PREPARATION YEAR PROGRAM AND CORE CURRICULUM

Preparation Year Program and Core Curriculum
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_____, Ph. D., Dean

OVERVIEW OF THE PREPARATION YEAR PROGRAM

To ensure that the students the university admits will be prepared to succeed in the PMU's challenging academic environment, a non-credit Preparation Year Program will be provided to assist entering students in developing their skills in English, mathematics, and learning and study methods.

The Preparation Year Program will provide students with two semesters of non-credit instruction in learning skills, two semesters of mathematics, and a level of proficiency in English that will enable students to succeed in a university where all courses (with the exception of Arabic language and Islamic Studies) will be taught in English. The time required to attain this level of English abilities will vary depending on the student's level of achievement upon entering the program. Courses are taught in half-semester blocks. It is expected that most students will attain the required level in two full semesters, though some may require additional instruction.

Upon successful completion of the Preparation Year Program, students will be ready for acceptance into one of the three colleges of the PMU.

PREPARATION YEAR PROGRAM COURSE DESCRIPTIONS

Communication - PRPC

PRPC 0011: Low-Beginning Communication Skills (0,0) PRPC 0011 is a foundation course for low-proficiency EFL learners. It introduces students to basic reading skills, vocabulary for basic communication, speaking routines and patterns, and listening for comprehension and response. This course (Level 1) introduces PMU students to the student-centered, highly active and interactive EFL classroom environment, and to the expectations in that environment. **Prerequisite:** This course has no prerequisite. Assignment to course level follows placement tests at the beginning of the Preparation Year Program.

PRPC 0021: High-Beginning Communication Skills (0,0) PRPC 0021 consolidates basic reading, vocabulary acquisition, speaking, and listening skills learned at the low-beginning level. The course (Level 2) further introduces students to the reading skills and vocabulary-acquisition strategies and approaches that will characterize all EFL classes at the PMU. Emphasis on general speaking, active listening, and pronunciation skills continue in an integrated approach using more complex material. The classroom is student-centered and interactive. **Prerequisite:** PRPC 0011 (Level 1), or assignment to Level 2 following placement tests at the beginning of the Preparation Year Program.

PRPC 0031: Low-Intermediate Communication Skills (0,0) PRPC 0031 moves students beyond passive reading to a more active, analytical approach to the material. Students begin structured study of high-frequency academic words from the Academic Word List. Listening activities develop students' facility in understanding material organized according to major patterns of thought and speech. All previous reading, vocabulary, speaking, and listening skills are reviewed and further developed using higher-level materials and an integrated-skills approach. **Prerequisite:** PRPC 0021 (Level 2), or assignment to Level 3 following placement tests at the beginning of the Preparation Year Program.

PRPC 0041: High-Intermediate Communication Skills (0,0) In PRPC 0041 reading, vocabulary, speaking, and listening activities continue to become more analytical and academic in focus, preparing students to meet university-level expectations. Reading skills training continues, as reading materials become longer and more complex. Vocabulary acquisition skills are emphasized, and another section of the Academic Word List is added for study. Academic listening skills become a primary emphasis, with training in lecture-listening and note taking strategies. Students learn and practice academic speaking formats. **Prerequisite:** PRPC 0031 (Level 3), or assignment to Level 4 following placement tests at the beginning of the Preparation Year Program.

PRPC 0051: Low-Advanced Communication Skills (0,0) PRPC 0051 begins to bridge the gap between EFL instruction and the use of English in realistic academic activities. Reading skills training continues with longer, authentic material. Word-attack skills and additional words from the Academic Word List prepare students for university-level reading. Longer, more complex authentic listening activities are part of this course. The academic emphasis of the class does not, however, diminish the communicative, interactive, and student-centered nature of the classroom. **Prerequisite:** PRPC 0041 (Level 4), or assignment to Level 5 following placement tests at the beginning of the Preparation Year Program.

PRPC 0061: High-Advanced Communication Skills (0,0) PRPC 0061 reviews and consolidates all the reading skills and vocabulary word-attack skills students learned at previous levels, using a variety of university-level material. Readings are longer and the final words from the Academic Word List are studied. Academic listening tasks are long, complex, and realistic to prepare students for a successful transition into university classes. The classroom remains student-centered, with interactive, integrated-skills activities. **Prerequisite:** PRPC 0051 (Level 5), or assignment to Level 6 following placement tests at the beginning of the Preparation Year Program.

Writing - PRPW

PRPW 0011: Low-Beginning Writing Skills (0,0) This low-beginning Writing Skills course introduces the student to the basics of English grammar and composition with the goal of elementary proficiency in speaking and writing. This is achieved through extensive pair and group activities in the classroom as well as directed composition, spelling, and mechanics at the basic paragraph level. **Prerequisite:** This course has no prerequisite. Assignment to course level follows placement tests at the beginning of the Preparation Year Program.

PRPW 0021: High-Beginning Writing Skills (0,0) This high-beginning writing course provides a strong foundation in English grammar with acquisition of present and past verb tenses in simple and progressive forms, an introduction to present perfect, basic modals, and comparison, as well as other high-beginning structures. In this Level 2 course, students learn to apply the grammar at the high-beginning level in writing and speaking, focusing on monitoring for accurate use of the language. Basic paragraph-writing skills are formed through an introduction to the writing process and the incorporation of organization, simple sentence structure and mechanics. **Prerequisite:** PRPW 0011 (Level 1), or assignment to Level 2 following placement tests at the beginning of the Preparation Year Program.

PRPW 0031: Low-Intermediate Writing Skills (0,0) This low-intermediate writing course introduces or reviews major grammatical concepts. In addition, the course provides an introduction to the fundamentals of academic writing at the intermediate level, focusing on the mastery of paragraph organization and development, three-paragraph essays of classification, cause and effect, comparison and contrast, an introduction to the five-paragraph essay, and the use of transitions. In this Level 3 course, students refine their knowledge of English writing mechanics and conventions through word processing, and apply their developing knowledge of grammar and sentence structure to their writing. Beginning research and documentation skills are introduced. **Prerequisite:** PRPW 0021 (Level 2), or assignment to Level 3 following placement tests at the beginning of the Preparation Year Program.

