly the transfer rate of the metal ions. Furthermore, the fluxes obtained with DT18C6 were slightly lower than those of DC18C6 for all three ions. The permeabilities are shown in Figures 7 and 8.

The low increase of flux at high carrier concentration is due to an increase of the viscosity of the organic phase, which affects the diffusion (Bachiri et al 1996). Higher viscosity of the DT18C6 is consistent with the lower flux values for metal ions with the DT18C6 carrier. Other researchers have also reported similar findings. Mohapatra et al (2004) have used polypropylene flat sheet membrane (pore size 0.57µm; porosity 84%; thickness 112µm) to study transport of Cs⁺ ions. They have shown that extraction of Cs⁺ increased linearly with crown ether concentration and then decreased. However, they have suggested the extraction of 1:1 and 1:2 M:CE species. Shamsipur et al (2006) have used thio-crown ether supported PP membrane (Celgard K-256) for the separation of Ag(I) ions. They have shown that percent transport of Ag(I) increases with an increase in carrier concentration up to 0.01M. At higher macrocycle concentration, the transport efficiency remained unchanged.

Both the flux and the permeabilities of silver (I) were found to be higher than those of copper (II) and zinc (II). Because the only difference in the SLM systems is the type of transported ion, the findings are in accordance with the higher distribution ratio seen in L-L liquid-liquid extraction.

Effect of the solid support

Stability of the SLM is directly related to the thickness and porosity of the solid support. These two parameters also affect the fluxes of permeating ions. The influence of both parameters has been studied using supports with different characteristics. The obtained results are reported in Table 1. It was observed that fluxes increase with increasing porosity of the support. On the other hand, fluxes decreased with increasing thickness. Therefore, it could be concluded that to get a reasonable stability and life-time, a compromise is required between thickness and porosity.

Determination of molar flow rate

The molar flow rate F (mol/h), of an ion in the aqueous solution is defined by number of moles (n), transferred per unit time from the feed phase to the feed-membrane interface or from the strip-membrane interface to the strip phase through the membrane. Following relationships (Equations 4 & 5) is used to determine F ;

$$F_f = \frac{\Delta n(f)}{\Delta t} \quad (4) \quad ; \quad F_s = \frac{\Delta n(s)}{\Delta t} \quad (5)$$

Where $\Delta n(f)$ and $\Delta n(s)$ represent the change in the number of moles in the feed (f) and strip (s) phases, respectively. During the transport process, metal ions are complexed at the feed-membrane interface where they accumulate; consequently, F_f at this interface can be different from F_s at membrane-strip interface. Table 2 reports the molar flow rates for Ag(I), Cu(II) and Zn(II) ions to the interface feed-membrane and from the interface membrane-strip. A different behavior of the two flow rates was observed at the beginning of the transport. This may be due to low diffusivity of the complexes inside the membrane or lower decomplexation rate at the strip side than the complexation rate at the feed side (Gherrou et al 2001). Figure 9 shows that fluxes become steady after 2 hours of transport. This shows that the complex formed, in the beginning, at the feed-membrane interface is accumulated there.

Determination of Separation Factors

The separation factor (selectivity) of a SLM is a parameter that allows for the evaluation of the degree of purification of a specie with respect to others in a mixture. Tables 4.9 and 4.10 show separation factors for Ag(I), Cu(II) and Zn(II) with both carriers and concentrations. The relationship given in Equation 6 has been used for this purpose;

$$S.F = P_{Me1}/P_{Me2} \quad (6)$$

where P is permeability of metals 1 and 2 in the mixture. Higher the SF value, better will be the separation between the two metals (Gherrou et al, 2001). The obtained results at pseudo steady state showed that silver ions had higher mobility than zinc and copper ions. It is clear that Ag(I) can be very well separated from Cu(II) and Zn(II) using DC18C6/chloroform membrane (SF = 2.51). The separation of copper and zinc from an aqueous sulphate media by supported liquid membrane using di-2-ethyl hexyl phosphoric acid (TOPS-99) as mobile carrier has been studied by Sarangi & Das (2005). Celgard-2500 polypropylene film was used as the solid support for the liquid membrane. They found separation factor for Cu-Zn to be 1.19 and 2.25 at pH 5 and 4, respectively.

Preconcentration of Ag(I) with a hollow fiber system

The feasibility of preconcentration of Ag(I) by using the proposed SLM parameters, was also studied by using hollow fiber system. Enrichment factors (E.F) were calculated by using different initial concentrations in the feed solution. E.F is defined as ratio of metal concentration in the stripping phase and the initial metal concentration in the feed phase (Fontas et al 2005). Highest E.F value was obtained for 40 mg/L whereby all the metal was transported to the stripping phase and the resulting Ag concentration was 490 mg/L (E.F = 12.3).

It was observed that while treating more diluted solutions, the enrichment factor decreases. Values of E.F equal to 7.6 and 10.2 were found for initial Ag concentration of 10 and 30 mg/L. The results can be improved by two ways; by using a hollow fiber module with more fibers, and, by increasing the length of experimental time.

Acknowledgements: The support of KACST to support this work is gratefully acknowledged. Thanks are due to Chair, Department of Mathematics & Natural Sciences, Prince Mohammad Bin Fahd University for the continuous encouragement and support.

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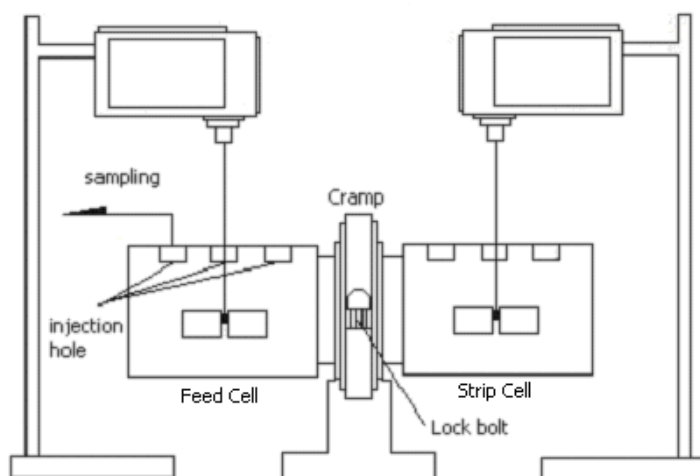


Figure 1: Schematic diagram of the permeation cell

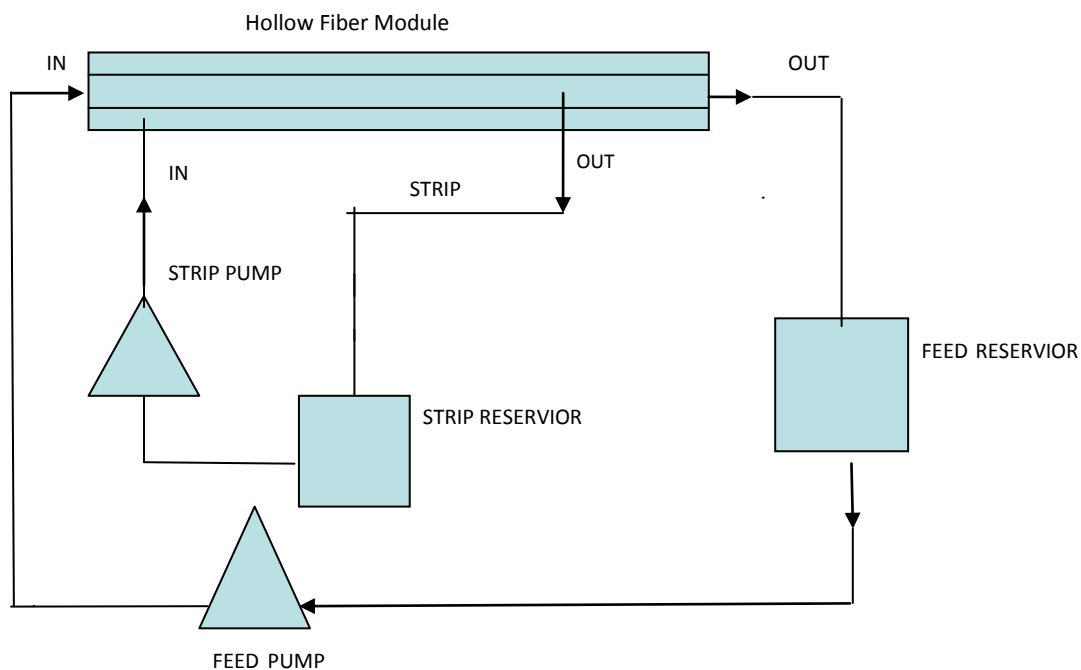


Figure.2: Single hollow-fiber module used in a recycling mode

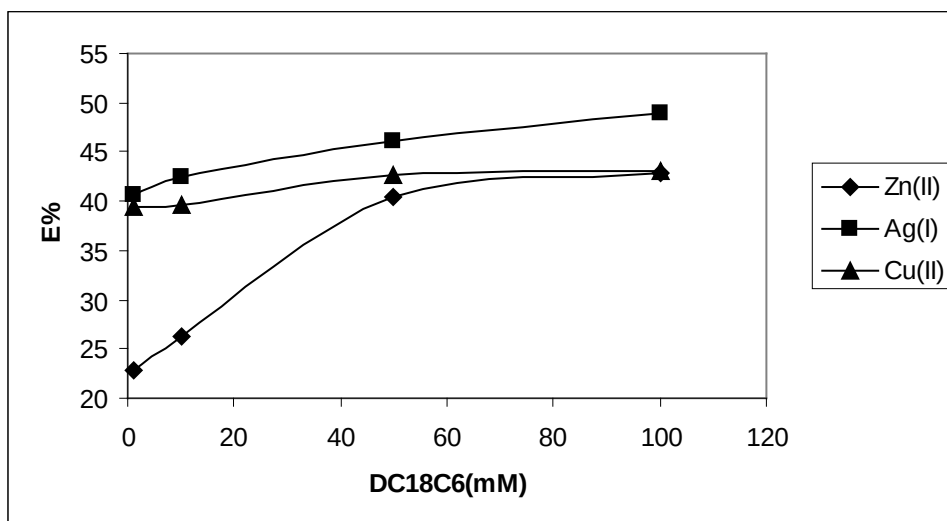


Figure 3: Percentage of extraction of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DC18C6 in chloroform

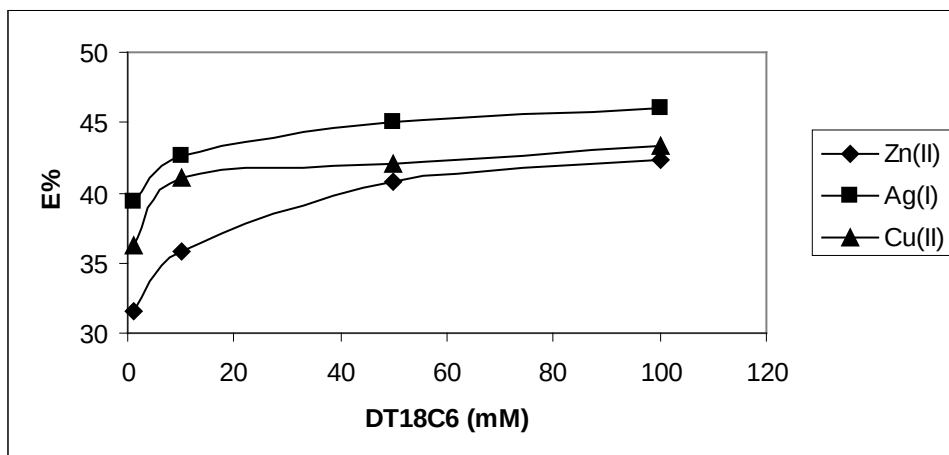


Figure 4: Percentage of extraction of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DT18C6 in chloroform

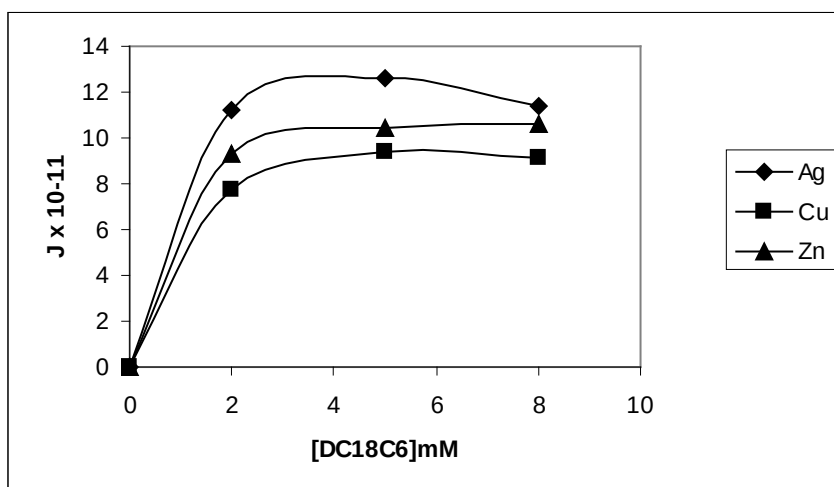


Figure 5: Fluxes (10^{-11} mol-cm⁻²-sec⁻¹) of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DC18C6 in chloroform

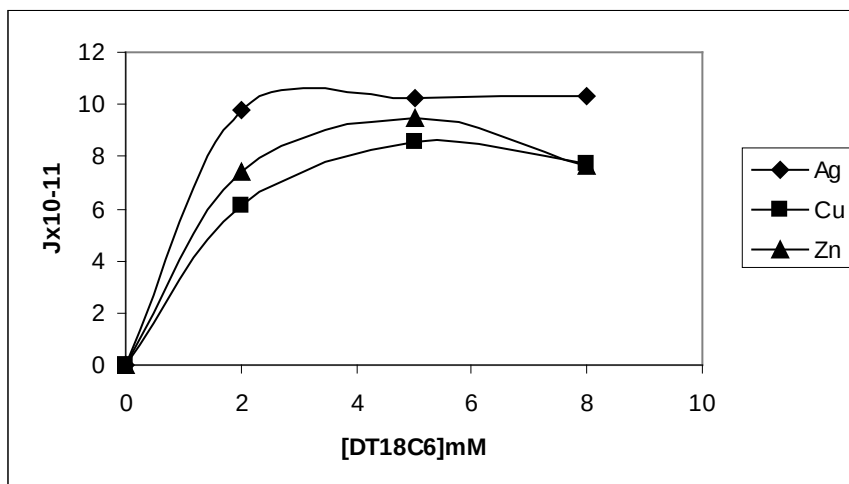


Figure 6: Fluxes (10^{-11} mol·cm⁻²·sec⁻¹) of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DC18C6 in chloroform

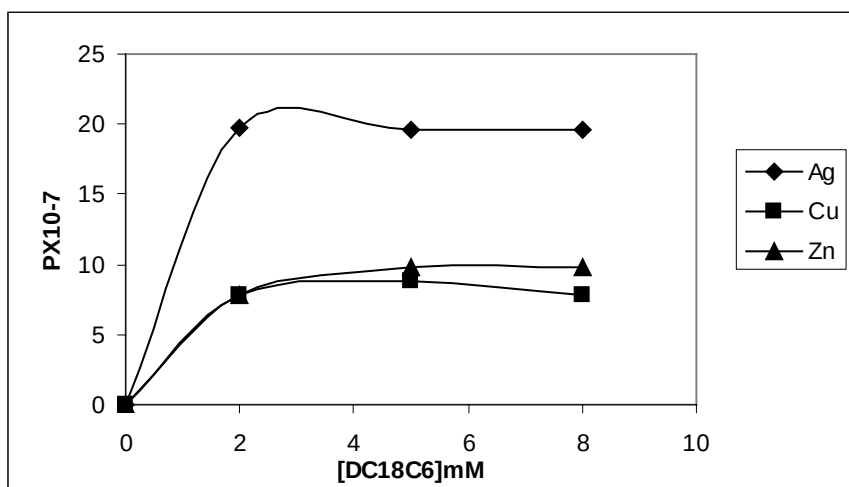


Figure 7: Permeabilities (10^{-7} cm·sec⁻¹) of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DC18C6 in chloroform

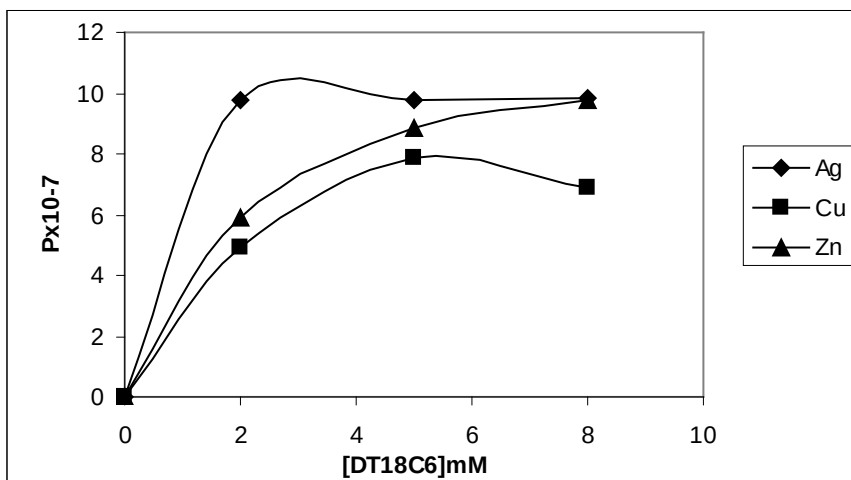


Figure 8: Permeabilities ($10^{-7} \text{ cm-sec}^{-1}$) of Ag(I), Cu(II) and Zn(II) ions vs. concentration of DT18C6 in chloroform.

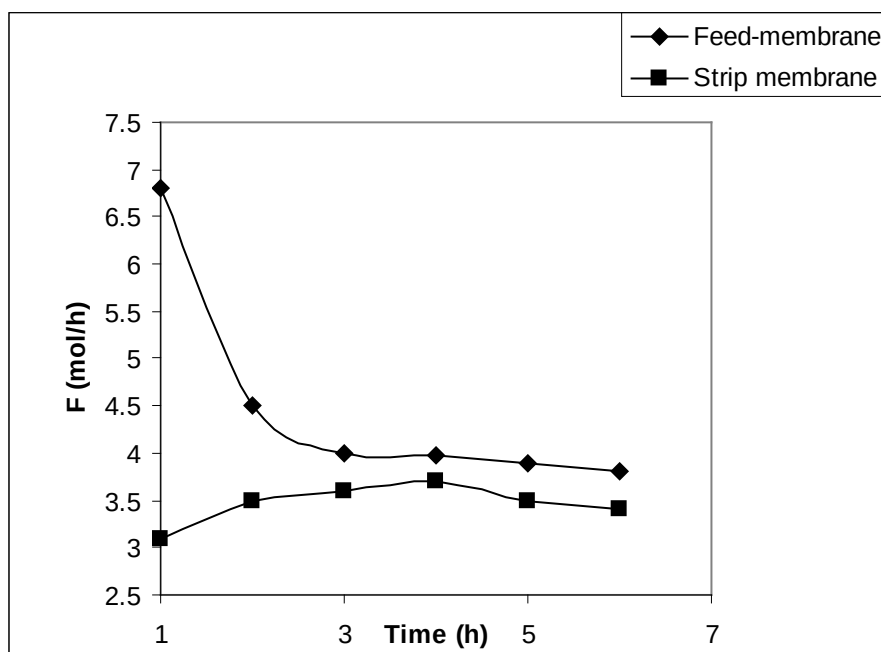


Figure 9: Molar flow rate of Ag(I) ions from the feed phase and organic phase VS. time. SLM: DC18C6 (2.0mM); Celgard 2400; Feed: 0.05M Ag(I); Strip: Distilled Water

Table 1: Fluxes of Ag(I), Cu(II) and Zn(II) with different supports. $M^+ = 0.05M$, DC18C6 = 2.0mM

