جامعة الأمير محمد بن فهد الأهلية
PRINCE MOHAMMAD BIN FAHD UNIVERSITY

COLLEGE OF ENGINEERING

GENERAL CATALOG

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COLLEGE OVERVIEW

The College of Engineering accepts successful male students from PMU's Preparatory Program or other qualified male students into degree programs in engineering.

Within the College of Engineering, PMU's Department of Interior Design provides knowledge and appropriate training for women to be creative and innovative designers.

While students completing engineering degrees at PMU could certainly continue on to graduate studies, the main emphasis in the engineering programs is on the preparation of graduates for employment.

Vision and Mission

Vision

The College of Engineering at PMU offers a unique and distinguished education that prepares future leaders and innovators in the engineering disciplines of civil, electrical, mechanical engineering and interior design. The education process will explore innovative methodologies and technologies to achieve its objectives.

Mission

PMU's College of Engineering will educate tomorrow's engineering leaders and innovators, will create new knowledge, will provide a nurturing environment of team work and lifelong learning, and will positively impact the economic prosperity of the Kingdom of Saudi Arabia.

Degrees Offered

The College of Engineering offers the following degree programs:

- ***Bachelor of Science in Civil Engineering*** – Male Students
- ***Bachelor of Science in Electrical Engineering*** – Male Students
- ***Bachelor of Science in Mechanical Engineering*** – Male Students
- ***Bachelor of Science in Interior Design*** – Female Students

Mission Statement and Program Educational Objectives for Civil Engineering

Missions

- To prepare future leaders in the civil engineering areas that are equipped with strong professional skills and engineering backgrounds

- To explore, enhance and expand the knowledge in the civil engineering areas by conducting innovative research and scholarly activity

- To contribute to the community and the profession through transfer of knowledge by providing innovative services and solutions.

Program Educational Objectives

- Graduates have successful and professional careers in civil engineering and related industries, and meet the expectations of the prospective employers

- Graduates demonstrate leadership and effectively undertake services within their profession and contribute to sustainable development in their communities

- Graduates pursue their professional development through continuous lifelong learning; advanced studies; and membership in professional societies

Mission Statement and Program Educational Objectives for Electrical Engineering

Missions

- To prepare its students to meet current and future needs of the national industry and government agencies, and to become productive professionals and leaders,
- To enhance and expand the knowledge in Electrical Engineering by conducting research and scholarly activity, and
- To reach out to the community and the profession through innovative services and solutions.

Program Educational Objectives

- To prepare its graduates for careers as engineering professionals and/or for graduate studies.
- To enable its graduates to pursue state-of-the-art solutions to engineering problems and to evaluate and embrace new technologies.
- To enable its graduates to develop professional and ethical responsibilities in their careers and to engage in self-learning activities.
- To prepare its graduates to undertake leadership roles in industry and to proactively participate in the development of their communities.

Mission Statement and Program Educational Objectives for Mechanical Engineering

Missions

The mission of the Department of Mechanical Engineering at PMU is to offer quality engineering education and impart essential skills to prepare its graduates to meet current and future needs of the industry and other private and public institutions, and to become productive professionals and leaders by reaching out to the community and the profession through innovative services and solutions.

Program Educational Objectives

- Graduates of the program will meet the professional expectations of national and international employers of mechanical engineers.
- Graduates of the program will be prepared to undertake leadership roles in their communities and/or professions.
- Graduates of the program will be prepared to pursue advanced studies and/or professional certification/training, if they so desire.

Mission Statement and Program Educational Objectives for Interior Design

Missions

The Undergraduate Interior Design Curriculum has been developed to address the need for preparing women as future leaders in the field of interior design in Saudi Arabia. Innovative graphic technologies and teaching methods have been proposed to contribute to the development of interior design knowledge.

Program Educational Objectives

- Provide a curriculum that is responsive to Interior Design professional standards and industry requirements.
- Prepare professionals who contribute to dynamic interior environments that are functional and safe for inhabitants.
- Offer faculty-led design projects at all levels that are strongly related to field applications in Interior Design.

Student Outcomes for Civil, Electrical, and Mechanical Engineering

a) an ability to apply knowledge of mathematics, science, and engineering
b) an ability to design and conduct experiments, as well as to analyze and interpret data
c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic,

environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d) an ability to function on multidisciplinary teams
e) an ability to identify, formulate, and solve engineering problems
f) an understanding of professional and ethical responsibility
g) an ability to communicate effectively
h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i) a recognition of the need for, and an ability to engage in life-long learning
j) a knowledge of contemporary issues
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Student Outcomes for Interior Design

a) Recognize the relationship of cultural differences, social and political influences, limited resources, and human behavior with the built environment.
b) Know and apply the design process in the development of interior environments.
c) Employ collaboration and develop leadership skills in the process of designing for the interior built environment.
d) Write, diagram, illustrate, construct, present or otherwise communicate design solutions.
e) Identify the business practices needed for the profession of Interior Design.
f) Describe the stylistic development of interior design components as a reflection of changing influences in the social, cultural, political and technological context along with utilizing historic references in design solutions.
g) Explain and apply the principles and elements of design as well as theories of color and light.
h) Discover the variety of materials and products available for interior environments, know how they are fabricated, installed and maintained, evaluate the products for appropriate performance for a particular use, plan furniture, fixture and equipment layouts and, prepare material, furniture, fixture and equipment specifications.
i) Plan environmental systems and controls that consider adequate indoor air quality, acoustic control, thermal and lighting design.
j) Know, plan and design interior vertical circulation, structural, non-structural, and distribution building systems while evaluating the connection between furniture and all interior building systems.
k) Produce interior environments that demonstrate competency in barrier-free or universal design, understanding of International Green Construction Codes and application of both Saudi Arabia and International Building Codes.

ADMISSIONS PROCESS AND REQUIREMENTS

Admission to studies in the departments of Civil, Electrical, and Mechanical Engineering is open to male students who have completed the PMU Preparatory Program or who have met the university criteria for bypassing the program.

Admission to studies in the department of Interior Design is open to female students who have completed the PMU Preparatory Program or who have met the university criteria for bypassing the program.

Students seeking entry to degree studies in Interior Design may be requested to submit a design portfolio in place of the required essay. The portfolio should provide evidence of the student's existing interest in art or design. Such evidence might include drawings and a written statement designed to indicate the student's talent and desire to achieve success.

Required Courses in the Preparatory Program

The PMU Preparatory Program concentrates on English language, mathematics, and study skills. Within this program, the first semester math course, PRPM 0011: Introductory Algebra, is required of all students. However, during the second semester of mathematics, students have a choice of two tracks, depending on their desired major at the university.

Students seeking entrance to majors in Civil, Electrical, and Mechanical Engineering are required

to take PRPM 0022: Pre-Calculus, during the second semester of the Preparatory Program.

Students seeking entrance to the Department of Interior Design should take PRPM 0012: Intermediate Algebra, during the second semester of the Preparatory Program.

PERFORMANCE EXPECTATIONS

Required Grade Average - Civil, Electrical, and Mechanical Engineering

The College of Engineering provides for minimum standards of academic performance from its students. Using a 4.0 scale for course grades, the College of Engineering will require that students maintain minimum grades of:

- 2.0 in courses from the PMU Core Curriculum
- 2.0 in all degree-specific courses (courses from the Core Curriculum that engineering students must take beyond the minimum requirement)
- 2.25 in all courses required in the College of Engineering that are common to all engineering majors
- 2.5 in all courses within the major academic discipline

All PMU engineering majors are required to pass an internationally-normed subject content exam.

A student who receives a D (1.0) or F in any course will be required to repeat the course and to achieve the required grade point score. In the case of an elective, another elective may be selected. These students will be required to participate in tutoring and remediation programs offered by the college faculty and the PMU Learning Resources Center.

Required Grade Average - Interior Design

The Department of Interior Design will require students to maintain minimum standards of academic performance. Using a 4.0 scale for course grades, the department will require students to maintain a minimum grade point average of:

- 2.0 in all Core Curriculum courses
- 2.25 in all electives
- 2.5 in all interior design courses

A student who receives a grade lower than 2.5 in an interior design course will be required to repeat the course and to achieve the required grade point score. These students also will be required to participate in tutoring and remediation programs offered by the interior design faculty and Learning Resources Center. The course may be repeated one time or more with consent of the instructor.

Assessment of Interior Design Portfolios

Student advancement through the interior design program is determined by a series of assessments at which each student must demonstrate her readiness to step up to more advanced study.

At the conclusion of the second semester of the freshman year, all students will submit a portfolio of work. The interior design faculty will assess the individual portfolios as "conditional" or "unconditional" indicating the student's readiness to advance. "Conditional" assessments will be made in writing signed by the faculty.

The student must comply with the faculty recommendations within one semester. A student not meeting the conditions of the "conditional" evaluation will not advance to the next level of course work.

Each course includes evaluation criteria based on course level and course criteria. These criteria include drafting skills, the use of universal building codes and requirements, graphic and oral presentations, exams, written papers, use of principles and elements of design process, notebooks, and project development.

Studio work is assessed based on written materials, graphic presentation, appropriate problem solutions, technical skills, and oral presentation.
The student's understanding of materials presented in lectures is assessed by exams, written essays, identification quizzes, notebooks, and student-produced illustrations.

Seniors must successfully present their portfolios to a professional panel. The professional panel will assess the portfolio presentations based on specific criteria. The criteria include design processes and space planning.

Student Computing Requirements

Civil, Electrical, and Mechanical Engineering

Students within the College of Engineering are required to have personal laptop computers. They have access to the university-wide technology-infused environment including wireless Internet access.

Students in the college also have specific computing requirements that extend beyond the standard Microsoft Office applications of a typical laptop. Many of these specific computing requirements are available through the university's technology infrastructure to students' laptop computers. Others are provided through general access and specialized computer laboratories.

Interior Design

Students studying interior design are required to have personal laptop computers. They have access to the university-wide technology-infused environment including wireless Internet access. Technologies such as interactive television, video conferencing, and Blackboard or WebTV are central to maintaining effective communication between faculty and students and among students.

