EE 003 - Linear Circuit Analysis I
Fall 2016
Course Syllabus/Policy

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Course web site: bb.uvm.edu

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1 Overview and Prerequisites

This course is intended as a first course in the analysis of linear electric circuits. College level physics, calculus, and a first course in computer programming are pre/co-requisites.

2 Text and readings

The primary text for this course will be *Electric Circuits* (10th Edition) by Nilsson & Riedel.

3 Objectives

Upon successful completion of this course students should be able to:

1. Solve (find all unknown voltages and currents) in pretty much any DC, steady-state linear circuit (one with resistors, capacitors, inductors, voltage/current sources, dependent sources, etc.)
2. Make effective use of a variety of circuit analysis techniques
   (a) Node voltage
   (b) Mesh current
   (c) Current and voltage dividers
   (d) Resistor/Capacitor/Inductor reduction
   (e) Thevenin and Norton equivalent
3. Explain the definitions of and relationships between Voltage, Current, Power, Energy with deep physical and mathematical understanding.
4. Be able to solve for voltages and currents in a variety of op-amp circuits

(a) Inverting, non-inverting, difference amplifiers
(b) Integrating amplifier
(c) Difference amplifier

5. Solve for the time-domain voltage or current equations in first-order transient circuits
6. Solve for the time-domain voltage or current equations in second-order transient circuits
7. Design and build small computer programs for solving circuits

4 Schedule

Class meetings are in Jeffords 112 MWF from 12:00-12:50pm. The exact schedule of topics will evolve as we go along.

5 Grading

Grading will be numerical, weighted as follows:

- Three in-class exams, the lowest score of which will be dropped, and a final exam. These exams will be weighted as follows: 25%, 25%, and 30% of final your grade.
- Regular homework assignments (about 10%). Homework assignments will be assigned approximately weekly, generally due on Fridays. Students are encouraged to work in groups on their homework, but should submit separate written work (identical answers from multiple students will receive zero scores). In most cases, homework assignments will include several problems from the book (with solutions) and one "Turn-in problem." There is no need to turn in the book problems; these will not be graded. Do turn in the "turn-in" problem. Homework should be submitted electronically, via blackboard. Students are encouraged to learn one of the available tools for producing beautiful documents with equations, such as LyX (my personal favorite), LaTeX or (if absolutely necessary) Word's equation editing tools. Please upload your submission as a single pdf file. In a few cases the homework will include relatively short programming assignments.
- In-class quizzes (about 10%). In-class quizzes will be given periodically, and will use the "iClicker" system. If you do not own an iClicker, please pick one up from the bookstore or online. Many, but not all, of these quizzes will be "group work" style in which you are allowed to work with your neighbor. Instructions for connecting your iClicker to blackboard are available here:
  - http://www.uvm.edu/ctl/resources-teaching/iclickers/set-up.php

Grades will be recorded on the course blackboard site (http://bb.uvm.edu) so check this often. Note that the final weights and adjustments will be done after-the-fact (since this is tricky with blackboard).

Letter grades will be assigned at the end of the course, based on the standard breakdown:

Score	93%+	90%+	87%+	83%+	80%+	77%+	73%+	70%+	60%+	<60%
Grade	A	A-	B+	B	B-	C+	C	C-	D	E

I reserve the right to adjust grades up (for the better) from the above scheme, though grades will not be reduced below this scheme.

6 Academic integrity

It is expected that everything that you submit with your name on it is your own work. Anything that is not 100% your own work should be clearly labeled as such (credit your sources, group members, etc.). If you copy a picture—or anything—from the Internet, cite your source. If you copy solutions from somewhere, cite your source. Students who submit others' work as their own risk failing the course and will be referred to the Center for Student Ethics and Standards for discipline. The UVM policy on academic integrity is a useful guide:
http://www.uvm.edu/∼uvmppg/ppg/student/acadintegrity.pdf.