PRPW 0041: High-Intermediate Writing Skills (0,0) This high-intermediate writing course focuses on academic writing, making the transition to the development of unified, coherent essays. In addition, the final writing project is a documented essay, the result of training in basic library and Internet research methods and the fundamentals of academic documentation. In this Level 4 course, major topics in grammar are reviewed and complex sentence structure is covered, with students expected to begin writing mature, sophisticated sentences. **Prerequisite:** Successful completion of PRPW 0031 (Level 3), or assignment to Level 4 following placement tests at the beginning of the Preparation Year Program.

PRPW 0051: Low-Advanced Writing Skills (0,0) This low-advanced writing course focuses on writing essays with clarity of focus, cohesion, and development of main and supporting ideas. Other academic writing skills are addressed in this Level 5 course, including instruction and definition. Students refine their understanding of the writing process. The course also features a strong focus on the research process, particularly on synthesizing information and citing sources. This process culminates in a research paper at the low-advanced level. Students refine their control of complex sentence structure in both oral and written contexts and learn to use a variety of structures in their writing. **Prerequisite:** PRPW 0041 (Level 4), or assignment to Level 5 following placement tests at the beginning of the Preparation Year Program.

PRPW 0061: High-Advanced Writing Skills (0,0) This high-advanced writing skills course focuses on increasing fluency and sophistication of essay writing at the high-advanced level, and the production of a research paper. This Level 6 course emphasizes summarizing, synthesizing, and argumentation, and addresses other academic writing skills. A review of advanced grammatical structures and their application to academic writing is included. **Prerequisite:** PRPW 0051 (Level 5), or assignment to Level 6 following placement tests at the beginning of the Preparation Year Program.

Mathematics - PRPM

PRPM 0011: Introductory Algebra (0,0) This course is an introduction to mathematical thinking in the context of the real number system and functional relationships. To assist in solving problems, the course incorporates the use of technology, specifically graphing calculators and Excel spreadsheets. **Prerequisite**: Satisfactory completion of high school algebra.

PRPM 0012: Intermediate Algebra (0,0) A continuation of PRPM 0011, this course focuses on mathematical thinking and data analysis applied to linear, quadratic, rational, logarithmic, and exponential functions. The course incorporates the use of technology to help solve problems, specifically through the use of graphing calculators and Excel spreadsheets. **Prerequisite:** PRPM 0011: Introductory Algebra.

PRPM 0022: Pre-Calculus (0,0) This course provides an overview of pre-calculus mathematics with an emphasis on elementary functions and their applications. The course incorporates the use of technology to help solve problems, specifically through the use of graphing calculators and Excel spreadsheets. **Prerequisite:** PRPM 0011: Introductory Algebra.

Study Skills and Learning Strategies - PRPL

PRPL 0011: Theories and Applications of Learning I (0,0) This course focuses on models of academic success founded on an understanding of learning theories from the fields of education and psychology and the application of those theories throughout the semester. Through a combination of guided application of learning strategies, individual academic advising, and instruction in and daily use of technology, students will learn the skills necessary to achieve academic success. **Prerequisite:** Students must have achieved English Level 3 proficiency or higher, either by successful completion of Level 2 or by class assignment following placement tests at the beginning of the Preparation Year Program. Students in English Levels 1 or 2 will be placed in a special section of PRPL 0011 that will cover the same skills and subject material using lower-level English skills and limited use of Arabic.

PRPL 0012: Theories and Applications of Learning II (0,0) This course builds on the learning strategies, computer literacy skills, and self-management skills that students have gained in PRPL 0011: Theories and Applications of Learning I. The foundations of critical thinking will be introduced as well as the development of team communication skills, global awareness, and electronic resource skills. Through continued guided application of learning strategies, individual academic advising, computer software applications, and discussion of career and professional development issues, students will continue to build on the skills necessary to achieve academic success. **Prerequisite:** Students must have earned at least a grade of "C" or better in PRPL 0011. They must have achieved English Level 4 proficiency or higher, either by successful completion of Level 3 or by class assignment following placement tests at the beginning of the Preparation Year Program.

OVERVIEW OF THE UNDERGRADUATE CORE CURRICULUM

The Undergraduate Core Curriculum contains three components.

The University Core Curriculum contains courses required of all PMU students. These courses are designed to develop the six core competencies that distinguish PMU graduates.

Group I (*18 semester hours required*.)

COMM 1311: Written Communication
COMM 1312: Writing and Research
COMM 2311: Oral Communication
COMM 2312: Technical and Professional Communication
UNIV 1211: Professional Development and Competencies
UNIV 1212: Critical Thinking and Problem Solving
UNIV 1213: Leadership and Teamwork

Group II (*14 Semester hours required*)

Arabic Language*
Islamic Studies*
*(*1 two semester-hour course each semester for 7 semesters)*

Group III *(2 semester hours required)*

Physical Education*
*(*Physical Education is typically taken during the Freshman year.)*

The College Core Curriculum prescribes academic subjects which PMU students are required to master. Each college of the university (Engineering, including Interior Design; Information Technology; and Business Administration) determines the specific College Core courses that will be required of its students. All students, however, are required to successfully complete courses in each of three College Core fields: natural and physical sciences, mathematics, and social and behavioral sciences.

Mathematics *(6 semester hours [two 3-hour courses] must be taken. Colleges designate specific required courses, if any)*

MATH 1311: Finite Mathematics for Students of Business
MATH 1312: Calculus for Students of Business
MATH 1313: Statistical Methods
MATH 1321: Pre-Calculus Mathematics
MATH 1422: Calculus I
MATH 1423: Calculus II
MATH 1324: Calculus III
MATH 2331: Linear Algebra
MATH 2332: Ordinary Differential Equations

Natural and Physical Sciences (*8 semester hours [two 4-hour courses] must be taken. Colleges designate specific required courses, if any.)*

BIOL 1411: Introductory Biology
CHEM 1411: Introductory Chemistry
CHEM 1421: Chemistry for Engineers I
CHEM 1422: Chemistry for Engineers II
GEOL 1411: Introductory Physical Geology
PHYS 1411: Introductory Physics
PHYS 1421: Physics for Engineers I
PHYS 1422: Physics for Engineers II

Social and Behavioral Sciences *(6 semester hours [two 3-hour courses] must be taken. Colleges designate specific required courses, if any.)*

ECON 1311: Introduction to Macroeconomics
ECON 1312: Introduction to Microeconomics
GEGR 1311: World Regional Geography
HIST 1311: World Civilizations, 1600 - Present
PSYC 1311: Introduction to Psychology

The Assessment Capstone Series consists of three courses required of all PMU students. The first two courses are designed to increase the success of the third and final capstone course taken during the student's senior year. The Assessment Capstone Series will measure the student's success in achieving the six PMU learning outcomes.

ASSE 2111: Learning Outcome Assessment I
ASSE 3211: Learning Outcome Assessment II
ASSE 4311: Learning Outcome Assessment III

CORE CURRICULUM COURSE DESCRIPTIONS

Outcome Assessment - ASSE

ASSE 2111: Learning Outcome Assessment I (1,0) The course will be taken by students during their first semester in the second year of the undergraduate program and will orient them to learning-outcome expectations, the development of a learning portfolio, and the assessment process. **Prerequisite:** None

ASSE 3211: Learning Outcome Assessment II (2,0) The course will be taken by students during their first semester in the third year of the undergraduate program and will orient them to learning-outcome expectations, the development of a learning portfolio, and the assessment process. The course builds on ASSE 2111 to prepare students for the final capstone experience, ASSE 4311. **Prerequisite:** ASSE 2111

ASSE 4311: Learning Outcome Assessment III (3,0) The course will be taken by students either first or second semester of the fourth year of the undergraduate program. The semester during which the course is taken will be determined by the student's major field of study. The course will orient students to learning outcomes expectations, the development of a learning portfolio, and the assessment process. The course requires students to meet all the university learning objectives. **Prerequisite:** ASSE 3211

Biology - BIOL

BIOL 1411: Introductory Biology (3,1) BIOL 1411 will provide students with a foundation in basic biological principles. Students will gain familiarity with the biological world from both a taxonomic perspective (plant, animal, microbe) and process-based perspective (biochemistry, cell biology, physiology, ecology, behavior). Additionally, students will learn to integrate biological material into the broader world around them, and to develop critical thinking and problem solving skills involving quantitative data from the natural sciences. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory. **Prerequisite**: None

Chemistry – CHEM

CHEM 1411: Introductory Chemistry (3,1) CHEM 1411 will provide students with a foundation in basic chemical principles. Students will gain familiarity with chemical equations and reactions, and they will be given the tools necessary to solve chemical problems that they might encounter on a daily basis. An important component will be an understanding of the impact of chemistry on all aspects of humans and human civilization. Students will learn to integrate chemical understanding in the broader world around them, and develop critical thinking and problem solving skills involving quantitative data from the natural sciences. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled, one-credit laboratory that accompanies it. **Prerequisite**: None

CHEM 1421: Chemistry for Engineers I (3,1) The objective of CHEM 1421 is to create a substantial base for a two-semester chemistry sequence to provide the additional chemistry required by engineering students prior to specialized courses in chemical engineering applications. This course is not to be taken by non-engineering students. The approach, like that of the following semester CHEM 1422, will be largely conceptual leading to an understanding of chemistry and chemical processes. Students in this course will gain familiarity with the chemical/atomic structure of ions, molecules and atoms and how they react. Emphasis will be on a quantitative approach involving chemical reactions and their control. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled, one-credit laboratory. **Prerequisite:** Scoring well in high school chemistry is a prerequisite. MATH 1321: Pre-Calculus is a co-requisite.

CHEM 1422: Chemistry for Engineers II (3,1) The objective of CHEM 1422 is to build upon the base provided in the prerequisite CHEM 1421, and to provide the additional chemistry required by engineering students prior to specialized courses in chemical engineering applications. This course is not to be taken by non-engineering students. The approach, like that of the CHEM 1421, will be largely conceptual leading to an understanding of chemistry and chemical processes. Students in this course will gain familiarity with the physical chemistry of liquids and solids, the nature of equilibrium, acids and bases, and thermodynamics and electrochemistry. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory. **Prerequisites:** MATH 1422: Calculus I, CHEM 1421: Chemistry for Engineers I

Communication - COMM

COMM 1311: Written Communication (3,0) Introduces students to writing as process and product. Students will learn invention, selection, arrangement, presentation, and revision as parts of the writing process leading to compositions that are clear, concise, and correct. The course will also teach students to identify and correct errors in written communication, with an emphasis on grammar, mechanics, and proper manuscript form. **Prerequisite:** None

COMM 1312: Writing and Research (3,0) This course continues the work of assisting students to develop, organize, and express insights, observations, and ideas effectively, but in the context of planning and composing a formal research paper. In the course of doing research for a 3,000-5,000 word paper, students will learn to use computer databases and online sources as well as library materials and will significantly sharpen their analytical reading, critical thinking, and writing skills. **Prerequisite:** COMM 1311: Written Communication

COMM 2311: Oral Communication (3,0) This course assists students in the development and presentation of clear, cogent, and compelling oral presentations. Students will learn to evaluate ideas and evidence, to think critically, and to communicate effectively in group situations. A major oral presentation will be based on the written research project completed for COMM 1312: Writing and Research. **Prerequisite:** COMM 1312: Writing and Research

COMM 2312: Technical and Professional Communication (3,0) This course builds on the writing and communication skills developed in COMM 1311, 1312, and 2311. Students will learn a variety of technical and professional writing techniques, will draft a professional resume, business letters, technical papers and memoranda, and will work in teams using technology to produce reports and presentations. **Prerequisites:** COMM 1311: Written Communication, COMM 1312: Writing and Research, COMM 2311: Oral Communication

Economics – ECON

ECON 1311: Introduction to Macroeconomics (3,0) The course studies resources and goals of the economy, national income, employment, money and banking, fiscal and monetary policy, contemporary problems, economic growth, and international economics. **Prerequisite**: None. ECON 1311 may be taken before or after ECON 1312, or only one of the courses may be taken.

