Instructor: Dr. Harold Camp  
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Office Hours: Fairfax: 6 PM to 7 PM Monday and Wednesday  
5 PM to 7 PM Thursdays  
Others by appointment

Course Description: ENGR 107 – Introduction to Engineering, Corequisite: MATH 105, or Math Placement Test score qualifying student for MATH 113.

Introduces engineering profession fundamentals and problem-solving. Topics include description of engineering disciplines, functions of the engineer, professionalism, ethics and registration, problem-solving and representation of technical information, estimation and approximations, and analysis and design.

The students will be introduced to the fields of Systems Engineering, Mechanical Engineering, and Electrical Engineering. A design project provides the students an opportunity to put into practice some of the engineering principles learned in the class and provides opportunities to develop teaming and communication skills.

Course Outline:  
• Introduction to the Engineering Profession  
• Problem Solving for the Engineer  
• Engineering Design Processes  
• Systems Engineering  
• Dimensions, Units, and Conversions  
• Vectors  
• Mechanical Engineering  
• Graphing Techniques and Curve Fitting  
• Electrical Engineering  
• Engineering Applications of Statistics

Text:  

Grades:  
10% Homework  
25% Mid-Term Exam  
25% Design Project  
40% Final Exam

Late homework will be penalized 10% per week late.

General:

1. You are expected to be punctual, alert, and prepared for each class. Be considerate of other students, i.e., be attentive for the duration of the class period,  
2. Do not surf the Internet during class time.  
3. Please feel free to ask questions or offer pertinent comments in class. If you are confused, more than likely, someone else is too.  
4. If you need extra help, please schedule an appointment in advance or visit me during regular office hours.  
5. Either leave your cell phone or other personal telephonic device behind or turn them off prior to entering the classroom.  
6. No inhaling, consuming, nor imbibing of nutritional or non-nutritional substances during lectures. You may eat or
drink something during the break.

Examinations:

Examinations are comprehensive over the work performed during the course and the course lecture material. Examinations will test you on the application of principles learned, not on your memorization skills. You will be expected to interpret the material of the course, not to repeat it via rote memory. The examinations are intended to enhance the student’s classroom experience and challenge the student to correctly apply the course material. Examinations are not designed to punish the student. Make-up exams will only be given to students with excused absences. Make-up exams must be arranged in advance of the exam date.

Policies & the Honor Code

Student projects in this course represent group work. Students are required to participate actively in group work and to be able to reproduce that work on the Mid-Term and Final Exam. Homework and other assignments in this course represent individual work. Students are encouraged to discuss assignments; however, each student is expected to turn in only that work he/she has performed. As always the GMU Honor Code holds. Stated in English, do the work by yourself. If you need help, see the instructor or the TA.

See: http://www.gmu.edu/catalog/apolicies/#Anchor12

Attendance Policy

Students are expected to attend each class, complete any required preparatory work, and participate actively in lectures, discussions, and exercises. Students with special needs/disabilities should inform the instructor during the first week of classes.

Departmental policy requires students to take exams at the scheduled time and place, unless there are truly compelling circumstances supported by appropriate documentation. Except in such circumstances, failure to attend a scheduled exam will result in a score of zero (0) for that exam.

Group Project:

The Group Project is a focal point of student effort within this course. The majority of effort toward the group projects will be expended outside of class, with class time being reserved for reporting on and discussing activities with the instructor. Criteria and guidance for these activities will be given in class. Each group selects one of three projects listed below and to be discussed in class. Each group will present their project to the class. In no case shall the materials for the project cost more than $50.00 (or $10.00 per group member). Following the successful demonstration of the project, each group will design and perform a number of experiments to characterize the project’s performance. Results shall be reported both graphically and statistically in the group’s final report.

Project 1: Design, build, and demonstrate a catapult. The catapult shall be no taller than 50 cm and be capable of propelling a marble a lateral distance of 5 m or more, but less than 6 m. The catapult shall have a control mechanism that will predict the distance the projectile is propelled to within 20 cm. The marbles shall be supplied by the instructor (i.e., not included in the $50.00 limit).

Project 2: Design, build, and demonstrate a mechanism that will propel a “Hot Wheels” car. The mechanism shall be no longer than 50 cm and be capable of propelling a “Hot Wheels” car a distance of 5 m or more, but no more than 6 m. The mechanism shall have a control mechanism that will predict the distance the “Hot Wheels” car is propelled to within 20 cm. The “Hot Wheels” car shall be supplied by the instructor (i.e., not included in the $50.00 limit).

Project 3: Design, build, and demonstrate an ejection seat. The ejection seat shall propel an egg (in whatever seat your group designs) vertically a distance of 2.5 m, but no more than 3m, and, upon landing, the egg shall not break 3 out of 5 times. The eggs used during the demonstration shall be raw and will be supplied by the instructor (i.e., not included in the $50.00 limit).

Class Schedule:

The first class is on August 25, 2008

No classes will be held on September 1, 2008 (Labor Day)
The October 13, 2008 (Columbus Day) class meets on October 14, 2008

The Mid-Term is on 15 October, 2008

The final class is 1 December, 2008

The Final Exam is on Wednesday December 10, 2008 from 4:30 p.m to 7:15 p.m