Course Information
ECE 211 Fall 2011

Goals and Objectives

The objective of this course is to introduce you to the methodology of electrical and computer engineering and lay a foundation for future work in the field through the study of electrical circuits. In particular, at the conclusion of this course, you will:

- understand the methodology of modeling real-life systems by lumped circuit models;
- be able to analyze DC resistive circuits using network theorems such as superposition, Thevenin's Theorem, and Norton's Theorem;
- be able to analyze RC, RL, and RLC circuits through the use of differential equations;
- be able to analyze basic RC, RL, and RLC circuits through the use of Laplace transform techniques; and
- be able to use modern software tools, particularly PSpice, for the analysis and simulation of electric circuits.

Instructional Approach

The term you will likely hear most often is "mastery". Course credit is earned entirely and exclusively through mastery of 16 online modules and 7 computer assignments covering all the topics of the course. There are still lectures and recitations, but there are no weekly homework assignments or quizzes and no midterm or final exams. Since the modules are administered online, you may retake them. This means that if you do not master a module, it does not count against you, but if you do master a module, it counts toward your semester grade. The questions and contexts will change with every attempt, but the central concepts and techniques do not change. Thus, if you have truly mastered the material, you can be given any circuit, be asked any question, and you will be able to answer it correctly.

It is strongly recommended that you attend all lectures and recitations. These will help you learn the concepts and techniques needed to demonstrate mastery in the online modules and computer assignments.

Course Format

Lecture: Three 50-minute lectures per week (MWF 9:05–9:55, in HASA 134)

Recitation: One 75-minute recitation per week (all Tu; 9:30–10:45, in Marston 15; 11:15–12:30, in Marston 15; and 1:00–2:15, in Marston 220)

Mastery Modules: Sixteen online tests, administered by OWL

Computer Assignments: Two Excel projects, two MATLAB projects, and three PSpice labs, all of which will be made available under Assignments (use nav-bar on the left) and done by each student outside the classroom on the computer.
Instructors

Bill Leonard
Marcus 8B
545-3513
leonard@ecs.umass.edu
Office Hours: MW, 2–3, or any time I am in my office
Responsibilities: Overall class organization and administration, lectures, OWL, web site

Ramakrishna Janaswamy
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Office Hours: Th, 10–12
Responsibilities: Recitations

Teaching Assistants / Peer Tutors / SI Leader
[to be determined]

Prerequisites and Corequisites

In order to take this course, you must have earned a C or better in the following: Math 132 or 136; Physics 151 and 153; ENGIN 112; and ECE 122.

Physics 152 and 154 are corequisites, though it is recommended that you complete them before attempting this course.

A status of EE or CSE standing is required. If you have not qualified for EE or CSE yet (e.g., you are still an ENGIN major), you will be withdrawn from the course. To look into changing your major, please see Barbara Hastings in Marcus 203.

Textbooks

Required (available in the Textbook Annex)


Recommended Supplement (available online at a variety of sites)


Course Components

There is no weekly homework in this course and no weekly quizzes. There are no semester exams, and there will not be a final exam. Instead, your grade will be determined by the number and type of online modules you successfully master. Computer assignments will potentially adjust your semester grade as described below. Thus, there are only two required components in this course: Computer assignments and Mastery modules. We will be using a mastery approach for both.

Computer assignments. During this semester, you will learn the rudiments of Excel, MATLAB,
and PSpice. For Excel and MATLAB, there are 4 projects, with a total of 10 problems, 5 each in Excel and MATLAB. For PSpice, there are 3 labs, also with a total of 10 problems. Problems are worth 10 points each, for a maximum of 200 points. Descriptions will be available in Assignments (in the nav-bar on the left). Due dates are every week of the semester from early October until before Thanksgiving break. Each computer assignment can be resubmitted without penalty at any time before the last day of classes.

**Mastery modules.** There are a total of 16 online modules, administered by OWL. Twelve are "Basic" modules, covering definitions and basic techniques. Three are "Intermediate" modules, which integrate topics within a set of Basic modules and encourage efficient decision-making. There is one "Cumulative" module, covering the entire course.

Each module has 10 questions. To earn mastery, you must answer all 10 questions correctly in a designated secure setting.

