EE221: Circuits II
Course Syllabus - Fall 2014

Time and room: Section 1; MW 1:00 to 2:15 pm. TBE B176
Prerequisite: EE 220, and CSC 117 or CSC 135

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	(Sept. 29)
Test 2:	25 points	(October 27)
final exam:	35 points	
home work:	20 points	
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 5:00 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: October 31, 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 8-19 in the text book.

CATALOG DATA

Sinusoidal steady state analysis using phasors, sinusoidal steady state power, the Laplace transform and its application to circuit analysis, network functions, frequency response, magnetically coupled circuits and transformers.

TOPICS

- Sinusoidal Steady-State Analysis: sinusoids, phasor concept, impedance and admittance, phasor diagram.
- AC Steady-State Analysis: nodal, mesh, superposition, Thevenin and Norton equivalents, Op Amp circuits.
- AC Power Analysis: instantaneous and average power, complex power, power factor, power superposition principle, conservation of power.
- Three-Phase Circuits: Y and Delta circuits, balanced and unbalanced circuits, power in three-phase circuits, two-wattmeter power measurement.
- Magnetically Coupled Circuits. Mutual inductance, energy in coupled circuits, linear transformer, ideal transformer.
- Frequency Response: transfer functions, gain and phase shift, resonant circuits, Bode plots, passive and active filters.
- Two-Port Networks: impedance, admittance, hybrid, and transmission line parameters, interconnection of networks and applications.

Course Objectives:
Learn to

- solve circuits problems under sinusoidal steady-state conditions using phasors and impedances,
- calculate various powers and how to correct the power factor in sinusoidal steady-state circuits,
- analyze circuits with coupled inductors and ideal transformers,
- analyze both balanced and unbalanced three-phase circuits,
- measure and calculate real power in three-phase circuits,
- derive the frequency response of electric circuits using Bode plots,
- apply two-port networks to circuit problems.

Course OUTCOME:
Students should be able to

- analyze steady-state sinusoidal circuits using phasors and impedance,
- calculate real, reactive, apparent and complex powers, and correct the power factor in a given circuit,
- analyze three-phase circuits and calculate real power,
- derive and plot the frequency response of a given circuit,
- analyze circuits using two-port networks.

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; August 25, 2014.