

VIII. COURSE SYLLABI

E. MANAGEMENT INFORMATION SYSTEMS COURSES

- MISY 2311: Introduction to Management Information Systems
- MISY 2312: Introductory Programming for Information Systems
- MISY 2313: Intermediate Programming for Information Systems
- MISY 3311: Database Management for Information Systems
- MISY 3312: Introduction to Telecommunications
- MISY 3321: Introduction to Information Assurance
- MISY 3331: Advanced Database Concepts
- MISY: 3332: Advanced Programming Concepts for Information Systems
- MISY 4331: Building Electronic Commerce
- MISY 4332: Systems Analysis and Design
- MISY 4341: Object-Oriented Analysis and Design
- MISY 4342: Electronic Commerce Security

Course Title: MISY 2311: Introduction to Management Information Systems

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to provide the students with an introduction to information systems. It includes a discussion of the fundamental principles, generalizations, and theories of information systems. Students are exposed to many of the areas of information systems including databases, telecommunications, software and hardware concepts, and information security. What information systems are and how they are developed is part of this class. Much of the course explores how information systems affects a business and how information concepts are changing the way a firm competes in the modern world.

II. PMU Competencies and Learning Outcomes

Students successfully completing this class are able to apply information system concepts to the business of a firm. Students also are able to apply the critical thinking and problem solving skills by analyzing business cases and applying the information systems concepts. Students develop their teamwork and communication skills by working in groups to solve the class projects.

III. Detailed Course Description

The objective of this course is to help students become informed users of information technology, both personally and in business. Specifically, students should gain an understanding of the role of information technology and information systems in business.

Students learn a working knowledge of concepts and terminology related to information technology. These concepts are applied to business problems and to developing new business models that help to keep the business competitive. Various types of information technology such as telecommunications and software development are discussed. Students learn what an information system is and how to go about building one. Using a case study students learn how to determine requirements and in a general way, how to build a system.

IV. Requirements Fulfilled

This course is required for all students in the College of Business Administration.

V. Required Prerequisites

Familiarity with Microsoft Office as covered in the PMU Preparation Year Program.

VI. Learning Outcomes

- To build upon knowledge previously acquired of Microsoft Office.
- To learn the role of information technology and information systems in business.
- To develop an understanding of a working knowledge of concepts and terminology related to information technology.
- To learn how information technology impacts a firm.
- To learn the current issues of information technology and relate those issues to the firm.
- To learn how to use information technology to solve business problems.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short case studies that are similar to homework assignments. These exams count for a total of 60% of the course grade.
- A final, comprehensive, written exam that is of the short, essay-answer format that may also include cases similar to the homework. This exam counts as 40% of the final grade.

This course provides students with the opportunity to work individually and in a group. The comprehensive exam encourages students to integrate what they have learned from the text and from the lectures into a thorough understanding of information systems in a business environment. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments. Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to Be Covered

- A. Review of Microsoft Office
- B. An introduction to information systems
- C. Information systems in organizations
- D. Security, privacy and ethical issues in information systems
- E. Hardware: input, processing and output
- F. Software: systems and application software
- G. Organizing data and information
- H. Telecommunications and networks
- I. The Internet, intranets, and extranets
- J. Electronic commerce
- K. Transaction processing and ERP systems
- L. Information and decision support systems
- M. Information and decision support systems
- N. Specialized business information systems
 - 1. Artificial intelligence (AI)
 - 2. Expert systems
 - 3. Virtual reality
 - 4. Others

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class studies the latest in information systems hardware and software. Students are expected to relate the technology to a business environment. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class the students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects / Activities

No special projects are required.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Stair, Ralph M., and Reynolds, George W., *Principles of Information Systems*, 6th Edition: Thomson Course Technology, 2003.
ISBN: 0619033576

B. Alternative Textbooks

O'Brien, James, *Management Information Systems, Managing Information Technology in the Internetworked Enterprise*, Fourth Edition, Irwin McGraw Hill.
ISBN:0-07-290611-1

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

None.

Course Title: MISY 2312: Introductory Programming for Information Systems

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to provide the students with an introduction to computer programming. It introduces the student to programming with an object-oriented language. It specifically addresses the basic elements of Java programming in a comprehensive way. Students develop business-oriented applications using Java in a PC based programming environment. The course includes a discussion of the classical principles of programming in a structured environment.

II. PMU Competencies and Learning Outcomes

Students develop specific technology skills and competencies by developing small programming routines using JAVA. Students also are able to apply the critical thinking and problem solving skills by developing the logic necessary to solve a given set of criteria. Students are able to develop their teamwork and communication skills by working in groups to solve the class assignments.

III. Detailed Course Description

The objective of this course is to explore the formal process of developing software within an organization. Upon successful completion of the course, the student you should be able to meet the following specific objectives:

- Be able to understand the concept of structured programming.
- Be able to understand the vocabulary of objects.
- Be able to program a software routine using JAVA.
- Be able to define a problem given a scenario and then design the programming logic to solve the problem.
- Be able to understand the different types of software routines.

Software development tools, JAVA, are used in this course. Various types of logic structures such as tables and arrays are explored. The latest version of JAVA should be used in the course.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

Sophomore standing

VI. Learning Outcomes

- To learn the fundamental principles of developing software.
- To develop the JAVA programming skills necessary to write software.
- To learn the principles of object-oriented programming.
- To develop the programming skill necessary to write software using different logic structures such as tables and arrays.
- To learn how to develop a Graphic User Interface.
- To develop a series of JAVA applets.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- A final, comprehensive, written exam in the short, essay-answer format that may also include problems similar to homework. This exam counts 30% of the final grade.
- Numerous homework assignments. These assignments must be presented in class when assigned. The homework counts for 30% of the final grade.

