Course alpha, number, title: ME 300 Professional Issues in Mechanical Engineering

Required or elective: Required

Course (catalog) description: This course is a colloquium on professional issues in Mechanical Engineering practice. Professional conduct and ethical behavior in the workplace. Practice in professional writing and oral presentation. Global, economic, environmental and societal context of engineering. Contemporary issues in engineering. Group dynamics and working in teams. Intellectual property.

Prerequisite(s): Completion of Tier I writing requirement

Restriction(s): Open to juniors or seniors in the Mechanical Engineering Major

Textbook(s) and/or other required material: ASME Professional Practice Curriculum on Engineering Ethics

Class/Lab schedule: Total Credits: 1 Lecture/Laboratory/Discussion Hours: 1/0/0

Topics covered:
- a. Professional conduct
- b. Engineering ethics
- c. Professional communication
- d. Global engineering
- e. Engineering economics
- f. Environmental considerations on design
- g. Societal considerations on design
- h. Contemporary issues in engineering
- i. Group dynamics and working in teams
- j. Intellectual property

Course learning objectives:

Upon successful completion of this course, students can:

1. Assess ethical behavior using several philosophical models
   [L: Knowledge, Comprehension] [M: Written Report]
2. Evaluate a practical situation in terms of a professional code of ethics
   [L: Evaluation] [M: Oral Presentation]
3. Identify situations that represent conflicts of interest and formulate a proper response
   [L: Comprehension, Analysis, Synthesis] [M: Written Quiz]
4. Apply the standards of professional ethics in written and oral technical communication
   [L: Application] [M: Written and Oral Presentations]
5. Discuss the impact of engineering solutions in a global, economic, environmental and societal context
   [L: Comprehension] [M: Written Report or Quiz]
6. Discuss contemporary issues in engineering
   [L: Comprehension] [M: Oral Report or Quiz]
7. Describe the elements of group dynamics and formulate a plan for effective teamwork
   [L: Knowledge, Synthesis] [M: Written Quiz]
8. Define intellectual property and discuss its responsible care and use
   [L: Knowledge, Comprehension] [M: Written Quiz]

Key: L – Level of Learning, M – Method of Measurement
Relationship of course to ME program outcomes

The following measurement standard is used to evaluate the relationship between the course outcomes and the educational-program outcomes:

2 = Strong Emphasis, 1 = Some Emphasis, 0 = Little or No Emphasis.

(a) an ability to apply knowledge of mathematics, science, and engineering—0
(b) an ability to design and conduct experiments, as well as to analyze and interpret data—0
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability—0
(d) an ability to function on multidisciplinary teams—0
(e) an ability to identify, formulate, and solve engineering problems—0
(f) an understanding of professional and ethical responsibility—2
(g) an ability to communicate effectively—2
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context—2
(i) a recognition of the need for and the ability to engage in life-long learning—2
(j) a knowledge of contemporary issues—2
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice—0

Contribution to professional component:

Person(s) who prepared this description: Ron Averill, Alex Diaz, Craig Gunn

Date of Preparation: 2015