ECON 1312: Introduction to Microeconomics (3,0) The course studies markets, resource allocation, consumer and producer behavior, production, costs, market structure, and the role of government in a market economy. **Prerequisite**: None. ECON 1312 may be taken before or after ECON 1311, or only one of the courses may be taken.

Geography – GEGR

GEGR 1311: World Regional Geography (3,0) The course is primarily a survey of physical and cultural patterns of the world. It presents a broad overview of geographical features such as landforms, language of maps, graphs, languages, climates, and other aspects of each particular world region. **Prerequisite**: None

Geology – GEOL

GEOL 1411: Introductory Physical Geology (3,1) GEOL 1411 provides students with a foundation in basic geological principles. Students will gain familiarity with the geological world, including the earth's composition and geologic processes. An important component will be an understanding of the interactions between humans, human civilization, and the geologic process. Additionally, students will learn about geologic hazards and how they can be overcome or contained. Students will learn to integrate geological material into the broader world around them, and develop critical thinking and problem solving skills involving quantitative data from the natural sciences. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory. **Prerequisite**: None

History – HIST

HIST 1311: World Civilizations, 1600 – Present (3,0) This course is a survey of the development of the major civilizations of the world from 1600 to the present. HIST 1311 stresses the dynamism and expansion of the West, the interpenetration of cultures in the modern era, and the resurgence of non-Western independence in the 20th century. **Prerequisite**: None

Mathematics – MATH

MATH 1311: Finite Mathematics for Students of Business (3,0) This course covers topics from the mathematics of finance that should be familiar to all students seeking careers in the business world. These include mathematics related to supply, demand and cost analysis; interest, annuity and investments; probability and decision making; and Markov processes. Students should acquire the necessary mathematical basis for further study in economics and finance. **Prerequisite:** The algebraic manipulation skill commensurate with that gained in the Preparation Year Program.

MATH 1312: Calculus for Students of Business (3,0) This course covers topics from calculus that should be particularly useful for students studying economics and finance. Such topics include regression analysis, mathematical modeling, rate of change, and marginal analysis from differential calculus. Topics covered from integral calculus include optimization and area calculations as they apply to average value, value of continuous income flows, coefficients of inequity, and consumer and producer surplus. Students should acquire the necessary mathematical knowledge and skills for further study in economics and finance. **Prerequisite:** MATH 1311: Finite Mathematics for Students of Business.

MATH 1313: Statistical Methods (3,0) Statistical Methods covers statistical models and methods of analyzing data. These include estimation, tests of significance, analysis of variance, linear regression, and correlation. Students will acquire the necessary statistical basis for using available information to make rational decisions **Prerequisite:** The algebraic manipulation skill commensurate with that gained in the Preparation Year Program.

MATH 1321: Pre-Calculus Mathematics (3,0) Pre-Calculus Mathematics covers those topics needed for successful completion of Calculus I. Such topics include modeling with functions: linear, quadratic, exponential, and logarithmic. In addition, trigonometric functions with the related laws and identities are covered in some detail. Students should acquire the necessary mathematical knowledge and skills for further studies in calculus and engineering. **Prerequisite:** The algebraic manipulation skill commensurate with that gained in the Preparation Year Program.

MATH 1422: Calculus I (3,1) Calculus I covers topics from differential calculus with an introduction to integration. Topics include limits of functions, concept of differentiation of one variable with rules for differentiation, and applications of derivatives involving related rates, optimization, and curve sketching. Integration is introduced and the Fundamental Theorem of Calculus is covered. Students should acquire the necessary mathematical knowledge and skills for further study in calculus and engineering. The course will be taught in the lecture format, one hour per class, three hours per week, with an additional one-hour problem-solving recitation. **Prerequisite:** MATH 1321: Pre-Calculus, or skills and knowledge thereof as measured by placement tests.

MATH 1423: Calculus II (3,1) Calculus II is the continuation of MATH 1422: Calculus I. It covers topics from integral calculus of one variable, infinite sequences and series, and vectors. Students continue to acquire the necessary mathematical knowledge and skills for further study in calculus and engineering. The course will be taught in the lecture format, one hour per class, three hours per week, with an additional one-hour problem-solving recitation. **Prerequisite:** MATH 1422: Calculus I.

MATH 1324: Calculus III (3,0) Calculus III is the continuation of MATH 1423: Calculus II and the final course in the pre-engineering calculus sequence. It covers topics from multivariable calculus including vector-valued functions, multiple integration, and vector analysis. Students complete their acquisition of the necessary mathematical knowledge and skills for further study in engineering. **Prerequisite:** MATH 1423: Calculus II

MATH 2331: Linear Algebra (3,0) Linear Algebra covers topics from linear algebra including vector spaces, linear transformations and matrices, matrix operations, and eigenvectors and eigenvalues. Students acquire mathematical knowledge and skills with matrices, linear systems, and vector spaces necessary for further study in engineering. The course will be taught in the lecture format, one hour per class, three classes per week. **Prerequisite:** MATH 1324: Calculus III

MATH 2332: Ordinary Differential Equations (3,0) This course covers topics involving single variable differential equations. These include methods for solving first and second order differential equations, Laplace Transforms, and Fourier Series and Transforms. Students acquire mathematical knowledge and skills to model and solve problems arising from engineering. The course will be taught in the lecture format. **Prerequisites:** MATH 1324: Calculus III and MATH 2331: Linear Algebra.