The course provides students with the opportunity to work individually and in a group. The comprehensive exam and the increasingly difficult homework assignments encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of object-oriented programming. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software and the programming concepts.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve

- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction to computers, programs, and java
- B. Problem solving
- C. Working with data: types, classes, objects, I/O
- D. Nuts and bolts of java
- E. Making decisions
- F. Repetition
- G. Class behavior – methods
- H. Arrays
- I. Multidimensional arrays
- J. Object-oriented programming part I
- K. Object-oriented programming part II
- L. Graphical user interfaces-GUIs part I
- M. Graphical user interfaces-GUIs part II
- N. Applets and graphics
- O. File I/O and exception handling

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in JAVA. Students become proficient in the MS Office Suite as well. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class the students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes homework assignments in programming. These assignments provide the opportunity for all students to gain experience in developing software.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Staugaard Jr., Andrew. *Information Systems Programming in JAVA*, 2nd Edition: Prentice Hall, 2004.
ISBN: 0-13-101860-4.

B. Alternative Textbooks

Block, Joshua, *Effective JAVA Programming Language Guide*, 1st edition, Addison Wesley Professional
ISBN: 0-20-131005-8.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

The latest version of JAVA is required for this class.

Course Title: MISY 2313: Intermediate Programming for Information Systems

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to follow MISY 2312: Introductory Programming for Information Systems. The objective of this course is to introduce the basic principles of computer programming and file organization through the use of the C# programming language. Upon successfully completing this course the student will:

- Understand the fundamental principles of computer programming and file processing.
- Be able to apply the principles and develop short applications using the C# programming language.

Students develop specific skills, competencies, and points of view needed by professionals in this field.

II. PMU Competencies and Learning Outcomes

Students successfully completing this class are able to develop small computer programs using C# as the programming language. Students apply critical thinking and problem solving skills by analyzing a given scenario and then developing the logic necessary to solve the problem. Students are able to develop their teamwork and communication skills by working in groups to solve the class projects. Students also are asked to present their homework in class thus developing their communication skills.

III. Detailed Course Description

This course is intended to follow the first programming class MISY 2312: Introductory Programming for Information Systems. This class reviews the principles and the vocabulary of object-oriented programming. Methods of using data such as declaring variables, Boolean Data, strings, console input and many other methods are presented. File characteristics and file handling techniques are a major part of the course. The characteristics of objects and how they are handled by the software are discussed in class and are demonstrated by including these requirements in the homework. The Graphic User Interface and how programs such as Visual Studio interface to the object programs also are discussed. How to program in C# is the underlying theme of the course.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

MISY 2333: Introduction to Programming for Information Systems

VI. Learning Outcomes

- To learn the concepts and vocabulary of object-oriented programs.
- To develop the skills necessary to design and write small programs in C#.
- To learn the techniques of defining program requirements.
- To develop the skills necessary to define and program a graphic user interface.
- To learn how to write programs that interface with the Internet and Internet programming languages.
- To learn the principles of basic file types.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the homework assignments. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- The final, comprehensive, written exam is mainly problems similar to the homework. This exam is an open book exam and consists mainly of writing C# code. This exam counts 30% of the final grade.
- Numerous homework assignments. These assignments must be presented in class when assigned. The homework counts for 30% of the final grade.

The course provides students with the opportunity to work individually and in a group. The comprehensive exam and the increasingly difficult homework assignments encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of object-oriented programming using C#. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. Students are required to present their homework assignments and their progress on the term project to the rest of the class. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software tools.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. How to program using C#
- B. How to use data with C#
- C. Using methods in C#
- D. Creating and using classes
- E. Selection and repetition
- F. Using arrays
- G. Introduction to inheritance
- H. Exception handling
- I. Using the graphic user interface
- J. Interfacing to the Internet
- K. Using controls
- L. Handling events
- M. Interfacing to object-oriented databases

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest version of C#. Students are required to use the MS Office Suite for class presentations. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class the students is expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user requirements, develop the logic necessary to solve the problem and then to program the solution using C#. If a “real world” project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Farrell, Joyce. *Microsoft Visual C#.net*, 2002: Thomson Course Technology, Course Technology; 1st Edition, 2002
ISBN: 0-619-06273-8

B. Alternative Textbooks

Albahari, Ben, Drayton, Peter, and Merrill, Brad, *C # Essentials*, 2nd Edition, O'Reilly
ISBN: 0-596003153.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

The latest version of Microsoft Visual C#.net

Course Title: MISY 3311: Database Management for Information Systems

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to provide the students with an introduction to database terminology, classifications, and methods. It includes a discussion of the fundamental principles, generalizations, and theories of database management. Students develop specific skills, competencies, and points of view needed by professionals in this field.

II. PMU Competencies and Learning Outcomes

Students successfully completing this class are able to analyze the business requirements for a database application and show those requirements on an entity relationship diagram. Students also are able to apply the critical thinking and problem solving skills by constructing a database and write queries to obtain appropriate data from the data set. Students are able to develop their teamwork and communication skills by working in groups to solve the class projects.

