

## EGN 4410C Engineering Design I

**Credits:** 3

**Lecture materials:** Instructor's Lecture Notes

**Reference book, title, author, and year:** Ford and Coulston, *Design for Electrical and Computer Engineers: Theory, Concepts, and Practice*, McGraw Hill, 2008

### Specific course information

- a. **Catalog description:** Students will develop and present proposals for Capstone design projects to be completed in EGN 4411C. Work in interdisciplinary teams is required.
- b. **Prerequisites:** EE/CE Senior Standing. For Electrical Engineering students EEL 3012 is a prerequisite, ELR 4309L is a co-requisite. For Computer Science and Engineering students, CDAC 3331 and EEL 3300 are prerequisites.
- c. **Required, elective, or selected elective:** required

### Specific goals for the course

- a. **Specific outcomes of instruction:** This course is designed to have the students work in a team environment to design an engineering system. It will foster creative thinking, diversified background exposure, teamwork, and communication and collaboration skills. Students will also be exposed to be held accountable for professional issues, standards, and practices not covered in other classes.

### Brief list of topics to be covered:

- Overview of course objectives
- Grouping and team work
- Introduction to microcontrollers
- Social awareness and mini project
- Microcontroller interfacing
- Sensors
- Actuator/Control
- Engineering design methodology
- Contemporary engineering issues and main project brain storming
- Creativity, intellectual property, and patents
- Technical communications
- Capstone project proposal presentation and proposal writing