ENGR 1211 Foundations of Engineering I

Course Description

Introduction to the engineering profession, ethics and disciplines; development of the skills in teamwork, problem solving and design; other topics include computer applications and programming, visualization, orthographic drawings and CAD tools; introduction to electrical circuits, semiconductor devices, digital logic, signal processing, modern control, communications and their application in systems, Newton’s laws, unit conversion, statistics, Excel, and basic graphic skills.

Learning Objectives:

At successful completion course that student will be able to:

- Describe the roles and responsibilities of engineers and technologists, and what are expected of them
- Understand and use experimental and data collection procedures used in the technical laboratory
- Analyze and explain experiments and experimental data
- Identify and apply the basic principles of and scientific method of problem solving and engineering problem solving
- Define professional and ethical responsibilities in the engineering profession
- Analyze ethical issues in case studies
- Use hardware and software tools to solve basic engineering problems
- Demonstrate an ability to communicate effectively
- Apply dimensional analysis techniques
- Analyze processes using histograms and statistical process control techniques

Major Course Requirements

No Prerequisites
Academic Integrity/Plagiarism

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in academic penalty, up to and including expulsion.

Dropping a Class

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. November 7 (i.e. 11/07/2014) is the last day to drop a class with an automatic grade of “W” this term.

Classroom/professional behavior

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

Statement of Civility

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational
experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Grade Appeals

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disabilities Accommodations

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Statement of Academic Continuity

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

Grades:

Your course grade will be determined by your performance in the homework assignments, lab experiments/exercises, quizzes, two exams, and a final exam. The distribution of points is as follows:

- Two Mid-Term Exams 30%
- Homework 30%
- Pop Quizzes 5%
- Lab Experiment Reports 10%
- Final Exam 25%

Grades will be assigned using the following scale:

A: 100-90, B: 89-80, C: 79-70, D: 69-60, and F: 59-0.

Required or Recommended Readings


Exams

The first mid-term exam is scheduled for week 8, and the second in week 12 during scheduled class time. The final exam is comprehensive and as scheduled by the university. No makeup exams are allowed without prior permission of the instructor (Very difficult to obtain).
### Tentative Course Schedule (Subject to change)

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<th>WEEK</th>
<th>Date</th>
<th>Reading</th>
<th>Lecture Topics</th>
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<tr>
<td>1</td>
<td>08/28</td>
<td>Chap 1</td>
<td>Review of Syllabus; General information</td>
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<tr>
<td>2</td>
<td>09/02</td>
<td>Chap 1</td>
<td>Engineering/Technology Career Choices</td>
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<tr>
<td>3</td>
<td>09/09</td>
<td>Chap 2</td>
<td>Ethics and Professionalism; Engineer expectations, goals</td>
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<td>4</td>
<td>09/16</td>
<td>Chap 3, 6</td>
<td>Solving Engineering Problems (Engineering Problem Solving, Scientific Method); Design and Teamwork</td>
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<td>5</td>
<td>09/23</td>
<td>Chap 4</td>
<td>Engineering Communication;</td>
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<td>6</td>
<td>09/30</td>
<td>Chap 5, 7</td>
<td>Estimation; Data presentation: Graphs, Charts, Diagrams</td>
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<td>7</td>
<td>10/7</td>
<td>Chap 8,9</td>
<td>Interpolation; Elementary Statistics; The Calculator</td>
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<td>8</td>
<td>10/14</td>
<td>Chap 10</td>
<td>Measurement Systems; Geometry and Trigonometry for Engineering Applications</td>
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<td>9</td>
<td>10/21</td>
<td>Chap 11, 12</td>
<td>Universal Units; Dimensionless numbers Environmental; Health and Safety Issues; Engineering Tools</td>
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<td>10</td>
<td>10/28</td>
<td>Chap 13, 14</td>
<td>Tools for Engineering Computations: Excel</td>
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<td>11</td>
<td>11/4</td>
<td>Chap 15, 16</td>
<td>Mathematical Models and Systems</td>
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<td>12</td>
<td>11/11</td>
<td>Chap 17</td>
<td>Engineering Tools and Programming (Introduction to MATLAB)</td>
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<tr>
<td>13</td>
<td>11/18</td>
<td>Chap 18</td>
<td>Engineering Tools and Programming (MATLAB)</td>
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<td>14</td>
<td>11/25</td>
<td>Chap 19</td>
<td>Logic and Conditionals</td>
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<td>15</td>
<td>12/02</td>
<td>Handouts</td>
<td>Review</td>
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<tr>
<td>16</td>
<td>12/09</td>
<td>Handouts</td>
<td>Based on university schedule</td>
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**Final Exam is based on University Schedule**