Course Syllabus

George Mason University
Electrical and Computer Engineering Department

ENGR 107: Introduction to Engineering

Instructor: Dr. Craig Lorie
Office: New Engineering Building, room 3221
Phone: (703) 993 – 9616
Email: clorie@gmu.edu

Teaching Assistants: None.

Lecture and Recitation Sections
Lecture Tu / Th 4:30 – 5:45 pm Robinson B Bldg., Room 228

Textbook
Title: “Engineering Fundamentals and Problem Solving”, 5th Edition
Authors: Arvid Eide, Roland Jenison, Larry Northup, and Steven Mikelson

Office Hours
Dr. Craig Lorie
Monday 3:00 – 4:00 pm
Wednesday 4:00 – 5:00 pm

If you cannot attend the provided office hours, please feel free to contact me via email with questions that you have, or to schedule an alternate meeting time.

Course Website: http://ece.gmu.edu/~clorie/Spring10/ENGR-107/

Note when contacting Dr. Lorie: All emails MUST include “ENGR-107” in the subject line (followed by the actual subject). Failure to do so will delay or prevent a response.

Course Objectives
This class will introduce the student to the major engineering disciplines to help him/her make an educated decision about which career path to select. It will provide basic information about engineering ethics and professionalism, to teach him/her the importance of ethical, moral, and professional decision making in engineering. It will also provide an overview of some of the fundamental concepts in engineering, and develop basic problem-solving skills as applied to various engineering disciplines.

This class will also provide the student with the opportunity to gain engineering experience through in-class mini projects and a semester-long design project. Both will force the student to think creatively, work as a member of a team, design and build something to meet the specifications of the given problem, and complete the project within a specified time period.
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Topics to be covered in this course:

1. Engineering Disciplines
2. Engineering Ethics
3. Problem Solving
4. Estimation and Errors
5. Accuracy and Precision
6. Bodies in Static Equilibrium
7. Stress and Strain
8. Resistors and Resistor Networks
9. Ohm’s Law
10. Power
11. In-class mini projects
12. Semester-long group project

A more detailed schedule of the topics covered in lecture is provided in a separate document.

Attendance
Attendance in class is mandatory. Attendance will be taken periodically. Failure to attend class will adversely affect your final grade. You are responsible for all material covered in class.

Homework
Homework will be assigned on a weekly basis, covering the material discussed in class that week. It is due at the beginning of class on the following Thursday. Homework submitted at the end of class will be assessed a 10% penalty. No late submissions will be accepted, as solutions will be posted on the Friday after it is due. If you have a problem with the submission deadline you must speak to me in advance to make alternate arrangements.

Homework is essential to learning the material. You should make an honest and conscientious effort on all of the homework assignments.

Each homework problem will be graded according to the following scale:

0  No significant effort was made to solve the problem.
5  A reasonable effort was made to solve the problem, but with an erroneous result.
10 A significant effort was made to solve the problem, and the correct result was obtained.

Tests
There will be two tests during the course of the semester. Both tests are closed book. You will, however, be allowed to use one side of an 8.5” x 11” sheet of paper on which to write your own notes. This “cheat sheet” may include anything you deem appropriate and/or useful, with the exception of previously solved problems. It must be submitted to me at the conclusion of the exam.

Test #1: Thursday, March 25, 2010
Test #2: Thursday, May 6, 2010
The Mini Projects

There will be two mini projects implemented during the course of the semester. Both will be allotted four class session during which you will complete the assigned project. Each mini project is composed of the following four parts:

1. Problem Analysis
2. Solution Design
3. Build and Test
4. Demonstrate and Report

You will be expected to demonstrate a working design to meet the specifications of the assigned project by the conclusion of the fourth in-class session. If time permits, you may work on the final report during the fourth class session; if time does not permit, you will be expected to complete the final report (with your partner) outside of class and submit it at the beginning of the following class session.

The details and specifications of each mini project will be provided in a separate document.

The Semester-long Design Project

The design project will provide each student with the opportunity to gain practical experience in the engineering design process. This semester-long project will require teamwork, creative thinking, time management, and proper budgeting. It will require each team to complete the design and construction of a functional object that meets the given set of specifications. Each team will be expected to demonstrate a working design at the conclusion of the semester. The grade received by the team members (for the design) will reflect the performance of the design.

The details and specifications of the semester-long project will be provided in a separate document.

Please note that all students should expect to spend considerable time outside of the classroom working on the project.

Written Report

A written report will be submitted by each group at the conclusion of the semester-long design project. The details and requirements for this report will be provided in a separate document.

Oral Presentation

An oral presentation will be presented/given/provided by each group at the mid-point of the semester. It will provide a detailed design review of the decisions and progress made on the semester-long design project. The details and requirements for this presentation will be provided in a separate document.
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**Grading**
Your final grade will be the weighted average of the homework, two semester tests, mini projects, semester-long project, oral presentation, and written report, as calculate from the formula below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Test #1</td>
<td>10%</td>
</tr>
<tr>
<td>Test #2</td>
<td>10%</td>
</tr>
<tr>
<td>Mini Projects</td>
<td>20%</td>
</tr>
<tr>
<td>Semester-long Project</td>
<td>15%</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td>10%</td>
</tr>
<tr>
<td>Written Report</td>
<td>15%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>5%</td>
</tr>
</tbody>
</table>

Letter grades will be assigned according to the following scale:

- 98 – 100 A+
- 93 – 97 A
- 90 – 92 A-
- 87 – 89 B+
- 83 – 86 B
- 80 – 82 B-
- 77 – 79 C+
- 73 – 76 C
- 70 – 72 C-
- 60 – 69 D
- < 60 F

Please note that the final grades will be scaled such that the class average is a 78 (C+) prior to assigning letter grades.
Honor Code
All rules of the GMU Honor Code system will be enforced.
You must review the rules of the GMU Honor Code and be familiar with them.
Honor code violations will be pursued and prosecuted to the fullest extent.

Classroom Etiquette
Cellphones are to be turned off during class; minimally they must be silenced. Emergency calls may be taken, but must be taken outside of the classroom.

Texting, using your laptop for something other than lecture-related work, etc. is considered a distraction to me and to the other students trying to learn in the class, and will not be tolerated.

Students with Disabilities
If special assistance is required or special accommodations need to be made, please contact me as soon as possible so that the proper arrangements can be made.