III. Detailed Course Description

This course is intended to teach students to develop models of organizational requirements and to implement these models using database management technologies. The course focuses on the role of databases in organizations and the role of database development within the systems development life cycle. Included in the class is the introduction of a conceptual data modeling technique focusing on the entity relationship model and the enhanced entity relationship model. Also included in the course is the knowledge for converting a conceptual data model to the relational data model in the logical database design phase, and to learn the steps necessary to achieve an efficient database design in the physical database design phase. Structured Query Language (SQL) and Query-by-Example software are used to illustrate the classroom concepts and homework. The course also introduces the concept of Web-database connectivity.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

- MISY 2312: Introductory Programming for Information Systems
- MISY 2313: Intermediate Programming for Information Systems

VI. Learning Outcomes

- To learn the theoretical models used to construct databases.
- To develop the necessary skills to construct a theoretical database model given a specific application case study.
- To learn how to build a physical model of the database from the theoretical model.
- To learn a commercial software package and to develop the skills necessary to build the physical database.
- To learn to write database queries to answer business questions.
- To learn the role of a database in supporting Web applications.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- The final, comprehensive, written exam is a short, essay-answer format that may also include problems similar to homework. This exam counts 25% of the final grade.
- A term project that is a small team effort that demonstrates the ability of the students to analyze a business situation, develop the logical diagrams and then construct the database. The term project counts as 35% of the final grade.

This course provides students with the opportunity to work individually and in a group. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of databases in a business environment. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software and the database concepts.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments

- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction – the database environment
- B. Database development process
- C. Modeling data in the organization
- D. The Enhanced E–R Model
- E. Logical database design
- F. Physical database design
- G. SQL
- H. Advanced SQL
- I. MS Access tutorial
- J. The client/server database environment
- K. The Internet database environment
- L. Database access via the Internet
- M. Database administration
- N. Distributed databases

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in database software. Students become proficient in the MS Office Suite as well as the database software. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the data needs of the application, construct the logical diagrams, construct the physical diagrams, build the database and then write the queries necessary to satisfy the business needs. If a “real world” project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

McFadden, Fred R. Hoffer, Jeffrey A., and Prescott, Mary B., *Modern Database Management*, 6th Edition: Addison Wesley, 2002.
ISBN: 0-13-042355-6

B. Alternative Textbooks

Elmasri, Ramez and Narathi, Shamkant, *Fundamentals of Database Systems*, Fourth Edition, Addison Wesley
ISBN: 0321122267.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

1. The textbook Companion Website has some supporting material. Resources (chapter objectives, study guides, and chapter notes) are available.
<http://myphlip1.pearsoncmg.com/phlip/mpbookhome.cfm?vbookid=321>
2. Microsoft Access 2000. (Or latest version)
3. Nielsen, Paul. *Microsoft SQL Server 2000 Bible* with CD-ROM: John Wiley and Sons, 2002.
ISBN: 0764549359

Course Title: MISY 3312: Introduction to Telecommunications

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course focuses on the concepts and issues of the technologies that make the global Internet a reality: local and long-distance computer data communications and networks, and Internet applications. It develops concepts of telecommunications and focuses on how it impacts business. The principles of data communications associated with telecommunications technologies and their impacts are discussed.

II. PMU Competencies and Learning Outcomes

The course is beneficial to the student preparing for a career in Information Systems or related areas. Many such careers involve applying technology to the benefit of organizations, often by developing, modifying, maintaining, or supporting information systems or the underlying technology. This course provides a structure on which the student can continue to build knowledge of telecommunications and computer networks. In the course, students apply the critical thinking and problem solving skills by analyzing a business situation and constructing a telecommunication system design. Students develop their teamwork and communication skills by working in groups to solve the class projects.

III. Detailed Course Description

Today most organizations and individuals are connected to the Internet, enabling communications and transactions any time anyplace. The importance of telecommunications and the Internet, and the know-how to effectively utilize them cannot be overemphasized. The objective of this course is to explore the technologies associated with modern telecommunication systems. Upon successful completion of the course, the students should be able to meet the following specific objectives:

- Understand the history of the telecommunications industry
- Understand how regulations shape the telecommunications industry
- Understand and apply modern telecommunication technology to the business environment
- Understand the various network topologies and be able to apply the appropriate one in a business environment
- Understand the principles of network security.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

Junior standing

VI. Learning Outcomes

- To learn the fundamental principles of telecommunication systems.
- To develop the skills necessary to analyze a business situation and determine the best network topology for the situation.
- To learn how the industry is shaped by governmental regulation.
- To learn how the various telecommunication technologies work.
- To develop the skills necessary to design a secure network.
- To learn the advantages and disadvantages of telecommunications media.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 30% of the course grade.
- A final, comprehensive, written exam that is of the short, essay-answer format that may also include problems similar to homework. This exam counts 15% of the final grade.
- A term project that is a small team effort that demonstrates the ability of the students to analyze a business situation, develop the logical diagrams and then construct the database. The term project counts as 45% of the final grade.
- The term project includes numerous homework assignments. These assignments must be presented in class when assigned. The homework counts for 10% of the final grade.

The course provides students with the opportunity to work individually and in a group. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of telecommunication systems. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction to telecommunications
- B. Transmission media
- C. Local asynchronous communication
- D. Long distance communication
- E. Packets, frames, and error detection
- F. LAN technologies and network topology
- G. Hardware addressing
- H. LAN wiring, physical topology, and interface hardware
- I. Extending LANs: fiber modems, repeaters, bridges, and switches
- J. Long-distance and local loop digital technologies
- K. WAN technologies and routing
- L. Connection-oriented networking and ATM
- M. Network characteristics
- N. Protocols and layering
- O. Internetworking
- P. IP: Internet protocol addresses
- Q. Binding address protocol (ARP)
- R. IP datagrams and datagram forwarding
- S. IP encapsulation, fragmentation, and reassembly
- T. Error reporting mechanism (ICMP)
- U. TCP: reliable transport protocol
- V. Network address translation
- W. Internet routing
- X. Domain name system (DNS)
- Y. Network management (SNMP)
- Z. Network security

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in MS Office Software. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class, students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user needs of the application, and construct the network diagrams that satisfy the user requirements. If a "real world" project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Comer, D. E., and Droms, R. E., *Computer Networks and Internets with Internet Applications*, 4th Edition. Upper Saddle River, NJ: Pearson Prentice Hall, 2004.
ISBN: 0-13-143351-2

B. Alternative Textbooks

Gallo, Michael, and Hancock, William, *Computer Communications and Networking Technologies*, 1st Edition, Brooks/Cole Thomson Learning, 2002
ISBN: 0-534-37780-7.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

None.

