ENGR 111 Engineering Problems

COURSE DESCRIPTION:
This course introduces students to engineering problem solving techniques including using calculators, computer spreadsheets, and computer tools like MATLAB® and/or Excel®.

PREREQUISITE:
Pre-Calculus II: Trigonometry, MATH& 142 or Pre-Calculus I and II, MATH& 144, either with a 2.0 or above OR co-enrollment in MATH& 142 or MATH& 144 OR 1 year trigonometry in high school with instructor permission.

SPECIAL MATERIALS:
A graphing calculator is desired. Calculators may be used on all exams.

GENERAL OBJECTIVES:
Upon successful completion of this course you will be able to:
1. Apply engineering problem solving techniques to problems from several engineering disciplines.
2. Use hand calculators and computer spreadsheets to solve engineering problems.
3. Use computer tools like MATLAB® and/or Excel® in the analysis of engineering problems.
4. Develop and utilize team skills necessary in the solution of engineering problems.
5. Report the results of your analyses clearly, concisely, and in required format.
6. Incorporate basic dimensions and units of engineering, including conversion between English engineering and metric units, into the solution process for engineering problems.
7. Solve simple statics problems.
8. Solve simple thermodynamic problems.
9. Solve simple electric circuit problems.

COURSE REQUIREMENTS:
• Texts: Various Authors, Engineering Problems, ENGR 111.
• Assignments:
  1. We cover selected chapters in the text. Read the appropriate sections in the text before class. Bring your text and calculator to every class. There will be a quiz covering each reading assignment.
  2. Assignments will be given for each section. These represent a minimum. If you are having trouble, do more problems!
  3. Assignments are due the day indicated on the assignment sheet.
• **Student Email:**

I communicate with students through your OC email account. Please check email daily. OC automatically provides email accounts when students register and pay their tuition and fees. I will **not** communicate with you using your personal home email accounts. A student email account is assigned the same day of payment for tuition and fees. Your login name will be “username” where “username” is your first and last name together with no spaces. This is the same account used to log into computers in the computer labs. For example, a person whose name is John Smith would enter: johnsmith

The first time you log in, your password will be the first letter of your last name capitalized + a hyphen + last 4 digits of your Student ID. For example, if John’s Smith student ID was 860-12-3456 his **password** would be **S-3456**. Passwords can be reset once you get in. If you have questions or problems, you can contact the Help Desk at helpdesk@oc.ctc.edu or call 360-475-7600. For more information on how to access your student email account go to: [http://www.olympic.edu/Students/StudentEmail/](http://www.olympic.edu/Students/StudentEmail/)

• **Angel Learning Management System:**

I will be using the Angel Learning Management System for this course. To access Angel, click on [http://angel.olympic.edu/default.asp](http://angel.olympic.edu/default.asp)

Your login is your Student ID (860-xx-xxxx) and your global PIN. Click link to this course to access course material. I will no longer be using Professor’s Online.

**CLOSURE POLICY:**

Information on campus closure may be found at: [http://www.olympic.edu/Campuses/AboutOC/OCNews/snow.htm](http://www.olympic.edu/Campuses/AboutOC/OCNews/snow.htm)

My policy is to be on campus, when possible, if the campus is open. If I cannot come in I will use my voice mail message and the @OCENGR twitter account to indicate whether there will be class. I will post messages by 6 a.m. if possible.

You may sign up for email and/or text alerts at: [www.olympic.edu/alerts](http://www.olympic.edu/alerts)
POLICIES:

Engineering, like physics and mathematics, is a contact sport. To excel, you must get personally involved with the material and you must be assertive in seeking help during the rough spots. It is always tempting to give up when the going gets tough. Please know that I will do all I can to help you through rough spots!

1. **Attendance:** It is expected that you will attend every class and join in the discussions. When it comes to assigning the final grade, I will always give the benefit of the doubt to someone who participates and shows interest in learning. This is a fast-paced course. We have 30 class meetings. We cover selected material in the text. It is critical that you not fall behind. If you miss a class, you are responsible to learn the material on your own.

2. **Reading:** There will be assigned reading every class. There will be a written quiz at the beginning of each topic assessing understanding of the concepts read in preparation for lecture.