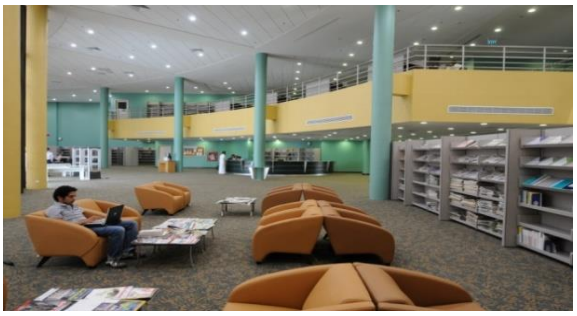
Students in interior design also have specific computing requirements that stem largely from the demanding graphics software that they must learn and use. These students, therefore, must have a laptop computer that is capable of handling this software. Their laptop computers should meet or exceed the capabilities of the computers in the department's dedicated computer labs.

COMPONENTS OF DEGREE PROGRAMS

Each engineering degree program in PMU's College of Engineering consists of a 139 semester credit hours. The interior design program consists of 127 semester credit hours.

Majors in Civil, Electrical, and Mechanical Engineering

Each of the engineering degree programs offered within the College of Engineering consists of five components.



General Education Requirements: These requirements for the University Core Curriculum and College Core Curriculum include 60 credit hours of courses in the PMU core competencies, communication, Arabic Language and Islamic Studies, physical education, mathematics, laboratory science, and social and behavioral sciences.

Additional Core Curriculum Requirements: These requirements include courses in mathematics and laboratory science in addition to the Core Curriculum requirements. These requirements add 12 credit hours beyond the 60 hour minimum for a total of 72 hours from the Core Curriculum.

Specifically, engineering degree programs extend PMU's College Core requirement of six semester credit hours of mathematics to 14 hours, and specify that the courses will be:

MATH 1422: Calculus I
MATH 1423: Calculus II
MATH 1324: Calculus III
MATH 2332: Differential Equations

University Core Curriculum requires eight semester hours of Natural and Physical Science. Engineering degree programs extend PMU's College Core requirements in Natural and Physical Sciences from eight semester credit hours to 12 hours and specify that the courses will be:

CHEM 1421: Chemistry for Engineers I
PHYS 1421: Physics for Engineers I
PHYS 1422: Physics for Engineers II

College of Engineering Requirements: These requirements consist of seven courses totaling 19 credit hours that are common to all engineering degree programs in the College of Engineering. They represent a base of knowledge that is presumed for all engineers. The courses within the College of Engineering that meet these requirements are designated with the prefix GEEN. These courses

include the following:

GEEN 1211: Introduction to Engineering
GEEN 2311: Statics and Dynamics of Rigid Bodies I
GEEN 2312: Introduction to Computing
GEEN 2313: Thermodynamics I
GEEN 2314: Circuits I
GEEN 3211: Engineering Economy
GEEN 3311: Introduction to Fluid Mechanics

Degree Program Requirements: Each degree program has unique course requirements that apply to the degree major and that also differentiate the program from other majors within the college.

Electives: Each degree program identifies the available electives and any constraints that will apply to the selection and scheduling of electives.

Of the total 139 hours required for a bachelor's degree in engineering, 91 credit hours are common to all three degrees.

Major in Interior Design

PMU's Interior Design program provides a firm foundation for aspiring entry-level professionals. Courses provide a broad perspective of the profession and issues of practice as well as detailed instruction and experience in how to apply learning in a professional setting.

With the exception of six credit-hours of electives, all students in the interior design program pursue the same program in which they take the same courses in the same sequence. Interior design is a demanding discipline that covers a full range of technical, aesthetic, ethical, and functional topics. In order to best include these topics, the curriculum will center on a combination of lecture classes and interior design studios. In the studios, students have the opportunity to integrate multiple aspects and concepts of interior design into their projects. Electives provide students an opportunity to freely select additional courses from a specified list to further enhance their educational experience.
Courses taught by the Department of Interior Design are:

IDES 1211: Introduction to Interior Design
IDES 1212: Interior Design I
IDES 1413: Interior Design II
IDES 2331: Behavior and the Physical Environment
IDES 2332: Materials for Interior Design
IDES 2411: Interior Design III — Digital Media, Residential Design
IDES 2412: Interior Design IV — Digital Media, Non-Residential Design
IDES 3321: Interior Building Systems I
IDES 3322: Interior Building Systems II
IDES 3331: Interior Lighting
IDES 3332: Introduction to Furniture Design
IDES 3341: History of Furniture, Decoration, and Interior Design I
IDES 3342: History of Furniture, Decoration, and Interior Design II
IDES 3343: Professional Practices for Interior Designers
IDES 3411: Interior Design V — Office Design
IDES 3412: Interior Design Studio VI — Hospitality
IDES 4337: Sustainable Design
IDES 4338: Interior Design Internship
IDES 4425: Interior Design VII — Healthcare Design
ASSE 4311: Learning Outcome Assessment III (Capstone / Interior Design Studio)

In order to enhance the employment opportunities and options for female graduates of PMU's Interior Design Program, the department emphasizes the use of technology and its application for creative problem solving. This focus provides students with the necessary skills for working with a range of employers while being physically located in their homes.

Capstone Series – Civil, Electrical, and Mechanical Engineering

PMU's Core Curriculum includes a series of three required assessment courses. The series begins in the sophomore year with ASSE 2111: Learning Outcome Assessment I and continues in the junior year with ASSE 3211: Learning Outcome Assessment II. The series culminates in the senior year with a final capstone design course, ASSE 4311: Learning Outcome Assessment III.

The engineering programs in the College of Engineering treat the final capstone course as a group of three engineering courses that will integrate conceptual material and practical experience in an environment of professional-grade engineering design. For each of the majors, the engineering capstone course group is structured as follows:

Civil Engineering:

GEEN 3211: Engineering Economy
CVEN 3312: Reinforced Concrete Design

ASSE 4311: Learning Outcome Assessment III

Electrical Engineering:

GEEN 3211: Engineering Economy
EEEN 4311: Design Methodology and Project Management
ASSE 4311: Learning Outcome Assessment III

Mechanical Engineering:
GEEN 3211: Engineering Economy
MEEN 3393: Mechanical Engineering Design III
ASSE 4311: Learning Outcome Assessment III

Capstone Course – Interior Design

During the second semester of the senior year, each student will undertake and complete a comprehensive interior design project in consultation with interior design faculty. Intended to simulate a work-world design project in the specialization sought after graduation, the course includes skills and subject-matter the student has learned in earlier classes including concepts, procedures, and processes. The project includes a complete set of drawings for design and construction, furniture specifications, and a formal presentation package of professional quality. The result provides the major project for the student's professional portfolio of work.

Internships for PMU's Interior Design Students

In order to expand internship opportunities available to female interior design students, PMU has established a Community Design Resource Center. This center encourages members of the community to seek professional advice for small interior design projects that the students can complete under the supervision of the faculty. These projects include both commercial and residential work.

The center is jointly operated by PMU's Department of Interior Design and the PMU Center for Research Development and Continuing Education.

COURSES REQUIRED FOR MAJORS

Civil Engineering

The Bachelor of Science in Civil Engineering consists of four components totaling 140 credit hours:

Expanded PMU Core Curriculum: This expanded core curriculum consists of 72 hours of coursework.

The College of Engineering Requirements: These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix.

Degree Program Requirements: These requirements consist of 46 hours of course work in civil engineering as follows:
MEEN 2312: Statics and Dynamics of Rigid Bodies II
MEEN 2211: Materials Engineering
MEEN 2313: Mechanics of Solids
CVEN 3322: Materials in Civil Engineering
CVEN 3311: Structural Analysis
CVEN 3312: Reinforced Concrete Design
CVEN 3321: Engineering Geology
CVEN 3331: Environmental Engineering Fundamentals
CVEN 3341: Engineering Measurements
CVEN 4313: Design of Steel Structures
CVEN 4314: Construction Management
CVEN 4342: Transportation Engineering
CVEN 4343: Engineering Probability and Statistics
CVEN 4423: Introduction to Geotechnical Engineering
CVEN 4432: Hydraulic Engineering

Degree Electives: The Civil Engineering degree program requires three semester credit hours of electives to be taken from five 4000 level courses. These electives can be chosen from among the following four courses:

CHEM 1422: Chemistry for Engineers II
CVEN 4324: Foundation Analysis and Design
CVEN 4333: Water and Wastewater Treatment
CVEN 4334: Air Pollution and Control

Electrical Engineering

The Bachelor of Science in Electrical Engineering consists of four components totaling 139 credit hours:

Expanded PMU Core Curriculum: This expanded core curriculum consists of 72 hours of coursework.

The College of Engineering Requirements: These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix.

Degree Program Requirements: These requirements consist of 39 hours of course work in electrical engineering as follows:

EEEN 2111: Circuits I Lab
EEEN 3312: Circuits II
EEEN 3331: Digital Systems
EEEN 3341: Signals and Systems
EEEN 3361: Electromagnetic Fields and Waves
EEEN 3391: Probability and Random Signal Analysis
EEEN 3421: Electronics I
EEEN 3422: Electronics II
EEEN 4311: Design Methodology and Project Management
EEEN 4331: Microprocessors
EEEN 4351: Automatic Control Systems
EEEN 4361: Electric Machinery
EEEN 4391: Advanced Applied Mathematics

Degree Electives: The Electrical Engineering Degree Program requires nine semester credit hours of electives to be taken from six 4000 level courses composed of two options, in Electrical Power Systems and in Telecommunications Systems.

The Electrical Power Systems Option consists of three courses:

MEEN 3333: Heat Transfer
EEEN 4371: Electric Power Systems
EEEN 4372: Electric Power Transmission and Distribution

The Telecommunications Systems Option consists of three courses:

EEEN 4341: Communication Systems
EEEN 4342: Digital Communication Systems
EEEN 4343: Wireless Communication Systems

Mechanical Engineering

The Bachelor of Science in Mechanical Engineering consists of four components totaling 139 credit hours:

Expanded PMU Core Curriculum: This expanded core curriculum consists of 72 hours of coursework.

The College of Engineering Requirements: These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix.

