ECE 1246 - Circuits 2

Instructor: Jeff Hopwood, 329 Dana Research Building  
ph: x3006 email: hopwood@ece.neu.edu

Office Hours: Tu @ 1:35-2:40, Tu @ 2:50-3:55, and W @ 5-6 pm.  
I will also be happy to help you outside of these hours.

Text: Analysis and Design of Linear Circuits, Thomas and Rosa (3rd edition)

Corequisite: ECE 1241, Circuits Lab. This lab covers material that was covered in Circuits 1 only.

Course Goals: Upon completion of this course, a student should:
(1) be able to apply phasor methods to circuit analysis and to series and parallel resonance,
(2) be able to apply Laplace transform techniques to solving circuit differential equations,
(3) be able to analyze circuits in the s domain using node and mesh analysis,
(4) be able to determine equivalent circuit impedances and to identify forced and natural poles,
(5) be able to determine network functions and design circuits to match given transfer functions,
(6) understand frequency response in first-order and second-order circuits, and apply the concepts to gain and phase plots, that is, Bode diagrams,
(7) be able to analyze circuits with coupled coils, and circuits with a linear transformer,
(8) be able to apply knowledge of MATLAB to solving circuit problems and obtaining graphical output.

Outline:

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<th>Week</th>
<th>Topic</th>
<th>Text Readings</th>
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<td>1</td>
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Grading: Homework 20%  
Quizzes (4) 40%  
Final 40%  

Homework: Weekly homework assignments will be collected and graded. Once the solutions have been provided, no late homework will be accepted. You are encouraged to work on homework problems in groups, BUT the work that you submit must be your own (no copies of the group solution!) If you are working with a group, make certain that you understand every part of your solution.

Quizzes: There will be four scheduled quizzes during the quarter. Quizzes will be closed-book and closed notes. You may drop the lowest quiz score. No make-ups will be given for quizzes - if you miss a quiz, that quiz score will be the one that is dropped.

Final Exam: The final exam will cover all of the material from the class. The final exam will be closed-book, but you will be allowed to use 1 - 8.5x11" sheet of notes (both sides).

Academic Honesty:

No collaboration is allowed under penalty of failure. Plagiarism and cheating will not be tolerated; they will be dealt in accordance with University policies described in the Student Handbook. All engineering majors should be familiar with the Honor Code of our College of Engineering that is included in the GE 1001 course material, and with professional engineering codes of ethics (see, for example, the NSPE Code of Ethics presented in the Engineering by Design textbook on pages 511-514). Although students are encouraged to discuss homework assignments and work together to develop a deeper understanding of the topics presented in this course, submission of others' work as your own is not permitted. Copying of computer code is not allowed. Each student is expected to prepare and submit his/her own programs, reports, drawings, and other materials. If two students’ work is suspiciously similar, a penalty may be assessed to both students. If a situation arises in which you are uncertain if cooperation with another student would constitute cheating or some other violation of the honor code, please ask the instructor for guidance and clarification of these rules. Violators will be referred to the Student Court for review, where penalties may include but are not restricted to: zero credit on the work, student placed on probation, submission of information on judgement in the students' permanent record.