

ECE440 Lab Policies

1.0 Course Communications

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(Begin all email subject lines with [ECE440], thanks)

Lab Website

ECEIL: <https://engineering.purdue.edu/ECEIL/ECE44000/>

Lab experiments and policy documents will be made available here.

Blackboard: <https://mycourses.purdue.edu/>

Clarifications, course communications, and grades will be made available through the Blackboard system.

2.0 About the Lab

ECE440 is an undergraduate ECE communications course. In the course, students will learn fundamentals of modulation and demodulation techniques (AM, FM, DSB, PSK, etc.) as well as other topics (PLLs, synchronization, basics of information theory, etc.). The ECE440 lab serves as a practical supplement to the course, demonstrating theoretical concepts using real world hardware and computer examples. In the ECE440 lab, students will interact with software-defined radios using gnuradio and other software tools. More information about the ECE440 lab is given throughout this document.

3.0 Required Materials

Required Materials:

- Course textbook (see ECE440 course syllabus, provided by lecturer)

Optional Materials:

- Headphones (helpful for listening to radio signals)
- USB Drive (helpful for transferring files to personal computing resources)

4.0 Lab Format

A typical lab session will utilize the following format:

1. Due Immediately:
 - Pre-lab for the current week
 - Lab report from the previous week
2. At the start of lab:

- Quiz (Important: The quiz ends at the same time for everyone, so it is important to arrive on time and not be late. If you are late or taking an unexcused absence and miss the quiz, you will receive a score of zero. No makeup quizzes will be provided for late or unexcused students.)
- 3. After the quiz:
 - A short lecture may be given introducing the lab and its content
- 4. Remainder of session:
 - Work on the lab experiment
- 5. Following the lab session:
 - Complete any unfinished lab work during TA office hours and open lab hours, and complete lab write-up for the lab.

5.0 Lab Components

5.1 Prelabs

For each laboratory experiment in ECE440, each student is required to complete a set of prelab exercises defined at the start of the lab document. These exercises are intended to facilitate thinking about the laboratory experiment and to prepare the student for the content presented in the lab. Prelab exercises may be handwritten where appropriate, ***provided that the student's handwriting is legible (as judged by the course TA)***. Prelab exercises are due at the beginning of the scheduled laboratory hours for their given experiments.

5.2 Quizzes

At the beginning of each lab section, a short written quiz will be given to students. This quiz is used for purposes of attendance, as well as to assess the student's preparedness for each lab exercise and overall academic performance. Quizzes are conducted within the first 10-15 minutes of lab; no additional time will be provided for students who are either late or absent from lab.

5.3 Lab Reports

Each student is required to complete a ***typed*** lab report for each of his or her lab experiments. These reports are due at the beginning of the next lab session after a lab has been completed. Only one report is due per student per lab, including 2-week labs (thus a report is due following the conclusion of a 2-week lab, rather than after the initial portion).

Within the body of the lab report students must answer any and all questions posed within the lab assignment. The report should also include any data students were required to gather and any plots students were required to generate. Plots, charts, and answers to all questions must be comprehensible, clearly and thoroughly labeled, and include references to the number of the problem in the lab assignment. Answers to questions should be given in the form of complete sentences. For calculations, students should show work and be able to explain it in such a way that the grader is able to understand how students arrived at the given answers.

Students are NOT expected to write a full description of the experimental process, with sections for objective, background, procedure, etc. It is assumed that students have learned how to perform rigorous lab write ups in previous laboratory courses.

While students are allowed to work in pairs during the lab, each lab partner is responsible for his or her own work. Although certain report items (data, figures, graphs) are expected to be similar or identical between lab partners, reports sharing strong visual similarities may be considered for academic dishonesty (see section on Academic Dishonesty, below)

5.4 Lab Practicals

Over the course of the semester, a midterm and final lab practical will be assessed for each student. Lab practicals are individual exercises, which test a student's knowledge of the material for the two halves of the semester. Lab practicals are split into two sections: a concepts section which assesses a student's theoretical knowledge, and a build section which tests a student's practical and application-based knowledge.

6.0 Late Policy

Prelab write ups and lab reports are due upon a student's arrival in the lab at the beginning of a scheduled lab session. Anything submitted after this, including working on the lab report or prelab assignment for a previous lab during the current lab period, is considered late. A late penalty of -10% per business day (weekends and school holidays excluded) will be assessed for all gradeable assignments.

7.0 Attendance and Participation

Labs must be performed during scheduled lab sessions. If necessary, they may be finished outside of scheduled lab sessions. While the lab will be accessible to students outside of scheduled lab sessions, it is important that students show up and participate during regularly scheduled lab sessions. Students will be assigned a participation grade on a scale from 1-10 based on performance, effort, engagement, and attendance.

Purdue broadly recognizes two classes of absences: excused absences (military leave and bereavement; certain medical conditions and religious absences may also apply) and unexcused absences. In the event of an excusable absence, students are instructed to inform the lab instructors in a timely fashion, whereupon the absence will be evaluated and accommodation may be attempted. For additional information on the attendance policy at Purdue and examples of excused University absences, see http://www.purdue.edu/studentregulations/regulations_procedures/classes.html.