Degree Program Requirements: These requirements consist of 42 hours of course work in mechanical engineering as follows:
MEEN 2211: Materials Engineering
MEEN 2312: Statics and Dynamics of Rigid Bodies II
MEEN 2313: Mechanics of Solids
MEEN 3211: Introduction to Manufacturing Systems
MEEN 3212: Manufacturing Methods in Design
MEEN 3322: Thermodynamics II
MEEN 3332: Computational Methods
MEEN 3333: Heat Transfer
MEEN 3391: Mechanical Engineering Design I
MEEN 3392: Mechanical Engineering Design II
MEEN 3393: Mechanical Engineering Design III
MEEN 4301: Mechanical Engineering Lab I
MEEN 4302: Mechanical Engineering Lab II
MEEN 4311: Principles of Heating, Ventilation and Air Conditioning

MEEN 4322: Power Generation

Degree Electives: The Mechanical Engineering Degree Program requires six semester credit hours of electives to be selected from eight 4000 level courses within the department. The eight 4000 level courses are:

MEEN 4312: Fluid Mechanics
MEEN 4315: Principles of Building Energy Analysis
MEEN 4331: Internal Combustion Engines
MEEN 4332: Turbo-machinery
MEEN 4341: Corrosion Engineering
MEEN 4392: Advanced Control Systems
MEEN 4344: Materials in Design
MEEN 4351: Intermediate Dynamics
MEEN 4392: Advanced Control Systems

Interior Design

PMU's Interior Design Curriculum consists of 127 semester credit hours, including 6 hours of electives.

PMU's Interior Design program consists of three basic components:

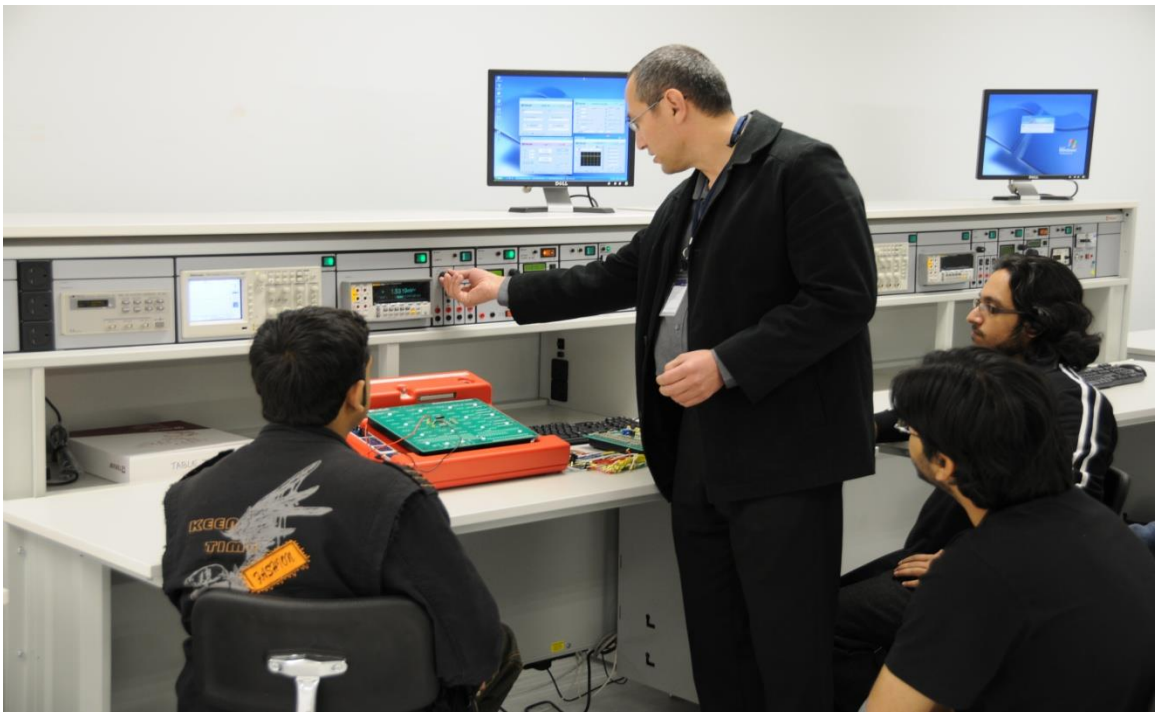
General Education Requirements: These requirements from the University Core Curriculum and the College Core Curriculum will comprise 60 hours of study. The core curriculum is intended as a broad and general education across disciplines. It includes courses in PMU core competencies, communications, Arabic Language and Islamic Studies, physical education, mathematics, laboratory science, and social and behavioral sciences.

Department of Interior Design Requirements: These requirements will comprise 61 hours of study. They will consist of courses in both the lecture and the studio formats. Courses will cover a wide range of topics designed to give the graduate a

comprehensive and solid foundation in the profession of interior design.

Electives: Students will take six hours of elective courses. One elective is provided by the Department of Interior Design. Other approved electives are from the course offerings of other colleges and departments of PMU. These electives will provide students with skills they will need to operate an interior design practice as a business, to work together with other professionals in the building industry, and to handle technical aspects of interior design. Students will choose two three-credit-hour courses from the following list:

IDES 3332: Introduction to Furniture Design
ACCT 2311: Fundamentals of Financial Accounting
ACCT 2321: Fundamentals of Managerial Accounting
BUSI 3311: Legal Environment of Business
BUSI 3312: Organizational Behavior
BUSI 3313: Marketing Principles
MATH 1313 Statistical Methods
MISY 2311: Introduction to Management Information Systems
MISY 2312: Introduction Programming for Information Systems



COURSE SEQUENCE FOR MAJORS

Civil Engineering

Total Semester Credit Hours: 140

Freshman Program

First Semester	*Hours*
ALIS 1211: Arabic Language / Islamic Studies	2
COMM 2311: Oral Communications	3
COMM 1311: Written Communication	3
UNIV 1211: Professional Development and Competencies	2
MATH 1422: Calculus I	4
PHYS 1421: Physics for Engineers I	4
GEEN 1211: Introduction to Engineering	2
Total Hours:	**20**

Second Semester	*Hours*
ALIS 1212: Arabic Language / Islamic Studies	2
PHED 1111: Physical Education	1
COMM 1312: Writing and Research	3
UNIV 1212: Critical Thinking and Problem Solving	2
MATH 1423: Calculus II	4
CHEM 1421: Chemistry for Engineers I	4
Social Science Elective*	3
Total Hours:	**19**

**Select any Social Science course from the College Core Curriculum.*

Sophomore Program

First Semester	*Hours*
ALIS 2211: Arabic Language / Islamic Studies	2
ASSE 2111: Learning Outcome Assessment I	1
PHED 1112: Physical Education	1
UNIV 1213: Leadership and Teamwork	2
MATH 1324: Calculus III	3
PHYS 1422: Physics for Engineers II	4
GEEN 2311: Statics and Dynamics I	3
Total Hours:	**16**

Second Semester	*Hours*
ALIS 2212: Arabic Language / Islamic Studies	2
GEEN 2313: Thermodynamics I	3
GEEN 2312: Introduction to Computing	3
MATH 2332: Differential Equations	3
MEEN 2312: Statics and Dynamics of Rigid Bodies II	3
GEEN 2314: Circuits I	3
Total Hours:	**17**

Junior Program

First Semester	*Hours*
ALIS 3211: Arabic Language / Islamic Studies	2

ASSE 3211: Learning Outcome Assessment I 2
MEEN 2211: Materials Engineering 2
GEEN 3311: Introduction to Fluid Mechanics 3
CVEN 3311: Structural Analysis 3
CVEN 3321: Engineering Geology 3
MEEN 2313: Mechanics of Solids 3
Total Hours: 18

Second Semester *Hours*

ALIS 3212: Arabic Language / Islamic Studies 2
CVEN 3322: Materials in Civil Engineering 3
COMM 2312: Technical and Professional Communications 3
CVEN 3312: Reinforced Concrete Design 3
CVEN 3341: Engineering Measurements 3
CVEN 3331: Environmental Engineering Fundamentals 3
Total Hours: 17

Senior Program

First Semester *Hours*

ALIS 4211: Arabic Language / Islamic Studies 2
GEEN 3211: Engineering Economy 2
CVEN 4432: Hydraulic Engineering 4
CVEN 4313: Design of Steel Structures 3
CVEN 4423: Introduction to Geotechnical Engineering 4
CVEN 4342: Transportation Engineering 3
Total Hours: 18

Second Semester *Hours*

ASSE 4311: Learning Outcome Assessment III (Capstone) 3
CVEN 4343: Engineering Probability and Statistics 3
CVEN 4314: Construction Management 3
CVEN Elective** 3
Social Science Elective* 3
Total Hours: 15

**Select any Social Science course from the College Core Curriculum.*

***Select from CVEN 4324: Foundation Analysis and Design, CVEN 4334: Air Pollution and Control, CVEN 4333: Water and Wastewater Treatment, or CHEM 1422: Chemistry for Engineers II*

Electrical Engineering

Total Semester Credit Hours: 139

Freshman Program

First Semester *Hours*

ALIS 1211: Arabic Language / Islamic Studies 2
COMM 2311: Oral Communications 3
COMM 1311: Written Communications 3
UNIV 1211: Professional Development and Competencies 2
MATH 1422: Calculus I 4

PHYS 1421: Physics for Engineers I 4
GEEN 1211: Introduction to Engineering 2
Total Hours: 20

Second Semester *Hours*

ALIS 1212: Arabic Language / Islamic Studies 2
PHED 1111: Physical Education....1
COMM 1312: Writing and Research 3
UNIV 1212: Critical Thinking and Problem Solving 2
MATH 1423: Calculus II 4
CHEM 1421: Chemistry for Engineers I 4
Social Science Elective*....3
Total Hours: 19

**Select any Social Science course from the College Core Curriculum*

Sophomore Program

First Semester *Hours*

ALIS 2211: Arabic Language / Islamic Studies 2
ASSE 2111: Learning Outcome Assessment I 1
PHED 1112: Physical Education....1
UNIV 1213: Leadership and Teamwork 2
MATH 1324: Calculus III 3
PHYS 1422: Physics for Engineers II 4
GEEN 2311: Statics and Dynamics I....3
Total Hours: 16

Second Semester *Hours*

ALIS 2212: Arabic Language / Islamic Studies 2
COMM 2312: Technical and Professional Communications 3
GEEN 2312: Introduction to Computing 3
GEEN 2313: Thermodynamics I....3
MATH 2332: Differential Equations 3
GEEN 2314: Circuits I....3
EEEN 2111: Circuits I Lab....1
Total Hours: 18

