

## Mechanical & Materials Engineering

Engineering Building, Suite 400  
www.me.pdx.edu  
503-725-4290



## ME 370: The Mechanical Engineering Profession, 2 Credits

Logistics for Fall 2014:

Days/Time	ME 370 meets face-to-face once per week Section 001 meets Wednesday, 2:00 – 3:50 PM
Location	Broadway Building, room 222
Prerequisites	Admission to the BSME Program
Instructor	Gerald Recktenwald, <a href="mailto:gerry@pdx.edu">gerry@pdx.edu</a> Engineering Building, Room 402K 503-725-4290 Office Hours: TBD on first class meeting
Mailbox	MME Office, Engineering Building, Suite 400
Web sites	Desire2Learn login: <a href="https://d2l.pdx.edu/">https://d2l.pdx.edu/</a> Public web site: <a href="http://web.cecs.pdx.edu/~gerry/class/ME370">http://web.cecs.pdx.edu/~gerry/class/ME370</a>

### Textbook:

Students do not need to purchase a textbook. Course readings can all be obtained either on-line or via the D2L interface. Several of the reading assignments are from **Citizen Engineer**, by David Douglas, Greg Papadopoulos and John Boutelle, 2010, Prentice-Hall, which is available in paperback or as a free download from <http://citizenengineer.org/>. Links to reading assignments are posted on the class web sites.

### Course Description:

ME 370 provides an overview of the professional practice of mechanical engineering. The course begins with the development of a five-year plan for students' career in engineering. Intellectual property – patents, copyright, and trademark – are explained and related to the role of innovation. Engineering ethics and the participation in society as a professional engineer is a major component of the class. Students are exposed to topics related to effective and responsible practice of mechanical engineering, business norms and practices, life-long learning, the relationship of engineering to society, and an awareness of contemporary local and global issues.

### Course Learning Objectives – Students must demonstrate:

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1. A plan for the next 5 years of their career	i, j
2. Professional standards of written communication, including email	g, k
3. An ability to describe the cost of hiring an engineer, and other operating costs associated with engineering	j
4. An ability to describe the purpose and limits of patents and intellectual property rights; An ability to perform a preliminary patent search at uspto.gov	f, j, k
5. An ability to distinguish between sustaining and disruptive innovation; distinguish between incremental and radical innovation	f, j, k
6. An ability to describe the basic expectations of engineering ethics and the ASME code of ethics.	f
7. Basic knowledge of and ability with ethical reasoning through the discussion of case studies	f
8. An ability to describe the role of ethics in design decisions	
9. An ability to describe current social, environmental, political and economic factors influencing the development and use of technology.	h, j
10. An ability to describe how considerations of sustainability affect engineering decisions.	h, j

\*Program Outcomes are Learning Outcomes for the entire BSME Program. Refer to the standard ABET learning outcomes listed at <http://www.pdx.edu/mme/educational-objectives>. For example, outcome “f” is “An understanding of professional and ethical responsibility”.

## Course Requirements:

Students will complete weekly reading, individual and group homework assignments, and participate in face-to-face as well as on-line discussions. Homework assignments will require short and long-form writing. Quizzes and a final exam will test conceptual and factual knowledge, and will also require short essay responses to demonstrate knowledge of course material. The final exam will be a take-home.

Assignments will be submitted via a D2L drop box. Due dates will be strictly enforced. No late assignments will be accepted unless there are circumstances out of the student's control that can be independently verified, e.g. a written note from a doctor. Schedule conflicts for due dates must be discussed in advance and allowances for late submission of work must be arranged in advance of the due date. In general, it is best to assume that no late assignments will be accepted.

## Grading

Individual Assignments	20 %
Group Assignments	20 %
Reading Quizzes	10 %
Peer evaluation	5 %
Survey completion	5 %
Quizzes	20 %
Final exam	20 %

**Incompletes:** A grade of "I" is granted by the instructor only with prior approval and consent. Criteria are outlined in the PSU Bulletin. Poor performance in the class is not a valid reason for granting an I (incomplete). Quizzes are administered via D2L. Homework and the final exam are submitted via a D2L drop box. Therefore, minor illnesses are not valid reasons for missing assignment due dates or granting incomplete grades.

## Final Exam:

The final exam will be take-home. Students will turn in their exam via the D2L web site.

## Topical Outline

The following outline gives a brief overview of course content. Details of reading and homework assignments are posted on the Desire2Learn Web site for the course. Each row is a week of class, which consists of one face-to-face class meeting and a set of on-line activities.