Physics – PHYS

PHYS 1411: Introductory Physics (3,1) PHYS 1411 will investigate the fundamental principles that underlie the behavior of the universe. The approach will be largely a conceptual one that leads to an understanding of physics rather than just the ability to solve mathematical problems that are examples of physics. Students will gain familiarity with the forces and laws of nature that govern the physical world, from the sub-atomic to astronomical levels. Importantly, students will be guided through concepts in physics that ultimately let them recognize important, practical applications in the everyday world of fundamental physical principles. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory. **Prerequisite:** Advanced high school mathematics. Successful completion of an introductory course in biology, geology, chemistry, or physics at the high school level is recommended.

PHYS 1421: Physics for Engineers I (3,1) PHYS 1421 is to create a base for a two-semester physics sequence to provide the additional physics required by engineering students prior to specialized courses in engineering physics applications. The approach, like that of the following semester PHYS 1422, will be largely a conceptual leading to an understanding of physics rather than just the ability to solve mathematical problems that are examples of physics. Students in this course will gain familiarity with single particle kinematics and dynamics, multi-particle systems, rotational motion, oscillations, waves and sound. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory that accompanies it **Prerequisites:** MATH 1321: Pre-Calculus

PHYS 1422: Physics for Engineers II (3,1) The objective of the course is to build upon the base offered in PHYS 1421, and provide the additional physics required by engineering students prior to specialized courses in engineering physics applications. The approach will be largely conceptual leading to an understanding of physics rather than just the ability to solve mathematical problems that are examples of physics. Students in this course will gain familiarity with electricity, magnetism, nuclear physics and how light interacts with matter. This course is in the format of a three-credit lecture session and a mandatory, separately scheduled one-credit laboratory that accompanies it. **Prerequisite:** PHYS 1421: Physics for Engineers I, MATH 1422: Calculus I.

Psychology – PSYC

PSYC 1311: Introduction to Psychology (3,0) This course is an introduction to fundamentals of psychology including an overview of the concepts and methods of such areas as perception, learning, motivation, memory, development, personality, abnormal, and social psychology. **Prerequisite**: None

University Core – UNIV

UNIV 1211: Professional Development and Competencies (2,0) The objective of this course is to use basic skills of learning and time and apply these skills toward competencies related to the student's chosen field. Students are introduced to the opportunities, required skills, challenges, and ethics of their chosen field, as well as to the expectations of prospective employers and accrediting agencies (where applicable). **Prerequisite:** None

UNIV 1212: Critical Thinking and Problem Solving (2,0) This course covers basic topics involving critical thinking and problem solving. These include deductive and inductive reasoning, values and ethics, fallacy, and causality. The students will learn how to analyze and present valid arguments. **Prerequisite:** UNIV 1211: Professional Development and Competencies.

UNIV 1213: Leadership and Teamwork (2,0) The purpose of this interdisciplinary course is to introduce students to the characteristics of leadership. Students gain a broad understanding of the theoretical approaches to leadership and teamwork and the core concepts of contemporary leadership. Mastering the fundamental concepts increases the student's ability to apply these concepts to his or her own life experience. **Prerequisite:** UNIV 1211: Professional Development and Competencies, UNIV 1213: Critical Thinking and Problem Solving

COLLEGE OF ENGINEERING

College of Engineering
Office: Insert Building, Room
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_____, Ph. D., Dean

COLLEGE OVERVIEW

The College of Engineering accepts successful male students from the PMU Preparation Year Program or other qualified male students into degree programs in engineering.

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

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

Mission

The PMU 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
Bachelor of Science in Electrical Engineering
Bachelor of Science in Interior Design
Bachelor of Science in Mechanical Engineering.

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 Preparation Year 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 Preparation Year 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 essay required by the PMU Admissions Committee.

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 Preparation Year Program

The PMU Preparation Year 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 Preparation Year Program.

Students seeking entrance to the Department of Interior Design should take PRPM 0012: Intermediate Algebra, during the second semester of the Preparation Year 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 the PMU 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 includes 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 will have access to the university-wide technology-infused environment including wireless Internet access.

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

Students in interior design also will 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 the PMU 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 the PMU 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 the PMU 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, If these, 91 credit hours are common to all three degrees.

Major in Interior Design

The PMU 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 will 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 will have the opportunity to integrate multiple aspects and concepts of interior design into their projects. Electives will provide students an opportunity to freely select additional courses from 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 the PMU Interior Design Program, the department emphasizes the use of technology and its application to creative problem solving. This focus provides students with the necessary skills for working for a range of employers while being physically located in their homes.

Capstone Series – Civil, Electrical, and Mechanical Engineering

The PMU 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 will be 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 the student intends to seek after graduation, the course will include skills and subject-matter the student has learned in earlier classes including concepts, procedures, and processes. The project will include a complete set of drawings for design and construction, furniture specifications, and a formal presentation package of professional quality. The result will provide the major project for the student's professional portfolio of work.

Internships for PMU 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 the PMU 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 139 credit hours:

Expanded PMU Core Curriculum. This expanded core curriculum consists of 72 hours of coursework as described on page 53.

The College of Engineering Requirements. These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix as described on page 53.

Degree Program Requirements. These requirements consist of 34 hours of course work in civil engineering as follows:

MEEN 2312: Statics and Dynamics of Rigid Bodies II
CVEN 3222: 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 six 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 as described on page 53.

The College of Engineering Requirements. These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix as described on page 53.

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 140 credit hours:

Expanded PMU Core Curriculum. This expanded core curriculum consists of 72 hours of coursework as described on page 53.