Junior Program

First Semester *Hours*

ALIS 3211: Arabic Language / Islamic Studies 2
ASSE 3211: Learning Outcome Assessment II 2
EEEN 3312: Circuits II 3
EEEN 3421: Electronics I....4
EEEN 3331: Digital Systems....3
GEEN 3311: Introduction to Fluid Mechanics 3
Total Hours: 17

Second Semester *Hours*

ALIS 3212: Arabic Language / Islamic Studies 2
GEEN 3211: Engineering Economy....2

EEEN 3391: Probability and Random Signal Analysis 3
EEEN 3341: Signals and Systems 3
EEEN 3361: Electromagnetic Fields and Waves 3
EEEN 3422: Electronics II 4
Total Hours: 17

Senior Program

First Semester *Hours*

ALIS 4211: Arabic Language / Islamic Studies 2
EEEN 4391: Advanced Applied Mathematics 3
EEEN 4311: Design Methodology and Project Management 3
EEEN 4331: Microprocessors 3
EEEN 4361: Electric Machinery 3
EEEN Elective** 3
Total Hours: 17

***Select all electives from one group:*

Group 1 - Electrical Power Systems: MEEN 3333: Heat Transfer, EEEN 4371: Electric Power Systems, and EEEN 4372: Electric Power Transmission and Distribution

Group II - Telecommunications Systems: EEEN 4341: Communication Systems, EEEN 4342: Digital Communication Systems, or EEEN 4343: Wireless Communication Systems

Second Semester *Hours*

ASSE 4311: Learning Outcome Assessment III (Capstone) 3
EEEN 4351: Automatic Control Systems 3
EEEN Elective** 3
EEEN Elective** 3
Social Science Elective* 3
Total Hours: 15

**Select any Social Science course from the College Core Curriculum.*

***Select all electives from one group:*

Group 1 - Electrical Power Systems: MEEN 3333: Heat Transfer, EEEN 4371: Electric Power Systems, and EEEN 4372: Electric Power Transmission and Distribution

Group II - Telecommunications Systems: EEEN 4341: Communication Systems, EEEN 4342: Digital Communication Systems, or EEEN 4343: Wireless Communication Systems

Mechanical Engineering

Total Semester Credit Hours: 139

Freshman Program

First Semester *Hours*

ALIS 1211: Arabic Language / Islamic Studies 2
COM 2311: Oral Communications 3
COMM 1311: Written Communication 3

UNIV 1211: Professional Development and Competencies 2
MATH 1422: Calculus I 4
PHYS 1421: Physics for Engineers 4
GEEN 1211: Introduction to Engineering 2
Total Hours: 20

Second Semester *Hours*

ALIS 1212: Arabic Language / Islamic Studies 2
PHED 1111: Physical Education 1
COMM 1312: Writing and Research 3
UNIV 1212: Critical Thinking and Problem Solving 2
MATH 1423: Calculus II 4
CHEM 1421: Chemistry for Engineers I 4
Social Science Elective* 3
Total Hours: 19

**Select any Social Science course from the College Core Curriculum.*

Sophomore Program

First Semester *Hours*

ALIS 2211: Arabic Language / Islamic Studies 2
ASSE 2111: Learning Outcome Assessment I 1
PHED 1112: Physical Education 1
UNIV 1213: Leadership and Teamwork 2
MATH 1324: Calculus III 3
PHYS 1422: Physics for Engineers II 4
GEEN 2311: Statics and Dynamics I 3
Total Hours: 16

Second Semester *Hours*

ALIS 2212: Arabic Language / Islamic Studies 2
COMM 2312: Technical and Professional Communications 3
GEEN 2313: Thermodynamics I 3
GEEN 2312: Introduction to Computing 3
MATH 2332: Differential Equations 3
MEEN 2312: Statics and Dynamics II 3
MEEN 2211: Materials Engineering 2
Total Hours: 19

Junior Program

First Semester *Hours*

ALIS 3211: Arabic Language / Islamic Studies 2
ASSE 3211: Learning Outcome Assessment II 2
MEEN 3211: Introduction to Manufacturing Systems 2
MEEN 3322: Thermodynamics II 3
GEEN 3311: Introduction to Fluid Mechanics 3
MEEN 3391: Mechanical Engineering Design I 3
MEEN 3332: Computational Methods 3

Total Hours: 18

Second Semester *Hours*

ALIS 3212: Arabic Language / Islamic Studies 2
MEEN 2313: Mechanics of Solids 3
MEEN 3212: Manufacturing Methods in Design 2
GEEN 2314: Circuits I 3
COEN 2111: Circuits Lab 3
MEEN 3333: Heat Transfer 3
MEEN 3392: Mechanical Engineering Design II 3

Total Hours: 19

Senior Program

First Semester *Hours*

ALIS 4211: Arabic Language / Islamic Studies 2
MEEN 3393: Mechanical Engineering Design III 3
MEEN 4301: Mechanical Engineering Lab I 3
GEEN 3211: Engineering Economy 2
MEEN 4322: Power Generation 3
MEEN Elective** 3

Total Hours: 16

***Select from MEEN 4312: Fluid Mechanics, MEEN 4315: Building Energy Analysis, MEEN 4331: Internal Combustion Engines, MEEN 4332: Turbo Machinery, MEEN 4341: Corrosion Engineering, MEEN: 4344 Materials in Design, MEEN 4351: Intermediate Dynamics, or MEEN 4392: Advanced Control Systems.*

Second Semester *Hours*

ASSE 4311: Learning Outcome Assessment III (ME Design IV) 3
MEEN 4302: Mechanical Engineering Lab II 3
MEEN 4311: Principles of HVAC 3
MEEN Elective** 3
Social Science Elective* 3

Total Hours: 15

** Select any Social Science course from the College Core Curriculum*

***Select from MEEN 4312: Fluid Mechanics, MEEN 4315: Building Energy Analysis, MEEN 4331: Internal Combustion Engines, MEEN 4332: Turbo Machinery, MEEN 4341: Corrosion Engineering, MEEN: 4344 Materials in Design, MEEN 4351: Intermediate Dynamics, or MEEN 4392: Advanced Control Systems.*

Interior Design

Total Semester Credit Hours: 127

Freshman Program

First Semester *Hours*

ALIS 1211: Arabic Language / Islamic Studies 2
COMM 2311: Oral Communications 3
COMM 1311: Written Communication 3

UNIV 1211: Professional Development and Competencies 2
IDES 1211: Introduction to Interior Design 2
IDES 1212: Interior Design I 2
MATH 1311: Finite Mathematics for Students of Business 3
Total Hours: 17

Second Semester *Hours*

ALIS 1212: Arabic Language / Islamic Studies 2
PHED 1111: Physical Education 1
COMM 1312: Writing and Research 3
UNIV 1212: Critical Thinking and Problem Solving 2
IDES 1413: Interior Design II 4
MATH 1312: Calculus for Students of Business 3
Total Hours: 15

Sophomore Program

First Semester *Hours*

ALIS 2211: Arabic Language / Islamic Studies 2
ASSE 2111: Learning Outcome Assessment I 1
PHED 1112: Physical Education 1
UNIV 1213: Leadership and Teamwork 2
IDES 2411: Interior Design III – Digital Media, Residential Design 4
IDES 2331: Behavior and the Physical Environment 3
Total Hours: 13

Second Semester *Hours*

ALIS 2212: Arabic Language / Islamic Studies 2
COMM 2312: Technical and Professional Communications 3
IDES 2412: Interior Design IV– Digital Media, Non-Residential Design 4
IDES 2332: Materials for Interior Design 3
PHYS 1411: Introductory Physics 4
Total Hours: 16

Junior Program

First Semester *Hours*

ALIS 3211: Arabic Language / Islamic Studies 2
ASSE 3211: Learning Outcome Assessment II 2
IDES 3411: Interior Design V – Office Design 4
IDES 3341: History of Furniture, Decoration, and Interior Design I 3
IDES 3321: Interior Building Systems 3
IDES 3331: Interior Lighting 3
Total Hours: 17

Second Semester *Hours*

ALIS 3212: Arabic Language / Islamic Studies 2
IDES 3412: Interior Design VI – Hospitality 4
IDES 3342: History of Furniture, Decoration, and Interior Design II 3
IDES 3322: Interior Building Systems II 3
IDES 3343: Professional Practices 3

Elective* 3

Total Hours: 18

** Select from IDES 3332: Introduction to Furniture Design, ACCT 2311: Fundamentals of Financial Accounting, ACCT 2321: Fundamentals of Managerial Accounting, BUSI 3311 Legal Environment of Business, BUSI 3312: Organizational Behavior, BUSI 3313: Marketing Principles, MATH 1313: Statistical Methods, MISY 2311: Introduction to Management Information Systems, MISY 2312: Introduction Programming for Information Systems*

Senior Program

First Semester *Hours*

ALIS 4211: Arabic Language / Islamic Studies 2
IDES 4425: Interior Design VII – Healthcare 4
IDES 4437: Sustainable Design 3
GEOL 1411: Introductory Physical Geology 4
ECON 1311: Introduction to Macroeconomics 3

Total Hours: 16

Second Semester *Hours*

ASSE 4311: Learning Outcome Assessment III (Capstone Interior Design Studio) 3
IDES 4338: Internship** 3
HIST 1311: World Civilizations, 1600 – Present 3
PSYCH 1311: Introduction to Psychology 3
Elective* 3

Total Hours: 15

** Select from IDES 3332: Introduction to Furniture Design, ACCT 2311: Fundamentals of Financial Accounting, ACCT 2321: Fundamentals of Managerial Accounting, BUSI 3311 Legal Environment of Business, BUSI 3312: Organizational Behavior, BUSI 3313: Marketing Principles, MATH 1313: Statistical Methods, MISY 2311: Introduction to Management Information Systems, MISY 2312: Introduction Programming for Information Systems*

***If the student wishes or if availability of internships dictates, IDES 4388 can be taken during the summer prior to the senior year.*

Note: The three deleted Arabic / Islamic Studies Courses (2 C.H each), will be replaced by major-specific courses for all Engineering Majors.

