EENG 2980.001 Circuit Analysis Lab
Fall 2017 Syllabus

Class meetings B207 Monday 5:30 AM -8:20 PM

Course Description
Supplements the material of Circuit Analysis EENG 2610 providing practical hands-on experience with circuit implementation as well as analysis using PSpice and MATLAB. Practical verification and testing of fundamental laws and analysis methods. Includes practice safety in the laboratory, using test equipment, implementing and testing electric circuits on breadboards and prototype boards (Credit hours: 1).

Prerequisites
Circuit Analysis (EENG 2610) May be taken concurrently

Instructor
Miguel F. Acevedo, Regents Professor Electrical Engineering Department, Office DP B-260, Phone 940-891-6701, Email Miguel.Acevedo@unt.edu Office hours: Monday 4-5 pm, Tuesday and Thursday 9-9:50 AM, and 11:30-12:00, or by appointment.

Teaching Assistant
Veena Chidurala, Graduate Student Electrical Engineering Department, Office B-251, Phone (940)999-7736, Email VeenaChidurala@my.unt.edu Office hours: Wednesday 2PM-5PM, Friday 1PM- 4PM, or by appointment.

Format
- Labs based on lab guides and textbook
- Online: announcements, grades via Blackboard learn https://learn.unt.edu

Grade
- Average of weekly lab reports: 100% of grade.
- Attendance is mandatory to pass the class. Roll call begins at 5:30 pm.
- Weekly lab reports are due before the class in the following week.
- Weekly reports are submitted individually.
- Late submissions will be penalized except in extenuating circumstances.

Required Textbooks

Class Evaluation by Students
SPOT is a requirement for all organized classes at UNT and is available for your input at the end of the semester.

**Course Learning Outcomes**

After completing this course, students will be able to:

1. Practice safety in the laboratory.
2. Competently use electronic test equipment.
3. Implement and characterize electric circuits according to specification on breadboards.
4. Identify values of resistor, capacitor, and inductor and pins of IC chips from datasheet.
5. Use of SPICE as a tool for simulating various circuits for analysis.
6. Analysis of circuits using MATLAB.
7. Analyze and interpret experimental results and writing lab reports.
8. Work in teams.
9. Conduct system testing and troubleshooting of electric circuits.

**Schedule by week**

1. Lab safety guidelines and laboratory equipment. Measurements of voltage, current, and resistance. Testing Ohm’s law and power calculation. Introduction to PSpice.
2. No class – Labor day
6. Introduction to MATLAB and integration to PSpice. Testing Superposition, Thévenin theorem, maximum power transfer. Analysis using PSpice and MATLAB.
8. Study and review time labs 1-7 (Midterm week in EENG 2610)
10. AC circuits, basic concepts, sinusoidal, measuring phase angle, impedance calculations. Analysis using PSpice and MATLAB.
11. Using MATLAB for AC calculations, phasors and complex numbers. Instantaneous power.
12. AC circuit analysis. Testing analysis techniques in AC. KVL, KCL, Thévenin theorem. AC power, RMS, power factor. Analysis using PSpice and MATLAB.
13. Transformers, AC three-phase circuits. Analysis using PSpice and MATLAB.
15. Study and review time labs 8-14 (Preparing for finals week)
Policies

Grades: All grades for the course will be final. No extra credit assignments or work will be considered after the final grade has been recorded.

Accommodations: The EE Department in cooperation with the Office of Disability Accommodation complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request before the 12th class day.

Academic Dishonesty: Students caught cheating, plagiarizing, or any other academic dishonesty will be subject to penalty according to the new Policy on Students Standards on Academic Integrity. See full policy at http://www.unt.edu/policy/UNT_Policy/volume3/18_1_16.pdf

According to this policy the categories of academic dishonesty are:

A. Cheating. The use of unauthorized assistance in an academic exercise, including but not limited to:
   a. use of any unauthorized assistance to take exams, tests, quizzes or other assessments;
   b. dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments;
   c. acquisition, without permission, of tests, notes or other academic materials belonging to a faculty or staff member of the University;
   d. dual submission of a paper or project, or re-submission of a paper or project to a different class without express permission from the instructor;
   e. any other act designed to give a student an unfair advantage on an academic assignment.

B. Plagiarism. Use of another’s thoughts or words without proper attribution in any academic exercise, regardless of the student’s intent, including but not limited to:
   a. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
   b. the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

C. Forgery. Altering a score, grade or official academic university record or forging the signature of an instructor or other student.

D. Fabrication. Falsifying or inventing any information, data or research as part of an academic exercise.

E. Facilitating Academic Dishonesty. Helping or assisting another in the commission of academic dishonesty.

F. Sabotage. Acting to prevent others from completing their work or willfully disrupting the academic work of others.