

EE220: Circuits I

Course Syllabus - Spring 2014

Time and room: Section 1; MW 2:30 to 3:45 pm.
Prerequisite: MAT 182 (GRADE C or above). **Corequisite:** EE220 D
Textbook: Fundamentals of Electric Circuits, Charles K. Alexander and Matthew N.O. Sadiku, 5th Edition

Instructor: Dr Henry Selvaraj
Office: TBE B-336 **Phone:** 895 4184 **Email:** henry.selvaraj@unlv.edu

Semester Grades will be computed as follows:

Test 1:	20 points (February 19)
Test 2:	25 points (March 26)
final exam:	35 points
home work:	20 points
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Total	100 points

Guaranteed Grades: A- (> 90%); B- (> 80%); C- (> 70%);

- The course home page is located at: <http://www.ee.unlv.edu/~selvaraj/>
- Important announcements, notices and any other current information will be posted in the homepage.
- Please read the course description in the home page.
- Homework will be due on the designated day at the start of class. No credit will be given for late homework. Homework solutions will be posted outside my office after due date. Homework problems will not be discussed in class. You are welcome to clear doubts in my office during office hours.
- Office Hours: MW 4:00 pm. to 5:30 pm. If you are not able to make these times, call and make an appointment.
- Late homework will be accepted for full credit if and only if illness or truly urgent business interferes with the schedule of the course. Please make arrangements in advance.
- No make up test/exam will be given under any circumstances. If the student presents convincing evidence for his/her absence on the exam day, he/she will be allowed to take the final with an additional weight equal to that of the mixed exam.
- Last date to drop classes: April 04, 2014.
As per the University rules, drops and withdrawals will not be allowed after this date even with instructor approval.
- Attendance is required in class.
- Cheating: Students are encouraged to discuss problems with each other. However please do not copy homework. It is not going to help you in the long run.
- **Any person caught cheating will be given an 'F' grade for the course and reported to appropriate university officials.**
- If you have a documented disability that may require assistance, you will need to contact the Disability Resource Center (DRC) for coordination in your academic accommodations. The DRC is located in the Reynolds Student Service Complex in room 137. The phone number is 895 0866 or TDD 895-0652. Or visit the DRC website at:
http://www.nscee.edu/unlv/Student_Services/Disability_Resource_Center/
- It is UNLV's policy to give students who miss class because of observance of religious holidays the opportunity to make up missed work. Students are responsible for notifying the instructor no later than the September 5) of plans to observe the holiday.

Rules Regarding Homework

- Do not wait to finish the chapter to start your homework.
- All homework assignments are due in class at the beginning of class.
- All problems must be started on a separate sheet and written neatly on 8.5 by 11 inch paper.
- Put a box around your final answer.
- Staple all your sheets together. I will not accept loose papers.

Topics:

Chapters 1-7 in the text book.

Henry Selvaraj
January 22, 2014.

EE 220 – CIRCUITS I

CATALOG DATA

Introduction to linear circuit analysis. Kirchhoff's laws; operational amplifiers; node and loop analysis; Thevenin, Norton, and other network theorems; first- and second-order circuits.

TOPICS

- Introduction, basic definitions, basic electric elements
- Ohm's Law and Kirchhoff's Laws
- Network Equivalence, Series Resistors and Voltage Division, Parallel Resistors and Current Division, Analysis of Series-Parallel Circuits
- Analysis techniques (Nodal, Mesh and Loop Analysis)
- Linear Property, superposition, source transformation theorems
- Thevenin and Norton Equivalent circuits, maximum power transfer
- Op-amps and Op-amp-based circuits
- The energy storage elements
- First order RL and RC circuits
- Second-Order circuits

COURSE OUTCOMES

Upon completion of the course, students will be able to:

- Analyze simple resistive circuits including those containing independent sources with mesh and nodal analysis (1.b, 1.c, 1.f, 1.g, 1.i, 1.j)
- Derive simplified resistor networks (1.c, 1.f, 1.g, 1.i, 1.j)
- Derive Thevenin and Norton equivalent circuits (1.b, 1.c, 1.f, 1.g, 1.i, 1.j)
- Apply circuit theorems (Ohms Law, Superposition, Source transformation) to simplify the analysis of electrical circuits (1.b, 1.c, 1.f, 1.g, 1.i, 1.j)
- Analyze of operational amplifiers circuits (1.c, 1.c, 1.g, 1.i, 1.j)
- Analyze first- and second-order RL, RC circuits containing switches, independent sources, dependent sources, resistors, capacitors, inductors for transient response (1.a,1.b, 1.c, 1.f, 1.g, 1.i, 1.j)

ABET COURSE OUTCOMES

1. The appropriate technical knowledge and skills:

- a. an ability to apply mathematics through differential and integral calculus,
- b. an ability to apply advanced mathematics such as differential equations, linear algebra, complex variables, and discrete mathematics,
- c. an ability to apply knowledge of basic sciences,
- f. an ability to apply knowledge of engineering,
- g. an ability to identify, formulate, and solve engineering problems,
- h. an ability to analyze and design complex electrical and electronic devices,
- i. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice,

COURSE PREPARER AND DATE OF PREPARATION: Dr. Henry Selvaraj