Syllabus
Instructor: Peter McLaren
Office: College of Engineering, B367; CAPS Building on Levy Avenue, Room 145
phones: 410-6300 (COE) and 644-8075 (CAPS)
Hours: Open Door Policy; also in B367 from 4.00pm to 5.00pm Tuesdays and Thursdays for student questions; Monday, Wednesday & Friday in CAPS
Email: mclaren@eng.fsu.edu
TA Jie Wang, jw05j@garnet.acns.fsu.edu


Web site: http://www.caps.fsu.edu/courses.asp

Course description and scope
The course will start out by revising phasor representation of ac quantities. It will then cover the circuit analysis of steady state single-phase and three-phase circuits. Thereafter it will consider mutually coupled circuits and the ideal transformer.
Transient analysis of first order and second order circuits will prepare the way for the study of circuit transfer functions and frequency response. The use of Bode plots and computer software to generate transfer functions and waveforms will be demonstrated.

Objectives:
1. Develop expertise in the use of phasors in ac circuit analysis. Calculate the average power absorbed in an AC circuit in terms of rms quantities and power factor.
2. Identify the relationships between the phase voltages, line voltages, the phase currents, and the line currents of a three-phase circuit.
3. Calculate average power absorbed by a balanced three-phase load in both wye and delta connections.
4. Analyse circuits containing mutually coupled elements.
5. Identify the characteristics of an ideal transformer.
7. Use computer software to plot the transient response of an RLC circuit.
8. Derive the transfer function of a RLC circuit.
9. Construct the Bode plots for a given transfer function.
10. Plot the frequency response of an RLC circuit with a computer program.
# Provisional Course Outline

<table>
<thead>
<tr>
<th>Topics</th>
<th>Chapter</th>
<th>Approx. Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Revision of phasors;</td>
<td>8</td>
<td>1\textsuperscript{st} week</td>
</tr>
<tr>
<td>2. Steady-State single phase AC circuit analysis</td>
<td>8,9</td>
<td>2\textsuperscript{nd} - 3\textsuperscript{rd} week</td>
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<tr>
<td><strong>Test #1</strong></td>
<td>10%</td>
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<tr>
<td>3. Three-Phase Circuits</td>
<td>11</td>
<td>4\textsuperscript{th} - 5\textsuperscript{th} week</td>
</tr>
<tr>
<td>4. Magnetically coupled Circuits and Transformers</td>
<td>10</td>
<td>6\textsuperscript{th} - 7\textsuperscript{th} week</td>
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<tr>
<td><strong>Test #2</strong></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>5. Transient Response</td>
<td>7</td>
<td>8\textsuperscript{th} - 10\textsuperscript{th} week</td>
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<tr>
<td><strong>Test #3</strong></td>
<td>20%</td>
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<tr>
<td>6. Frequency Response, Resonance, Bode plots</td>
<td>12</td>
<td>11\textsuperscript{th} - 14\textsuperscript{th} week</td>
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<tr>
<td><strong>Final Exam</strong></td>
<td>45%</td>
<td>15\textsuperscript{th} week</td>
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## Grading System:

- **HW**: 5%
- **3 Tests**: 50%
- **Final**: 45%

## Office hours:

4.00 – 5.00 pm, Tuesday, Thursday in B367. Otherwise in CAPS building, room 145
EEL 3112

• **Class Attendance and Participation.** Class attendance and participation are very important to learning the material and are required. Class discussions will involve novel solution techniques, modeling helps, and problem solving. It is recommended that a full scientific calculator be brought to class. A calculator that can perform complex arithmetic will be most advantageous.

• **Homework.** Homework assignments are due one week after being assigned. Completed assignments should be turned in by 5:00pm on the due date, either in the Faculty Mailbox in the ECE Department or in class. Group study sessions for understanding and solving homework problems is strongly encouraged. However, each student is responsible for her/his own work and turning in the assignment.

• **Homework Format.** Use engineering paper (available in the bookstores), writing on only one side of the page; begin each problem on a new page, and draw a box around the final answer. Each completed assignment should be clearly presented so that others can follow the solution process. The solution method is just as important to the grade as the final numerical solution.

• **Late homework.** Solution sets will be accepted up to one week after the due date. Late assignments (any that come in after 5:00pm on the due date) will receive a maximum grade of 50%.

• **Tests.** There will be three midterm tests during the semester and a comprehensive final exam. The test and the final exam will be closed book and closed notes. Group study sessions for understanding and solving homework problems is strongly encouraged. However, each student is responsible for her/his own work and turning in the assignment.

• **Missed Tests.** If you miss a test without either a certified medical excuse or prior instructor approval, you will be allocated a zero for that test. Tests missed with certified medical excuse or prior instructor approval will be dealt with individually. In the majority of cases, a make-up test will not be given, but the final exam weight will be adjusted to account for the missed test. If you miss the final exam without a valid excuse, you will be allocated a zero for the exam.

• **Grade Disputes.** Disputes in grading of homework and tests must be made within one week after the graded work has been returned to the student. The student will have the burden of proof to show why her/his solution method is correct.

• **Calculation of Course Grade.** A weighted average grade will be calculated as specified on the first page of the syllabus. A weighted grade is guaranteed a course grade as specified on the first page. This course will not have curved grades of the course grade. Your performance depends on how you do, not on how everyone else in the class does. It is therefore in your best interest to help your classmates in every legal way possible.

• **Gray Areas between Guaranteed Letter Grades.** There can be a “gray area” of several points below the specified numerical cutoff grades, within which some discretion of the letter grade will be used. The decision whether a student gets a higher or lower grade depends on whether the test performance has been improving or declining, and whether the student’s class participation is exceptional or inadequate. The use of the gray area is at the sole discretion of the faculty instructor.

• **Consulting with Faculty.** It is strongly encouraged that you discuss academic questions with the course instructor during office hours.

• **Honor Codes.** The FAMU and FSU Honor Codes shall be observed. Students are expected to uphold the Academic Honor Code as published in the associated University Bulletin and Student Handbook. The Academic Honor System is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student’s own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community. Although study groups are encouraged, all homework and tests must represent work of individual students. Copying of homework, cheating on tests and all other forms of academic dishonesty will not be tolerated. Academic dishonesty will be dealt with by a zero grade for the assignment or test.

• **ADA Accommodations and Requirements.** Students with disabilities needing academic accommodations should:
  1. Register with and provide documentation to the Student Disability Resource Center (SDRC).
  2. Bring a letter to the instructor from the SDRC indicating you need academic accommodations. This should be done within the first week of class.

For more information about services available to FAMU & FSU students with disabilities, contact the Assistant Dean of Students at your respective university.