

ECE 209: *Circuits and Electronics Laboratory*

237 Caldwell Laboratory

Content: This course introduces students to the basic instruments of an electronics laboratory. Students will also build and analyze simple circuits based on fundamental linear and nonlinear circuit components.

Text/Resources:

- (i) Students are required to purchase the lab course packet from [UniPrint](#).
- (ii) During class, each **lab group** needs access to a **breadboard**. If necessary, one can be purchased (as of 2010) in **205 Dreese Laboratories** for \$22.00 in **exact** cash or a check to *The Ohio State University*.
 - This breadboard can be used in several other laboratory courses.
 - Do **not** discard banana-connector posts!

Grading (instructor policy takes precedence): The numeric grade for the course is weighted as follows:

- Quizzes and pre-labs: 20%
- Lab reports: 40%
- Attendance, active participation, and clean-up: 10%
- Final exam: 30%

Quizzes and Pre-labs (instructor policy takes precedence): For two labs, students will complete an **individual** pre-laboratory assignment due at the beginning of class. Each of the other labs starts with an **individual** closed-book and closed-notes quiz over its material. Students should arrive to class on time for the quiz.

Daily Lecture: A short (i.e., ~30 minutes or less) lecture may occur before each lab. It serves to explain content relevant to the completion of the lab and subsequent lab report.

Lab Groups (instructor policy takes precedence): Students will work in groups of **two** or **three**.

Lab Reports (instructor policy takes precedence): Each lab group must submit a single lab report at the beginning of the next class after the lab is completed. Lab reports will be penalized 10% per day late.

- **Type** lab reports. Use [engineering paper](#) for hand-drawn figures (or use a **clear photograph**).
- Pages of the lab reports should be **numbered**.
- Lab report **cover pages** should include
 - Class identifier (i.e., “ECE 209”)
 - Section day and time (e.g., “Tuesday 4:30”)
 - Instructor name (e.g., “Instructor: J. Engineer”)
 - Names of all group members (grades are given to these members)
 - Table number (posted within each cubicle)
- Tables and figures should be **numbered** and have **descriptive captions**. Because these items naturally *float* to the best location on the page, they should be referred to by their **name** and not by their relative position (e.g., refer to “Table 1” and not “the table below”).

Final Exam (instructor policy takes precedence): The exam is a written closed-book closed-notes cumulative exam to be completed *individually* during the last regularly-scheduled class.

Attendance (instructor policy takes precedence): Students must attend **all labs**. If a lab needs to be missed, arrangements should be made with the instructor at least 24 hours prior to the lab so that the lab work can be made up. The instructor reserves the right to determine when make-up work is allowed. Students are responsible for all assignments, change of assignments, announcements, and other course-related materials.

Honor System: The ECE Honor System rules apply to all student work. All lab reports must reflect the understanding of the lab group. All other written work must reflect the understanding of the individual student. Otherwise, discussions on course material are encouraged.

Sample schedule (instructor's ordering, pre-lab activities, and exams take precedence):

Lab 0: Course Overview

Lab 1: Introduction to the Digital Oscilloscope and Function Generator (**pre-lab** due)

Lab 2: Meters, Measurements, and Errors (quiz)

Lab 3: Introduction to Operational Amplifiers and Step and Frequency Response of First-Order Circuits (quiz)

Lab 4: Frequency Response of First-Order Active Circuits (quiz)

Lab 5: Properties of Second-Order Circuits (**pre-lab** due)

Lab 6: Nonlinear Circuits: Diode and Transistor Switch (quiz)

Lab 7: Digital-to-Analog (D/A) Application (quiz)

— : Final Exam (in class)

Disability services: Students with disabilities that have been certified by the *Office for Disability Services* will be appropriately accommodated and should inform the instructor as soon as possible of their needs. [The Office for Disability Services](#) is located at 150 [Pomerene Hall](#), 1760 Neil Avenue. They can be reached by telephone (614-292-3307) or TDD (614-292-0901) or the web (<http://www.ods.osu.edu/>).