UNDERGRADUATE COURSES OFFERED BY THE COLLEGE OF ENGINEERING

Assessment – ASSE

Civil, Electrical and Mechanical Engineering

ASSE 4311: Learning Outcome Assessment III (3, 0) This Capstone course in the PMU Civil, Electrical, and Mechanical Engineering programs requires students to complete a design project from project identification through problem statement, conceptual design, project analysis, final design, report preparation, and a final oral presentation. Students work in groups of three (ideally, one student from each major) and apply the knowledge they have acquired to demonstrate their mastery of the discipline through a well-executed project. **Prerequisite**: Academic standing as a second semester senior

Interior Design

ASSE 4311: Learning Outcome Assessment III (1, 2) This Capstone course in Interior Design is a design studio that addresses the creative, professional, technical, and historical issues involved in a problem chosen and defined by the student. This course culminates in the formal presentation of a unique solution to the problem as a part of the final professional portfolio. **Prerequisites**: Fourth year standing in the interior design program, IDES 4425: Interior Design Studio VII, IDES 4337: Sustainable Design.

Civil Engineering – CVEN

CVEN 3322: Materials in Civil Engineering (2, 1) This course provides students with basic knowledge of the properties and behavior of materials commonly used in civil engineering structural systems. Various materials, such as wood, aggregates, cement concrete, asphalt concrete, and steel are studied in this course. Students find the knowledge they learned from this course useful to various design, analysis, construction, and maintenance projects in their current or future civil engineering practices. **Prerequisites:** MEEN 2211: Materials Engineering, MEEN 2313: Mechanics of Solids

CVEN 3311: Structural Analysis (3, 0) This course provides students with the concepts and methods in the design and analysis of civil engineering structure systems. The course familiarizes students with theory and techniques for the analysis of framed structures, trusses, girders, and beams. Students learn to solve statically determinate and indeterminate structure systems using classical methods, influence lines, and stiffness matrices. Students learn to determine deflections and deformations of a structural system under external static and dynamic loads. The course focuses on problem solving to help students acquire knowledge in the theory and analysis of structure and its behavior. **Prerequisites:** GEEN 2311: Statics and Dynamics of Rigid Bodies I, Concurrent Registration of MEEN 2313: Mechanics of Solids

CVEN 3312: Reinforced Concrete Design (3, 0) This course develops students' ability in the analysis, design, and application of reinforced concrete in civil engineering structures. The course familiarizes students with the strength and deformation of reinforced concrete and design of beams, columns, slabs, footings, and retaining walls using current design specifications. While the U.S. Building Code Requirements for Structural Concrete (ACI 318-02) are used in the discussion and practice of this course, the current U.S. ACI-equivalent specifications for the Kingdom of Saudi Arabia are preferred. Prerequisites: CVEN 3311: Structural Analysis, MEEN 2313: Mechanics of Solids

CVEN 3321: Engineering Geology (3, 0) This course provides students with an understanding of the principles of physical geology and their practical applications to civil engineering. **Prerequisites:** CHEM 1421: Chemistry for Engineers I, PHYS 1421: Physics for Engineers I, GEEN 2311: Statics and Dynamics of Rigid Bodies I

CVEN 3331: Environmental Engineering Fundamentals (3, 0) This course introduces students to the fundamental principles of environmental engineering and environmental ethics that lead to sustainability for humans and the ecological systems that support us. **Prerequisites:** CHEM 1421: Chemistry for Engineers I, MATH 1422: Calculus I, GEEN 3311: Introduction to Fluid Mechanics

CVEN 3341: Engineering Measurements (2, 1) This course introduces students to the theories and practices of various types of survey measurements commonly used in civil engineering. The course covers classic and modern surveying topics including error propagation, linear measurements, angle measurements, area determination, differential leveling, topographic mapping, and geographic information system. **Prerequisites:** GEEN 1211: Introduction to Engineering, PHYS 1421: Physics for Engineers I, PHYS 1422: Physics for Engineers II.

CVEN 4313: Design of Steel Structures (3, 0) This course introduces students to the behavior and design of

elements in steel structures using current design specifications. The AISC LRFD Code is the choice of design specifications and is used in this course. Students apply their knowledge from statics, mechanics of solids, and structural analysis to gain further understanding in the relationship between analysis and design of steel structures. Students learn the design of steel structural elements including tension members, compression members, beams, members under combined loads, beam-column members, and connections between these elements. The AISC LRFD Code is the choice of design specifications and is used in this course **Prerequisites:** CVEN 3311: Structural Analysis, MEEN 2313: Mechanics of Solids

CVEN 4314: Construction Management (3, 0) This course provides students with fundamental principles and concepts of construction project management. Students learn the principles and skills of cost estimation, project planning, activity scheduling, staffing, cost and schedule control, project progress measurement, and quality control. Students also learn how to implement a construction project through the use of computer software. Prerequisites: GEEN 3211: Engineering Economy, MATH 1422 Calculus I.

CVEN 4324: Foundation Analysis and Design (3, 0) This course provides students with advanced knowledge in the design principles and methods for foundations and earth retaining structures. Students develop a good understanding of the soil and rock mechanics that are critical in the design of foundation, the theories and practices in various types of foundations, the design of spread footings, rafts, and pile foundations according to modern professional practice. **Prerequisites:** CVEN 3322: Materials in Civil Engineering, CVEN 4423: Introduction to Geotechnical Engineering

CVEN 4333: Water and Wastewater Treatment (3, 0) This course provides students with a fundamental understanding of the principles of water supply and wastewater engineering and their applications to design and operation of municipal and industrial water treatment systems. Students develop concepts of water quality standards, physical, chemical, and biological treatment processes of water and wastewater, transportation, storage and distribution of water systems, wastewater collection, and wastewater treatment. **Prerequisites:** CVEN 3331: Environmental Engineering Fundamentals, CVEN 4432: Hydraulic Engineering

CVEN 4334: Air Pollution and Control (3, 0) This course provides an overview of air pollution. It covers topics such as air pollution meteorology, sources of pollution, pollutant fate and transport, effects of air pollution on human health and the environment, ambient air monitoring, pollution abatement, design and control of gaseous and particulate matter pollutants, and global climate change. **Prerequisites**: CVEN 3331: Environmental Engineering Fundamentals, GEEN 3311: Introduction to Fluid Mechanics.

CVEN 4342: Transportation Engineering (3, 0) This course introduces the fundamental principles of transportation engineering, design, and planning. Students develop the skills to model, plan, and manage different components of transportation systems. These components include transportation economics, individual vehicle motion, geometric design of highway, vehicle and human characteristics, traffic flow, highway capacity, highway intersection control and design, and urban transportation. **Prerequisite:** CVEN 3341: Engineering Measurements

CVEN 4343: Engineering Probability and Statistics (2, 1) This course introduces the fundamental concepts of probability theory and random processes, engineering data analysis and descriptive statistics, and classical statistical inference. Students learn statistical computing with the Excel software packages. **Prerequisite:** MATH 1324: Calculus III

CVEN 4423: Introduction to Geotechnical Engineering (3, 1) This course provides an understanding of the principles and practices of geotechnical engineering. The knowledge is important in many sub-disciplinary areas of civil engineering including environmental, structural, transportation, surveying and foundation engineering. Students develop knowledge of the physical and chemical properties of soil, stresses and strains in saturated soils, and testing procedures to determine mechanical and index properties of soils. Students develop skills to perform basic geotechnical analysis and to address geotechnical problems typically faced by civil engineers. **Prerequisites:** CVEN 3322: Materials in Civil Engineering, GEEN 3311: Introduction to Fluid Mechanics

CVEN 4432: Hydraulic Engineering (3, 1) This course introduces students to the essential principles of hydrology and hydraulic engineering. Students acquire fundamental knowledge in hydraulic engineering and develop a depth of understanding in hydrology, groundwater, flows in pipes and piping systems, and open channel hydraulics, hydraulic structures and

machinery, and flood damage reduction. **Prerequisite:** GEEN 3311: Introduction to Fluid Mechanics

Electrical Engineering – EEEN

EEEN 2111: Circuits I Lab - Also listed as COEN 2111: Circuits I Lab (0, 1) **This course covers experimental aspects of the topics covered in GEEN 2314: Circuits I. Topics include basic bread-boarding techniques and circuit construction; use of multi-meters, oscilloscopes, power supplies, and function generators; DC and AC voltage and current measurement techniques; troubleshooting techniques; and comparison of experimental and simulated circuits.** Prerequisites: **MATH 1324: Calculus III, PHYS 1422: Physics for Engineers II. Completion of or concurrent registration for: MATH 2332: Differential Equations, GEEN 2314: Circuits I**

EEEN 3312: Circuits II - Also listed as COEN 3312: Circuits II (2, 1) **This course is a continuation of GEEN 2314: Circuits I. Topics include a review of DC and AC circuit analysis techniques; complex numbers and phasors; use of phasors in the analysis of AC circuits; AC power concepts; polyphase circuits; magnetically coupled circuits; applications of Laplace and Fourier transforms in circuit analysis; s-domain circuit analysis; Bode plots; and filters.** Prerequisites: **MATH 2332: Differential Equations, GEEN 2314: Circuits I, EEEN 2111: Circuits I Lab**

EEEN 3331: Digital Systems - Also listed as COEN 3323: Digital Systems (2,1) **This course addresses the understanding and design of digital systems. Topics progress through Boolean algebra and logic gates; combinational logic; sequential logic and synchronous sequential logic systems; and design of logic circuits.** Prerequisites: **GEEN 2314: Circuits I, EEEN 2111: Circuits I Lab**

EEEN 3341: Signals and Systems - Also listed as COEN 3322: Signals and Systems (3, 0) **This course presents instruction in electrical signals and systems. Subject matter includes types of signals and systems, signal and system modeling, Fourier Series, Fourier Transform and applications, Laplace Transform and applications, state variable techniques, discrete time signals and systems.** Prerequisite: **EEEN 3312: Circuits II**

EEEN 3361: Electromagnetic Fields and Waves (3, 0) **This course presents a study of electromagnetic fields and their relationship to problem solving in engineering. The course of study begins with the development of an understanding of the basics, moves to integration of the basic knowledge, and proceeds to the ability to use that knowledge to solve electromagnetic field problems using analysis, modeling, and simulation.** Prerequisites: **PHYS 1422: Physics for Engineers II, MATH 1324: Calculus III**

EEEN 3391: Probability and Random Signal Analysis (3, 0) **This course covers probability, statistics, random variables, random signals, introduction to random processes, correlation functions and analysis of linear system response to random inputs and disturbances. Engineering applications to signal processing and linear system analysis also are included.** Prerequisite: **Concurrent registration in EEEN 3341: Signals and Systems**