Supports (Thickness/Porosity) μm	Ag(I) $J \times 10^{-11} (\text{mol} \cdot \text{cm}^{-2} \cdot \text{sec}^{-1})$	Cu(II) $J \times 10^{-11} (\text{mol} \cdot \text{cm}^{-2} \cdot \text{sec}^{-1})$	Zn(II) $J \times 10^{-11} (\text{mol} \cdot \text{cm}^{-2} \cdot \text{sec}^{-1})$
Accural PP1E 92/0.1	8.34	6.75	8.74
Accural PP2E 150/0.2	5.13	3.47	4.35
Celgard 2500 25/0.075	10.7	7.36	8.80
Celgard 2400 25/0.05	11.2	7.78	9.30
Durapore 125/0.2	4.71	2.17	3.13

Table 2: Molar Flow rates for metal ions

Ions	$F_f \times 10^6 \text{ (mol/h)}$	$F_s \times 10^6 \text{ (mol/h)}$
Ag(I)	3.97	3.80
Cu(II)	2.73	1.93
Zn(II)	2.18	1.97

Table 3: Separation factor values for Ag(I), Cu(II) and Zn(II) ions for DB18C6/chloroform membrane

S.F	2.0mM	5.0mM	8.0mM
Ag-Cu	2.0	2.20	2.51
Ag-Zn	1.66	2.0	2.0
Cu-Zn	1.20	1.10	1.25

Table 4: Separation factor values for Ag(I), Cu(II) and Zn(II) ions for DT18C6/chloroform membrane

S.F	2.0mM	5.0mM	8.0mM
Ag-Cu	2.0	1.25	1.42
Ag-Zn	1.66	1.11	0.99
Cu-Zn	1.20	1.12	1.43

Publication Details???

Total Petroleum Hydrocarbon (TPH) Burden in Fish Tissues from the Arabian Gulf

Waqar Ashraf

Department of Natural Sciences,

Prince Mohammad Bin Fahad University,

Al Khobar 31952, Kingdom of Saudi Arabia (mashraf@pmu.edu.sa)

&

Atiq Mian

Center for Environment & Water,

King Fahad University of Petroleum & Minerals,

Dhahran 31261, Kingdom of Saudi Arabia

Abstract:

The levels of total petroleum hydrocarbons (TPH) and lipid contents have been reported for eight commercially important fish species from the Arabian Gulf. GC-FID has been used as quantification technique. Out of the species analyzed, Scarus Ghabon showed the highest level of TPH ($7.4 \pm 3.2 \mu\text{g-g}^{-1}$) in the muscle tissue followed by Epinephelus Tauvina ($6.8 \pm 3.6 \mu\text{g-g}^{-1}$). Except for Epinephelus Microdon ($4.8 \pm 2.1 \mu\text{g-g}^{-1}$), all other fish species showed a similar level of TPH concentration. Significant correlations were obtained between lipid contents and TPH levels in the muscles of the fish. Body weight of the fish was also found to be strongly correlated with TPH concentration in the muscle tissue. There is a tendency of accumulating higher TPH in the winter season as compared to in the summer season.

Key Words: TPH; Lipids; Fish; Muscle Tissue; Seasonal Variation; Gulf

Introduction

The Arabian Gulf has been subject to inputs of oil pollution from a variety of sources and it has been estimated that oil pollution in the Gulf represents 4.7% of total oil pollution in the world. This figure has increased even more after the Gulf war. The Gulf region has approximately two-thirds of the world's proven oil reserves (Khan 2002). Problems associated with oil pollution appear to be of greater importance in the Gulf compared with other regions. This region has undergone considerable development, increased urbanization, industrialization

and refineries have become major sources of pollution to the marine environment. Accidental spills and increasing tanker traffic are also contributing factors.

One of the characteristics of the Gulf is that it is relatively shallow, semi-enclosed sea with poor flushing characteristics. Consequently, pollutants undergo slower dispersion than would occur in open oceans (Sheppard 1993). Maintaining good marine environmental quality is important for several economic reasons. The sea food is of value for both local consumption and export revenue. Also, the region relies heavily upon sea water as a source of fresh water through desalination (de Mora et al 2004). Oil may enter fish through the skin or gills. In addition, pollutants such as tar balls may ingress through the intestine by water gulped in the physiological process of desalination (Al-Zarouni 1997). Although risks to human health, due to presence of petroleum hydrocarbons are not well documented, the possible consequences of bioaccumulation should not be ignored especially in communities consuming large quantities of fish. Saudi Arabia has coast lines on the Red sea and Arabian Gulf. While the coast lines are long neither areas are marked by great productivity. Total fishery production of the Kingdom of Saudi Arabia in 1997 was 53170 metric tones where the production in the Arabian Gulf was 22875 metric tones (Fisheries Statistics of Saudi Arabia 1997). In the present study we report the levels of total petroleum hydrocarbons (TPH) in several fish species commonly consumed by population in the Gulf. The paper also reports the data pertaining to relationship of TPH concentrations in fish tissues with seasonal variation and lipid changes in fish.

Materials and Methods

Fish samples of 8 commercially important fish species were collected from the Arabian Gulf (Qateef, Eastren Province, Saudi Arabia). All the samples were procured from local fishermen at the spot as soon as their boats landed. Samples were packed on ice and brought to lab as soon as possible. In the laboratory, the standard length and total body weight of each fish were measured before dissection. About 100g of the dorsal muscle from a single individual was dissected for sample and kept frozen until extraction process. Samples were soxhlet extracted, in duplicate, for 8 hours with 250mL of methanol. Saponification of the extracts was carried out by adding 20mL of 0.7M KOH and 30mL of water and refluxing for about 2 hours. The resulting mixture was transferred to separating funnel and extracted thrice with hexane. Then, the extracts

were combined, filtered through glass wool and dried with anhydrous sodium sulfate. Concentration of the extracts was carried out by rotary evaporation down to 15mL, which was further reduced to 5mL under a gentle flow of pure nitrogen (Tolosa et al, 2005). Finally, the extract was cleaned up and fractionated by passing it through a silica/alumina column (Law et al. 1988). For the determination of lipid contents, 50g of fish tissues were extracted with 100mL of dichloromethane for 24 hours. After evaporation, the extractable organic materials were weighed with an analytical digital balance.

The quantification of petroleum hydrocarbon compounds was carried out using a Agilent 6890N gas chromatograph with a flame ionization detector (FID). The carrier gas was nitrogen at flow rate of 1.5mL/min. The column used was DB-1, length 30 meters, I.D 0.25 mm, film 0.5 μ m. Column temperature was programmed with initial temperature 60 $^{\circ}$ C followed by an increase at the rate of 8 $^{\circ}$ C per minute up to the final temperature of 275 $^{\circ}$ C. The detector temperature was set at 275 $^{\circ}$ C. The sum of all aliphatic and aromatic hydrocarbons measured by GC-FID provides a measure of total hydrocarbon concentration. Appropriate blanks were run with each set of fish samples. Standard reference material, IAEA-142, was also processed and run to ascertain quality control and quality assurance in our methodology. Precision of measurements, determined from triplicate measurements of the reference material was better than 8%.

