University of North Texas, College of Engineering  
Department of Electrical Engineering

EENG 2610.002: Circuit Analysis

Spring 2015  
Tuesday and Thursday, 11:30 AM - 12:50 PM  
Classroom: NTDP B217

Instructor
- Dr. X. Li, Office: NTDP B231, Tel: (940) 891-6875, Email: xinrong@unt.edu  
  Office Hours: Monday and Thursday 2:00 - 3:00 PM  
  (Additional appointments can be requested by email.)
- TA: Ginna Caraballo Tafurt, Office: B245, Email: GinnaCaraballoTafurt@my.unt.edu;  
  Office Hours: Monday and Thursday, 8:00 – 11:00 AM.

Course Description
- Introduction to electrical elements, sources and interconnects. Ohm's law, Kirchhoff's law,  
  superposition and Thevenin's theorems are introduced. The resistive circuit, OP Amp, RL, RC  
  circuits, Sinusoidal analysis.

Prerequisites
- MATH 1720, co-requisite: PHYS 2220/2240

Course Objectives
By the end of the course, you will
- Understand basic concepts of DC and AC circuit behavior;
- Develop ability to apply circuit analysis techniques to simple RLC and op-amp circuits;
- Develop ability to formulate and solve circuit analysis problems.  
  (ABET outcomes: a, e)

Required Textbook
  Authors: J. David Irwin and R. Mark Nelms  

Course Requirements and General Policies
- Class attendance is mandatory. Lectures and class discussions will contain vital information  
  needed to do well on the exams.
- Everyone must turn in individual homework. Simply copying other people's homework will be  
  treated as a violation of academic honesty.
- If you arrive late, enter quietly and sit down. Do not walk in front of speakers or disrupt the  
  class in any other way.
• Remember to turn off phones prior to class.
• Do not wait until the last minute. If you are having trouble with this class, stop by my office during office hours. I am also available by email.
• Visit http://www.unt.edu/csrr for your rights and responsibilities.

Disability Accommodation
• The University of North Texas (UNT) complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. UNT provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation (http://www.unt.edu/oda) at 940-565-4323 during the first week of class. It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office.

Assignments and Exams
• No late assignments will be accepted and no emailed assignments will be accepted, except in extenuating circumstances. Homework is due before the class time on the due date.
• There will be 3 exams (including the final exam). Exams will be based on text readings, handouts, class exercises, class lectures and discussions, and homework assignments. Students are responsible for all text material, regardless of whether we review the text material in class or not. You will be allowed to make up a missed exam only if you have a documented university excused absence. If you know in advance that you will miss an exam, you must contact me before the scheduled exam.

Grading Policies
• Attendance, 5%
• Homework, 20%
• Two Mid-term Exams, 50% (25% for each)
• Final Exam, 25%
• There will be no extra credits.
• Final accumulated number score is on a 100 point scale.
• Final letter grade distribution: A=100-85, B=75-84, C=65-74, D=55-64, F=0-54
• In the case of your final accumulate number score is within D or F bracket, if your final exam score is in the C bracket or above, you will receive a final letter grade of C to pass this course.
• According to the College of Engineering degree requirements, in order to pass this class, you need a final letter grade of C or better.
Course Outline and Tentative Schedule

You can find the lectures notes and homework assignments in the Blackboard Learn.

- **First day of classes: January 20, Tuesday**
- Class 1: Basic Concepts (textbook sections: 1.1, 1.2, 1.3)
- Class 2: Ohm's Law, Kirchhoff's Laws (2.1, 2.2)
- Class 3: Single-Loop Circuits, Single-Node-Pair Circuits (2.3, 2.4)
- Class 4: Resistor Combinations, Circuits with Dependent Sources (2.5, 2.6, 2.7, 2.8)
- Class 5: Nodal Analysis (3.1)
- Class 6: Loop Analysis (3.2)
- Class 7: Op-Amp Models (4.1, 4.2)
- Class 8: Op-Amp Circuits (4.3, 4.4)
- **Mid-term Exam 1 (February 19, Thursday)**
- Class 9: Linearity, Superposition (5.1-5.2)
- Class 10: Thevenin's Theorem (5.3)
- Class 11: Norton's Theorem, Maximum Power Transfer (5.3, 5.4)
- Class 12: Capacitors, Inductors (6.1, 6.2)
- Class 13: C L Combinations, RC Op-Amp (6.3, 6.4)
- Class 14: First-order Circuits (7.1, 7.2)
- Class 15: Second-order Circuits (7.3)
- Lab Demo
- **Mid-term Exam 2 (April 2, Thursday)**
- Class 16: Sinusoids, Phasors, Impedance, Admittance (8.1-8.5)
- Class 17.1: AC Circuit Analysis Techniques (8.7)
- Class 17.2: AC Circuit Analysis Techniques (8.8)
- Class 18: Power, Maximum Average Power Transfer, RMS values (9.1-9.4)
- Class 19: Mutual Inductance (10.1)
- Class 20: Energy Analysis, Ideal Transformer (10.2, 10.3)
- Class 21: Variable Frequency-Response Analysis, Resonant Circuits, Filter Networks (12.1, 12.2, 12.3, 12.5)
- **Final Exam (May 12, Tuesday, 11:00am – 1:00pm)**

Useful Links

- UNT Catalogs: [http://www.unt.edu/catalog/](http://www.unt.edu/catalog/)
- Office of the Registrar: [http://essc.unt.edu/registrar](http://essc.unt.edu/registrar) (schedule of classes and exams, etc.)
- Eagle Student Services Center: [http://essc.unt.edu/](http://essc.unt.edu/)

*Last updated: 01/17/2015*