EEEN 3421: Electronics I - Also listed as COEN 3421: Electronics I (3, 1) **This course is the first of two courses in the use of electronic devices in analog and digital circuits. The lecture component covers device physics and modeling of op-amps, diodes, FETs, and BJTs; single and multi-stage amplifiers; differential amplifiers; feedback; frequency response; and Bode plots. The laboratory component covers generation and acquisition of signals; current, voltage, and impedance measurements; transfer function measurement; and spectrum measurements and analysis.** Prerequisites: **GEEN 2314: Circuits I, EEEN 2111: Circuits I Lab. Completion or concurrent registration for: EEEN 3312: Circuits II**

EEEN 3422: Electronics II (3, 1) **This course is the second of two courses in the use of electronic devices in analog and digital circuits. Its lecture component covers analysis and design of operational amplifier circuits, D/A and A/D conversion, CMOS logic circuits, filters, oscillators and multi-vibrator circuits, power amplifiers, and pulse and switching circuits. The laboratory component covers the design and analysis of electronic circuits for digital and analog applications to a set of prescribed criteria.** Prerequisite: **EEEN 3421: Electronics I**

EEEN 4311: Design Methodology and Project Management (3, 0) **This course presents an overview of engineering design designed to prepare students for ASSE 4311: Learning Outcome Assessment III, the final capstone course for engineering majors. Its subject matter is the entire product design process including project planning, quality function deployment, design specification, concept generation and selection, system and subsystem design, the role of engineering**

economics, the profession's codes and standards, and project management. Prerequisites: **EEEN 3391: Probability and Random Signal Analysis, GEEN 3211: Engineering Economy**

EEEN 4331: Microprocessors (2, 1) **This course presents the development of microprocessor systems with an introduction to assembly language programming. Instruction includes hardware-software interactions, programming techniques, and control of real-time hardware. Through the classes and labs, students are led to integrate knowledge into hands-on design and control applications.** Prerequisite: **EEEN 3331: Digital Systems**

EEEN 4341: Communication Systems (2, 1) **This course presents a study of telecommunications theory and practice. Students develop competency in information theory; signals; systems; and analog modulation; digital data transmission; and error correcting codes. Methods of instruction include lecture, class discussion, and out-of-class assignments.** Prerequisites: **EEEN 3341: Signals and Systems, EEEN 3391: Probability and Ransom Signal Analysis**

EEEN 4342: Digital Communication Systems (3,0) **This course presents an overview of the field of digital communications. The learning experiences provide students with grounding in the underlying basic theory of digital modulation and coding. Instruction in the course makes use of computer simulation and problem solving to encourage students' ability in practical applications.** Prerequisite: **EEEN 4341: Communication Systems**

EEEN 4343: Wireless Communication Systems (3, 0) **This course constitutes an introduction to wireless communications and networks. Students acquire an understanding of this technology's development and study transmission fundamentals, principles of operation, design, and issues current to the field.** Prerequisites: **EEEN 3361: Electromagnetic Fields and Waves, EEEN 4341: Communication Systems**

EEEN 4351: Automatic Control Systems (2, 1) **This course introduces automatic control systems. The elements of control systems are presented. Students progress through class activities and labs to apply knowledge through analysis and design of systems. The course includes mathematical modeling of systems.** Prerequisite: **EEEN 3312: Electric Circuits II**

EEEN 4361: Electric Machinery (2, 1) This course addresses the principles of electrical transformers and machinery, their analysis and design. Instruction begins with the basics of magnetic circuits and transformers and progresses through the study of electrical machinery, with an introduction to electrical power systems analysis. Prerequisites: EEEN 3312: Electric Circuits II, EEEN 3361: Electromagnetic Fields and Waves

EEEN 4371: Electric Power Systems (3, 0) **This course presents a study of electrical power systems, their analysis, operation, and design. Students are introduced to the fundamental concepts of the field. The class progresses through consideration of models to modern operations. Students consider issues and real-world problem analysis and solutions.** Prerequisites: **EEEN 4361: Electric Machinery, EEEN 4391: Advanced Applied Mathematics. Concurrent registration in EEEN 4372: Electric Power Transmission and Distribution**

EEEN 4372: Electric Power Transmission and Distribution (3, 0) **This course addresses the principles of electrical power transmission and distribution. It covers analysis and design of overhead and underground transmission lines; electric and magnetic field profiles; medium and low voltage distribution systems; transformer connections; faults and selection of protective equipment.** Prerequisites: **EEEN 3361: Electromagnetic Fields and Waves, EEEN 4391: Advanced Applied Mathematics. Concurrent registration in EEEN 4371: Electric Power Systems**

EEEN 4391: Advanced Applied Mathematics (3, 0) **This course covers engineering applications of ordinary and partial differential equations, Fourier and Laplace transforms, linear algebra; introduction to numerical analysis and complex variables. Mathematical modeling with applications to analysis and design of deterministic engineering systems also are included.** Prerequisites: **MATH 1324: Algebra III, MATH 2332: Differential Equations**

Mechanical Engineering – MEEN

MEEN 2211: Materials Engineering 2 (2, 0) This course examines the relationships between material structure and the mechanical, electrical, magnetic, thermal, and optical properties of materials. The macroscopic properties of materials are discussed in relation to the microscopic properties. **Prerequisites:** CHEM 1421: Chemistry for Engineers I, PHYS 1421: Physics for Engineers I, MATH 1324: Calculus III

MEEN 2312: Statics and Dynamics of Rigid Bodies II (3, 0) This course is a continuation of GEEN 2311: Statics and Dynamics I, covering topics including moments of inertia for areas, principles of work and energy, angular momentum, planar kinematics, and vibrations normally covered in a traditional two-course sequence of Statics and Dynamics. **Prerequisites:** GEEN 2311: Statics and Dynamics I, MATH 1324: Calculus III

MEEN 2313: Mechanics of Solids (3, 0) This course covers applications of conservation principles and stress/deformation relationships to solid bodies. It draws upon the principles from Statics and Dynamics I, physics, and mathematics courses. **Prerequisites:** GEEN 2311: Statics and Dynamics of Rigid Bodies, MATH 1324: Calculus III

MEEN 3211: Introduction to Manufacturing Systems (2, 0) This course introduces mechanical engineering majors to modern manufacturing processes and their integration into a total manufacturing system. The course covers modern manufacturing processes including computer application in manufacturing, flexible manufacturing systems, and robotics, as they apply to the various manufacturing options. **Prerequisites:** MEEN 2211: Materials Engineering, GEEN 2312: Introduction to Computing

MEEN 3212: Manufacturing Methods in Design (2, 0) This course builds on materials science and introductory coursework in manufacturing processes to focus on materials selection and alteration of materials properties. It provides a special emphasis on design and manufacturability. **Prerequisites:** MEEN 2211: Materials Engineering and MEEN 3211: Introduction to Manufacturing Systems. Concurrent registration in MEEN 2313: Mechanics of Solids

MEEN 3322: Thermodynamics II (3, 0) This course continues the introduction to concepts of thermodynamics begun in GEEN 2313: Thermodynamics I. Topics cover thermodynamic cycles including power, propulsion, and refrigeration cycles and associated machinery. **Prerequisites:** GEEN 2313: Thermodynamics I. Concurrent registration in GEEN 3311: Introduction to Fluid Mechanics

MEEN 3332: Computational Methods (3, 0) In this course, students acquire knowledge about tools that are available for analysis of engineering problems, and they learn to apply these tools effectively. Topics include Taylor series, numerical integration and differentiation, non-linear algebraic equations; boundary value problems; finite difference solutions; and finite element solutions of ordinary differential equations. **Prerequisites:** GEEN 2312: Introduction to Computing, MATH 2332: Differential Equations

MEEN 3333: Heat Transfer (3, 0) This course introduces the concepts of heat transfer, including conduction, convection, and radiation. Students learn to solve problems concerning transfer across solid surfaces, heat transfer through moving and stationary fluids, and heat transfer through space. **Prerequisites:** GEEN 2313: Thermodynamics I, GEEN 3311: Introduction to Fluid Mechanics

MEEN 3391: Mechanical Engineering Design I (3, 0) This course is the first course in the Mechanical Engineering design sequence. It introduces students to the concepts of design and the design process. An additional focus is on kinematics, linkages, and an introduction to mechanisms. **Prerequisites:** MEEN 2312: Statics and Dynamics II, MATH 2332: Differential Equations

MEEN 3392: Mechanical Engineering Design II (3, 0) This course is the second course in the mechanical engineering design sequence. It introduces students to the concepts of the control of dynamical systems. In this course, students learn to solve control problems for both steady-state and transient responses. The student is expected to have a thorough understanding of Design 1. **Prerequisites:** MEEN 3332: Computational Methods, MEEN 3391: Engineering Design I

MEEN 3393: Mechanical Engineering Design III (3, 0) This course is the third course in the mechanical engineering design sequence. It introduces students to the concepts of mechanical strength and reliability in the design of machine components. Stress, reliability, and failure analysis are considered. **Prerequisites:** MEEN 3392: Mechanical Engineering Design II, MEEN 3332: Computational Methods, MEEN 2313: Mechanics of Solids

MEEN 4301: Mechanical Engineering Lab I (1, 2) This laboratory course introduces students to the concepts of engineering measurement and experimentation in the thermal sciences. It develops physical understanding through experimentation as students analyze raw data and organize the results into a comprehensive lab report. **Prerequisites:** GEEN 3311: Introduction to Fluid Mechanics, MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4302: Mechanical Engineering Lab II (1, 2) This laboratory course introduces students to the concepts of engineering measurement and experimentation in mechanics, mechanisms, and controls. Students are exposed to experiments and techniques in the various areas as they develop physical understanding through experimentation. **Prerequisites:** MEEN 2313: Mechanics of Solids, MEEN 3393: Mechanical Engineering Design III

MEEN 4311: Principles of Heating, Ventilating, and Air Conditioning (HVAC) (3, 0) This course is an application of thermodynamics, fluid mechanics, and heat transfer to the design and selection of HVAC equipment. It covers psychometrics, thermodynamic cycles, HVAC components, and piping and duct layouts, pumps, and fans in a lecture format. **Prerequisites:** GEEN 3311: Introduction to Fluid Mechanics, MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4312: Fluid Mechanics (3, 0) This course introduces students to additional topics in fluid dynamics. Piping systems are studied in series and in parallel. Boundary layers and bluff body flows are studied to determine how to calculate drag and lift on smooth and bluff bodies. Flow through fluid machinery is studied to learn the fundamentals of the design of fluid machinery. Compressible flow is studied to learn the effects of compressibility on fluid flow. **Prerequisites:** GEEN 3311: Introduction to Fluid Mechanics, MEEN 3322: Thermodynamics II

