Course
ECE 40500 - Senior Engineering Design I

Type of Course
Required for EE and CmpE Programs

Catalog Description
The first course of a two-semester sequence of senior capstone design. Provides students with experience in the process and practice of electrical/ computer component/system design from concept through final design. Emphasis on teamwork, project management, oral and written communication. General lectures on issues important to the engineering profession, such as professional and ethical responsibility, the impact of engineering solutions in a global and societal context, and other contemporary issues.

Credits
3

Prerequisite Courses
BSEE Degree:
ECE 30100, 20800, 36200 (and permission of the senior design advisor.)

BSCmpE Degree:
ECE 30100, 36200, 36800, MA 27500 (and permission of the senior design advisor.)

Corequisite Courses

Prerequisites by Topics
Calculus and linear differential equations, basic circuit analysis.

Textbook
None

Course Objectives
To develop capabilities of students to solve real-life problems. Students have to apply knowledge from their previous course work to accomplish projects formulation to prototype evaluation.

Course Outcomes
Students who successfully complete this course will have demonstrated:
1. An ability to formulate a problem statement. (a, c, e)
2. An ability to generate solutions (conceptual designs) using brainstorming technique. (a, c)
3. An ability to evaluate conceptual designs using a well defined criteria. (a, c)
4. An ability to obtain a final design including safety, economic, ethical, and engineering standards considerations. (a, c, e, f, h)
5. An ability to function within a team. (d) 
6. An ability to present his/her work both written and orally. (g) 

Lecture Topics

1. Introduction, discuss the Capstone Senior Design guidelines
2. Formulation of problem statement
3. Brainstorming and conceptual designs
4. Evaluation of conceptual designs
5. Detailed design
6. Knowledge of contemporary issues
7. The broad education necessary to understand the impact of engineering solutions in global and societal contexts
8. Recognition of the need for life-long learning
9. Understanding professional and ethical responsibility
10. Discussion related to oral presentations

Computer Usage

High

Laboratory Experience

High

Design Experience

High

Coordinator

TBD

Date

4/2/15