

## **ENGR 4020: Senior Capstone Design Project II**

This course is required for all Engineering majors.

Course Coordinator:

Gene Dixon

Catalog Description:

4020. Senior Capstone Design Project II (2) (WI) (S) P:ENGR 4010. Senior capstone course involves open-ended design project exposing students to practice of engineering design and problem solving. Emphasis on real problems and working with real clients. Students required to visit facilities, interact with client employees, determine on-site data measurement strategies and perform any necessary literature search. Perform and complete project conceptualized in ENGR 4010. Complete preparation for, and take, Fundamentals of Engineering professional examination.

Course Structure:

Two 50-minute lectures per week.

Prerequisites:

ENGR 4010, Senior Capstone Design

Required Materials:

N/A

Course Learning Outcomes:

Upon completion of this course each student will be able to:

- Apply program technical content by designing and solving a complex problem in a manner equivalent to expectations in the work place.
- Perform project management, planning, and economic analysis manage a project to completion.
- Demonstrate written communication skills by developing and submitting a project final report that meets industry standards.
- Demonstrate oral communication skills by developing a final project presentation.
- Demonstrate team dynamic skills by working in groups of at least two persons.
- Understanding of fundamental concepts in engineering design and problem solving.

Lecture Topics:

- FE Exam Preparations (20 classes)
- Remaining classes spent on practice examinations

### Relevant Program Outcomes

Graduates of the engineering program will demonstrate

- a) an ability to apply knowledge of mathematics, science and engineering.
- 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.
- d) an ability to function on multi-disciplinary teams.
- e) an ability to identify, formulate and solve engineering problems.
- g) an ability to communicate effectively.
- i) a recognition of the need for, and an ability to engage in life-long learning.
- j) a knowledge of contemporary issues
- k) an ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

### Professional Component Content:

Math/Science: 0; Engineering: 2 credits; General Education: 0

### Assessment Requirements:

Student Work Samples:

- Assignment showing awareness of continuing education resources
- Application showing knowledge of contemporary issues in the engineering profession

Evaluation of Capstone Projects by faculty and EAB

Student Course Survey

### Last Review:

February 19, 2008 by Gene Dixon