There will be multiple attempts available for each required module. You only need to master one of the attempts. If you fail to master any particular attempt, it does not count against you. You simply make another attempt at that module.

For more information, go to Modules.

**Grading**

To earn a C, you must:

1. master 9 Basic modules, including B6 (Thevenin/Norton), of which five are from the first 6 modules (B1 through B6), two are from the next 3 (B7–B9), and two are from the last three (B10–B12);
2. master module I1 (Solving Resistive Networks); and
3. earn at least 8/10 on each of 20 problems in labs and projects.

If you do not meet all three of these criteria, your maximum possible grade is C–.

Once you have earned a C, you earn one grade increment (e.g., C to C+) for each of the following:

- Master one additional module.
- Earn 15 "Bonus" points.

There are a number of different ways to earn Bonus points:

- Earn at least 7 points on a Basic module before its "Bonus" date (1 point each; 3 attempts/module maximum; B1 through B5 only).
- Master an Intermediate level module that is not required (2 points each; I2 and I3).
- Fill out a survey (1 point each; 3 surveys maximum).
- Attempt a module without mastering it (your best score; 9 points/module maximum).
- Earn 165 or more points in labs and projects (1 Bonus point for each 5 points above 160; 8 Bonus points maximum).
Note: If you do not satisfy the requirements for a C, the highest possible grade you can earn is C–, no matter how many modules you master and how many Bonus points you have earned.

For more detailed information about grading, go to Grading. If you are not sure exactly how you will be graded, please talk to Prof. Leonard or Prof. Janaswamy.

Exams

There are no evening exams, and there is no final exam. Your grade is determined entirely by your score on computer assignments and the number and type of online modules you master.

Homework

There is no required homework in this course. However, associated with each Mastery module will be a Practice module, also administered by OWL. Although these are completely optional, they will serve the role of homework, as they help you to prepare to master the required modules. We recommend that you spend about 2 hours working on the Practice module associated with each Mastery module. Note that answering all the Practice questions correctly once does not necessarily mean you are ready to make a Mastery attempt. Use the "Redo Question" button often, so that you can see different contexts and check to make sure you have mastered the material.

Collaboration vs. Cheating

You are encouraged to work together on Practice modules and computer assignments; however, you must master required modules on your own, and you must submit your own solutions to computer assignments. Keep in mind that the Practice modules are designed to help you to understand the material and also to prepare you for the Mastery modules, so do not rely too heavily on other students for help. Academic dishonesty (either taking or giving answers on a required module, use of extra crib sheets, theft of another’s work, etc.) will be dealt with harshly; you will receive an F for the course, and the Ombuds Office will be notified immediately.

Rough Course Outline

0. Motivation and Overview

I. Resistive Circuits
   Charge, current and voltage, Ohm's Law and resistance, power, independent and dependent sources, Kirchoff's Laws, nodal and mesh analysis, source transformation, superposition, Thevenin and Norton equivalent circuits, operational amplifiers

II. Basic Time Domain Circuits
   Capacitors, inductors, nodal analysis (with R, L, and C), first-order systems (homogeneous and nonhomogeneous), steady-state response, second-order systems

III. Basic Frequency Domain Circuits
   Introduction to the Laplace transform, the Laplace transform of circuit components, circuit analysis with the Laplace transform
Modules

Overview

The core of the instructional design is a set of 16 modules. The more modules you master the higher your semester grade. There are no exams, and there is no required homework.

Modules are administered by OWL, so you may attempt each one multiple times. Each module contains 10 questions, and you must answer all of them correctly to earn "mastery".

We want to ensure that credit for mastering modules is awarded fairly and appropriately, so all required modules must be attempted in a secure setting.

Mastery

Twelve of the modules are "Basic", covering definitions and fundamental techniques, including how to find your own mistakes. Three modules are "Intermediate", integrating topics in the Basic modules and encouraging efficient decision-making. One module is "Cumulative", covering all topics in the course. See Topics below for a list of modules and their content.

For each module, there are multiple "Mastery" attempts available on OWL, each listed as a separate assignment. They are all labeled "Required", but you need only master 1 attempt in a secure setting to earn mastery for that module.

