

Introduction to Engineering
Fall 2009
ENGR 10
Section # 56353



Instructor: Dr. John Heathcote **Class Times:** TTh 11:00-11:50 am
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Office Hours: Tuesday, 12:00-12:50 pm
Wednesday, 1:00-1:50 pm
Thursday, 1:00-1:50 pm
Or feel free to stop by or make an appointment

Required Text: ENGR 10 Introduction to Engineering, Customized textbook sold in bookstore, E Source, A Pearson Custom Publication.

Catalog

Description: This course is an introduction to the engineering profession for students interested in a career in engineering or technology. Topics include opportunities in engineering, education plans, internships, the design process, analytical problem solving techniques, project management, and professional ethics. Hands-on projects are used extensively in the course.

Grading: A total of 1000 points can be earned during the semester. The point breakdown will be as follows:

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|---|-----|
| Daily In-Class Grades (5 points for each class) | 165 |
| 5 HW assignments from textbook (25 points each) | 125 |
| Straw Tower Design Activity | 50 |
| LEGO Robotics Activity | 100 |
| Student Education Plan | 50 |
| Fresno State Design Competition | 300 |
| Poster Activity | 60 |
| Resume / Job Application Activity | 60 |
| Final Exam | 90 |

(The above list may be slightly modified if one of the listed activities is changed.)

Grading Scale:

| | |
|-----------------|---|
| 900-1000 points | A |
| 800-899 | B |
| 700-799 | C |
| 600-699 | D |
| <600 | F |

Daily In-Class Grades: This class is different from most engineering classes as the work is less mathematically oriented and objective and is more a subjective look at some of the aspects of a career in engineering. In order to help each student to learn about the career of engineering and to prepare the student for an engineering education, participation in class activities is a MUST. Active participation in each class period will earn you the points in this category. It is important to attend every class! **During each class, you can earn up to FIVE points. To earn the full five points, you must be active and involved in class. If you are absent, you will LOSE FIVE points.**

Textbook Homework Assignments: The textbook for this course has six chapters that coincide with our discussions and activities about engineering. It is very important to do these homework assignments and turn them in on time. Each homework can earn you up to 25 points.

Other Activities: Through the semester, we will perform other activities both as a group and as individuals. These activities will be worth the point total shown in the table above. The specific requirements for each assignment will be detailed later.

Fresno State Design Competition: Each year, students in this course compete with students at Fresno State, Fresno City College, and the Willow International Center in an engineering design competition. It is an enjoyable exercise in which teams of students design and build contraptions to meet an assigned goal. This project will involve preparation time with the students' groups outside of class, possibly a small amount of money (probably less than \$5 on the project), and participation at the competition -- Saturday morning, **Nov. 7th** (*Tentative Date*) 8am-1pm (*approximately*) at Fresno State (or possibly at another site). All students in this course are expected to attend this competition. The details of the competition will be made available as soon as possible. It is the student's responsibility to notify the instructor well ahead of time, if he/she cannot attend for a justifiable reason. **An alternative assignment** (a written paper on some aspect of engineering) will be given to students who cannot attend the competition.

Final Exam: As a way of summing up what you have learned from this course, a final exam will be taken during finals week. This will involve topics that we have discussed or studied throughout the term.

Attendance: Attendance is mandatory. Class attendance will be recorded. In accordance with college policy, if a student misses more than four class sessions, that student may be dropped. (However, if you decide to drop the course, it is **your** responsibility to make the drop official in the Administrations and Records Office or else possibly receive a grade of F.)

Cheating and/or plagiarism: Cheating and/or plagiarism will not be tolerated. A student will receive no credit for the assignment if in the opinion of the instructor the individual has cheated.

Accommodations for Students with Disabilities:

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

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|--------------------|-------------------------------------|------------------------------|
| Add Date: | Friday, September 4 th | Last day to add a course |
| Drop Date: | Friday, October 16 th | Last day to drop this course |
| Holidays: | Thursday, November 26 th | Thanksgiving Day |
| Final Exam: | Tuesday, December 15 th | 11:00 am -12:50 pm |

COURSE OUTCOMES:

Upon completion of this course, students will be able to:

1. identify the engineer's role in society.
2. make informed decisions about their educational and career plans.
3. find and apply for engineering internships.
4. analyze issues using the guidelines of engineering ethics.
5. create solutions to simple problems using an engineering design process.
6. apply engineering teamwork skills towards group projects.

COURSE OBJECTIVES:

In the process of completing this course, students will:

- A. identify and describe the various disciplines of engineering.
- B. describe how products are designed and created by engineers.
- C. investigate new products being developed by engineers.
- D. evaluate engineering educational opportunities.
- E. chart their educational paths.
- F. investigate engineering career and internship opportunities.
- G. develop a resume and cover letter for an engineering internship.
- H. evaluate an engineering job and compare it to their own career interests.
- I. discuss the standards of engineering ethics.
- J. apply ethical standards towards engineering case studies.
- K. analyze the application of the engineering design process toward the creation of a product.
- L. work in engineering teams to apply the engineering design process toward meeting an engineering challenge.
- M. manage and document an engineering project.