

Laboratory Policies and GuidelinesObjective

The primary purpose of laboratory sessions is to reinforce concepts presented in the lectures by observing them in actual circuits. An important secondary purpose is to expose you to the various practical issues encountered in the design, construction, and testing of circuits, including package geometry, weight, temperature effects, limited availability of devices, signal integrity, and so forth. Moreover, laboratory work provides frequent opportunities to introduce professional practices such as maintaining records and organizing and presenting results. These secondary considerations will have a significant impact on your overall laboratory scores.

Lab Meetings

Attendance at all laboratory meetings is mandatory. Your lab partners depend on your presence and contributions, so you should plan to participate fully in each lab exercise. If you know that you will have to miss an upcoming lab session for a valid reason and you wish your absence to be excused, you must notify me at least 48 hours in advance. It is possible that a few lab sessions (or portions of them) could be used for other purposes such as short lectures, quizzes, exams, or make-up opportunities.

If you miss any part of a lab session without prior permission before your group completes their work, your score for that lab exercise will be reduced in proportion to the time missed, quantized in 10% increments. For example, an unexcused absence from a full lab session during a two-week assignment will result in a score reduction of 50% for the assignment.

It is possible, although not likely, that some lab sessions will have to take place remotely. If so, lab exercises will make use of the *Multisim* circuit analysis software package. Remote lab sessions will meet weekly via the *Zoom* online platform at the regularly scheduled in-person time, and attendance will be mandatory. Sessions will not be recorded.

Lab Groups

Most lab groups will consist of three members, but some will have two or four if the number of students in the lab section at the time of the assignment is not evenly divisible by 3. Lab groups will be randomly assigned for each new lab exercise and will be specified in the associated handout. I reserve the right to reassign lab groups at any time for any reason.

Structure of Lab Exercises

Each lab exercise will require the completion of a somewhat open-ended electronic design and/or analysis task within 1–3 weeks. Assembling a functioning circuit and/or developing an appropriate set of measurements will usually be required, as will complementary skills such as circuit construction, preparation of visual aids, and written descriptions. Lab exercises can be thought of as “mini-projects.” A handout posted at the course web site will outline required elements, helpful suggestions, and other details. Significant pre-lab preparatory work could be required; if so, it will be factored into the lab score.

Some type of post-lab demonstration and/or presentation of results will be required at the end of each exercise. Specific requirements will be outlined in the handouts. All members of the lab group should be prepared to explain any portion of the required demonstration. Post-lab meetings will usually take place within lab sessions, but one or two could be at other times. Outside work is justified by the ECE Department’s decision in 2014 to reduce the length of most lab sessions from three hours to two.

I will be available during lab sessions, office hours, and at other times during the week as time allows to provide assistance. The assistance will be advisory but not confirmatory. For example, I will not usually answer questions such as “Does this look right?” or “Does this answer look reasonable?” You will need to develop the ability to answer those kinds of questions on your own.

Pre-Laboratory Work and Quizzes

Preparatory work in the form of a preliminary design or assigned readings could be required for some lab exercises. Short quizzes might be given at the beginning of lab sessions to check your preparation. If a quiz is scheduled, it will be announced well in advance. The preparatory work and/or quizzes will be incorporated into the score for the associated lab exercise.

Scoring of Lab Exercises

The laboratory component comprises 15% of the overall course grade for ECEG 350. A score will be assigned for each lab exercise based on criteria listed in the associated handout. These could include preparatory work, successful attainment of specifications, brief presentations or discussions, documentation, quizzes, and other related activities. Criteria will vary and will depend on the nature of the lab exercise but will always be stated clearly in the handout. No scores will be dropped for the purpose of computing the overall lab score for the semester, but the weighting of scores might be varied.

You must properly cite any intellectual property (including any diagrams and/or text copied from lab handouts or elsewhere) that you have not generated yourself and that you use in submitted documentation or in presentations. **Improperly cited or uncited sources will result in severe score reductions.**

Copying another group’s written work, designs, visual aids, and/or test procedures is considered plagiarism and is not acceptable. Violations of the University’s academic responsibility policies will be referred to the Board of Review on Academic Responsibility.

Students who use prohibited substances and/or are found to be in possession of associated paraphernalia during a lab session will be required to leave the room for the rest of the session, and their score for the lab exercise will be reduced in proportion to the time missed. The student will also be referred to the ECE Chair and the Dean’s office.

ECE Lab User Agreement

You are expected to follow the ECE Department’s lab policies at all times. You may not use the ECE labs outside of the ECEG 350 lab section times until you have signed the official Electrical & Computer Engineering Laboratory User Agreement, which is available via a link on the Laboratory page at the course web site. A copy of the agreement should be posted in each ECE lab space.

Lab Notebook

You are not required to maintain a formal laboratory notebook, but you might find one helpful for organizing recorded data, test procedures, and results. Having everything in one place will greatly simplify the task of preparing for post-lab activities. Moreover, a record of lessons learned could help you prepare for exams and subsequent lab exercises.

Lab Resources

Handouts, instructions, datasheets, equipment manuals, and other resources for the lab sessions are available on the Laboratory page at the course web site.