

ELEG 4073 – ELECTRICAL ENGINEERING DESIGN II

Credits and Contact Hours

Three credit hours, 45 hours of instructor contact

Instructor's Name

Roy McCann

Textbook

No required textbook.

Optional reference: The Art of Electronics, Horowitz and Hill, Cambridge University Press.

Specific Course Information

- a. Catalog description: Capstone design and application in electrical engineering.
- b. Pre-requisites: ELEG 4061.
- c. Required course

Specific Goals for the Course

Students develop the ability to design, simulate and build a system to demonstrate understanding of the fundamentals of electrical engineering (electronics, microprocessors and signal processing, RF & microwaves, etc.).

Indicate the student outcomes listed in Criterion 3 addressed by the course:

- (a) Students should acquire an ability to apply knowledge of mathematics, science and engineering to the analysis and design of electrical and electronic circuits and systems.
- (b) Students should acquire an ability to design and conduct experiments, as well as to analyze and interpret data related to electrical and electronic circuits and systems.
- (c) Students develop the ability to design electrical systems to meet performance specifications.
- (d) Students should demonstrate an ability to function on multi-disciplinary teams
- (e) Students should acquire an ability to identify, formulate, and solve engineering problems related to electrical and electronic circuits and systems.
- (f) Students should acquire an understanding of professional and ethical responsibility.
- (g) Students should be able to communicate engineering projects effectively in oral and written formats.
- (h) Students should have the broad education necessary to understand the impact of engineering solutions in a global and societal context.
- (i) Students should have a recognition of the need for, and an ability to engage in life-long learning.
- (j) Students should acquire a knowledge of contemporary issues.
- (k) Students should develop an ability to use the techniques, skills, and modern engineering tools (such as PSPICE and MATLAB) necessary for engineering practice related to electrical and electronic circuits and systems.

List of Topics

1. Project planning and organization (6 classes).

2. Schematics and engineering drawings (6 classes).
3. System design and integration (12 classes).
4. Printed circuit board fabrication and assembly techniques (6 classes).
5. Methods of product verification and validation (6 classes).
6. Project updates, demonstrations (6 classes).
7. Oral presentations (3 classes).