The College of Engineering Requirements. These requirements consist of 19 hours of coursework contained in the seven courses designated with the GEEN prefix as described on page 53.

Degree Program Requirements. These requirements consist of 40 hours of course work in mechanical engineering as follows:

MEEN 2312: Statics and Dynamics of Rigid Bodies II
MEEN 2313: Mechanics of Solids
MEEN 3211: Materials Engineering I
MEEN 3212: Materials Engineering and Selection
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 (HVAC)
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: Turbomachinery
MEEN 4341: Corrosion Engineering
MEEN 4392: Advanced Control Systems
MEEN 4344: Materials in Design
MEEN 4351: Intermediate Dynamics

Interior Design

The PMU Interior Design Curriculum will consist of 127 semester credit hours, including 6 hours of electives. The program consists of three basic components:

The PMU 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 the 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: 139

Freshman Program

First Semester	*Hours*
ALIS 1211: Arabic Language / Islamic Studies	2
PHED 1111: Physical Education	1
COMM 1311: Written Communication	3
UNIV 1211: Professional Development and Competencies	2
MATH 1422: Calculus I	4
CHEM 1421: Chemistry for Engineers I	4
GEEN 1211: Introduction to Engineering	2
Total Hours:	**18**

Second Semester	*Hours*
ALIS 1212: Arabic Language / Islamic Studies	2
PHED: 1112: Physical Education	1
COMM 1312: Writing and Research	3
UNIV 1212: Critical Thinking and Problem Solving	2
MATH 1423: Calculus II	4
PHYS 1421: Physics 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
COMM 2311: Oral Communication	3
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:	**18**

Second Semester	*Hours*
ALIS 2212: Arabic Language / Islamic Studies	2
COMM 2312: Technical and Professional Communications	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 3222: Materials in Civil Engineering	2
GEEN 2313: Thermodynamics I	3
CVEN 3312: Reinforced Concrete Design	3
CVEN 3341: Engineering Measurements	3
CVEN 3331: Environmental Engineering Fundamentals	3
Total Hours:	**16**

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
PHED 1111: Physical Education	1
COMM 1311: Written Communications	3
UNIV 1211: Professional Development and Competencies	2
MATH 1422: Calculus I	4
CHEM 1421: Chemistry for Engineers I	4
GEEN 1211: Introduction to Engineering	2
Total Hours:	**18**

Second Semester	*Hours*
ALIS 1212: Arabic Language / Islamic Studies	2
PHED 1112: Physical Education	1
COMM 1312: Writing and Research	3
UNIV 1212: Critical Thinking and Problem Solving	2
MATH 1423: Calculus II	4
PHYS 1421: Physics 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
COMM 2311: Oral Communication	3
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:	**18**

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
PHED 1111: Physical Education 1
COMM 1311: Written Communication 3
UNIV 1211: Professional Development and Competencies 2
MATH 1422: Calculus I 4
CHEM 1421: Chemistry for Engineers 4
GEEN 1211: Introduction to Engineering 2
Total Hours: 18

Second Semester *Hours*

ALIS 1212: Arabic Language / Islamic Studies 2
PHED 1112: Physical Education 1
COMM 1312: Writing and Research 3
UNIV 1212: Critical Thinking and Problem Solving 2
MATH 1423: Calculus II 4
PHYS 1421: Physics 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
COMM 2311: Oral Communications	3
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:	**18**

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
MEEN 3333: Heat Transfer	3
MEEN 3392: Mechanical Engineering Design II	3
Total Hours:	**16**

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: Turbomachinery, 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: Turbomachinery, 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
PHED 1111: Physical Education 1
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: 15

Second Semester *Hours*

ALIS 1212: Arabic Language / Islamic Studies 2
PHED 1112: 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
COMM 2311: Oral Communication 3
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: 15

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 Practice 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 VI – 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.*

UNDERGRADUATE COURSES OFFERED BY THE COLLEGE OF ENGINEERING

Assessment – ASSE

Civil, Electrical and Mechanical Engineering

ASSE 4311: Learning Outcome Assessment III (3,0) The 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. Student 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) The 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 3222: 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) The objective of this course is to provide 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, 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) The objective of this course is to provide students with an understanding of the principles of physical geology and their practical applications to civil engineering. **Prerequisites:** CHEM 1421: Chemistry 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 ethic 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 3222: 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 system. 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 be able to address geotechnical problems typically faced by civil engineers. **Prerequisites:** CVEN 3222: 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 (0,3) 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 multimeters, 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 (2,2) 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 (2,3) 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 to development of the ability to integrate the basic knowledge. It 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, MATH 2331: Linear Algebra

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 (3,3) 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; Bode plots. 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 (3,3) 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 multivibrator circuits, power amplifiers, and pulse and switching circuits. Its laboratory component covers the design and analysis of electronic circuits for digital and analog applications to a set of prescribed criteria. **Prerequisite:** EEEG 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 (2,3) 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 (2,3) 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 (2,3) 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 (2,3) 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, and EEEN 4391: Advanced Applied Mathematics. Concurrent registration in EEEN 4371: Electric Power Systems

EEEN 4391: Advanced Applied Mathematics (3,0) This course coves 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

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) The course involves equilibrium of rigid bodies, resultants of force systems, centroids, and moments of intertia. 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) The 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 also is taught, enabling students to solve mathematical problems with this tool. **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 (3,1) 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 foundations class 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) The 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) The 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, InDesign 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

IDES 3321: Interior Building Systems I (3,0) This lecture 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 lecture 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) The 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) The 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 interior design courses.

IDES 3342: History of Furniture, Decoration, and Interior Design II (3,0) The 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 gives an appreciation for humankind's achievements and aids in understanding current design trends. **Prerequisite:** IDES 3341: History of Furniture, Decoration, and 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 of practice with a concept-driven design solution. **Prerequisite:** Third year standing in the interior design program.