Course Title: MISY 3321: Introduction to Information Assurance

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course provides the student the opportunity to learn about the basic elements that comprise information assurance. Topics include, but are not limited to: fundamentals of information assurance, hacking and hackers, common ways of gaining access to systems and how to prevent this unauthorized access, and specific weaknesses of various operating systems.

II. PMU Competencies and Learning Outcomes

Students successfully completing this class are aware of the major security threats from the Internet to business systems and business applications. Students apply critical thinking and problem solving skills by analyzing a given scenario and then developing the systems security necessary to protect the business environment. Students develop their teamwork and communication skills by working in groups to solve the class projects. Students present their homework in class, thus developing their communication skills.

III. Detailed Course Description

Information security is becoming increasingly important in today's environment. Hackers have the potential to cause havoc in business and in the every day lives of people. It is therefore critical that IS professionals know how to design systems that are secure. The introductory course presents the threats from outside sources that can compromise a firm's the intellectual property and data. Specific vulnerabilities associated with the various operating systems and application tools are discussed. Preventing attacks and detecting them should they occur also are part of this course. Specific types of operating systems vulnerabilities, such as buffer overflow, spoofing and session hijacking, are analyzed in detail. Methods for preventing these types of attacks and writing secure software code are included in the course. The proper use of access controls, such as passwords, is discussed. Intrusion detection systems are included. Part of this course deals with hackers and how to hack. Social engineering and policy issues associated with security will also be presented.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

- MISY 3312: Introduction to Telecommunications
- MISY 2313: Intermediate Programming for Information Systems

VI. Learning Outcomes

- To learn the concepts and vocabulary of information assurance.
- To develop the skills necessary to design and write secure software.
- To learn the specific threats and vulnerabilities of computer systems.
- To develop the skills necessary to recognize potential vulnerabilities and threats and be able to counteract those vulnerabilities with a secure system design.
- To learn how to design and implement secure access controls.
- To learn the tools of information assurance.
- To learn the impact that policies have on secure systems.
- To learn the impact of social engineering on secure systems.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- The final, comprehensive, written exam is of the short answer, essay format and may include problems similar to the homework. This exam count for 30% of the final grade.
- Numerous homework assignments and a term project. These assignments must be presented in class when assigned. The homework and the term project counts for 30% of the final grade.

The course provides students with the opportunity to work individually and in a group. The homework assignments are individual and the term project is a small team effort. The comprehensive exam and the increasingly difficult homework assignments encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of information assurance. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. Students present their homework assignments and their progress on the term project to the rest of the class. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software tools.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction to information assurance
- B. How and why hackers do it
- C. Information gathering
- D. Spoofing
- E. Session hijacking
- F. Denial of service attacks
- G. Buffer overflows
- H. Password security
- I. Microsoft NT password crackers
- J. UNIX password crackers
- K. Fundamentals of Microsoft
- L. Specific exploits of NT
- M. Fundamentals of UNIX
- N. Specific exploits for UNIX
- O. Preserving access
- P. Covering the tracks
- Q. Other types of attacks
- R. SANS top 10
- S. Putting it all together

X. Laboratory Exercises

This course does require a separate lab. Because of the nature of the software tools that are used in this course, it should be isolated from the other computer labs. The lab requires access to the Internet.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest version of several software tools. For the most part, the software for this course is downloaded from the Internet. Students are required to use the MS Office Suite for class presentations. Class lectures make use of computer projection equipment that will show lecture slides and computer demonstrations.

Outside of class, students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user requirements, develop the secure system design necessary to solve the problem. If a "real world" project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Cole, Eric. *Hackers Beware, Defending Your Network from the Wiley Hacker*. New Riders, 2002.
ISBN: 0-7357-1009-0

B. Alternative Textbooks

Schneider, Bruce, *Secrets and Lies, Digital Security in a Networked World*, 1st Edition, John Wiley and Sons, 2000
ISBN: 0-471-25311-1

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

The latest version of security tools downloaded from the Internet.

Course Title: MISY 3331: Advanced Database Concepts

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to provide students with an advanced knowledge of the definition, creation, and management of databases for business oriented applications. Students learn the concepts necessary to design a good, efficient database for better performance while understanding the needs of the database's business applications. The focus of the class is on ORACLE as the database platform. Overall understanding of the relational database model is a primary objective of the course. Students successfully completing this class are able to analyze the business requirements for a database application and translate those requirements to a relational database.

II. PMU Competencies and Learning Outcomes

Students develop specific skills, competencies, and points of view needed by professionals in this field to build databases and retrieve data from them. Much of this course allows students to exercise teamwork skills gained as a result of working with others on group projects. Students also are able to apply the critical thinking and problem solving skills by analyzing a business application, building a relational database and writing SQL queries to generate the reports desired by the user.

III. Detailed Course Description

This course is intended to build upon the concepts contained in the introductory database class that included developing models of organizational data requirements and implementing these models using database management technologies. The course focuses on developing relational databases using ORACLE as the database platform. Students are required to analyze a business problem, design and build the relational database and develop the queries necessary to provide the user the desired information. The analysis of business problems and building solutions to these problems is a major emphasis of the course. Students use ORACLE to build and query the database along with the Structured Query Language (SQL) for homework and class projects. The course also builds upon the concept of Web-database connectivity

IV. Requirements Fulfilled

This class is an elective for MIS majors.

