

University of Arkansas - Fort Smith
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General Syllabus

ELEG 21043 Electric Circuits I

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisite: MATH 25004 Calculus II

Corequisite: ELEG 21031 Electric Circuits I Laboratory

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Introduction to circuit variables, elements, and simple resistive circuits. Analysis techniques applied to resistive circuits. The concepts of inductance, capacitance, and mutual inductance. The natural and step responses of RL, RC, and RLC circuits.

B. Additional Information

This course is a requirement for all electrical engineering majors. No substitutions will be allowed.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Explain and solve electric circuit problems using Ohm's Law.
2. Explain and solve DC resistive circuits.
3. Explain the relationship between voltage and current for inductors and capacitors.
4. Solve for the natural response of RC, RL, and RLC circuits.

B. University Learning Outcomes

ELEG 2103 Electric Circuits I enhance student abilities in the following areas:

Analytical Skills

Critical Thinking Skills - Students will identify and analyze electric circuit problems and develop solutions.

Quantitative Reasoning - Students will apply calculus and differential equation skills in solving challenging electric circuits' problems.

III. Major Course Topics

- A. DC resistive circuits
- B. Natural response
- C. RL, RC and RLC circuits