1. Course orientation, introduction to the engineering profession and career planning
2. Career orientation, business communication
3. Career planning, guest lecture from Frank Goovaerts
4. Intellectual property: introduction and definitions of terms.
5. Intellectual property: guest lecture and current issues
6. Engineering ethics: introduction and the ASME code
7. Engineering ethics: ethical decision-making and case studies
8. Engineering ethics: social context and decision-making
9. Sustainability: external constraints and pressures on the development of technology.
10. Current issues. Course wrap up

## Computer and E-mail Accounts

- If you haven't done so already, please go to the CADLab located in EB 325 to activate your engineering account. If you need help in using this account, please see the attendant or send an e-mail to [support@cecs.pdx.edu](mailto:support@cecs.pdx.edu)
- If you choose not to check your CECS e-mail account regularly ([yourname@cecs.pdx.edu](mailto:yourname@cecs.pdx.edu)) then please forward it to an e-mail account that you do check. Important information and announcements are delivered via this e-mail address.

## Code of Conduct

The PSU Student Conduct Code prohibits all forms of academic cheating, fraud, and dishonesty. Further details can be found in the PSU Bulletin. Allegations of academic dishonesty may be addressed by the instructor, and/or may be referred to the Office of Student Affairs for action. Acts of academic dishonesty may result in a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary probation, suspension or dismissal from the University. The students and the instructor will work together to establish optimal conditions for honorable academic work. Questions about academic honesty may be directed to the Office of Student Affairs: <http://www.ess.pdx.edu/osa/>.

## Classroom Rules and Behavior Expectations

The classroom is a professional space and professional conduct is expected. Please silence your cell phone and refrain from text messaging during class and exam times. Treat your fellow students and the instructor with respect and please use appropriate language at all times. Additional rules may be added at the instructor's discretion.

## Ethics and Professionalism

As future professional engineers you should plan to take the FE Exam (see the Oregon State Board of Examiners for Engineering and Land Surveying at [www.osbecls.org](http://www.osbecls.org)), and you should be familiar with the ASME Code of Ethics (<http://files.asme.org/ASMEORG/Governance/3675.pdf>), which includes the following:

*Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:*

1. *Using their knowledge and skill for the enhancement of human welfare;*
2. *Being honest and impartial, and serving with fidelity their clients (including their employers) and the public; and*
3. *Striving to increase the competence and prestige of the engineering profession.*

## Campus Resources

As a PSU student, you have numerous resources at your disposal. Please take advantage of them while you are here. A small sample is listed below:

- MME Website: <http://www.me.pdx.edu>
- Career Center: <http://www.career.pdx.edu/>
- Center for Student Health & Counseling: <http://www.shac.pdx.edu/>
- The Writing Center: <http://www.writingcenter.pdx.edu/>
- PSU Disability Resource Center: 435 SMU - The PSU Disability Resource Center is available to help students with academic accommodations. If you are a student who has need for test-taking, note-taking or other assistance, please visit the DRC and notify the instructor at the beginning of the term.

## Student Groups and Professional Organizations

Participation in student and professional groups can be a valuable part of your education experience. Membership gives students opportunities to get to know fellow students better, meet and network with professionals, collaborate in solving real engineering problems, learn about internship or job possibilities, socialize and have fun. Consider becoming active with a student organization, such as the following:

- American Society of Mechanical Engineers Student Group (ASCE): <http://web.cecs.pdx.edu/~asme/>
- Society of Automotive Engineers: Viking Motorsports: <http://vms.groups.pdx.edu/>
- Engineers without Borders: <http://www.ewbpsu.org/>

Most professional organizations have monthly meetings and encourage student participation by providing discounts for lunch and dinner meetings. These meetings provide opportunities to network with potential future employers, learn about scholarships, and increase your technical knowledge. Take a look at these organizations as a starting point:

- American Society of Mechanical Engineers (ASME) Oregon Section: <http://asmeoregon.wordpress.com/>
- Society of Automotive Engineers, Oregon Chapter: <http://www.oregonsae.org/>
- Society of Women Engineers (SWE) Columbia River Section - <http://www.swe-columbia-river.org>
- Engineers without Borders, Portland Chapter: <http://www.ewbportland.org/>

## Library and Literature Research

Ubiquity of the Internet makes it very tempting to think that all necessary resources for a term project will be available in full text after typing in a few words at Google.com. This is not the case. You will often need to go to the library, use library search tools and read physical books and articles contained in refereed/archival journals.

Be sure to make use of the Vikat library catalog accessed via the PSU library home page at <http://www.lib.pdx.edu/>. Also available on the library home page are Full Text Electronic Journals and a list of on-line Databases. Databases to try are EI Compendex (<http://www.ei.org/ev2/ev2.home>) and Lexis-Nexis. Access to these databases is free for PSU students, but you must be using a computer on campus or via a proxy over an Internet connection. To log on to the PSU proxy server use <https://login.proxy.lib.pdx.edu/login>.

## Campus Safety

Student safety is paramount. The Campus Public Safety Office is open 24 hours a day to assist with personal safety, crime prevention and security escort services. Call 503-725-4407 for more information.

**For Campus emergencies call 503-725-4404.**