Syllabus for

ENGR 107: Engineering Fundamentals
Section 2, Call Number 73567
(Fall 2008 Semester)

Instructor: Carl G. Schaefer, Jr., adjunct professor.

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Phone: 703-331-5723.

Office Hours: By appointment only.


Class Meets: Monday and Wednesday, 5:55 pm – 7:10 pm, Room B104, Robinson Hall

Course Web Site: All lectures, class handouts, homework, and announcements will be posted on the ENGR107 web site located at http://ite.gmu.edu/~engr107/.

GRADING

35% Design Project: Design and construction of an amphibious vehicle
30% Mid-Term Exam
35% Final Exam (Final Exam Date: December 15, 2008, 4:30pm – 7:15pm)

Exam and Honor Code Policy: Make-up exams will only be given to students with excused absences. Make-up exams must be arranged in advance of the exam date. All exams will be closed book, closed notes. Although students are encouraged to work together on projects, all work must be original to students and to the project groups. The GMU Honor Code will be strictly enforced.
**Project Policy**: Project details and schedule will be assigned and discussed in class. Each class period will be divided into a lecture session and project session. In general, I will lecture for the first 50 minutes of class. The remaining 25 minutes will be set aside for groups to work on the semester project.

**General**: The use of cellular phones, pagers, or other personal communications devices while class is in progress, or during tests, will not be tolerated. If you must have them, please turn audible ringers off and take conversations outside of class. The class is asked to respect the rights of other students and the instructor and to avoid conversations during class.
Week 1:  **Introduction to the Engineering Profession:**

*Class 1: Introduction to Engineering* (Class discussion)

*Class 2: The Engineering Professions* (Chapter 1, Eide, et al)

**Week 2:**  **Engineering Ethics:**

*Class 1:* Professionalism and Ethics (Chapter 1, Eide, et al; Class notes):

  **Project Assignment and Class Discussion**

*Class 2: Ethics Case Studies* (Case study class handouts)

**Week 3:**  **Introduction to the Engineering Design Process:**

*Class 1:* Engineering Design – A Process (Chapter 2, Eide, et al;)

*Class 2:* Engineering Design – A Process (Chapter 2, Eide, et al; Class notes)

**Week 4:**  **The Engineering Design Process and Systems Engineering:**

*Class 1:* Systems Engineering Process (Chapter 3, Eide, et al; Class notes)

*Class 2:* Engineering Design – An Example (Class notes)

**Week 5:**  **Engineering Solutions:**

*Class 1:* Engineering Tools (Class notes)

*Class 2:* Problem Analysis  (Chapter 3, Eide, et al)

**Week 6:**  **Representation of Technical Information:**

*Class 1:* Collecting and Recording Data (Chapter 4, Eide, et al)

*Class 2:* Empirical Functions and Curve Fitting (Chapter 4, Eide, et al)

**Week 7:**  **Engineering Estimations and Approximations**

*Class 1:* Engineering Estimations and Approximations (Chapter 5, Eide, et al; Chapter 4, Horenstein)

*Class 2: MIDTERM EXAM*

**Week 8:**  **Project Preliminary Design Review**

*Class 1:* Group presentations and peer review

*Class 2:* Group presentations and peer review

**Week 9:**  **Engineering Analysis:**

*Class 1:* Dimensions, Units, and Conversions (Chapter 6, Eide, et al)

*Class 2:* Data Analysis and Statistics (Chapter 8, Eide, et al; and group fatigue experiments)

**Week 10:**  **Introduction to Mechanics and Vectors:**
Class 1: Vector Analysis (Chapter 9, Eide, et al)
Class 2: Vector Analysis (Class notes and examples)
Week 11: Introduction to Electrical Theory:
    Class 1: Electrical Theory (Chapter 11, Eide, et al)
    Class 2: Electrical Theory (Chapter 11, Eide, et al; class notes and examples)
Week 12: Contemporary Topics in Engineering:
    Class 1: TBA
    Class 2: TBA
Week 13: Group Project Presentations:
    Class 1: Project Presentations
    Class 2: Amphibious vehicle design competition
Week 14: Class 1: Exam Review; Group Project Reports Due
    Class 2: FINAL EXAM