Results and Discussion

The results for the body weight, length, lipid contents and concentration of total petroleum hydrocarbons in the selected fish species are presented in Table 1. *Scarus Ghabon* showed the highest level of TPH (7.4 $\pm$ 3.2 μ g-g $^{-1}$) in the muscle tissue followed by *Epinephelus Tauvina* (6.8 $\pm$ 3.6 μ g-g $^{-1}$). Except for *Epinephelus Microdon* (4.8 $\pm$ 2.1 μ g-g $^{-1}$), all other fish species showed a similar level of TPH concentration. Higher concentration of hydrocarbons in these species is probably due to the higher lipid content of their muscle tissue (Shriadah 2001). Pruell et al (1988) have showed that hydrocarbons are accumulated by simple equilibrium between sea water and body lipids. Moreover, higher TPH concentration in the muscle of the fish may also reflect differences in the marine habitat, feeding habits and the different depths in which they live in the marine environment. Significant correlation coefficients ($p > 0.70$)

between lipid contents-TPH and between body weight-TPH were observed for *Scarus Ghabon* (0.91 and 0.89) and *Epinephelus Tauvina* (0.85 and 0.88). This showed a strong positive evidence that ability of fish to accumulate hydrocarbons in their tissues is directly related to lipid content and body weight.

In order to see the seasonal impact on TPH and lipid content of fish tissue, sampling was conducted in winter (December – February) and in summer (June – August) of 2007. The relevant data is presented in Table 3 and Figure 1. It was observed that most fish species acquire higher concentration of TPH in winter season as compared to in summer season. This indicated an important fact that TPH concentration not only varies between the tissues of different fish species but it also varied in the same specie depending on the season. The increased hydrocarbon concentration in winter is probably due to the active intake during the cooler season and as a result, large amounts are stored. El-Deeb (1998) has reported that slackness in movement of fish in winter, particularly demersal species, near the bottom provides a favorable condition for the accumulation of hydrocarbons in their muscle tissue. Another factor contributing towards the seasonal variations in the hydrocarbons in fish tissue is the changes which took place in the environmental conditions of the habitat (Shriadah 1999 & 2001).

The results obtained for *Lethrinus Nebulosus* ($3.6 \pm 2.8 \mu\text{g-g}^{-1}$) were much less than reported for the same specie ($10\text{--}31 \mu\text{g-g}^{-1}$) from the oil-impacted coastline of Saudi Arabia after Gulf War oil spill (Fowler et al 1993), but are comparable with those from sites in Bahrain ($0.8\text{--}3.8 \mu\text{g-g}^{-1}$) and Oman ($2.4\text{--}7.3 \mu\text{g-g}^{-1}$) that were not impacted by the 1991 spill (Fowler et al 1993). Tolosa et al (2005) have reported TPH concentration in tissues of *Epinephelus Coioides* ($2.07 \mu\text{g-g}^{-1}$) and *Lethrinus Nebulosus* ($3.40 \mu\text{g-g}^{-1}$) caught from Al Marfa, UAE. Relatively higher values have been reported in the same species with higher weight from Bidaiya, Bahrain (Tolosa et al 2005).

The present values compared well with uncontaminated fish tissue, $0.33\text{--}3.7 \mu\text{g-g}^{-1}$, from the north and central Arabian Sea collected in 1991 (Sen Gupta et al 1993), and are also similar to those reported for fish collected in 1990 from coastal waters of Oman (Badawy et al 1993). From the present study it can be concluded that TPH levels are not as high as could be

expected in the Gulf, therefore, consumption of these fish species does not pose a significant health risk to the local population.

Acknowledgements: Authors gratefully acknowledge the support of Dr.Rahim Karimpour, Department Chair. Thanks are also due to Dr.Sufyan Akram for the provision of Standard Reference Material IAEA-142. Generous help of Zahid Nazir is also acknowledged for collection and identification of fish samples.

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Table 1: Levels (ranges & $X \pm SD$) of TPH ($\mu\text{g-g}^{-1}$) and lipids content (%) along with length and body weight of selected fish species from the Arabian Gulf

Fish Species	Common Name	n	Length (cm)	Weight (gm)	Lipid (%)	TPH ($\mu\text{g-g}^{-1}$)
<i>Scarus Ghabon</i>	Bluebarred Parrot Fish	36	39.8-66.9 55.2 $\pm$ 12.2	357.8-565.6 560.4 $\pm$ 32.2	1.9-3.2 2.4 $\pm$ 0.2	3.6-11.2 7.4 $\pm$ 3.2
<i>Epinephelus Microdon</i>	Grouper	32	33.4-47.4 38.8 $\pm$ 11.6	357.9-778.9 418.5 $\pm$ 78.9	0.8-2.0 1.3 $\pm$ 0.7	2.8-6.9 4.8 $\pm$ 2.1
<i>Epinephelus Coioides</i>	Orange Spotted Grouper	38	41.7-52.0 47.2 $\pm$ 9.5	420.7-679.6 544.8 $\pm$ 65.6	0.3-3.2 1.7 $\pm$ 0.3	2.4-5.6 3.9 $\pm$ 2.8
<i>Epinephelus Tauvina</i>	Greasy Grouper	41	40.9-55.2 47.9 $\pm$ 12.0	515.7-657.3 585.7 $\pm$ 88.9	1.7-2.9 2.1 $\pm$ 0.6	3.5-9.7 6.8 $\pm$ 3.6
<i>Acanthoparagus Bifasciatus</i>	Doublebar Bream	28	29.8-43.6 36.9 $\pm$ 12.3	267.8-378.5 320.5 $\pm$ 56.6	1.7-2.9 1.8 $\pm$ 0.3	2.7-6.2 3.7 $\pm$ 1.8
<i>Siganus Canaliculatus</i>	Rabbit Fish	27	13.1-19.5 15.2 $\pm$ 1.8	93.2-318.7 123.5 $\pm$ 36.3	0.8-2.7 1.8 $\pm$ 0.2	2.3-5.2 3.4 $\pm$ 2.3
<i>Lethrinus Miniatus</i>	Emperors	29	23.5-30.7 25.7 $\pm$ 3.2	228.7-265.9 245.6 $\pm$ 34.6	0.9-2.7 1.6 $\pm$ 0.6	2.1-4.7 3.2 $\pm$ 1.9
<i>Lethrinus Nebulosus</i>	Spangled Emperor	30	20.6-33.4 27.3 $\pm$ 7.1	198.6-245.8 220.2 $\pm$ 19.6	0.7-1.2 0.9 $\pm$ 0.7	2.9-5.5 3.6 $\pm$ 2.8

Table 2: Correlations between total fish body weight & TPH as well as between lipid contents & TPH in selected fish species