V. Required Prerequisites

Successful completion of:

- MISY 3311: Database Management for Information Systems
- MISY 2313 Intermediate Computer Programming for Information Systems

VI. Learning Outcomes

- To learn the theoretical relational database model.
- To develop the skills necessary to construct a relational database model given a specific application case study.
- To learn how to use ORACLE to build a physical model of the database.
- To learn ORACLE in sufficient detail to develop the skills necessary to build the physical database.
- To learn to write ORACLE database queries to answer business questions.
- To learn to develop a database in support of Web applications.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- A final, comprehensive, written exam of the essay, short answer format that may also include problems similar to homework. This exam counts 25% of the final grade.
- A term project that is a small team effort demonstrating the ability of the students to analyze a business situation, develop the logical diagrams, and construct the database. The term project counts for 35% of the final grade.

This course provides students with the opportunity to work individually and in a group setting. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of databases in a business environment. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture format with homework assignments and a team project that supplement the lecture material. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software and the database concepts.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

IX. Topics to be Covered

- A. Introduction - The ORACLE database environment
- B. ORACLE server architecture
- C. Database objects
- D. SQL
- E. ORACLE database administration
- F. ORACLE data loader
- G. SQL loader
- H. Advanced SQL
- I. Distributed computing
- J. The client/server database environment
- K. The Internet database environment
- L. Database backup and recovery
- M. Partitioning data
- N. Data warehousing

X. Laboratory Exercises

This course does not require a separate lab but it requires ORACLE to be installed in the computer laboratory.

XI. Technology Component

The class makes use of personal computers and the latest in database software. Students become proficient in ORACLE and SQL database software. Class lectures make use of computer projection equipment that show slides and computer demonstrations.

Outside of class the students are expected to communicate interactively with their classmates through the materials posted on the class web site. Students ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. The students are required to determine the data needs of the application, construct the logical diagrams, construct the physical diagrams, build the database, and write the queries necessary to satisfy the business needs. If a “real world” project can be identified that can be accomplished in a semester, it should be used. Otherwise, many textbook-based situations exist that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Piattini, Mario, *Advanced Database Technology and Design*, Artech House Publishers, 2000.
ISBN 0-89006-395-8.

B. Alternative Textbooks

Buyens, Jim, *Web Database Development – Step by Step*, .NET Edition, Microsoft Press, 2002.
ISBN: 073561637X.

C. Supporting Software and Materials:

1. Abbey, Michael, Corey, Michael, Abramson, Ian, *Oracle 9i – A Beginner’s Guide*, McGraw-Hill Osborne Media; 2nd Edition, 2001.
ISBN: 0-07-219279-8
2. Nielsen, Paul, *Microsoft SQL Server 2000 Bible with CD-ROM*, John Wiley and Sons, 2002
ISBN: 0764549359

Course Title: MISY 3332: Advanced Programming Concepts for Information Systems

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course is designed to provide students with an advanced examination of programming concepts that center around object oriented programming. It includes a discussion of the fundamental principles, generalizations, and theories of object oriented programming, using C# to demonstrate object oriented concepts. Students successfully completing this class are able to analyze business requirements, translate the flow requirements to a data flow diagram, and develop the software necessary to solve the problem.

II. PMU Competencies and Learning Outcomes

Students develop specific skills, competencies, and points of view needed by professionals in this field. Much of this course allows students to develop their teamwork and communication skills by working in groups to solve the class projects. Students in this class also apply critical thinking and problem solving skills by constructing a software routine that meets the application requirements.

III. Detailed Course Description

The course focuses on the design and development of object oriented software. It teaches students to develop object oriented software that meets the requirements of a business use. Included in the class are discussions of techniques for handling exceptions, developing graphical user interfaces, and multimedia applications. Files and streaming contents also are included in the class. In addition to programming in C#, students learn other languages such as XML, .net software and ASP.net. Students completing this class should have a well grounded knowledge to build object oriented software that interfaces to the Internet. Also included in the course is a review of the knowledge for of relational databases and their interface to the Internet.

IV. Requirements Fulfilled

This class is an elective class for MIS majors.

V. Required Prerequisites

Successful completion of:

- MISY 2312: Introductory Programming for Information Systems
- MISY 2313: Intermediate Programming for Information Systems

VI. Learning Outcomes

- To learn the theoretical modeling techniques that are used to describe object oriented systems.
- To develop the skills necessary to define the software necessary to solve a specific application case study.
- To learn how to build appropriate software from a theoretical model.
- To learn a commercial software package and to develop the skills necessary to build the physical database.
- To learn to write software in C#, XML, and ASP.net.
- To learn how to support Web applications.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- A final, comprehensive, written exam that is of the essay, short answer format that may also include problems similar to homework. This exam counts for 25% of the final grade.
- A term project that is a small team effort. The project demonstrates the ability of the students to analyze a business situation, develop the logical diagrams and construct software to meet the need. The term project counts for 35% of the final grade.

This course provides students with the opportunity to work individually and in a group setting. The comprehensive exam and the term project encourages students to integrate what they have learned from the text and from the lectures into a thorough understanding of software development in a business environment. This knowledge is necessary for a successful career in Web application development.

VIII. Course Format

This course is a lecture format with homework assignments and a team project that are meant to supplement the lecture material. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software and the database concepts.

