The University of Texas at Tyler
Department of Electrical Engineering

EENG 3104 Linear Circuits Analysis I Laboratory (Required)

Syllabus

Catalog Description:

Introduction to principles and operation of basic laboratory equipment; engineering report preparation; design and implementation of experiments based on DC and AC circuit theory, network theorems, time and frequency domain circuit analysis. One three-hour laboratory per week.

Prerequisites: CO: EENG 3304

Credits: (0 hours lecture, 1 hours laboratory per week)

Text(s): None

Additional Material: Engineering paper and scientific calculator

Course Coordinator: Hector A. Ochoa

Topics Covered: (paragraph of topics separated by semicolons)

Electric concepts; Ohm's law; Kirchhoff's voltage and current laws; node and loop analysis; simple operational amplifier circuits; capacitance and inductance; sinusoidal response of *RC*, *RL*, and *RLC* networks.

Evaluation Methods: (only items in dark print apply):

1. **Examinations / Quizzes**
2. Homework
3. **Report**
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives[1]: By the end of this course students will be able to:

1. Use electronic laboratory test equipment: digital multimeter, signal generator, and oscilloscope[1,3];
2. Explain the concepts of Thévenin-equivalent circuits and linear superposition and apply them to laboratory measurements[1,3];
3. Predict the behavior and make measurements of simple operational-amplifier circuits[1,3];
4. Predict and measure the sinusoidal steady-state responses of simple RC and RLC circuits[1,3];
5. Report laboratory results through effective written reports[3].

[1] *Numbers in brackets refer to method(s) used to evaluate the course objective.*

Relationship to Program Outcomes (only items in dark print apply): This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering
3. have the ability to analyze electrical circuits, devices, and systems
4. have the ability to design electrical circuits, devices, and systems to meet application requirements;
5. have the ability to design and conduct experiments, and analyze and interpret experimental results;
6. have the ability to identify, formulate, and solve problems in the practice of electrical engineering using appropriate theoretical and experimental methods;
7. have effective written, visual, and oral communication skills
8. possess an educational background to understand the global context in which engineering is practiced, including:

a. knowledge of contemporary issues related to science and engineering;
b. the impact of engineering on society;
c. the role of ethics in the practice of engineering;

9. have the ability to contribute effectively as members of multi-disciplinary engineering teams;
10. have a recognition of the need for and ability to pursue continued learning throughout their professional careers.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:	0	hours
Engineering Sciences and Design:	1	hours
General Education Component:	0	hours

Prepared By:	David M. Beams	Date:	15 May 2006
Modified By:	Hector A. Ochoa		7 Jan 2008
	Hector A. Ochoa		13 Jan 2009
	Hector A. Ochoa		13 Feb 2009
	Hector A. Ochoa		11 Jan 2011