MEEN 4315: Principles of Building Energy Analysis (3, 0) This course uses current ASHRAE building load calculation methods to analyze building energy use. Both the heat balance (HB) and radiant time series (RTS) methods are used to calculate building loads. The course uses competencies from thermodynamics, heat transfer, and mathematics courses, and complements the MEEN 4311: Principles of HVAC course. Either the building energy analysis course or the HVAC course may be taken first. **Prerequisites:** MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4322: Power Generation (3, 0) This course provides a broad knowledge of systems in modern power plants and is an application of engineering sciences, principally thermodynamics and fluid mechanics. The energy conversion process is emphasized, with concentration on gas turbine combined cycle plants and traditional oil or gas-fired power generation. **Prerequisites:** GEEN 3311: Introduction to Fluid Mechanics, MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4331: Internal Combustion Engines (3, 0) This course is an application of the thermal sciences applied to internal combustion engines. The thermodynamic engine cycle is reviewed and intake and exhaust processes are covered. Both spark-ignition (the Otto cycle) and compression-ignition (the Diesel cycle) engines are analyzed. **Prerequisites:** MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4332: Turbo Machinery (3, 0) This course applies the thermal and fluid sciences to the design of pumps, fans, compressors, and turbines. Similarity and scaling laws are developed. Radial and axial flow machines are analyzed. Blade design for both pumps and turbines are considered. Design of centrifugal pumps and axial flow compressors is studied. **Prerequisites:** MEEN 3322: Thermodynamics II. Concurrent registration in MEEN 3333: Heat Transfer

MEEN 4341: Corrosion Engineering (3, 0) This course covers the causes and mechanisms of aqueous corrosion, including electrochemistry and thermodynamics of corrosion. Materials selection and design for minimization of corrosion, as well as corrosion protection are included. Selected case studies are discussed. **Prerequisites:** MEEN 3322: Thermodynamics II, MEEN 2211: Materials Engineering

MEEN 4344: Materials in Design (2, 1) This course ties together material selection, properties, and manufacturing processing to support the performance requirements specified by a design. **Prerequisites:** MEEN 3212: Manufacturing Methods in Design. Concurrent registration in MEEN 3393: Mechanical Engineering Design III

MEEN 4351: Intermediate Dynamics (3, 0) This course is a senior elective course for Mechanical Engineering students. The purpose of the course is to have the students develop an understanding of the fundamentals of analytical dynamics and its applications mechanical systems. The student is expected to have a thorough understanding of vectorial mechanics and the dynamics of rigid bodies to be successful in this course. This course is a lecture course; no laboratory is included. **Prerequisites:** MEEN 2312 Statics and Dynamics II, MEEN 3391 Mechanical Design I

MEEN 4392: Advanced Control Systems (3, 0) This course covers mathematical modeling, analysis, design, and synthesis of systems, including mechanical, electrical, hydraulic and thermal subsystems. Topics

include Newtonian mechanics, multiple degrees of freedom vibrations, and control system design. **Prerequisites:** MEEN 3332: Computational Methods, MEEN 3392: Engineering Design II

General Engineering – GEEN

GEEN 1211: Introduction to Engineering (2, 0) This course is an introduction to engineering and engineering design at the freshman level. The disciplines of civil, electrical, and mechanical engineering are defined. A systems approach to engineering design is used to solve open-ended engineering design problems related to civil, electrical, and mechanical engineering. Principles of teaming are emphasized throughout the course in accord with the design problem. **Prerequisite:** None

GEEN 2311: Statics and Dynamics of Rigid Bodies I (3, 0) This course involves equilibrium of rigid bodies, resultants of force systems, centroids, and moments of inertia. Kinematics and kinetics of particles and rigid bodies also are covered. **Prerequisites:** PHYS 1421: Physics for Engineers I, MATH 1423: Calculus II

GEEN 2312: Introduction to Computing (3, 0) This course is an introduction to computer systems, problem solving methods and algorithm development. Structured programming is taught using the programming language C, or C++, and JAVA. It includes designing coding, debugging and documenting programs using techniques of software development cycle. MATLAB, a tool that enables students to solve mathematical problems, is also taught. **Prerequisite:** MATH 1324: Calculus III

GEEN 2313: Thermodynamics I (3, 0) This course introduces students to the concepts of heat and energy and how they relate and interact. Mass systems, control volumes, reversible and irreversible processes, open and closed systems, and open and closed cycles are covered. **Prerequisites:** MATH 1324: Calculus III, CHEM 1421: Chemistry for Engineers I, PHYS 1422: Physics for Engineers II

GEEN 2314: Circuits I - Also listed as COEN 2311: Circuits I (2, 1) This course covers important theory in DC and AC circuits analysis. Topics include a review of the solution of simultaneous equations; Kirchoff's Current and Voltage Laws; nodal and mesh circuit analysis; superposition; source transformations; Thevenin and Norton Equivalent circuits; ideal op-amps; and RC, RL, and RLC circuits. **Prerequisites:** MATH 1324: Calculus III, PHYS 1422: Physics for Engineers II. Concurrent registration in COEN 2111: Circuits Lab. Completion of or Concurrent registration in MATH 2332: Differential Equations.

GEEN 3211: Engineering Economy (2, 0) This course teaches the basic principles and techniques of economic analysis and cost engineering. Applications are made to real engineering problems and processes. The use of economics in evaluating engineering designs is emphasized. **Prerequisite:** GEEN 3311: Introduction to Fluid Mechanics

GEEN 3311: Introduction to Fluid Mechanics (3, 0) This course introduces students to the concepts of fluid statics and fluid dynamics. Fluid statics refers to a fluid at rest and the forces which act on the fluid in that state. Fluid dynamics refers to a fluid in motion and the forces that act on the fluid in that state. **Prerequisite:** GEEN 2313: Thermodynamics I

Interior Design – IDES

IDES 1211: Introduction to Interior Design (2, 0) This course provides an introduction to the processes of interior design and the various aspects and considerations involved in practice of both residential and commercial design. It exposes the students to interior design as a profession and provides a framework for future courses. **Prerequisite**: None

IDES 1212: Interior Design I (0, 2) This course exposes students to interior design as a profession utilizing new skills and knowledge. It introduces the application of principles, elements, processes and vocabulary of Interior Design. **Prerequisite:** Students must be concurrently enrolled in IDES 1211: Introduction to Interior Design.

IDES 1413: Interior Design II (1, 3) This course is a continuation of the foundations class sequence begun in IDES 1212: Interior Design I. It continues the introduction to professional skills and to written, graphic, and oral communication through creative projects. **Prerequisites:** IDES 1211: Introduction to Interior Design, IDES 1212: Interior Design I.

IDES 2331: Behavior and the Physical Environment (3, 0) This course introduces the students to the basic psychology of designing spaces and places for human occupancy. Concepts introduced provide students with a basic knowledge of crowding, territoriality, attitudes

relative to personal space, personality, and the definition of space and privacy as they relate to both residential and non-residential environments. Other concepts include managing limited resources and the design of habitable environments. **Prerequisite:** IDES 1413: Interior Design II

IDES 2332: Materials for Interior Design (3, 0) This course covers the technical aspects of surface and structural materials in relation to function and appropriate application in the interior environment. It covers ways in which materials are communicated in design projects including: estimation, specification writing and contract documentation. **Prerequisites:** Successful completion of first year interior design classes, IDES 2411: Interior Design Studio III, IDES 2331: Behavior and the Physical Environment

IDES 2411: Interior Design III–Digital Media, Residential Design (0, 4) This course introduces students to the primary digital media required to produce and present professional interior design projects. A residential design project provides the site for students to learn AutoCAD, 3D Studio Viz, Photoshop, In Design and PowerPoint. Students will improve their quick sketching skills and be familiar with Internet resources for 3D models of furniture, objects and images. **Prerequisite:** IDES 1413: Interior Design II

IDES 2412: Interior Design IV–Digital Media, Non-Residential Design (1, 3) This course expands knowledge and use of the primary digital media required for production and presentation of professional interior design projects. A small scale non-residential design project (such as an art gallery, boutique, or café) provides the site for students to further their skills in AutoCAD, 3D StudioViz, Photoshop, Indesign and PowerPoint. In addition, students are introduced to Lightscape and animation. Students continue to improve their quick sketching skills. **Prerequisites:** IDES 2411: Interior Design III: Digital Media, Residential Design

Interior design courses

IDES 3342: History of Furniture, Decoration, and Interior Design II (3, 0) This course continues to survey the history and evolution of furniture styles, decorative elements and motifs, and interior design with a concentration on the East, the Renaissance Period, the New World, and the Modern World. The progression and evolution of furniture styles, decoration, and the design of the interior environment throughout history

IDES 3321: Interior Building Systems I (3, 0) This course covers standard interior building systems including partitions, ceilings, floors, and stairs. Students learn about glazing, woodwork, hardware, structural coordination, barrier free design, means of egress and the international building code. **Prerequisite:** Third year standing in the interior design program

IDES 3322: Interior Building Systems II (3, 0) This course covers standard interior building systems including heating, ventilation, air conditioning, plumbing, fire protection, and electrical distribution. Students gain more knowledge of the international building code. **Prerequisite:** IDES 3321: Interior Building Systems I

IDES 3331: Interior Lighting (3, 0) This course focuses on lighting design for interior spaces. Students gain knowledge of the perception and psychological aspects of light as well as technical information related to current fixture types and appropriate application. **Prerequisite:** IDES 2412: Interior Design IV: Digital Media, Non-residential Design

IDES 3332: Introduction to Furniture Design (1, 2) This course covers the basic skills of concept development, three-dimensional fabrication, and presentation techniques appropriate to furniture design and object making for application in the interior environment. **Prerequisite:** Successful completion of the first two years of interior design courses