Mastery attempts are administered by OWL in "Exam" mode, which means you have a time limit, and you see the feedback only when you have either run out of time or you submit your exam to be graded. The correct answer will not be provided as feedback. You will be told your scores on individual questions, and you will be told which answers are wrong.

Mastery attempts that have been made can be reviewed only at the secure site. You can also email Prof. Leonard with any questions you might have.

Mastery attempts will not be discussed in lecture, in recitation, on the Discussion board, or in office hours when there are other students present. You may not discuss Mastery attempts with classmates or TAs. If you have a question about a Mastery attempt, please send an email or make a private appointment to talk to Prof. Leonard.

Practice

Associated with each set of Mastery attempts are two or more Practice exercises. These may be done individually or with classmates. They must be attempted outside the secure setting. Practice exercises do not count toward your semester grade.

Most Practice exercises are administered by OWL in "Question" mode, which means there is no time limit, and you see feedback after you submit your answer to each question. You can also try a different context for the same question by clicking on "Redo Question" in the nav-bar on the left. The correct answer will be provided as feedback.

Some Practice exercises will be administered in "Exam" mode, so that you can become somewhat familiar with how all of the Mastery attempts will be administered, i.e., you need to answer all of the
questions first before submitting your assignment to be graded by OWL, and you can navigate among the questions to check your answers.

Even though Practice exercises are labeled as optional, they will likely become the focus of most of your homework and studies. You can think of them as diagnostic, telling you what you need to work on and understand, and what you do not need to work on. If you have questions about the modules, they must be asked in terms of Practice exercises, for instance, during lecture, recitation, and office hours, and on the Discussion Board.

**Designated secure site**

Mastery modules are administered much like tests, so they must be attempted only at a secure location. There will be two or more monitors on site at all designated times. You will be required to sign in, show your ID and calculator, and sign out again. If you have not purchased one yet, you will be given a scientific calculator to borrow. You are allowed one bound lab notebook to write in. No cell phones, PDAs, etc. are permitted. No books or other resources are allowed. You may not talk to anyone.

The secure sites are DuBois 720/785 (7th floor, Tower Library) and Marcus 8B. Starting September 11, and continuing while classes are in session (i.e., before Finals Week), one of the sites is available 6–10pm on Sunday through Thursday. The schedule is available on one of the Google calendars, at Secure schedule. For changes to the schedule, check the Announcements page.

If you have any questions or concerns, please contact Prof. Leonard (5.3513 or leonard@ecs.umass.edu).

**Time limits**

All of the modules have a time limit. If you have mastered the material, you should not need the entire time given. For Basic modules, you should be able to complete the assignment in 20–30 minutes, so the time limit is 60 minutes, which gives you plenty of time to check your answers. For Intermediate modules the time limit is 75 minutes, and for module C1 (Solving DC Networks) the time limit is 90 minutes. (Most Practice attempts have no time limit, since they are usually administered in "Question" mode.)

**Bonus Dates**

Each of the first 5 Basic modules has one due date while classes are in session (the "Bonus" date) and another due date at the end of the semester. Bonus dates are used to administer Bonus points. Typically, the material for each module will be finished in lecture on a Friday; the associated Bonus date is the following Tuesday at 10:00pm, i.e., when the secure session at the Library ends. For each Basic module, there will be 3 attempts available before the Bonus date and 5 new attempts available afterwards. If you earn 7 or more points on one of the 3 attempts available before the Bonus date, you earn 1 Bonus point, which can contribute to a grade increment. (See Grading.) It does not matter when you master a module, i.e., before or after the Bonus date. The mastered module counts fully towards your semester grade whenever you master it.

All other modules are due at 12 noon on Friday, December 16. (The last day of Finals is Saturday, December 17.) Your grade is based on the modules you master before this time on this date.

**Mastery during Finals**

You can continue to make Mastery attempts after classes are over. The secure site will be open for 12 hours during Finals Week (exact hours and dates yet to be determined). You will be allowed to sign up
for 6 one-hour time slots. If you cannot find 6 time slots at the hours available for the secure site, you can sign up for time slots in Marcus 8B. You will be guaranteed a computer during these time slots. You can also visit the secure site and use computers that are available, but these are not guaranteed. Preference will be given to students who are close to earning a C but have not yet done so.