Fish Species	n	Correlation	Coefficients
		Weight-TPH	Lipid-TPH
Scarus Ghabon	36	0.91	0.89
Epinephelus Microdon	32	0.64	0.55
Epinephelus Coioides	38	0.44	0.32
Epinephelus Tauvina	41	0.85	0.88
Acanthoparagus Bifasciatus	28	0.57	0.45
Siganus Canaliculatus	27	0.65	0.71
Lethrinus Miniatus	29	0.43	0.51
Lethrinus Nebulosus	30	0.68	0.47

Table 3: Seasonal variations of TPH ($\mu\text{g}\cdot\text{g}^{-1}$) levels and lipid (%) contents in selected fish species

Fish Species	n	Winter	Season	n	Summer	Season
		Lipid	TPH		Lipid	TPH
Scarus Ghabon	17	2.7±0.6	8.6±1.2	19	2.2±0.7	6.9±1.3
Epinephelus Microdon	16	1.3±0.5	6.8±1.9	16	0.9±0.2	5.3±2.1
Epinephelus Coioides	20	1.7±0.4	6.3±2.1	18	1.5±0.6	4.1±2.8
Epinephelus Tauvina	20	2.8±0.9	9.7±2.5	20	2.1±1.4	7.5±3.1
Acanthoparagus Bifasciatus	15	1.2±0.5	4.1±1.9	13	0.9±0.7	3.5±2.2
Siganus Canaliculatus	16	1.9±0.7	4.7±1.5	11	1.7±0.5	4.1±1.8
Lethrinus Miniatus	16	2.1±0.3	5.7±2.3	14	1.8±0.9	3.5±2.1
Lethrinus Nebulosus	14	1.6±0.5	5.3±1.9	16	1.1±0.3	4.7±2.3

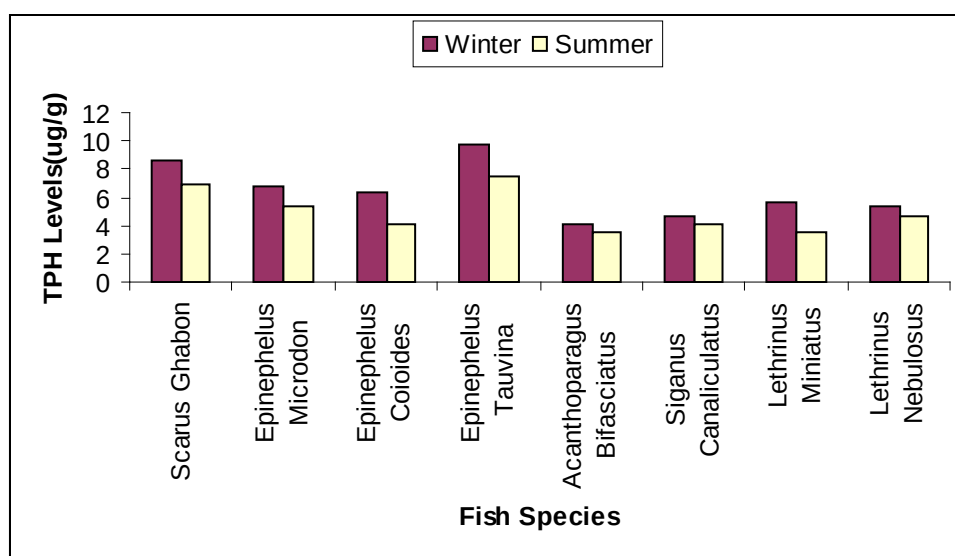


Figure 1: Seasonal variation of TPH in selected fish species

Standard 11: Institutional Relationships with the Community

Contributing to the community must be recognized as an important institutional responsibility. Facilities and services must be made available to assist with community developments, teaching and other staff must be encouraged to be involved in the community and information about the institution and its activities made known to the community through public media and other appropriate mechanisms. Community perceptions of the institution must be monitored and appropriate strategies adopted to improve understanding and enhance its reputation.

For the purposes of this standard contributions to the community should include services and activities to assist individuals, organizations or communities outside the institution (i.e. they would not include such things as financial assistance or extracurricular activities for enrolled students or the provision of academic programs leading to qualifications) but could include participation in research or development projects, and community education programs provided without cost, or for which charges are made.

Main components of this standard:

11.1 Institutional Policies on Community Relationships

11.2 Interactions with the Community

11.3 Institutional Reputation

Comment and General Description of Good Practice

As influential members of the community institutions should recognize an obligation shared with other community members to cooperate for mutual benefit. However the responsibility of post secondary institutions goes well beyond that general obligation. By their nature they are service organizations whose central responsibility is to provide educational services that are required. In most cases they are established or approved to operate because that service is recognized as being needed in the community. Many receive substantial government support, which is a community contribution to their activities, either directly or through financial support for students.

The mission of an institution should make clear the nature of its contribution to the communities it is intended to serve and should be developed following an analysis of the needs of those communities and the capacity of the institution to respond.

Higher education institutions have special capacity to contribute because of the skills of their staff in a number of different occupational or professional fields and academic disciplines, and because of the facilities they have for teaching, research and cultural activities. As a result it is common for them to provide for community access to cultural activities, to establish clinics or services for the benefit of the community, to develop research or consultancy programs focusing on requirements of local communities, and to encourage staff to take an active role in aspects of community life that are relevant to their special expertise. The role of higher education institutions in providing assistance and support to other education institutions

including schools can be extremely important to those other institutions, as well as providing benefits to the higher education institution itself by improving its capacity to attract high quality students.

A higher education institution should clearly identify its potential contributions to the community, provide for those contributions in appropriate ways in its mission, develop institutional policies and strategies for response, and monitor and report on what is done.

While the geographic region surrounding an institution is particularly significant, the concept of community should be interpreted broadly, to include the academic and professional communities with which it interacts, locally, nationally, and internationally. Contributions to these communities are all important, and as is the case for the local general community, effective interaction has significant benefits for the institution as well.

Institutions should ensure that their activities and services are widely publicized and understood and valued by the community, and that their reputation is enhanced. The reputation of the institution is a vital factor in attracting and retaining high quality students and staff, seeking endowments, attracting research projects and funding, and in ensuring community support. It is also important in establishing and maintaining the public credibility of the qualifications that students receive.

Evidence and Performance Indicators

Evidence about quality of community relationships can be obtained from documents describing policies on service to the community, criteria for staff evaluation and promotion that include community contributions, and guidelines and processes for community media releases and other public comments on behalf of the institution. Reports on community relationships that include such matters as community use of institutional facilities, participation of staff on community committees or development projects, and interactions with schools and other agencies can provide relevant information. The extent of community service activity, including formal courses and other services provided by departments or individuals throughout the institution should be documented and retained in a central data system. Community views about the quality of the institution and its standing as a respected member of the community can be obtained from surveys.

