

ELEG 4061 – SENIOR DESIGN I

Credits and Contact Hours

One credit hour, 16 hours of instructor contact; laboratory weekly.

Instructor's Name

Randle Overbey

Textbook

None.

a. Other supplemental materials:

The Art of Electronics, Horowitz and Hill, Cambridge University Press, 1989.

Designing Embedded Hardware, John Catsoulis, O'Reilly Media, 2005.

Microsoft Project

Microsoft Powerpoint

Specific Course Information

- a. Catalog description:
Capstone design and application in electrical engineering.
- b. Pre-requisites or co-requisites:
Prerequisite: Electronics 2 (ELEG 3224) and Microprocessor Systems Design (ELEG 3924).
- c. Required.

Specific Goals for the Course

1. Specific outcomes of instructions:
 - 1) Design, simulate and begin the construction of a prototype system to demonstrate understanding of the fundamentals of electrical engineering (electronics, microprocessors and signal processing) by applying knowledge gained in classes taken.
 - 2) Work as part of a group.
 - 3) Analyze an ethical case in electrical engineering and draw applicable conclusions; a written paper is required.
 - 4) Identify and understand the need for life-long learning; a written paper is required.
 - 5) Demonstrate a knowledge of contemporary issues involved in electrical engineering; a written paper is required.
 - 6) Make 2 formal oral presentations to a group of students and faculty (including the use of Microsoft Powerpoint and Microsoft Project.)
 - 7) Submit a formal written proposal outlining the objectives in item a) following the report guidelines established by the faculty.

2. Indicate the student outcomes listed in Criterion 3 addressed by the course
 - (a) Students are required to apply knowledge of mathematics, science, and engineering;
 - (b) Students must demonstrate the ability to design and conduct experiments, as well as to analyze and interpret data
 - (c) Students must demonstrate the ability to design a system, component, or process to meet desired needs;
 - (d) Students must demonstrate an ability to function on multi-disciplinary teams;
 - (e) Students are required to identify, formulate, and solve engineering problems;
 - (f) Students must demonstrate an understanding of professional and ethical responsibility;
 - (g) Students must demonstrate an ability to communicate effectively;
 - (h) Students must have the ability to understand the impact of engineering solutions in a global and societal context
 - (i) Students must demonstrate a recognition of the need for, and an ability to engage in life-long learning;
 - (j) Students must demonstrate a knowledge of contemporary issues;
 - (k) Students must demonstrate an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.