Feedback

When the time limit has expired or you decide to submit your attempt to be graded before your time expires, you will receive feedback. For a few questions, suggestions or other comments will appear at the bottom of the question. For every question, you will be shown your last submitted answer and whether or not your answer is correct. For Practice questions, you will also be shown the correct answer.

You will not see the correct answers after doing a Mastery attempt. The reasons are threefold: (1) to discourage reverse engineering of the answer; (2) to encourage you to seek help from a professor; and (3) to permit resetting the clock on an attempt when you have made a minor error, such as mistype an answer. (For more information, go to Guidelines and look under the heading "Resetting Mastery attempts").

Special needs

If you have any special need, you should tell Prof. Leonard as soon as possible (5.3513 or leonard@ecs.umass.edu). For instance, if you need extended time on tests or if you cannot go to the secure site at any of the designated times, please let us know.

Calculators

You will not be allowed to use your own graphing/programmable calculator at the secure site. Instead you should purchase a SHARP, model EL-531W scientific calculator. They are available at the University Store for less than $15. You can get them even cheaper online. If you want to substitute another scientific calculator, see Prof. Leonard before you go to the secure site, so that the calculator can be approved and the monitors notified.

Recommendations

We strongly recommend that you spend at least 2 hours or so practicing each module before attempting it at the secure site (i.e., a Mastery attempt). If you have questions, you can ask them in recitation or on the Discussion Board. You should not use your graphing/programmable calculator to do Practice attempts; you should use the same calculator you will be using at the secure site, so that you are familiar with its layout and functioning.

Note that there are only 10 Mastery attempts for each module, though 2 of these are available only during Finals week. If you have failed to master 2 or 3 attempts in a row, do not make any more attempts. Instead, you should seek some advice and assistance, either from a classmate, a TA, or a professor.

You should keep a bound lab notebook with you during all Mastery attempts, and you should work out all problems in this notebook, sketching the circuits and writing down all equations and values for parameters. This is especially useful when you are visiting a professor with questions about a particular attempt. Keep the first 10 or 20 pages of your notebook blank, so that you can tape in photocopies of useful tables.

For a more complete list of recommendations, go to Suggestions.
## Topics

The following table shows the content of each of the 16 modules:

<table>
<thead>
<tr>
<th>Level</th>
<th>Module</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>B1</td>
<td>voltage, current, passive sign convention, Ohm's law, power, units</td>
</tr>
<tr>
<td></td>
<td>B2</td>
<td>KVL, KCL, equivalent resistance, voltage and current dividers, single-loop circuits, single node-pair circuits</td>
</tr>
<tr>
<td></td>
<td>B3</td>
<td>nodal analysis</td>
</tr>
<tr>
<td></td>
<td>B4</td>
<td>mesh analysis</td>
</tr>
<tr>
<td></td>
<td>B5</td>
<td>source transformations, superposition</td>
</tr>
<tr>
<td></td>
<td>B6</td>
<td>Thevenin and Norton equivalent circuits, maximum power transfer to a load</td>
</tr>
<tr>
<td></td>
<td>B7</td>
<td>op-amps</td>
</tr>
<tr>
<td></td>
<td>B8</td>
<td>capacitance and inductance, voltage-current relationships for capacitors and inductors, equivalent capacitance and inductance, steady-state responses of RC and RL circuits</td>
</tr>
<tr>
<td></td>
<td>B9</td>
<td>energy stored in capacitors and inductors, time constants for RC and RL circuits, source-free RL and RC circuits, unit step function</td>
</tr>
<tr>
<td></td>
<td>B10</td>
<td>parallel RLC circuits, damping, steady-state responses, finding derivatives of responses</td>
</tr>
<tr>
<td></td>
<td>B11</td>
<td>series RLC circuits, damping, steady-state responses, finding derivatives of responses</td>
</tr>
<tr>
<td></td>
<td>B12</td>
<td>Laplace transforms of RLC circuits, finding poles, expanding into partial fractions, inverse transforms</td>
</tr>
<tr>
<td>Intermediate</td>
<td>I1</td>
<td>solving resistive networks</td>
</tr>
<tr>
<td></td>
<td>I2</td>
<td>finding the complete response in RC and RL networks</td>
</tr>
<tr>
<td></td>
<td>I3</td>
<td>finding the complete response in RLC networks</td>
</tr>
<tr>
<td>Cumulative</td>
<td>C1</td>
<td>solving DC networks</td>
</tr>
</tbody>
</table>
Grading

This page will tell you how you will be graded in 211, and give you some examples to help you understand the grading system.

