

Department of Materials Science and Engineering
MSE 442 Materials Science and Engineering
Seminar in Ethics and Safety (1 credit)

Catalog Description:

Deals with issues of engineering ethics and industrial safety along with leadership and management, within the context of materials science and engineering. Also coordinates senior project activities. Credit/no credit only. Offered: W.

Prerequisites:

None

Textbooks and other required materials:

Course Syllabus, including case studies

“How to Succeed as an Engineer,” T. Yazuriha, J and K Publishing

Course Objectives:

1. Describe the attributes of a leader for whom you would wish to work in terms of leadership and management style.
2. Identify critical ethical issues confronted in engineering practice and give specific examples.
3. Describe the role of engineering practice in current issues as related to leadership, safety and ethics.

Topics Covered:

Leadership and management

Descriptions of leadership styles

Class discussions relative to student experience

Communications/personal strategic plans

Senior Project review

Oral/written progress reports

Discussion of practical statistics

Requirements for written and oral reports

Safety

Background discussion on safety

Case study

Ethics

Background discussion on ethical principles

Code of ethics for engineers

Societal impact

Case study, Mateck

Case study and debate, Bhopal

Class Schedule:

One, two hour session, 6 times during the quarter

Contribution of course to meeting the professional component:

This course prepares the students for engineering practice by introducing them to new concepts that they have not yet considered in any detail: Leadership, safety and ethics. The class uses case studies of real cases, allowing the students to understand the relationship of engineering practice to real problems, and demonstrating the complexity of real ethical problems.

Contribution of course to program objectives

This course is designed to complement other courses such as MSE 300 and our capstone courses to provide students with the needed background for effective practice in industry and government by expanding their horizons beyond materials science and engineering to societal issues. It provides them with experience in integrating engineering concepts ethical issues and human values. It also provides experience in effective oral and written communication.

Prepared by: Thomas Stoebe, Professor, March 1, 2001