IDES 3412: Interior Design Studio VI – Hospitality (1,3) In this course, 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 semester junior.

IDES 4337: Sustainable Design (3,0) The 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 (1,3) The 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 senior.

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 and GEEN 3311: Introduction to Fluid Mechanics

MEEN 3391: Mechanical Engineering Design I (3,0) The first course in the Mechanical Engineering design sequence 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 2335: Differential Equations

MEEN 3392: Mechanical Engineering Design II (3,0) The second course in the mechanical engineering design sequence 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) The third course in the mechanical engineering design sequence introduces introduce 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 3313: Mechanics of Solids

MEEN 4301: Mechanical Engineering Lab I (1,4) 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:** MEEN 3312: Introduction to Fluid Mechanics, MEEN 3322: Thermodynamics II, MEEN 3333: Heat Transfer

MEEN 4302: Mechanical Engineering Lab II (1,4) 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 of mechanics, mechanisms, and controls as they develop physical understanding through experimentation. **Prerequisites:** MEEN 2313: Mechanics of Solids, MEEN 3393: Engineering Design III

MEEN 4311: Principles of Heating, Ventilating, and Air Conditioning (HVAC) (3,0) The 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) The 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) The 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 processes 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: Turbomachinery (3,0) This course applies the thermal 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, MEEN 3333: Heat Transfer (co-requisite)

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 (2,3) The 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, MEEN 3393 Mechanical Engineering Design III (co-requisite)

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

COLLEGE OF INFORMATION TECHNOLOGY

College of Information Technology
Office: Insert Building, Room
Phone: Insert Phone Number
FAX: Insert Fax Number
e-mail: Insert e-mail of Dean

_____, Ph.D., Dean

COLLEGE OVERVIEW

The College of Information Technology provides the structure and organization for male and female students to successfully pursue degree programs in Information Technology, Computer Science, and Computer Engineering at the undergraduate level.

Vision and Mission

Vision

The College of Information Technology will provide a unique and distinguished academic unit that participates in:

- Preparing future Information Technology and Computer Science and Engineering professionals and leaders who can support the emergence of Saudi Arabia as a global IT resource.
- Enriching and developing Information Technology intellectual resources.
- Exploring innovative instructional methodologies and technologies to provide the highest quality effective preparation of information technology professionals.
- Establishing communication and the exchange of ideas between the academic and business communities

Mission

The College of Information Technology will achieve the following objectives:

- Contribute to advancement of human intelligence and to the promulgation and development of knowledge and understanding in the Information Technology domain.
- Prepare professionals in Information Technology and Computer Science and Engineering, through the utilization of innovative educational processes, in a modern technological environment.
- Transform the graduate to play a pioneering and leading role in the community, enabling him or her to take responsibilities and contribute to solving problems through innovative thinking, collective work, reflection, and self-development.

- Link academic programs and specializations with actual requirements of the surrounding work environment. This will be achieved by maintaining effective partnerships between the university and local business and industry.
- Guide research activities to create solutions for persistent problems in surrounding communities through applied research and technical consultation. The importance of performing basic scientific research for enriching human intelligence should not be neglected.
- Provide community service through continuous training and education.

Degrees Offered

The College of Information Technology offers the following degree programs:

Bachelor of Science in Information Technology
Bachelor of Science in Computer Science
Bachelor of Science in Computer Engineering.

ADMISSIONS PROCESS AND REQUIREMENTS

Admission to the College of Information Technology is open to students who have successfully completed the PMU Preparation Year Program or who have met the university criteria for bypassing the program.

The degree programs in the College of Information Technology are designed to accept both male and female students**.**

Required Courses in the Preparation Year Program

The PMU Preparation year 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 the College of Information Technology are required to take PRPM 0022: Pre-Calculus, during the second semester of the Preparation Year Program.

PERFORMANCE EXPECTATIONS

Required Grade Average

The College of Information Technology provides for minimum standards of academic performance from its students. Using a 4.0 scale for course grades, the College of Information Technology requires 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 IT students must complete beyond the minimum requirement)

2.25 in all courses required by the college (courses with the GEIT prefix)

2.5 in all courses within the academic discipline

A student who receives a D or F in any course is required to repeat the course (in the case of an elective, another elective may be selected) and to achieve the required grade point.

These students will be required to participate in tutoring and remediation programs offered by the college faculty and the PMU Learning Resources Center.

Student Computing Requirements

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

Students in the college will have additional specific computing requirements that extend beyond the standard Microsoft Office applications of a typical laptop. They will require access to compilers, design tools, and specialized computing environments.

COMPONENTS OF DEGREE PROGRAMS

The degree programs in the College of Information Technology consist of 128-133 semester credit hours.

Majors in IT, Computer Science, Computer Engineering

Each of the degree programs offered within the College of Information Technology 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.

Degree-Specific Requirements. Each degree program has its own requirements for additional courses from the College Core Curriculum in support of the degree program. Those courses will primarily be drawn from mathematics and laboratory science courses. The degree-specific requirements are unique to each degree program.

College of Information Technology Requirements**.** These requirements will consist of seven courses totaling 22 credit hours that are common to all degree programs within the College of Information Technology. They represent a base of knowledge that is presumed for all IT and computing professionals. The courses within the College of Information Technology that meet these requirements are designated with the prefix GEIT. The courses include the following:

GEIT 1411: Computer Science I
GEIT 1412: Computer Science II
GEIT 1311: Computer Organization
GEIT 2291: Professional Ethics
GEIT 3341: Database Design
GEIT 3351: Software Engineering I
GEIT 4351: Software Engineering II

Degree Program Requirements**.** Each degree program has unique requirements that different it from others within the college.

Electives. Each degree program identifies the available electives and any constraints that apply to the elective selection.

Capstone Series

Building on the sophomore and junior level Capstone Series courses required by the PMU Core Curriculum, the college's series is comprised of three courses, GEIT 3351: Software Engineering I, GEIT 4351: Software Engineering II and ASSE 4311: Learning Outcome Assessment III. Each course in the series centers on a different facet of software engineering.

GEIT 3351: Software Engineering I examines the theory and practice of software development and maintenance with the focus being on the full software development life cycle, including coverage of tools, techniques, principles, and guidelines for software requirements, specification, design and implementation.

GEIT 4351: Software Engineering II focuses on the application of that theory and practice in the design of a solution to a significant software engineering problem. This course will culminate in the development of full design documentation for such a solution.

ASSE 4311: Learning Outcome Assessment III concentrates on the implementation, testing, debugging and maintenance of a designed software engineering solution.

COURSES REQUIRED FOR MAJORS

Information Technology

The Bachelor of Science in Information Technology is comprised of five components:

The PMU Core Curriculum. This core curriculum consists of 60 hours of coursework as described on page 87.

The College of Information Technology Requirements. These requirements consist of 22 hours of coursework contained in the seven college courses designated with the GEIT prefix as described on page 88.

Degree-Specific Requirements. These requirements represent support courses in mathematics, laboratory science and business. These requirements both specify and extend Core Curriculum requirements. The degree-specific requirements add 7 credit hours to the degree program.

The Information Technology degree program extends the PMU College Core Curriculum mathematics requirement from six to nine semester credit hours of mathematics and specifies that the courses will be:

MATH 1311 Finite Mathematics for Business
MATH 1331 Pre-Calculus Mathematics
MATH 1321 Statistical Methods

The Information Technology degree program extends the PMU College Core Curriculum requirement in Natural and Physical Sciences from eight to 12 semester credit hours and specifies that the courses will be:

PHYS 1412 Physics for Engineers I
PHYS 1413 Physics for Engineers II
Natural Science elective

The Degree Program Requirements. These requirements consist of 27 hours of coursework as follows:

ITAP 2381: Operations Research
ITAP 2431: Network Management
ITAP 3471: Web Server Management
ITAP 3381: Business Process Redesign
ITAP 3382: Business Intelligence
ITAP 3383: Enterprise Resource Planning Systems
ITAP 3431: Network Security
ITAP 4371: e-Commerce

Electives. The Information Technology degree program requires six semester credit hours from the College of Business Administration including:

A three-hour Management Information Science elective
Any other three-hour course from the College of Business Administration

The Information Technology Degree Program requires three semester credit hours of electives to be taken from an approved list of 3000 level and 4000 level courses within the College of Information Technology. The course GEIT 4361: Practical Training also may be taken as an elective.

Computer Science

The Bachelor of Science in Computer Science is comprised of four components:

The PMU Core Curriculum. This core curriculum consists of 60 hours of coursework as described on page 87.

The College of Information Technology Requirements. These requirements consist of 22 hours of coursework contained in the seven college courses designated with the GEIT prefix as described on page 88.

Degree-Specific Requirements. These requirements represent support courses in mathematics, laboratory science and business. These requirements both specify and extend Core Curriculum requirements. The degree-specific requirements add 12 credit hours to the degree program.

The Computer Science degree program extends the PMU College Core Curriculum mathematics requirement from six to 14 semester credit hours and specifies that the courses will be:

MATH 1432: Calculus I
MATH 1433: Calculus II
MATH 1321: Statistical Methods
MATH 2332: Linear Algebra

The Computer Science degree program extends the PMU College Core Curriculum requirement in Natural and Physical Sciences from eight to 12 semester credit hours and specifies that the courses will be:

PHYS 1412: Physics for Engineers I
PHYS 1413: Physics for Engineers II
Natural Science elective

The Degree Program Requirements. These requirements consist of 27 hours of coursework as follows.

COSC 2332: Discrete Structures
COSC 3343: Database Theory
COSC 3351: Algorithms
COSC 3411: System Programming
COSC 3421: Data Structures
COSC 4361: Operating Systems
COSC 4362: Artificial Intelligence
COSC 4363: Automata Theory
COSC 4461: Programming Languages

Electives. The Computer Science Degree Program requires six to eight semester credit hours of elective to be taken from an approved list of 4000 level courses within the College of Information Technology. The course GEIT 4361: Practical Training also may be taken as an elective.

Computer Engineering

The Bachelor of Science in Computer Engineering is comprised of five components:

The PMU Core Curriculum. This core curriculum consists of 60 hours of coursework as described on page 87.

Degree Specific Requirements. These requirements represent support courses in mathematics, laboratory science and business. These requirements both specify and extend Core Curriculum requirements. The degree-specific requirements add 15 credit hours to the degree program.

The Computer Science degree program extends the PMU College Core Curriculum mathematics requirement from six semester credit hours to 17 hours and specifies that the courses be:

MATH 1422: Calculus I
MATH 1423: Calculus II
MATH 1324: Calculus III
MATH 2332: Differential Equations
MATH 2331: Linear Algebra

The Computer Science degree program extends the PMU College Core Curriculum Natural and Physical Sciences requirement from eight to 12 hours and specifies that the courses be:

PHYS 1421: Physics for Engineers I
PHYS 1422: Physics for Engineers II
Natural Science elective

The College of Information Technology Requirements. These requirements consist of 22 hours of coursework contained in the seven college courses designated with the GEIT prefix as described on page 88.

The Degree Program Requirements. These requirements consist of 24 hours of coursework as identified below.

COEN 2311: Circuits I*
COEN 2111: Circuits I Lab
COEN 3421: Electronics I*
COEN 3323: Digital Systems*
COEN 3312 : Circuits II*
COEN 3322: Signals and Systems*
ITAP 3431: Network Security
**Courses cross-listed with the General Engineering and Electrical Engineering curriculum*

Electives. The Computer Science Degree Program requires six to eight semester credit hours of electives to be taken from an approved list of 4000 level courses within the College of Information Technology. The course GEIT 4361: Practical Training also may be taken as an elective.