

ENGR 102: Engineering Freshman Academy

FALL 2006

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Course Goals & Objectives:

The main goal is to introduce freshman engineering students to various aspects of engineering, including the technical, political, ethical and societal impacts of the field. There will be a focus on the following themes:

1. **Thinking like an engineer:** development of problem-solving and teamwork skills
2. **Social and historical context:** understand social and historical reach of engineering
3. **Potential of engineering:** understand vast potential of engineering and rewards of engineering profession compared to others
4. **Ethics component:** understand ethical issues and concepts related to engineering through discussion of real events and other related activities
5. **Transition to college:** peer mentoring to achieve successful transition from high school to college

Textbook None. Reading material will be posted to Blackboard or handed out in class.

Class Requirements & Grading Policy

There will be one lecture per week (M 12:00-1:50p) held in RTH109. The course will include readings, films, discussions, team activities, and guest lectures. The course will be graded CR/NC (credit/no credit), according to the following criteria:

(1) Homework + Project (50%)

Homework assignments are due in class at the beginning of class. Please follow the USC guidelines on academic integrity when preparing your homework. There will be approximately 6 assignments and a class project.

(2) Participation (25%)

Attendance, in-class presentations, and participation in discussions are required.

(3) Out of class activities (25%)

Students are required to participate in 2 of 3 large (All Academy) lectures. Also, students are required to attend 50% of the out of class activities planned by the coaches.

Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to the TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Course Topics and Outline

This following is a tentative course outline.

Week 1 (8/21):

Lecture: Introduction to course and coaches. Why did I choose engineering? Tips on how to survive your 1st year as an engineering student.

In-class activity: Student interviews another student and presents them in class.

Assignment: Student (groups OK) interviews faculty member to find out why they chose engineering (1/2 page – don't forget to include faculty name!) (due 9/11).

Week 2 (8/28):

Lecture: What is engineering? What do engineers do? What skills should engineers have?

In-class activity: Group activity

Assignment: Write ½ page on engineering means to you and list top ten reasons why you want to be an engineer (#1 is the most important reason) (due 9/11). For both parts, think both generally and specifically based on your major.

Week 3 (9/4): Labor Day Holiday!

Week 4 (9/11):

Lecture: History of engineering and impact on society. Career Services presentation.

In-class activity:

Assignment:

Week 5 (9/18):

Lecture: Lab Tour? Or Team building and library orientation; discuss class project

In-class activity: Library scavenger hunt assignment (team building activity)

Assignment: Library scavenger hunt assignment (team building activity)

Week 6 (9/25):

Lecture: Lab Tour? Or Team building and library orientation; discuss class project

In-class activity: Library scavenger hunt assignment (team building activity)

Assignment: Library scavenger hunt assignment (team building activity)

All Academy Lecture #1 (9/?)

Week 7 (10/2):

Lecture: Engineering ethics. Definitions. Code of ethics. Case studies.

In-class activity:

Assignment: Case study assignment for discussion/presentation in next class (+own responses to case)

Week 8 (10/9):

Lecture: Discussion on case study assignment

In-class activity: Student presentation and discussion of cases (2 cases)

Assignment:

Week 9 (10/16):

Lecture: Design, invention, and creativity (10 stages of design)

In-class activity: Design activity and presentation

Assignment: Design exercise

All Academy Lecture #2 (10/19)

Week 10 (10/23): 2nd lab tour?

Lecture: Intellectual property, entrepreneurial activities (SiTEC)

In-class activity:

Assignment:

Week 11 (10/30): 2nd lab tour?

Lecture: Safety, failure, and fear

In-class activity: discussion about false impressions of engineering generated through the media (real incidents) and Hollywood (movies, etc.); watch video of failures

Assignment:

Week 12 (11/6):

Lecture: Engineers as leaders; leadership skills. (guest lecture)

In-class activity:

Assignment:

Week 13 (11/13):

Lecture: Frontiers in engineering. Job and research opportunities.

In-class activity:

Assignment:

Week 14 (11/20):

Lecture: Guest lecture.

In-class activity: Groups present projects (part I)

Assignment:

All Academy Lecture #3 (11/21)

Week 15 (11/27):

Lecture: Class discussion and wrap up.

In-class activity: Groups present projects (part II)

Assignment: