

**The University of Texas at Tyler
Department of Electrical Engineering**

EENG 4315 Senior Design II (Required)

Syllabus

Catalog Description:

The senior design project, which was begun in EENG 4115, continues to completion. This capstone design project builds on previous course work, includes all stages of the design process, and takes into account a variety of realistic constraints such as manufacturability and sustainability; economic factors; and environmental, safety, and reliability issues. Preparation and presentation of final oral and written reports are required. Nine hours of Design Studio Lab per week.

Prerequisites: EENG 4115

Credits: (0 hours lecture, 3 hours laboratory)

Text(s): None

Additional Material: None

Course Coordinator: David M. Beams

Topics Covered: (paragraph of topics separated by semicolons)

This course does not include lectures or presentations of specific topics. The principal interaction between faculty and students is through project design reviews in which faculty meet with individual teams on a periodic basis to discuss design choices and progress toward the project goals.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives¹: By the end of this course students will be able to:

1. Produce a design solution taking into account design specifications, appropriate engineering standards, and multiple realistic constraints. [3,5]
2. Design electronic systems to meet application requirements utilizing skills from previous coursework and modern engineering tools and techniques. [3,5]
3. Construct a prototype or example of the design solution. [3,5]
4. Devise and conduct tests to evaluate the performance of the prototype. [3,5]
5. Participate in the planning, preparation, and delivery of well-organized and logical oral presentations. [5,6,8]
6. Participate in the writing of a final project report using appropriate style, grammar, and graphics. [3,5]

¹Numbers in brackets refer to method(s) used to evaluate the course objective.

Relationship to Program Outcomes (only items in dark print apply)²: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering [1]; **(3)**
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering [2,3]; **(3)**
3. have the ability to analyze electrical circuits, devices, and systems [2,3]; **(2)**
4. have the ability to design electrical circuits, devices, and systems to meet application requirements [1,2,3]; **(3)**
5. have the ability to design and conduct experiments, and analyze and interpret experimental results [3]; **(3)**
6. have the ability to identify, formulate, and solve problems in the practice of electrical engineering using appropriate theoretical and experimental methods [1,2,3]; **(3)**
7. have effective written, visual, and oral communication skills [4,6,7]; **(3)**
8. possess an educational background to understand the global context in which engineering is practiced, including:
 - a. knowledge of contemporary issues related to science and engineering;
 - b. the impact of engineering on society;
 - c. the role of ethics in the practice of engineering;
9. have the ability to contribute effectively as members of multi-disciplinary engineering teams [5,6,7]; **(3)**
10. have a recognition of the need for and ability to pursue continued learning throughout their professional careers.

²Numbers in brackets refer to course objective(s) that address the Program Outcome. Numbers in **bold** in parentheses represent the degree to which the program outcome is a focus of the course. The scale is as follows:

- (3) Outcome is a major focus of the course;
- (2) Outcome is a significant focus of the course;
- (1) Outcome is a minor focus of the course;
- (0) Outcome is not a focus of the course.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:	0	hours
Engineering Sciences and Design:	3	hours
General Education Component:	0	hours

Prepared By: David M. Beams Date: January 19, 2011

Addendum: Statement from Criterion 4 of the 2007–2008 *Criteria for accrediting engineering programs* of the Accrediting Board for Engineering and Technology (ABET):

“Students must be prepared for engineering practice through the curriculum culminating in a major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints.”

The senior design sequence (EENG 4115 / 4315) is intended provide that major design experience.