

Course Number: EE 202

Course Title: Electrical Circuit I (Required Course)

Course Description :

EE 202 – Electrical Circuits I (3-0-3)

Circuit elements, Basic laws: Ohm's, KVL, KCL, and Power calculations. Resistive circuits: voltage and current divider rules, Dependent sources. Circuit analysis techniques: Nodal and Mesh analysis. Network theorems: Thevenin's Norton's, Source transformation, Superposition, Maximum power transfer. Energy storage elements: definitions and voltage-current relationships. Responses of first order LR and LC circuits. Responses of second order circuits. Phasor steady-state sinusoidal circuits analysis.

Prerequisites:

MATH 102 and PHYS 102

Textbook :

James Nilsson and Susan Riedel, Electric Circuits, 9th edition, Prentice Hall, 2009

Other useful references and material :

Clayton R. Paul, FUNDAMENTALS OF ELECTRIC CIRCUIT ANALYSIS, 1st Edition, Wiley & Sons. Inc. 2001.

Course objectives :

- Apply basic laws: Ohms law, KVL, KCL and power calculations.
- Analyze resistive networks' and simplify complicated networks.
- Use different circuit analysis techniques.
- Deal with circuit containing energy storage elements.
- Determine transient and steady state responses of first order circuits including switches.
- Find responses of second order circuits.
- Perform Phasor frequency domain analysis.

Topics Covered:

- Circuits Variables, Independent Sources, Power and Energy,
- Ohm's law, KCL, KVL.
- Dependent Sources,
- Resistive Circuits
- Nodal Analysis and Mesh Analysis
- Source Transformations, Thevenin and Norton