Course materials are be posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project

- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

IX. Topics to be Covered

- A. Introduction to .NET and C#
- B. Introduction to the Visual Studio .NET IDE and C# programming
- C. Control structures
- D. Methods and arrays
- E. Object-based programming
- F. Object-oriented programming: inheritance
- G. Object-oriented programming: polymorphism
- H. Exception handling
- I. Graphical user interface concepts: Part 1
- J. Graphical user interface concepts: Part 2
- K. Multithreading
- L. Strings, characters, and regular expressions
- M. Graphics and multimedia
- N. Files and streams
- O. Extensible markup language (XML)
- P. Database, SQL and ADO .NET
- Q. ASP .NET, Web forms and Web controls
- R. ASP .NET and Web services
- S. Networking: Streams-based sockets and datagrams
- T. Data structures and collections
- U. Accessibility
- V. Mobile Internet toolkit

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of personal computers and the latest in development software. Students become proficient in the development of object oriented software using C#, XML, and ASP.net software. Class lectures make use of computer projection equipment that shows slides and computer demonstrations.

Outside of class students are expected to communicate interactively with their classmates using materials posted on the class Web site. Students ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. The students are required to determine the data needs of the application, construct the logical diagrams, and write the software necessary to satisfy the business needs. If a “real world” project can be identified that can be accomplished in a semester, it should be used. Otherwise, many textbook situations exist that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Deitel, H. M., et. al., *C# for Experienced Programmers*, 1st edition, Prentice Hall, 2002
ISBN:0130461334

B. Alternative Textbooks

Kak, Avinask, *Programming with Objects: A Comparative Presentation of Object Oriented Programming with C ++ and JAVA*, 1st Edition, Wiley Interscience, 2003.
ISBN: 0471268526.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

None.

Course Title: MISY 4331: Building Electronic Commerce

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course focuses on the concepts and issues of electronic commerce. Nothing in modern history has influenced the way that we do business more than the Internet. New business models using e-commerce are discussed in specific business situations. Students design and build a Web site using HTML and active server pages.

II. PMU Competencies and Learning Outcomes

The course helps build professional competencies for students preparing for a career in Information Systems or as a manager of a modern business. Many such careers involve applying e-commerce technology to the benefit of organizations, often by developing new business models and new ways of advertising and conducting all aspects of business. Students build their ability to communicate and interact with other professionals as they add new concepts and terms to their technical vocabulary and work in teams.

III. Detailed Course Description

The objective of this course is to learn how to design and build a Web site oriented to the needs of the business. Upon successful completion of the course, the students should be able to meet the following specific objectives:

- Understand how e-commerce is changing the way that we do business
- Understand how to design a Web site so that it meets the needs of the business and the needs of the user
- Understand how to program in HTML
- Understand how to program using active server page
- Understand other programming languages and their role in Web site design

IV. Requirements Fulfilled

This class is a required class for the MIS major.

V. Required Prerequisites

- MISY 2312: Introductory Programming for Information Systems
- MISY 2313: Intermediate Programming for Information Systems

VI. Learning Outcomes

- To learn the fundamental principles of Web site design.
- To develop the skills necessary to build a Web site using HTML and active server page.
- To learn how industry is influenced by new business models.
- To learn the principles of user interface design.
- To develop the skills necessary to design a secure Web site.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 30% of the course grade.
- The final, comprehensive, written exam is of the short essay format that may also include problems similar to homework. This exam counts for 15% of the final grade.
- A term project that is a small team effort that demonstrates the ability of the students to analyze a business situation, develop the logical diagrams and then construct the database. The term project counts for 45% of the final grade.
- The term project includes numerous homework assignments. These assignments must be presented in class when assigned. The homework counts for 10% of the final grade.

The course provides students with the opportunity to work individually and in a group. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of e-commerce. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve

- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction to electronic commerce
- B. Introduction to Web site construction
- C. Web server installation and maintenance
- D. Electronic commerce business models
- E. Relational database concepts
- F. Client side technologies
- G. Windows common gateway
- H. Template files
- I. Connectivity
- J. Active server pages
- K. Connectivity with ASP
- L. Server side development
- M. Browser programs
- N. Enhancing the E-commerce business model
- O. ASP
- P. Html

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in MS Office Software. Students develop software using MS ASP and HTML. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class, students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is to develop a Web site that can function on the Internet in a business environment. Student teams choose their own projects.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Nelson, Anne, and Nelson III, William, *Building Electronic Commerce with Web Database Constructions*: Addison Wesley, 2002.
ISBN: 0-201-74130-X

B. Alternative Textbooks

Schneider, Gary, *Electronic Commerce*, Fourth Edition, Course Technology, 2003.
ISBN: 0619159553.

C. Supplemental Print Materials

Students are advised to acquire reference books on HTML and ASP.

D. Supplemental Online Materials

None.

Course Title: MISY 4332: Systems Analysis and Design

Semester Credit Hours: 3 (3,0)

I. Course Overview

This course provides an introduction to the analysis and design process. It includes a discussion of the classical, behavioral principles, and technologies of information systems analysis and design. Students learn how to develop user requirements and to translate the requirements to specifications for system development

II. PMU Competencies and Learning Outcomes

Students successfully completing this class are able to analyze the business requirements and to develop the specifications for the system development. Students apply the critical thinking and problem solving skills by analyzing a business situation and constructing a system design. Students develop their teamwork and communication skills by working in groups to solve the class projects.

III. Detailed Course Description

The objective of this course is to explore the formal process of developing computer-based information systems within an organization. Upon successful completion of the course, you should be able to meet the following specific objectives:

- Be able to understand the concept of the life cycle of an information system.
- Be able to understand the tasks of the systems analyst and the skills required to perform them.
- Be familiar with process, data, and object models.
- Be familiar with computer assisted software engineering (CASE) tools.
- Be able to perform systems analysis and design in a real-world setting.

