ENGR 1211 Foundations of Engineering I  
Department of Engineering  
Fall 2017

A. COURSE INFORMATION

Course number/section: ENGR 1211.001_201  
Class meeting time: M 8:00-8:50 a.m. (lecture), 9:00-10:50 a.m. (lab)  
Class location: CS111 (lecture), EN316 (lab)  
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructor: Rafael Fox  
Office location: EN 216  
Office hours: M 11:00-12:00 p.m. and by appointment  
Telephone: (361) 825-2593  
e-mail: rafael.fox@tamucc.edu  
Appointments: Send an e-mail request for appointment, with proposed time as needed.

C. COURSE DESCRIPTION

Catalog 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.

D. PREREQUISITES AND COREQUISITES

None.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

May be found here:
https://www.amazon.com/Thinking-Like-Engineer-Learning-Approach-ebook/dp/B00JBN3UCM/ref=mt_kindle?_encoding=UTF8&me=

May use the 4th Edition, it is what the bookstore has:
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

(a) an ability to apply knowledge of mathematics, science, and engineering

(e) an ability to identify, formulate, and solve engineering problems

(i) a recognition of the need for, and an ability to engage in life-long learning

By the end of this course, students should be able to:

1. Describe the roles and responsibilities of engineers and technologists, and what are expected of them.
2. Identify and apply the basic principles of the scientific method of problem solving and engineering problem solving.
3. Define professional and ethical responsibilities in the engineering profession
4. Demonstrate an ability to use Engineering Tools such as Excel, MATLAB.
5. Apply basic math principals and physical sciences to analyze engineering problems.
6. Apply programming to solve problems.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Lab-based lecture will be used in this course. Instructor will engage the lecture materials with practical engineering project closely. Through participating in several interesting engineering projects, students could learn the course knowledge much better.
H. MAJOR COURSE REQUIREMENTS AND GRADING

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

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
<th>Total Score</th>
<th>Tentative Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10</td>
<td>90 ≤ total</td>
<td>A</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15</td>
<td>80 ≤ total &lt; 90</td>
<td>B</td>
</tr>
<tr>
<td>Lab reports/Exercise/Project</td>
<td>15</td>
<td>70 ≤ total &lt; 80</td>
<td>C</td>
</tr>
<tr>
<td>Midterm Exam I</td>
<td>15</td>
<td>60 ≤ total &lt; 70</td>
<td>D</td>
</tr>
<tr>
<td>Midterm Exam II</td>
<td>15</td>
<td>total &lt; 60</td>
<td>F</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance*</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Folder**</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
<td></td>
<td></td>
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</tbody>
</table>

**Course Folder**

This consists of a simple letter size two pocket folder where all graded and returned assignments will be placed. On the left side place Exams (1 & 2) followed by Quizzes (1 to ?), then HW (1 to ?). On the right side place your labs (1 to ?). It must be complete and organized for full credit as follows: 50% for completeness and 50% for organization.
I. COURSE CONTENT/SCHEDULE

**TENTATIVE WEEKLY SCHEDULE (subject to change)**

<table>
<thead>
<tr>
<th>WK</th>
<th>Week of</th>
<th>Readings</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/28</td>
<td>----</td>
<td>Classes Cancelled</td>
</tr>
<tr>
<td>2</td>
<td>9/4</td>
<td>----</td>
<td>Labor day - No class</td>
</tr>
</tbody>
</table>
| 3  | 9/11    | Ch. 1/2  | Review of Syllabus; General information  
1- Engineering/Technology Career Choices  
2- Ethics and Professionalism; Engineer expectations, goals |
| 4  | 9/18    | Ch 3     | Solving Engineering Problems (Engineering Problem Solving, Scientific Method);Design and Teamwork |
| 5  | 9/25    | Ch 5/7   | 5- Estimation; Engineering Notation - Prefix  
7- Measurement Systems; Unit Conversion |
| 6  | 10/2    | Ch 8     | Universal Units – Force (Statics Problem), Weight, Density, Temperature |
| 7  | 10/9    | Ch 8     | Universal Units – Energy, Power Electrical Concepts |
| 8  | 10/16   | Ch 10    | Tools for Engineering Computations: Excel |
| 9  | 10/23   | Ch 11    | Plots and Interpreting Plots |
| 10 | 10/30   | Ch 12    | Mathematical Models and Systems |
| 11 | 11/6    | Ch 12    | Mathematical Models and Systems |
| 12 | 11/13   | Ch 15,16 | Introduction to MATLAB - calculations |
| 13 | 11/20   | ----     | No Class |
| 14 | 11/27   | Ch 17,18 | Introduction to MATLAB programming |
| 15 | 12/4    | Open / Review |
| 16 |     | Final Exam: FRIDAY Dec 8 @ 8:00am – 10:30am | FINAL |

* Changes in this course schedule may be necessary and will be announced to the class by the Instructor.

* Exam 1, & 2 Dates are tentatively given within that week, not necessarily on Monday. Exact day of Exam is given one week in advance. No exam makeup is given unless for legitimate cause (a scheduled vacation, wedding, or airline flight is not a legitimate cause).

NOTE1: Labor Day Holiday 9/4 - No classes
NOTE2: Last day to drop a class 11/15
NOTE3: Reading Days 11/22 - No classes
NOTE4: Campus is closed for Thanksgiving, 11/23-11/24
NOTE5: The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
J. COURSE POLICIES

Attendance/Tardiness
You must attend all lectures and laboratories. Grading for Attendance will be deducted after the first absence without a legitimate excuse/cause. Starting with the second absence a $\frac{1}{2}$% deduction from attendance will apply.

You are responsible for any materials covered or handed out or announcements made in your absence, therefore make arrangements with classmates when this happens. Records of your attendance will be maintained. Tardiness without the prior consent of the instructor is not accepted and will be penalized. Being tardy consistently without consent can be basis to be removed from class or not be permitted to enter class. This is a disruption to other classmates, impolite and not of an ethical person.

Late Work and Make-up Exams
Late work, scheduled exam absences or No-show on lab/project will not be accepted unless there exists legitimate excuses (illness, death in the immediate family, etc.) and adequate documentation is furnished.

Cell Phone Use
Cell phone use is prohibited once class begins. They are to be silenced and put away where they are not seen. If a call is expected take it out of the class. Anyone that interrupts class due to cell phone will be asked to leave.

Laptop Use
Turn off the personal laptop. During the lecture time, the laptop is not needed. For the lab time, the personal laptop is allowed only when the instructor gives the permission.

Food in Class
Eating or drinking is NOT permitted in the classes. Students with food or drink will be asked to discard them, or leave the room.

Missed Exam
Missed exam will be scored as zero. No makeup exams are allowed without prior permission of the instructor (Very difficult to obtain).

K. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)
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 a failing grade.
During an assignment you are allowed to have only what is permitted by instructor, anything