

EEL 3112 Circuits II

Credits: 3

Text book, title, author, and year: Basic Engineering Circuit Analysis, 10th ed., J. D. Irwin and R. M. Nelms, Wiley, 2011

Reference materials: Instructor's handouts

Specific course information

- a. **Catalog description:** This course will provide the student with both the theory and applications of the fundamental principles of electrical circuits. Thevenin equivalence, RLC circuits, power concepts, 3-phase power transmission, filters, amplifiers, the Laplace transform, 2-port networks are studied.
- b. **Prerequisites:** EGN 3111 Circuits I.
- c. **Required, elective, or selected elective:** required

Specific goals for the course

Specific outcomes of instruction:

1. The student will understand response of RLC circuits to switching and sinusoidal inputs.
2. The student will be able to understand instantaneous, average and complex power.
3. The student will learn 3-phase power concepts.
4. The student will learn frequency response of circuits and the use of the Laplace transform to analyze circuits.
5. The student will learn the concept of 2-port networks.

Brief list of topics to be covered:

- Phasors, complex numbers, Thevenin's Theorem
- RLC circuits
- Power: instantaneous, average, RMS, complex
- 3-phase power transmission
- Frequency response of circuits (6 hours)
- Filters and amplifiers
- The Laplace transform
- 2-port networks