Computer assisted software engineering (CASE) tools, such as MS Project and Rational are used as part of a team project. However, the focus of the course is on the analysis and design methodologies rather than on the tool.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

MISY 3311 Database Management for Information Systems

VI. Learning Outcomes

- To learn the fundamental principles of information systems analysis and design.
- To develop the skills necessary to conduct a requirements determination study.
- To learn the principles and techniques of the system development life cycle.
- To learn how to apply a commercial software CASE tool.
- To learn to a commercial software project management tool.
- To learn the various techniques for system development.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 30% of the course grade.
- The final, comprehensive, written exam is of the short essay format that may also include problems similar to homework. This exam counts for 15% of the final grade.
- A term project that is a small team effort that demonstrates the ability of the students to analyze a business situation, develop the logical diagrams and then construct the database. The term project counts for 45% of the final grade.
- The term project includes numerous homework assignments. These assignments must be presented in class when assigned. The homework counts for 10% of the final grade.

The course provides students with the opportunity to work individually and in a group. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of systems analysis and design in a business environment. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. The amount of time that the student spends in the computer lab depends on the student.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Context of systems analysis and design
- B. Building blocks of information systems
- C. Information systems development
- D. Project management
- E. Systems analysis
- F. Techniques for requirements discovery
- G. Modeling system requirements
- H. Data modeling and analysis
- I. Process modeling
- J. Feasibility analysis
- K. Universal modeling language
- L. Systems design
- M. Architecture modeling
- N. Database design
- O. Output design and prototyping
- P. Input design
- Q. User interface design
- R. System development and implementation
- S. System support

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in CASE and project management software. Students become proficient in the MS Office Suite as well. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class the students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user needs of the application, construct the data and the process diagrams, and design the system specifications. If a "real world" project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Whitten, Jeffery, Bentley, Lonnie, and Dittman, Kevin. *Systems Analysis and Design Methods*, 6th Edition. McGraw Hill, Irwin, 2004.
ISBN: 0-07-247417-3

B. Alternative Textbooks

Hoffer, Jeffrey, George, Joey, and Vilacich, Joseph, *Modern Systems Analysis and Design*, Third Edition, Prentice Hall, 2002
ISBN: 0-13-060542-5.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

Microsoft Project, Rational, and Visio are required for this class.

Course Title: MISY 4341: Object-Oriented Analysis and Design

Semester Credit Hours: 3(3,0)

I. Course Overview

This course provides an introduction to object-oriented systems analysis and design. It includes a discussion of the fundamental principles, terminology, and analysis and design techniques associated with object-oriented systems. The course focuses on the techniques of objects oriented analysis and system design from the perspective of the user, with particular emphasis for the client-server environment.

II. PMU Competencies and Learning Outcomes

Students build their professional competencies as they gain the ability to analyze the business requirements for an object-oriented system and define those requirements for the system developer. Students apply critical thinking and problem solving skills by analyzing a case study and designing an object-oriented system that will solve the user needs. Students develop their teamwork and communication skills by working in groups to solve the class projects.

III. Detailed Course Description

This course is intended follow the first analysis and design course, MISY 4332: Systems Analysis and Design. The primary emphasis of this class is to teach students how to conduct a systems analysis and design using the principles of objects. Human/system interface requirements are addressed. Particular emphasis is placed on designing systems for the client-server environment. Included in the class is the introduction of conceptual data modeling and object relational modeling. Also included is the knowledge for converting a conceptual object data model to the physical data base design. Project management methods also re presented. A main portion of the course addresses the techniques for building a system, including the determination of the requirements, documenting the requirements and then actually designing the system.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

- MISY 4332 Systems Analysis and Design

VI. Learning Outcomes

- To learn the concepts and vocabulary of object-oriented systems.
- To develop the skills necessary to define and specify an object-oriented system given a specific application case study.
- To learn the techniques of defining systems requirements, defining object-oriented database requirements, and specifying the system for the developers.
- To learn a commercial CASE tool and to develop the necessary skills with the package to define a system.
- To learn project management and budget estimation techniques for object-oriented systems.
- To learn the principles of man machine interfaces.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term group project. Class presentations also are part of the grade. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 30% of the course grade.
- The final, comprehensive, written exam is of the short essay format that may also include problems similar to the homework. This exam counts 25% of the final grade.
- A term project that is a small team effort that demonstrates the ability of the students to analyze a business situation, and design the object-oriented system that meets the user requirements. The term project count for 35% of the final grade.
- Students are required to present the progress of their term projects to the class on a regular basis. These presentations are graded based on content and style. The presentations count for 10% of the final grade.

This course provides students with the opportunity to work individually and in a group. The comprehensive exam and the term project encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of object-oriented systems in a business environment. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. Students are required to present their progress on the term project to the rest of the class. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software tools.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. The object-oriented systems development environment.
- B. Managing the object-oriented information systems project
- C. Project management and planning
- D. Determining the object-oriented systems requirements
- E. Structuring systems requirements
- F. Conceptual data modeling for objects
- G. Object relational modeling
- H. Classes of objects
- I. Selecting the best design strategy
- J. Physical database design
- K. Elements of object-oriented design
- L. Designing the human interface
- M. Object-oriented systems implementation

X. Laboratory Exercises

This course does not require a separate lab.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest in design tools software. Students are required to use the MS Office Suite for class presentations. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class, students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user requirements, depict these requirements using the appropriate tool and then specify the system design using a systems design tools. If a “real world” project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

George, Joey, Batra, Dinesh, Valachic, Joseph, and Hoffer, Jeffrey. *Object-Oriented Systems Analysis and Design*, Prentice Hall, 2004. ISBN: 0-13-113326-8

B. Alternative Textbooks

Schach, Stephen R., and Scach, Stephen, *Intro to Object Oriented Analysis with UML CD*, Irwin McGraw-Hill, 2003
ISBN: 0072939842.

C. Supplemental Print Materials

None.

D. Supplemental Online Materials

None.

