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Department of Electrical and Computer Engineering

**EEL4921 – Senior Design II
(Required)**

Catalog Description: Design of a complete EE system, including use of design methodology, formulation, specifications, alternative solutions, feasibility, economic, reliability, safety ethics, and social impact.

Course Description:

The main objective of this course is to complete the realization of a Capstone Project begun in Senior Design I, using multidisciplinary teams. Emphasis continues to be placed on Successful Design, an idea that involves Local and Global acceptance. Local Acceptance and Global Acceptance by taking into account from the start plus with International Technical Standards eliminating barriers to international trade. In EEL-4921 students engage in a close to real life project implementation and management experience.

This course is a continuation of EEL 4920, Senior Design I. Although there are no formal lectures in this course, Global Learning attributes developed in EEL 4920 will be integrated into senior design projects and they will be assessed by the Industrial Advisory Board at the end of the semester in two separate components to evaluation: (1) Senior Design Report, and (2) Senior Design Presentation. This is a global learning course that continues through real world implementation of concepts studied in Senior Design I.

Prerequisite: EEL4920

Corequisite:

Textbook: N/A

Course Objective: The objective of this course is to offer the students the opportunity to work in a realistic engineering project with constraints under the guidance of a faculty and possibly industry mentor. This is the capstone course for the EE and CpE program.

Global Learning Objective:

- Use a *global standpoint* to achieve a design that will have Global Acceptance and minimal barriers to trade.

Project Objectives.

By completion the project students will be able to:

1. Determine application requirements for systems from functional specifications of the project.
2. Design systems to meet application requirements
3. Test systems for conformance to application requirements.
4. Write periodic progress reports of their individual contributions to the design team activity.
5. Participate as a team member in the design of the project.
6. Participate in the presentation of the project.
7. Participate in the writing of a final project report.
8. Adhere to product development and operational standards
9. Identify any ethical/unethical issues that might result
10. Identify any safety issues and their solution according to safety standards.
11. Identify testing procedures related project development.

Project Outcomes.

By completion the project students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering.
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering.
3. have the ability to analyze electrical circuits, devices, and systems.
4. have the ability to design electrical circuits, devices, and systems to meet Global requirements and standards.
5. have the ability to design and conduct experiments, and analyze and interpret experimental results.

Relationship of course objectives to Global Learning outcomes

- (i) an ability to demonstrate **global consciousness** about local, global, international, and intercultural issues that may affect a successful design.
- (ii) an ability to conduct a **global standpoint** analysis leading to understand the needs of local, global, international, and intercultural markets.
- (iii) an ability to demonstrate **global commitment** by taking actions towards a global, international, and intercultural successful design.

Class Schedule: Students carry out work in ECE labs and home. Meetings with advisor and course coordinator are arranged at beginning of semester and scheduled throughout the semester.

Contribution of course to meeting the professional component:

Engineering Science

Relationship of course objectives to program *outcomes*:

In this course students will be evaluated on the following program outcomes

- (c) an ability to design a system, component, or process to meet desired needs
- (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
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

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