Requirements

Since there are no exams, quizzes, or weekly homework, your grade is almost entirely determined by how many and which modules you master. To earn a C in ECE 211, you must:

1. master 9 Basic modules, including B6 (Thevenin/Norton), of which five are from the first 6 modules (B1 through B6), two are from the next 3 (B7–B9), and two are from the last three (B10–B12);
2. master module I1 (Solving Resistive Networks); and
3. earn at least 8/10 points on all 20 problems within the labs and projects.

This will ensure that you are prepared to take ECE 212 (Circuit Analysis II) next Spring and ECE 323 (Electronics I) next Fall.

Grade Increments

Once you have earned a C, you earn one grade increment (e.g., C to C+) for each of the following:

- Master one additional module.
- Earn 15 "Bonus" points.

Bonus points

There are a number of different ways to earn Bonus points:

- **Earn at least 7 points on a Basic module before its "Bonus" date.** Starting in the second week of the semester and lasting 3 weeks, one or two Basic modules will be "due" every Tuesday, at least that is what it will look like in OWL. These are actually "Bonus" dates. You will have 3 attempts at each module with a due date before the end of Finals. If you earn 7 or more points on any one of these attempts, you will earn 1 Bonus point. After the Bonus date, 5 new attempts will be posted on OWL, and these will be due near the end of Finals.

- **Master an Intermediate level module that is not required.** Modules I2 (Solving RL and RC networks) and I3 (Solving RLC networks) are a little harder than most modules. Therefore, as extra incentive to master one or both, you will earn 2 Bonus points each.

- **Attempt a module without mastering it.** As you are working toward Mastery of a module, your best score counts! It is recommended that you keep trying until you master a module, but if you cannot, then your best score earns the same number of Bonus points (e.g., a best score of 8 earns 8 Bonus points).

- **Earn more than 160 points in labs and projects.** You need at least 160 points in labs and projects to earn a C in this course, but if you earn 165 or more points, you earn Bonus points, up to 8 Bonus points for a perfect score of 200. Since there is no penalty for resubmission, perfect scores are attainable for all students.

- **Fill out a survey.** At least 3 times during the semester, you will be asked to fill out an optional survey. Your answers are very important to us, so we offer 1 Bonus point for filling out each one.

**Note:** If you do not meet all three requirements above needed for a C, the highest grade you can earn is C–, no matter how many modules you master and how many Bonus points you have earned.

If you are not sure exactly how you will be graded, please talk to Prof. Leonard or Prof. Janaswamy.

Case Studies
Here are three scenarios with best scores on each module/component of the course. "L/P" stands for labs and projects, and "S" stands for surveys. An asterisk (*) indicates that a score of 7 or more was earned within 3 attempts before the Bonus date. A blank indicates that the module was never attempted.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>I1</th>
<th>B7</th>
<th>B8</th>
<th>I2</th>
<th>B10</th>
<th>B11</th>
<th>B12</th>
<th>I3</th>
<th>C1</th>
<th>P/L</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Bonus</td>
<td>10*</td>
<td>10*</td>
<td>10*</td>
<td>9*</td>
<td>10*</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>200</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Average Bonus</td>
<td>10*</td>
<td>10*</td>
<td>10</td>
<td>10*</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>190</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Not passing</td>
<td>10</td>
<td>10</td>
<td>10*</td>
<td>10*</td>
<td>10*</td>
<td>9</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>190</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scenario 1: Maximum Bonus.** In this case, you have earned at least a C by mastering 9 Basic modules including B6 and module I1, distributed as needed (5/2/2), and at least 160 points in labs and projects. The Bonus points are computed like this: You earn 5 points for earning at least 7 points on B1 through B5 before their Bonus dates; 54 points for scoring 9 points each on the six modules you did not master; 8 points for scoring 200 points in labs and projects; and 3 points for filling out three surveys. The total number of Bonus points is 65, which yields four grade increments, and your grade is B+.

**Scenario 2: Average Bonus.** This one is more typical. In this scenario, you have again earned at least a C. You then earn two grade increments for the additional two modules you have mastered. You earn 3 Bonus points for mastering B1, B2, and B5 before their Bonus dates; 20 points for scoring 7, 6, 2, and 5 points on unmastered modules; 6 points for scoring 190 points on labs and projects; and 3 points for surveys. The total is 32 Bonus points for an additional two grade increments, and your grade is B+.

Note that you are not actually expected to master the first five Basic modules before their Bonus dates. It doesn't really matter when you master a module; mastery at any time is better than not mastering at all. These dates are simply rough guidelines to help you manage your time better, and the Bonus points are a little incentive to help. You can earn a very good or excellent grade in this course without mastering any of the Basic modules before their Bonus dates. You only need 7 points before the Bonus date to earn a Bonus point; mastery usually comes later.

**Scenario 3: Not passing.** Here, you would earn below a C, even though you have mastered 9 Basic modules and 1 Intermediate module, and you have even earned some Bonus points. You have not fulfilled the requirements for a C, since you have failed to master B6 or I1, and your grade is C–. You also have failed to master two of the last three modules. In fact, any one of these failures causes you to earn a C–. (However, since you have fulfilled the lab/project requirements, you are well prepared to take ECE 211 during the winter term, which earns an immediate grade replacement, allowing you to take ECE 212 next Spring. For more information, see Prof. Leonard.)
Guidelines

These guidelines cover rules of conduct at the secure testing sites, rules governing asking questions, and procedures for seeking resets after you have made a Mastery attempt.

Secure testing (DuBois 720/785; Marcus 8B)

In order to maintain security and academic integrity in ECE 211, the following policies will be enforced by the tutors and monitors at all of the secure sites. If any of these are not met, they will file a report with the instructors.

- **No outside resources are allowed.** You are allowed one bound lab notebook with anything in it you want. There must be no loose sheets. (Photocopies should be taped down, for instance.) Loose sheets will be collected by the monitor and given to Prof. Leonard. No textbooks or other resources are allowed.

- **You may not use a programmable calculator.** You are required to use an approved scientific calculator during secure testing. The recommended model is the SHARP EL-531W. If you would like to substitute another model, check with Prof. Leonard first, so that he can tell the monitors. If you do not yet have an approved model, the monitor will give you one to borrow.

- **Machines must be logged on to an approved OIT account.** After you sign in, you will be assigned a station. When you leave, you must not log out of the OIT account. (You should only log out of OWL.)

- **Cell phones, PDAs, etc. are NOT allowed.** You should not answer your cell phone. (This is intended to be a test-like environment, and you certainly would not be allowed to use these during a test.) If you absolutely need to answer your phone (for instance, if you are an EMT), please tell Prof. Leonard before making any secure attempts, so that he can alert the monitors. **NOTE:** iPods, etc. are allowed, as long as the volume does not disturb anyone, that is, someone standing next to you should not be able to hear it.

- **No printing; no extra windows or tabs.** While you are at the secure site, you must work on your OWL Mastery attempts only. You are not allowed even to access your own Practice exercises. You should have one window open in OWL. You are not allowed to launch any application other than a browser. You are not allowed to print anything. **NOTE:** New windows are needed to send messages from OWL and also to access the Units of Measure table, so these are allowed.

- **You must sign out every time you leave the secure site.** Even if you need to use the bathroom, you need to sign out and then sign back in again. If you have not signed in and out with the monitor, the test does not count for Mastery or Bonus points.

Asking questions

We encourage you to ask questions, but since different students make Mastery attempts at different times during the semester, it is necessary to have a policy governing how and when to ask appropriate questions.