Course Title: MISY 4342: Electronic Commerce Security

Semester Credit Hours: 3 (3,0)

I. Course Overview

In this course, students learn the basic elements of Electronic Commerce Security. Topics to be covered in this course include, but are not limited to: fundamentals of e-business security, client-side vulnerabilities, securing the data transaction, securing the commerce server, securing the e-business architecture, and impacts of denial of service attacks on e-commerce security.

II. PMU Competencies and Learning Outcomes

Students successfully completing this class enhance their professional competencies with awareness of the major security threats to the Internet and the e-commerce business applications. Students apply critical thinking and problem solving skills by analyzing a given scenario and then developing the systems security necessary to protect the site. Students develop their teamwork and communication skills by working in groups to solve the class projects. Students present their homework in class thus developing their communication skills.

III. Detailed Course Description

This introduction to e-commerce security builds upon the principles discussed in the introductory security course, MISY 3321: Introduction to Information Assurance. The course presents the threats, such as denial of service, fraud, changing the Web site, that are associated with the e-commerce business environment. Specific vulnerabilities associated with the various operating systems and application tools are discussed. Preventing attacks and detecting them should they occur also is part of this course. One of the key elements in securing e-commerce is securing the on-line database and techniques for securing data are presented. Topics such as cryptography, Public Key Infrastructure, and secure transmissions methods also are presented. The functions of business, such as secure customer order and payment techniques, are included. The final part of the course is aimed at securing the e-commerce business against attack.

IV. Requirements Fulfilled

This is a required course for all MIS majors.

V. Required Prerequisites

MISY 3321 – Introduction to Information Assurance

VI. Learning Outcomes

- To learn the concepts and vocabulary of e-commerce security.
- To develop the skills necessary to design e-commerce security systems.
- To learn the threats and vulnerabilities of e-commerce systems.
- To develop the skills necessary to recognize potential vulnerabilities and threats and be able to counteract those vulnerabilities with a secure system design.
- To learn how to design secure payment systems.
- To learn the tools of the e-commerce environment such as PKI, and cryptology.

VII. Assessment Strategy

Assessment for this course consists of a combination of examinations based on the textbook and the lecture materials, and on the quality of the term project. Specific assessments include:

- Two essay or short answer exams that test the student's knowledge of the material in the text and the lectures. These exams may also include short problems that are similar to homework assignments. These exams count for a total of 40% of the course grade.
- The final, comprehensive, written exam is of the short essay format and may include problems similar to the homework. This exam counts for 30% of the final grade.
- Numerous homework assignments and a term project. These assignments must be presented in class when assigned. The homework and the term project counts for 30% of the final grade.

The course provides students with the opportunity to work individually and in a group. The homework assignments are individual and the term project is a small team effort. The comprehensive exam and the increasingly difficult homework assignments encourage students to integrate what they have learned from the text and from the lectures into a thorough understanding of e-commerce security. This knowledge is necessary for successful completion of subsequent courses.

VIII. Course Format

This course is a lecture with homework assignments and a team project that are meant to supplement the lecture material. Students are required to present their homework assignments and their progress on the term project to the rest of the class. The amount of time that the student spends in the computer lab depends on the student and the student's ability to learn the software tools.

Course materials are posted on the Web. These materials include:

- Class syllabus
- Course assignments
- Course project
- Course e-mail list serve
- Course chat room/bulletin board
- Keys to exams and homework assignments
- Supplemental course materials

Classroom Hours (3 hours per week)

Class: 3

Lab: 0

IX. Topics to be Covered

- A. Introduction to information assurance
- B. The business landscape and threats to E-commerce
- C. Security needs for successful E-commerce
- D. Computer security
- E. Enabling technologies
- F. Networked computer security
- G. Network security
- H. Considering total cost of ownership
- I. Cryptography
- J. Public key infrastructure
- K. Security tricks
- L. Client side vulnerabilities
- M. Active X
- N. Java security
- O. Security tricks (other gremlins)
- P. Client side vulnerabilities (perils of HTTP)
- q. client side vulnerabilities and you
- R. Securing the data transaction (M-T-M attacks)
- S. E-commerce update
- T. Electronic payment systems
- U. E-commerce business structures
- V. Securing servers/databases
- W. Defending the enterprise

X. Laboratory Exercises

This course does require a separate lab. Because of the nature of the software tools that is used in this course, it should be isolated from the other computer labs. The lab requires access to the Internet.

XI. Technology Component

The class makes use of the students' personal laptop computers and the latest version of several software tools. For the most part, the software for this course is downloaded from the Internet. Students are required to use the MS Office Suite for class presentations. Class lectures make use of computer projection equipment that shows lecture slides and computer demonstrations.

Outside of class, students are expected to communicate interactively with their classmates through the materials posted on the class Web site. Students are able to ask questions, share material, and access supplemental material from the links provided.

XII. Special Projects/Activities

This course includes a term project that is completed by small teams of students. This project is a case study that describes a business situation. Students are required to determine the user requirements, develop the secure system design necessary to solve the problem. If a "real world" project of sufficient rigor that can be accomplished in a semester can be identified, then it should be used. Otherwise, there are many textbook situations that would be appropriate.

XIII. Textbooks and Teaching Aids

A. Required Textbook

Ghosh, Anup K. *E-Commerce Security*, Wiley Computer Publishing, 1998.
ISBN:0-471-19223-6

B. Alternative Textbooks

Sherif, Mostafa Hashem, *Protocols for Secure Electronic Commerce*, Second Edition, CRC Press, 2003
ISBN: 0849315093.

C. Supplemental Print Materials

Schneier, Bruce. *Secrets and Lies, Digital Security in a Networked World*, Wiley Computer Publishing, 2000.
ISBN:0-471-24311-1

D. Supplemental Online Materials

The latest version of security tools downloaded from the Internet.