A number of these forms of evidence include ratings that can be used directly as performance indicators. However in this area in particular the mission of the institution and the community within which it operates is important in deciding what aspects of performance should be closely monitored.

Standard 11 Institutional Relationships with the Community

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For the purposes of this standard contributions to the community should include services and activities to assist individuals, organizations or communities outside the institution (i.e. they would not include such things as financial assistance or extracurricular activities for enrolled students or the provision of academic programs leading to qualifications) but could include participation in research or development projects, and community education programs provided without cost, or for which charges are made.

The scales below ask you to indicate whether these practices are followed in your institution and to show how well this is done. Wherever possible evaluations should be based on valid evidence and interpretations supported by independent opinions.

	Is this true? Y/No/NA	How well is this done? (enter stars)
Good Practices Relating to This Standard		
11.1 Institutional Policies on Community Relationships		
The institution's commitment to service to the community must be clearly specified, clear in its nature and scope, supported by policies to encourage involvement, and regular reports should be prepared on activities that take place.	Y	*****
11.1.1 The service commitment of the institution is relevant to the community or communities within which it operates and included in its mission.	Y	*****
11.1.2 Policies on the service role of the institution are formally established by the governing body and supported in decisions made by senior administrators.	Y	*****
11.1.3 Annual reports are prepared on the institution's service contributions to the community.	Y	*****
11.1.3 Promotion criteria and staff assessments include contributions made to the community.		*****
11.1.4 Websites providing details of institutional structures and activities, including news items of potential interest to potential students and members of the wider community, are provided and kept up to date.		

Overall Assessment

Comment **PMU is fully integrated and governed by members of its community. PMU operation is completely focused on community service.**

Priorities for Improvement **Increase utilization of facilities of Prince Mohammad bin Fahd Program for Youth Development. English Language Institute will improve enrollment over the next year 2012/2013 and more continuing education programs will be introduced. At least three continuing education programs will be introduced per academic year.**

Independent Opinion

Comment

There are established policies on community relations and numerous examples of existing and effective community interactions and collaborations exist.

11.2 Interactions With the Community

Relationships should be established with the community to provide services, drawing on the skills and resources available in the institution, and community expertise should be drawn upon when appropriate in strengthening the institution and its programs.

11.2.1 Teaching and other staff are encouraged to participate in forums in which significant community issues are discussed.

Y

Y

11.2.2 The institution encourages its colleges and departments to cooperate in the establishment of community support or professional service agencies relevant to the needs of the community, drawing on the expertise of staff members.

Y

11.2.3 The institution provides a range of community education courses in areas of interest and need.

11.2.4 Strong positive relationships are established with local industries and employers to assist program delivery. (These may include, for example, placement of students for work-study programs, part time employment opportunities, and identification of issues for analysis in student project activities.)

Y

Y

11.2.5 Local employers and members of professions are invited to join appropriate advisory committees considering programs and other institutional activities.

11.2.6 The institution maintains continuing contact with schools in the region, offering assistance and support in areas of specialization, providing information about programs and activities at the institution and subsequent career opportunities for graduates, and arranging enrichment activities for students at the schools.

Y

Y

11.2.7 Regular contact is maintained with alumni, keeping them informed about institutional developments, inviting their participation in activities, and encouraging their financial and other support for new developments.

Y

Y

11.2.8 Opportunities are taken to seek funding support from individuals and organizations in the community for research and other developments in the institution.

11.2.9 A central data base is maintained in which records are maintained of community services undertaken by individuals and organizations throughout the institution

Overall Assessment

Comment English Language Institute/Dammam, PMPYD/Dammam and PMU in-house continuing education are some of many community service programs hosted by PMU. Newly established although Student Affairs and entrepreneurship program is to name a few.

Priorities for Improvement Public Relations departments' has data on community service, many academic departments are engaged in community service a more centralized system to capture community service data is needed by end of year 1012/2013.

Independent Opinion

Comment

Existing interactions with the community are many and varied. Among these are student internships in local companies, faculty research collaborations, evening courses for employees of local companies, on campus training sessions in the Learning Resource Center, membership in local professional societies and on-campus colloquia.

11.3 Institutional Reputation

The reputation of the institution in the community must be monitored and enhanced through provision of reliable and accurate information about its activities.

11.3.1 A comprehensive strategy for monitoring and improving the reputation of the institution in the local and other relevant communities is developed and implemented.

Y

11.3.2 Clear guidelines are established for public comments on behalf of the institution, normally restricting such comments to the Rector or Dean or a media office responsible to the Rector or Dean.

Y

11.3.3 Guidelines are established for public comments on community issues by members of staff, where such comments could be associated with the institution.

Y

11.3.4 An institutional media office manages media communications, seeks information about activities of the institution of potential interest, and arranges for publication.

Y

11.3.5 Community views of the institution and its activities are systematically investigated and analyzed, and strategies developed for improving perceptions.

Y

11.3.6 If issues or concerns about operational issues are raised in public forums these are dealt with immediately and objectively by the Rector or Dean or other designated senior member of faculty or staff.

Y

Overall Assessment

Comment PMU reputation is growing as a leading university in the

region. PMU public & media guidelines are well established. The university hosts a well managed media & public relations units that are well integrated to capture community related issues and concerns.

Priorities for Improvement PMU build faculty critical mass body, the opportunities for more faculty involvement in community service is expected to improve (double) by next year 2012/2013.

Independent Opinion

Comment

PMU Media Relations are well managed and provide effective representation of the university to the Eastern Province and beyond.



Overall Assessment of Institutional Relationships with the Community

11.1 Institutional Policies on Community Relationships	*****
11.2 Interactions With the Community	*****
11.3 Institutional Reputation	*****
Combined Assessment	*****

Comment **PMU community service and relation with its community is the backbone of its operation. PMU excellence & unique programs are tailored to serve community and to respond to emerging needs of its constituents.**

Independent Opinion

Comment

Existing community relationships seem to be strong and varied and are clearly valued by PMU and the community of the Eastern Province.