3. **Homework:** There will be a homework assignment nearly every day. You are expected to do ALL assigned homework problems by the due date. You will turn in all problems and Dr. Brown will grade each daily problem and will choose up to 1/3 of the remaining problems from each set for grading.

4. **Portfolio:** You will keep a portfolio (see p4 for more details) of all homework and projects. Homework solutions will be placed on the course web site at noon on the due date. You are responsible to make necessary corrections to your work. Dr. Brown will assess your portfolio at any time you request during the quarter. Dr. Brown will evaluate your portfolio for a grade at each exam including the final.

5. **Projects:** There will be two team design projects.

6. **Tests:** There will be 2 exams covering certain chapters in the text. There will also be a comprehensive final exam. All exams are closed book, closed notes and will be given in class. A 3” X 5” note card with notes both sides is allowed for each exam (8.5” X 11” for the final). Worked problems are not allowed on the crib sheet—you will turn in the crib sheet with each exam.

7. **No make-up work; in general, late work is not accepted.** I am aware that life happens and occasionally you will miss a class, assignment or exam. Late work will be accepted on an emergency basis only. Falling behind because you are overloaded or have misplaced your priorities does not constitute an emergency. To be eligible to make up any missed work, you must talk to me in advance of the due date, or you must leave a message on my voice mail, or you must text me, stating the reason for your absence, prior to start of class on the day you are absent.

8. **Behavior:** It is expected that the focus of your classroom participation is learning engineering. Behavior that is disruptive to the learning process will be referred to the student conduct code as appropriate. You are expected to adhere to the National Society of Professional Engineers Code of Ethics for Engineers (cf., page 6) in all aspects regarding your participation in this class, as you will be required to do throughout your engineering career. Lastly, you are to conduct yourself as a professional in all dealings with your instructor and classmates as discussed on page 7.

Continued, next page
POLICIES, continued:

9. **Office Hours:** I will keep posted office hours to the extent possible. I will make every effort to inform you of variations in office hours. You will need to make an appointment to meet with me outside of office hours.

10. **Grading:** grades are weighted based upon:
    - 2 in-class exams (15% each)  
    - 2 group projects (10% each)  
    - Graded Homework  
    - Quizzes  
    - Portfolio  
    - Comprehensive final


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<thead>
<tr>
<th>Grade Range</th>
<th>Final Grade</th>
<th>Final Grade</th>
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<tbody>
<tr>
<td>95-100%</td>
<td>4.0</td>
<td>69-70%</td>
</tr>
<tr>
<td>94-95%</td>
<td>3.9</td>
<td>68-69%</td>
</tr>
<tr>
<td>93-94%</td>
<td>3.8</td>
<td>67-68%</td>
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<td>92-93%</td>
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<td>90-92%</td>
<td>3.6</td>
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<td>88-90%</td>
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<td>86-87%</td>
<td>3.3</td>
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<tr>
<td>85-86%</td>
<td>3.2</td>
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</tr>
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<td>84-85%</td>
<td>3.1</td>
<td>60-61%</td>
</tr>
<tr>
<td>83-84%</td>
<td>3.0</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>82-83%</td>
<td>2.9</td>
<td>70-71%</td>
</tr>
</tbody>
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11. **Final Grade:** I grade based upon:

I do not grade based upon a curve of any type. I do not assign a WF or WP grade unless you talk to me. If you vanish you will receive a grade of 0.0.

12. **Cheating:** All students are required to submit original work; any student submitting the work of others as their own, will receive no credit for the assignment. A second offense will result in a failing grade for the class. Submitting work or files that you did not personally create is cheating. You are encouraged to work in study groups on daily homework and design projects, however, be careful that you learn the material: you must take the exams alone!

GETTING HELP:

Many resources are available to help you:

1. **Your text** -- it doesn’t read like a novel. You must work the examples on paper, attempt the homework, reread and think about the material as necessary.
2. **Your instructor** -- see me during office hours or by appointment. I am more than willing to talk things out with you.
3. **Your friends** -- working problems through with others is an excellent learning tool (just remember not to try it on exams!).
4. **Attend class** -- take notes, participate in discussions: you generally get out of a class like this what you put in.
5. **Don’t fall behind** -- make it a priority to get your assignments completed on time.
6. **Tutors in ST 136 Saturdays and Sundays and holidays**
7. **Library** -- there are other texts that may provide another viewpoint.
8. **If you are a student with a permanent or temporary disability and would like to request accommodations, please contact the Access Services Office located in HSS 204, or call 475-7540.
Portfolio Requirements and Grading

You are to keep your Portfolio in a three-ring binder.