8.0 Lab Safety and Organization

For the safety of students and staff as well as the cleanliness and organization of the lab, the following policies are mandated:

1. Students are expected to wear close-ended footwear which encloses and protects the feet while in the lab. Open-ended shoes, such as sandals, flip-flops, and variations therein are not

allowed.

2. Students are expected to wear full-length pants while in the lab. Contact with the underside of lab benches, which are electrically grounded, presents an electric shock hazard. Shorts and skirts are discouraged for this reason.
3. ECE440 involves the use of a number of pieces of large, heavy lab equipment. Students may only move lab equipment with the permission of their lab section TA. Students may not remove equipment from the ECE440 laboratory space under any circumstance.
4. Food and drink must be wrapped or placed in sealed containers while in the lab. No eating and drinking is allowed inside the lab at any time.
5. Students are expected to keep the ECE440 lab facilities clean and orderly, which includes dismantling lab experiments at the conclusion of lab hours and removing any trash and food waste from their station. Experiments and items left at lab stations will be dismantled and disposed of without warning.
6. ECE440 course staff are not responsible for the loss or theft of any personal belongings from the ECE440 lab space.

Failure to follow the above policies may result in offenders being asked to leave the lab, academic penalties, or removal from the course, depending on frequency and severity of offenses.

9.0 Lab Availability

The lab is available to students any time it is not in use for another purpose. A calendar containing classes, meetings, office hours, and other uses of the ECE440 lab space can be found here:

Access to the lab is controlled via an electronic door lock; the lab TA should provide students with a copy of the door code. This code is for individual student use only; admission of unauthorized individuals to the ECE440 lab may result in academic penalties.

10.0 Grade Determination

10.1 Grade Breakdown

The following breakdown will be used to determine a student's laboratory grade in ECE440:

- Lab Reports: 25%
- Prelabs: 20%
- Quizzes: 15%
- Lab Practical 1: 15%
- Lab Practical 2: 15%
- Participation: 10%

Students have 1 week following the return of any graded material to submit regrade requests; requests submitted outside of this window will not be considered.

10.2 Grading Scale

Unless otherwise notified, students will be subjected to the following grading scale when determining ECE440 lab grades (x is used below to represent the student's grade):

- A+ (4.0): $x \geq 97\%$
- A (4.0): $97\% > x \geq 93\%$
- A- (3.7): $93\% > x \geq 90\%$
- B+ (3.4): $90\% > x \geq 87\%$
- B (3.0): $87\% > x \geq 83\%$
- B- (2.7): $83\% > x \geq 80\%$
- C+ (2.4): $80\% > x \geq 77\%$
- C (2.0): $77\% > x \geq 73\%$
- C- (1.7): $73\% > x \geq 70\%$
- D+ (1.4): $70\% > x \geq 67\%$
- D (1.0): $67\% > x \geq 63\%$
- D- (0.7): $63\% > x \geq 60\%$
- F (0.0): $x < 60\%$

In extenuating circumstances, a grade of incomplete (I) or conditional failure (E) may be awarded to a student; these determinations are made at the discretion of the instructor.

Students who fall within 0.5% of a letter grade threshold may be subject to a higher letter grade; these determinations are made at the discretion of the instructor.

11.0 Special Accommodations

Students seeking special accommodations for quizzes, practicals, etc. must provide proper documentation to the ECE440 course staff according to official Purdue policy. This must be addressed within the first 2 weeks of the lab.

12.0 Academic Integrity and Dishonesty

Academic integrity and dishonesty are treated very seriously at Purdue. For more information about academic integrity and dishonesty, see <https://www.purdue.edu/odos/academic-integrity/>. Examples of academic dishonesty include copying from another student (past or present), citing from a third party source without providing proper attribution, using data collected by a lab partner when a student was absent from lab for that portion of an experiment, and more. Any cases of suspected academic dishonesty will be reported to the Office of the Dean of Students, where appropriate action will be determined. No exceptions are made to this policy. **A professional does not take credit for the work of someone else.**

13.0 Emergency Situations

The front of the lab space features a flip-chart for what to do in the event of various emergencies. To report an emergency, call 911. For emergency updates around Purdue's campus, sign up for emergency text alerts at <http://www.purdue.edu/emergency/>.

13.1 Fire Emergencies

In the event of a fire alarm, students are to leave lab and proceed to the nearest exit.

Fire Emergency Exit Paths

13.2 Tornado and Severe Weather

In the event of a tornado or other severe weather event, tornado sirens will go off. In this situation, students are asked to shelter in EE165. EE165 is one of the designated tornado shelters in EE, so students should be able to continue lab exercises with minimal disruptions. Be mindful that other students may be attempting to enter EE165 to shelter from the weather event.

13.3 Civil Disturbances and Other Emergencies

In the event of a civil disturbance (active shooter situation, etc.), an emergency notification will be sent out across campus, and the tornado sirens will sound. Students are instructed to lock the door, turn off the lights, and shelter in the lab (out of sight of the door window).

13.4 Campus Disruptions

Weather and other unpredictable events may impact the schedule of classes over the course of the semester. Should this occur, provisional plans will be developed and sent to the students via email.

14.0 Special Notes