- **You may not ask questions in a public setting about Mastery attempts.** For instance, in lecture, in recitation, during office hours, or on the Discussion Board, questions about Mastery attempts will not be answered, since it is likely that others have not attempted the module yet. Specific postings about Mastery attempts on the Discussion Board will be removed immediately.
All questions asked in a public setting should be reframed in terms of Practice exercises. If you have a question about a Mastery attempt, it is usually possible to ask it using situations from Practice attempts. If you cannot find a way, ask the professor to make up a circuit or problem that you can ask about.

All questions you have about Mastery attempts must be asked in private. You can ask your question in an email to either professor, or you can make an appointment to visit either of us.

Resetting Mastery attempts

Course instructors can reset the time on any Mastery attempt. That is, after you have submitted an exam to be graded, one of us can restart your timer. The exam content remains unchanged, and your answers are not lost. In other words, when you go back into your assignment, it is as though you never left; it's as though you never submitted the attempt to be scored by OWL. This allows you to change an answer that you entered the first time. The following explains when and why you will or will not be given a reset.

- Only very minor mistakes earn a reset. For instance, forgetting to enter units, typing the wrong units, or including units when none are required all qualify for a reset. Other examples are: transposing two digits, omitting a digit, or adding an extra digit in your answer; typing two decimal points; and typing a comma instead of a period for a decimal point. (Note: If you regularly require resets, at some point you will not qualify for them any more. This feature is intended to be applied only rarely, perhaps once or twice per student per semester.) If you are not sure if your mistake qualifies or not, just ask.

- Most "stupid" mistakes will not qualify for a reset. For instance, if you type the wrong sign, you will not earn a reset. Computing a basic quantity incorrectly does not qualify, for instance, if you divide current by resistance to calculate voltage. No matter how "obvious", "silly", or "stupid" the mistake seems to you, computational and algebraic errors do not qualify for a reset.

- Only 2 resets per student will be granted. You might never need a reset, but especially at the beginning when you are learning how to use OWL, it is possible to make careless mistakes. You should aspire to eliminating even the very minor mistakes, so the number of resets is limited. It is recommended to leave yourself five minutes at the end of each attempt devoted entirely to checking each answer you have entered and making sure it is exactly as you intend it to be. If you are not sure how to do this, please ask Prof. Leonard.

- No resets will be granted in November or December. By the end of October, you should be accustomed to both OWL and the Mastery approach, so it is up to you to find a way to stop making mistakes.

- Running out of time does not automatically qualify for a reset. If you have mastered the material you should not need the entire time period given. If you are prohibited from entering an answer because the secure site just closed, you will not earn a reset; that is, do not start a new attempt unless you are sure you have enough time to finish before the secure site closes. However, if you just miss getting your answers into OWL before you are closed out, immediately email the OWL administrators with the answers you intended to enter. Note that the time stamp from this message is critical: If too much time passes, you will not be granted a reset.

- Having time left when the secure site closes does not automatically qualify for a reset. It is your responsibility to manage your time. In this case, this means you need to know when a secure session ends, and you need to make sure you have enough time to complete an attempt before you start it. (OWL will not accept any responses after the secure session ends, even if you have time left.) If you just miss getting an answer into OWL, simply email those responses to Prof. Leonard, and we can work it out later.
• **Not knowing the syntax does not automatically qualify for a reset.** Typically, syntax issues are sorted out during Practice exercises. The Practice questions are similar enough to the Mastery questions that nearly all syntax issues are the same in both. Thus, if you choose to skip the Practice exercises and dive right in to Mastery attempts, it is inevitable that you will make syntax mistakes. When this happens, you can view your Mastery attempt as "practice"; in other words, a reset will not be granted and you will need to make another Mastery attempt.

• **To receive the reset, you must send an email immediately after the attempt is graded.** As soon as you realize your mistake, use the OWL "Send Message" window to send Prof. Leonard an email. If the request is not made right away, then the reset will not be granted. (Under unusual circumstances, talk to the monitor; they know how to reach Prof. Leonard.)

• **Also to receive the reset, you must include an explanation and the answer(s) you will enter.** In other words, it is not enough to say that you "did something stupid," you need to explain what you did and exactly what you are going to change in your answer. Failure to do this nullifies the reset.

If you have any questions or concerns, please contact Prof. Leonard.