ME 370: The Mechanical Engineering Profession

Lecture 01: Introduction

Purpose

Prepare you for the non-technical aspects of your career

Course Learning Objectives

Upon complete of this class you should be able to
1. Develop a five-year career plan
2. Demonstrate professional standards of written communication, including email
3. Describe the cost of hiring an engineer and other operating costs associated with engineering
4. Describe the role of patents and intellectual property rights.
5. Perform a preliminary patent search at uspto.gov
Course Learning Objectives

(continued)

6. Distinguish between sustaining and disruptive innovation; distinguish between incremental and radical innovation
7. Identify the basic tenets of the ASME code of ethics
8. Demonstrate basic knowledge of ethical reasoning through the discussion of case studies.
9. Discuss the role of ethics in design decisions.

(continued)

10. Describe social, environmental, political and economic factors influencing development and use of technology
11. Describe how considerations of sustainability affect engineering decisions

Instructor

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Relationship of ME 370 to the BSME Curriculum

Department of Mechanical and Materials Engineering
Mechanical Engineering Program

Possible 4 Year Course Plan

Upper Division BSME Curriculum
BSME Prerequisite Map

Freshman

Sophomore

Junior

Senior

Component Key
- Design
- Fabrication and lab work
- Electronics and sensors
- Programming
- ME Profession

Freshman

Sophomore

Junior

Senior

Component Key
- Design
- Solid mechanics
- Thermal and fluid sciences
- Fabrication and lab work
- Electronics and sensors
- Programming
- ME Profession

D2L Logistics

- Log on via http://d2l.pdx.edu
- Enter your “odin” credentials
- Select ME 370
Drop box assignments

Include this information

- Your name
- The date
- Department and course number, i.e. “ME 370”
- Short title or tag for the assignment, e.g. “HW 3: Individual Project Proposal”

Drop box Submissions

Don’t forget to click “Submit”

ME 370 Topics

Career planning
Business practices
Engineering ethics
Intellectual property
Current issues in technology and society
Sustainability
Career Planning

Upon completing this course you will be able to

- Define “professional” in the context of an engineering career
- List career paths for individuals with a BSME
- Describe your professional strengths and weaknesses
- Describe your professional interests
- Write a 5 year career plan

Values and Expectations

You are all free to chose how to act

1. We all have personal values
2. We (PSU, MME Faculty, society) cannot control what you think or choose to do
   a. We can inform you of standards
   b. We can expect to to conform to those standards as a condition of being a student
   c. We cannot force you to have certain values

Values and Expectations

In this class I expect you to demonstrate knowledge of common standards of behavior

1. What are those standards? e.g. ASME Code
2. What standards are expected of PSU students?
3. What behaviors are consistent with those standards?
4. What behaviors are personal decisions outside of those standards
Why choose engineering?

What are the necessary attributes of a good job?
What are the desirable, but not necessary aspects of a good job?
Why would you make a distinction between necessary and desirable?
What are your personal strengths?
How does engineering match your strengths?

Why worry about non-technical stuff?

The Engineer of 2020, p. 27

... Both on a macro scale, where the world’s natural resources will be stressed by population increases, to the micro scale, where engineers need to work in teams to be effective, consideration of social issues is central to engineering. Political and economic relations between nations and their peoples will impact engineering practice in the future, probably to a greater extent than now. Attention to intellectual property, project management, multilingual influences and cultural diversity, moral/religious repercussions, global/international impacts, national security, and cost-benefit constraints will continue to drive engineering practice.

What is a professional?

Meet with your assigned group to discuss your answer. A whole-class discussion will follow.