



Circuit Analysis II

Course: ELE112	Lecture 4 Credit(s) 3 Period(s) 3 Load
First Term: 2004 Fall	Laboratory 0 Credit(s) 3 Period(s) 2 Load
Final Term: Current	Course Type: Occupational
	Load Formula: S

Description: Alternating current (AC) and direct current (DC) circuits containing resistance and reactance. Detailed coverage of AC/DC circuit parameters, including theorems, impedance matching, and resonance

Requisites: Prerequisites: A grade of C or better in ELE111.

MCCCD Official Course Competencies

1. Explain principles of electromagnetism and electromagnetic induction. (I, II)
 2. Calculate voltages and currents using phasors. (III)
 3. Analyze the transient behavior of series Resistor Capacitor (RC) and Resistor Inductor (RL) circuits. (IV, V)
 4. Calculate inductive and capacitive reactances. (III)
 5. Use Kirchhoff's voltage and current laws to write loop or nodal equations for appropriate networks. (VI, VII, VIII, IX)
 6. Analyze the ideal transformer in terms of voltage, current and impedance. (VI)
 7. Calculate voltages and currents for series, parallel and series-parallel AC circuits using the concepts of impedance and admittance. (III, IV)
 8. Analyze and calculate basic three-phase circuits for various generator to load configurations. (IX)
 9. Apply the principles of superposition and Thevenin's theorems, to simple resistive and reactive circuits. (IX)
 10. Construct RL, RC, and Resistor, Inductor, and Capacitor (RLC) networks; measure currents and voltages using the appropriate text equipment. (VII, VIII, IX, X)
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MCCCD Official Course Outline

- I. Magnetism and electromagnetism
 - A. Electromagnetism
 - B. Electromagnetic induction
- II. Introduction to Alternating Current and Voltage
 - A. Non-sinusoidal waveforms
- III. Capacitance
 - A. Transient response of RC circuits

- B. Capacitance in AC circuits
 - IV. Inductance
 - A. Definition and physical properties
 - B. Circuit configurations and total inductance
 - C. Transient response of RL circuits
 - D. Inductance in AC circuits
 - V. Transformers
 - A. Loading and reflected load
 - B. Impedance matching
 - VI. RC Circuits
 - A. Approved circuits configurations and total impedance
 - B. Power in RC circuits
 - VII. RL Circuits
 - A. Circuit configurations and total impedance
 - B. Power in RL circuits
 - VIII. RLC Circuits
 - A. Circuit configurations and total impedance
 - B. Power in RLC circuits
 - C. Resonance
 - D. Filters
 - IX. Circuit Theorems
 - A. Voltage and current sources
 - B. Source conversions
 - C. Superposition theorem
 - D. Thevenin`s theorem
 - E. Maximum power theorem
 - F. WYE-DELTA networks and conversions
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Last MCCCCD Governing Board Approval Date: **11/25/2003**

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