IDES 3341: History of Furniture, Decoration, and Interior Design I (3, 0) This course surveys the evolution of furniture styles, decorative elements and motifs, and interior design. The course is an introduction to the history of furniture design, decoration, and interior design inclusive of the Ancient World period, Classical World period, and Middle Ages. The student explores design choices and critically analyzes existing designs based on historical information. This course prepares students to participate in designing in a broader context. **Prerequisite:** Successful completion of all second-year
gives an appreciation for humankind's achievements and aids in understanding current design trends. **Prerequisite:** IDES 3341: History of Furniture, Decoration, IDES 1212: Interior Design I

IDES 3343: Professional Practices for Interior Designers (3, 0) This course covers standard practices and procedures of the interior design profession. Students gain knowledge of the history of the profession, ethics, business structures, organization, management, legal

issues, fee structures, and promotional activities. **Prerequisite:** Third year standing in the interior design program

IDES 3411: Interior Design V - Office Design (1, 3) This course focuses on contemporary approaches to office design projects. In addition to refining students' design skills for non-residential projects, the studio emphasizes research and programming methods. Selection and specification of office system products, finishes, and design of custom millwork balance practical aspects with a concept-driven design solution. **Prerequisite:** Third year standing in the interior design program

IDES 3412: Interior Design Studio VI – Hospitality (1, 3) This course will help students develop a restaurant and hotel project that applies research and specific knowledge related to the hospitality industry. The course builds the student's ability to apply acquired interior design knowledge by adding specialized information and skills appropriate in the hospitality industry. **Prerequisite:** Academic standing as a second **(1, 3)** This course focuses on the interior design of healthcare facilities. The emphasis is placed on special needs populations including the cognitively and mentally impaired, geriatric populations, and children. In consultation with the instructor, the student design team selects a special population to research. At completion of research, the student team provides programming, pre-design documents, and a final design presentation. **Prerequisite:** Academic standing as a first semester junior

IDES 4337: Sustainable Design (3, 0) This course will expand the student's awareness of the relationship between ecology and the built environment. It exposes the student to sustainable design utilizing skills and knowledge obtained in all previous IDES courses. **Prerequisites:** IDES 3414: Interior Design Studio VI-Hospitality, IDES 3322: Interior Building Systems II, IDES 3341: Professional Practices.

IDES 4338: Interior Design Internship (0, 3) This course enables students to apply their studio and class experience to practical use in a work-world apprentice situation. Students have the opportunity to seek design employment in the surrounding geographic area or in the PMU Community Design Center. **Prerequisites:** Academic standing as a second semester senior. Concurrent registration in ASSE 4311: Learning Outcome Assessment III

IDES 4425: Interior Design VII-Healthcare Design senior

SUMMARY OF COLLEGE OF ENGINEERING COURSES AND NUMBER OF C.H / COURSE

COLLEGE OF ENGINEERING - GENERAL COURSES

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
GEEN 1211	Introduction to Engineering	2 (2,0)	2	0	
GEEN 2311	Statics and Dynamics of Rigid Bodies I	3 (3,0)	3	0	
GEEN 2312	Introduction to Computing	3 (3,0)	3	0	
GEEN 2313	Thermodynamics I	3 (3,0)	3	0	
GEEN 2314	Circuits I (also listed as COEN 2311: Circuits I)	3 (2,1)	2	0	Recitation session 1
GEEN 3211	Engineering Economy	2 (2,0)	2	0	
GEEN 3311	Introduction to Fluid Mechanics	3 (3,0)	3	0	
ASSE 4311	Learning Outcome Assessment III	3 (3,0)	3	0	

COLLEGE OF ENGINEERING - CIVIL ENGINEERING COURSES

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
CVEN 3322	Materials in Civil Engineering	3 (2,1)	2	3	
CVEN 3311	Structural Analysis	3 (3,0)	3	0	
CVEN 3312	Reinforced Concrete Design	3 (3,0)	3	0	
CVEN 3321	Engineering Geology	3 (3,0)	3	0	
CVEN 3331	Environmental Engineering Fundamentals	3 (3,0)	3	0	
CVEN 3341	Engineering Measurements	3 (2,1)	2	3	
CVEN 4313	Design of Steel Structures	3 (3,0)	3	0	
CVEN 4314	Construction Management	3 (3,0)	3	0	
CVEN 4324	Foundation Analysis and Design	3 (3,0)	3	0	
CVEN 4333	Water and Wastewater Treatment	3 (3,0)	3	0	Field trip 3
CVEN 4334	Air Pollution and Control	3 (3,0)	3	0	
CVEN 4342	Transportation Engineering	3 (3,0)	3	0	
CVEN 4343	Engineering Probability and Statistics	3 (2,1)	3	1	
CVEN 4423	Introduction to Geotechnical Engineering	4 (3,1)	3	3	
CVEN 4432	Hydraulic Engineering	4 (3,1)	3	3	

COLLEGE OF ENGINEERING - ELECTRICAL ENGINEERING COURSES

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
EEEN 2111	Circuits I Lab (also listed as COEN 2111: Circuits I Lab)	1 (0,1)	0	3	
EEEN 3312	Circuits II (also listed as COEN 3312: Circuits II)	3 (2,1)	2	0	Recitation Session 2 hrs / week
EEEN 3331	Digital Systems (also listed as COEN 3323: Digital Systems)	3 (2,1)	2	3	
EEEN 3341	Signal and Systems (also listed as COEN 3322: Signals and Systems)	3 (3,0)	3		Project development Time each week as needed outside of class
EEEN 3361	Electromagnetic Fields and Waves	3 (3,0)	3	0	
EEEN 3391	Probability and Random Signal Analysis	3 (3,0)	3	0	
EEEN 3421	Electronics I (also listed as COEN 3421: Electronics I)	4 (3,1)	3	3	
EEEN 3422	Electronics II	4 (3,1)	3	3	
EEEN 4311	Design Methodology and Project Management	3 (3,0)	3	0	Team project development (outside of class)
EEEN 4331	Microprocessors	3 (2,1)	2	3	
EEEN 4341	Communication Systems	3 (2,1)	2	3	
EEEN 4342	Digital Communication Systems	3 (3,0)	3	0	
EEEN 4343	Wireless Communication Systems	3 (3,0)	3	0	
EEEN 4351	Automatic Control Systems	3 (2,1)	2	3	

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
EEEN 4361	Electric Machinery	3 (2,1)	2	3	
EEEN 4371	Electric Power Systems	3 (3,0)	3	0	
EEEN 4372	Electric Power Transmission and Distribution	3 (3,0)	3	0	
EEEN 4391	Advanced Applied Mathematics	3 (3,0)	3	0	

COLLEGE OF ENGINEERING - MECHANICAL ENGINEERING COURSES

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
MEEN 2211	Materials Eng'g	2(2,0)	2	0	
MEEN 2312	Statics and Dynamics of Rigid Bodies II	3 (3,0)	3	0	
MEEN 2313	Mechanics of Solids	3 (3,0)	3	0	
MEEN 3211	Introduction to Manufacturing Systems	2 (2,0)	2	0	
MEEN 3212	Manufacturing Methods in Design	2 (2,0)	2	0	
MEEN 3322	Thermodynamics II	3 (3,0)	3	0	
MEEN 3332	Computational Methods	3 (3,0)	3	0	Computer project lab (as needed)
MEEN 3333	Heat Transfer	3 (3,0)	3	0	
MEEN 3391	Mechanical Engineering Design I	3 (3,0)	3	0	
MEEN 3392	Mechanical Engineering Design II	3 (3,0)	3	0	
MEEN 3393	Mechanical Engineering Design III	3 (3,0)	3	0	
MEEN 4301	Mechanical Engineering Lab I	3 (1,2)	1	4	
MEEN 4302	Mechanical Engineering Lab II	3 (1,2)	1	4	
MEEN 4311	Principles of Heating, Ventilating, and Air Conditioning (HVAC)	3 (3,0)	3	0	
MEEN 4312	Fluid Mechanics	3 (3,0)	3	0	
MEEN 4315	Principles of Building Energy Analysis	3 (3,0)	3	0	
MEEN 4322	Power Generation	3 (3,0)	3	0	
MEEN 4331	Internal Combustion Engines	3 (3,0)	3	0	

Course No.	Course Name	Credit Hours	Classroom Hours		Others
			Class	Lab	
MEEN 4332	Turbomachinery	3 (3,0)	3	0	
MEEN 4341	Corrosion Engineering	3 (3,0)	3	0	Computer aided (as required)
MEEN 4344	Materials in Design	3 (2,1)	2	3	
MEEN 4351	Intermediate Dynamics	3 (3,0)	3	0	
MEEN 4392	Advanced Control Systems	3 (3,0)	3	0	

COLLEGE OF ENGINEERING - INTERIOR DESIGN

Course No.	Course Name	Credit Hours	Classroom Hours	
			Class	Studio
IDES 1211	Introduction to Interior Design	2 (2,0)	2	0
IDES 1212	Interior Design I	2 (0,2)	0	4
IDES 1413	Interior Design II	4 (1,3)	1	6
IDES 2331	Behavior and the Physical Environment	3 (3,0)	3	0
IDES 2332	Materials for Interior Design	3 (3,0)	3	0
IDES 2411	Interior Design III – Digital Media, Residential Design	4 (0,4)	0	12
IDES 2412	Interior Design IV – Digital Media, Non-Residential Design	4 (1,3)	1	12
IDES 3321	Interior Building Systems I	3 (3,0)	3	0
IDES 3322	Interior Building Systems II	3 (3,0)	3	0
IDES 3331	Interior Lighting	3 (3,0)	3	0
IDES 3332	Introduction to Furniture Design	3 (3,0)	4	8
IDES 3341	History of Furniture, Decoration, and Interior Design I	3 (3,0)	3	0
IDES 3342	History of Furniture, Decoration, and Interior Design II	3 (3,0)	3	0
IDES 3343	Professional Practices for Interior Designers	3 (3,0)	3	0
IDES 3411	Interior Design V – Office Design	4 (1,3)	1	4
IDES 3412	Interior Design Studio VI – Hospitality	4 (1,3)	1	6

Course No.	Course Name	Credit Hours	Classroom Hours	
			Class	Studio
IDES 4337	Sustainable Design	3 (3,0)	3	0
IDES 4338	Interior Design Internship	3 (0,3)	1	0
IDES 4425	Interior Design VII – Healthcare Design	4 (1,3)	1	3
IDES 4311	Learning Assessment III	3 (1,2)	1	12