

Laboratory Policies and Guidelines

Objective

The primary purpose of laboratory sessions is to reinforce concepts presented in the lectures by applying them to 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 grade.

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 session for a valid reason and you would like 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 exams, quizzes, 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.

Under rare circumstances, some lab sessions might have to meet virtually via the *Zoom* online platform. If so, lab exercises will make use of the *Multisim* circuit analysis software package. Any online lab sessions will meet at the regularly scheduled in-person time. Online lab sessions are not likely to be recorded.

Lab Groups

Most lab groups will consist of three members, but some will have four if the total number of enrolled students at the time of the assignment is not evenly divisible by three. 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. The exercises should therefore be thought of as mini-projects. They will usually involve assembling a functioning circuit and/or developing an appropriate set of measurements and could require complementary skills such as soldering, oral presentations, and descriptive writing. A written outline of the required activities and other details will be provided for each exercise. Pre-lab preparatory work might be required; if so, it will be incorporated into the overall score for the assignment.

Some type of post-lab demonstration and/or presentation of results will usually be required within a few days after the final session of each exercise. Specific requirements will be outlined in writing. All lab group members should be prepared to contribute fully. Post-lab meetings will be scheduled so that they do not conflict with class meetings for other courses. 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 and the University's expectation of a minimum of 12 hours of engagement per week per course.

I will be available during lab sessions, office hours, and at other times during the week as time allows to provide assistance. Please note that 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 Exercises 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 351. 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, graphics, 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 Department Chair and the Engineering 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 351 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. Your signature is good for one academic year, so if you signed the agreement last fall, you do not have to sign it again. 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, data sheets, equipment manuals, and other resources for the lab sessions are available on the Laboratory page at the course web site.