When you have completed your homework and after the solutions are posted on the course web site, you are to correct your work using a red pen. If your solution is correct, put a red checkmark in the upper right-hand corner and initial below the check mark. If just a few corrections are necessary, make them on the original page. If extensive corrections are necessary, or you didn't originally complete the problem, rework/do the problem on an additional page. Present assignments IN ORDER first to last in the portfolio (i.e. Assn 1, Assn 2 …); remove ALL staples.

If you have questions on why solutions are done the way they are please see Dr. Brown.

In addition to homework, at the final, your portfolio must have a current resume and at least two examples of projects you have done in this class as well as other classes. You should keep your portfolio complete so that you may take it with you to job interviews to show samples of the work you have done. You will receive extra credit for examples of projects you have done in other classes (provided they are included in the portfolio).

You may ask Dr. Brown to assess your portfolio at any time during the quarter and as often as you want. Assessment is different than evaluation. Assessment not done for a grade: it is done as a coaching tool—during assessment you will be shown strengths and areas for improvement in your portfolio.

Evaluation of your portfolio will be done for a grade. Dr. Brown will evaluate your portfolio for a grade at each exam including the final. The evaluation will be based upon the following criteria:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Points</th>
</tr>
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<tbody>
<tr>
<td>Resume</td>
<td>10</td>
</tr>
<tr>
<td>Corrected Homework</td>
<td>80*</td>
</tr>
<tr>
<td>Two projects (minimum)</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

*Your homework must be complete; you will lose 1 point for each missing assignment.

The portfolio must contain all of your homework assignments.
National Society of Professional Engineers (NSPE) Code of Ethics for Engineers

Preamble

Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness and equity, and must be dedicated to the protection of the public health, safety and welfare. Engineers must perform under a standard of professional behavior which requires adherence to the highest principles of ethical conduct.

I. Fundamental Canons

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically and lawfully so as to enhance the honor, reputation and usefulness of the profession.

ENGINEER'S CREED

As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and the betterment of human welfare.

I pledge . . .

• To give the utmost performance;
• To participate in none but honest enterprise;
• To live and work according to the laws of man and the highest standards of professional conduct;
• To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.
• In humility and with the need for Divine Guidance, I make this pledge.

For further information visit the NSPE web site: http://www.nspe.org
Rights and Responsibilities of Professional Conduct

Professional conduct is the expectation for this class. This entitles each of you to certain rights and binds each of you to certain responsibilities. These include (but are not limited to):

1. the right to be treated with respect (professional employees are worthy of respect for no other reason than their status as a professional),
2. the responsibility to treat others with respect no matter who they are and how you feel about them,
3. the right to be rewarded for exemplary performance,
4. the responsibility to perform to the utmost of your capabilities,
5. the right to expect that class will begin and end on schedule and will be worth your time,
6. the responsibility to arrive on time and participate to the best of your ability,
7. the right to timely feedback on your performance,
8. the responsibility to meet all deadlines to the best of your abilities,
9. the right to know if the instructor will be absent,
10. the responsibility to inform the instructor of your absence in a timely fashion.
11. the right to a clean and orderly work environment, and
12. the responsibility to do your best to keep the work environment clean and orderly.

Gender, race, age and other discrimination or harassment is against the law and is not tolerated in the workplace or in this class (remember the legal definition of discrimination or harassment starts with what the other person believes—if it makes them uncomfortable then it is wrong and possibly illegal—it simply is not relevant what you intend).

Every one has bad days when their treatment of others falls short of desired intent. The legal definition of discrimination or harassment therefore focuses on patterns of treatment.

If someone is doing something that makes you uncomfortable, you should first talk to that person. If it does not stop, then talk to your manager (the instructor). If the instructor is unable or unwilling to help, you should go to the next level of management (Dr. Mark Harrison, 475-7701 in this case). Everyone has the right to be free from discrimination and harassment in the work place, and the responsibility to confront it if it happens.