Indicators Considered

Priorities for Improvement **PMU build faculty critical mass body, the opportunities for more faculty involvement in community service is expected to improve (double) by next year 2012/2013.**

COMMUNITY SERVICE EVENTS ORGANIZED BY PMU (MALE/FEMALE)

NO	EVENTS/SERVICES	MALE CAMPUS	FEMALE CAMPUS	COMMENTS
1	Water is our life (environment competition)	April 23, 2012		
2	Student Wellness day at PMU	April 8, 2012		
3	Diabets Mellitus	March 20, 2012		DONE
4	17th Annual Charity Run to Promoting Organ Donation: (for the last 3 consecutive years)	March 16, 2012		DONE
5	Traffic week	March 11-15, 2012		DONE
6	Charity Run 2011: Traffic Safety Awareness Campaign	March 10, 2012		DONE
7	Partnership between PMU and "Binaa" orphans association	March 2012		DONE
8	CPR short course training	February 27, 2012		DONE
9	Fire Drill training:	February 14, 2012		DONE
10	Awareness driving lecture	May 3, 2011		DONE
11	PMU Community Service day	May 3, 2011		DONE
12	Anti smoking campaign	April 3, 2011		DONE
13	Immunization lecture	April 2, 2011		DONE
14	Special needs day:	December 19, 2011		DONE

NO	EVENTS/SERVICES	MALE CAMPUS	FEMALE CAMPUS	COMMENTS
15	World Diabetes Day	November 14, 2010		DONE
16	Lung health day	October 26, 2010		DONE
17	World health day: Being Healthy for Sport lecture	April 7, 2010		DONE
18	Charity Run 2010: Supporting Volunteerism	March 18, 2010	December 20, 2011	DONE
19	Annual Blood Donation Campaign:	March 8, 2010	December 5, 2011	DONE
20	Beach Cleaning campaign: "For a better environment"	June 2008		DONE
21	Healthy Life Style		March 5, 2012	DONE
22	Green Day –Students Trip to ARAMCO Beach		May 2012	
23	Down Syndrome		April 2012	
24	Green Day – ARAMCO Awareness Presentation		April 2012	
25	Wellness Program – Carlton Nutrition Centre.		April 2012	
26	Traffic Lecture		March 13, 2012	DONE
27	Recycling Campaign		March 2012	
28	Art for a cause (Prince Mohammad Program for Youth Leadership "My Art My Distribution Competition ")		February 14, 2012	DONE
29	Think Pink " Breast Cancer Awareness "		October 16, 2011	DONE

TOTAL EVENTS

20

11



PRINCE MOHAMMAD BIN FAHD UNIVERSITY
Division of Student Affairs

SAMPLE DESCRIPTION OF COMMUNITY SERVICE EVENTS

- **Student Wellness Day at PMU**

The inaugural *PMU Wellness Day* was held on *Sunday, 8 April, from 9:00AM to 2:00PM*. Run in collaboration with the Saudi ARAMCO Wellness Group, this event was held on the Male Campus in the main atrium area. On display was a number of booths including the PMU Wellness Clinic, PMU Wellness Club, smoking cessation, office ergonomics, car ergonomics, stress management, and interactive Wii Sports. This is a great opportunity to learn more about the importance of adopting a healthy lifestyle.

- **Diabetes Mellitus**

Is a one-hour lecture entitled, *Diabetes Mellitus*, presented by **Mr. Ahmad Al-Momani** last *March 20, 2012, 1:00PM to 2:00PM* at the PMU Male Campus Lecture Hall, in cooperation with the Division of Student Affairs and Department of Health Care & Counseling.

- **17th Annual Charity Run to Promoting Organ Donation – Al Khobar, K.S.A.**

The sky was gray, the wind and sand were howling but this did not deter the **PMU Running Team** from participating in the *17th Annual Charity Run Promoting Organ Donations* held last *15th of March 2012* at the *Corniche, Al Khobar*. More than 20 participants from *PMU Students, Staff and Faculty* joined forces to run the 5K distance in support of this Charity event and to represent PMU. All finished and contributed to this historical race with 10,000 other runners. Special thanks go out to the department of Campus Life for the outstanding organization and continuous motivation to participate. As well big thanks to **Dr. Bruce Wells** and **Dr. Hachemi Benaoum** for their added support and encouragement to our student.

- **CPR Short Course Training**

Last *February 27, 2012*, the *Department of Health and Counseling (Student Affairs)* conducted a short course CPR training among students. **Mr. Ahmed Aref Mohammad Al-Momani** performed the new CPR guidelines approved by the American Heart Association. The PMU healthcare team believes that teaching basic CPR skills to students, staffs, and faculty is the right way to protect them; for when faced with a road accident or a heart attack, the ability to act quickly and appropriately is very crucial. In addition, PMU strives to improve PMU healthcare

standards. Although few participants attended the said training, PMU healthcare team is looking forward for more attendees in the next CPR course training, scheduled very soon. Question and answer from the students followed the presentation.

- **HEART ATTACK Lecture**

The *Department of Health and Counseling (Student Affairs)* conducted a one hour lecture entitled “**HEART ATTACK**” presented by **Mr. Ahmed Aref Mohammad Al-Momani** last 26th February 2012. The lecture presents the latest information on heart attack treatment and prevention through one-on-one interaction with the lecturer and PowerPoint slides. Going through a heart attack can be a harrowing experience. With symptoms ranging from heart palpitations, cold sweats, fatigue, and anxiety: a heart attack is downright frightening with 40% of sufferers not surviving the episode. Survivors must make long term lifestyle changes immediately or risk another. Dr. Bruce Wells also stresses in establishing a wellness program, in which students are advised to have exercises twice every week, such as no elevator for this week so students are forced to use the stairs, jog around the campus, and start a light fitness program. A Q&A session was followed by the presentation and healthy refreshments were served.

- **PMU Community Service!**

Spring semester 2011 has been full of activity for the Division of Student Affairs, endeavoring as always to secure a lively and productive campus life for PMU students. Under this supervision the Departments of Campus Life and Health Care and Counseling collaborated with Dr. Abdul Qader Alqadoosi and PMU students to organize a community service exercise not seen before, last May 3, 2011. PMU students exercised their willingness to promote health and cleanliness on campus. Armed with cleaning tools, they cleaned the inside and outside walkways, planted trees and flowers, and encouraged PMU students to stop smoking. In addition, security officers and janitors were offered gifts and meals in appreciation and gratitude for all their hard work and support. Many thank to Dr. Abdul Qader and his students, the department of Engineering, and Auxiliary Services whose cooperation and contribution in the success of this event was highly appreciated. On a final note, we hope that such activities will be repeated and supported by the PMU community in the future.

- **Blood Donation Campaign**

Under the direction of Student Affairs, the Department of Health & Counseling with the coordination of *Dr. Eman Al Sheik, Director of Laboratories and Blood Bank at King Fahd Hospital* launched the Blood Donation Campaign on *March 1, 2011* for the Male Campus and *March 2, 2011* for the Female Campus. A team of 13 members comprised of doctors and nurses came to support this campaign. “A

Drop of Blood, Save Thousand of Life” is the essence of this campaign. Many students, faculty, and staff (*47 male & 37 female*) turned up for the four-hour blood campaign that took place in the clinic and the team of staff nurses checked the donors’ weight, height, and blood pressure. The donors were given light refreshment, water, and juices. The Blood Donation Campaign served as part of the university continuous effort to assist the larger community of the Eastern Province in replenishing the stock levels and help the sick. **Dr. Mohammad Qadri**, PMU clinic manager noted that the response to the blood donation campaign was great and with no significant problems, and it was an encouraging sign for us. Moreover, the Division of Student Affairs along with the Health & Counseling Department thanked the effort of King Fahd Hospital for aiding PMU in this campaign.