



## ECE 327: *Electronic Devices and Circuits Laboratory I*

Summer 2009

Tuesday, 12:30N–4:18PM, 233 Caldwell Laboratory

**Instructor:** Ted Pavlic, 351 Caldwell Laboratory (CL), [pavlic.3@osu.edu](mailto:pavlic.3@osu.edu)  
<http://www.ece.ohio-state.edu/~pavlic/>

**E-mail Policy:** Include **ECE327** in the subject of your e-mail; otherwise, your e-mail may be accidentally misfiled (e.g., automatically marked as spam). Do not hesitate to e-mail me; I am happy to help.

**Content:** This course is meant to accompany ECE 323 as an introduction to basic electronics. We primarily focus on the use of bipolar junction transistors and operational amplifiers. Labs are constructive; that is, the final lab will integrate work from all other labs into a substantial project.

**Course Web Page:** <http://www.ece.ohio-state.edu/~pavlic/ece327/>

Make sure to check the web page for valuable resources on electronics (e.g., sites explaining Class-AB push-pull amplifiers) and lab report writing (e.g., sites with schematics that can be included in lab reports as well as sites with examples of good report format).

Guidelines for lab report grading are also on the web site.

Carmen (<http://carmen.osu.edu>) will be used to distribute per-assignment grade information. Aggregate scores can be found on the [course web page](#).

**Office Hours:** See [course web page](#) for official hours. Appointments can be made by e-mail. Alternatively, I welcome walk-ins (i.e., office visit without appointment) provided that I have a few minutes to help.

**Text:** Students are required to purchase the lab course packet from [UniPrint](#). I will distribute supplementary material in class and on [the course web page](#).

**Breadboard:** Each lab group will also need access to an electronic breadboard for the daily lab experiments (like the one required for ECE 206 and ECE 209). **I recommend that lab groups use *two or more* breadboards because circuits will take up much space.**

**Floppy Disk:** Each lab group needs access to a *3.5 inch floppy disk* to save data from the oscilloscopes. **I recommend that lab groups have *two or three* disks available in case one fails.** Students have also had good luck using **digital cameras** to save scope displays.

**Grading:** The numeric grade for the course is weighted as follows:

- Daily quizzes: 20%
- Lab reports: 40%
- Lab clean-up: 10%
- Take-home final exam: 30%

The final *letter grade* will be curved based on weighted numeric scores *before* the final exam.

**Daily Quizzes:** Each class will start with a quiz over the material for that day's lab. Students should arrive on time for the quiz. The quizzes are closed book and closed notes unless otherwise noted.

**Daily Lecture:** There will be a short (i.e., approximately 45 minutes or less) lecture after each daily quiz and before each lab. The purpose of the lecture is to explain content relevant to the completion of the lab and subsequent lab report.

**Lab Reports:** 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. Hand draw on [engineering paper](#). Use photographs. Borrow from class PDFs.
- Pages of lab reports should be **numbered**.
- Lab report **cover pages** should include several items (see [course web page](#)).
- Tables & figures are **numbered** with **descriptive captions**. Refer by **name** and *NOT* location.
- A report generated with any flavor of  $\text{\TeX}$  (e.g.,  $\text{\LaTeX}$ ) will earn the authoring group **2% extra credit** on that report (**hint:** use the  $\text{\TeX}$  or  $\text{\LaTeX}$  macros to help me grade).
  - Help getting started with  $\text{\TeX}$ / $\text{\LaTeX}$  can be found on [the course web page](#).

Additional details about lab report format, content, and grading can be found on [the course web page](#).

**Final Exam:** The final exam is a written open-book open-notes take-home exam that is to be completed *individually*. The cumulative exam will be given *no later than* the last day of class and due *no earlier than* one week after it is distributed (e.g., due at the end of finals week).

**Attendance:** Students are responsible for all assignments, change of assignments, announcements, and other course-related materials. If a lab needs to be missed, arrangements should be made with me at least 24 hours prior to the lab so that the lab work can be made up. I reserve the right to determine when make-up work is allowed.

**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.

**Tentative Schedule:** In the past, the course labs were presented out of order in an attempt to supplement ECE 323 course material. I have decided to teach the labs in their proper order to help maintain continuity in the ECE 327 material.

**Week 1 (June 23):** Introduction/Instrumentation

**Week 2 (June 30):** Bipolar Junction Transistor (Lab 1)

**Week 3 (July 7):** Field Effect Transistor (Lab 2)

**Week 4 (July 14):** Voltage Regulators (Lab 3)

**Week 5 (July 21):** Oscillators (Lab 4)

**Week 6 (July 28):** Analog-to-“Digital” Conversion (Lab 5)

**Week 7 (August 4):** “Digital”-to-Analog Conversion (Lab 6)

**Week 8 (August 11):** Output Filtering (Lab 7)

**Week 9 (August 18):** Project Integration and Debugging (Lab 7, continued)

**Finals week (August 25):** Lab report for Lab 7 due

**Finals week (August 27):** Take-home final due

**Make-up schedule:** If labs cannot be completed on time by a significant portion of the class, I *may* work with the class to schedule a special lab make-up time before the next lab. Students are strongly encouraged to finish labs during the normal lab time. Students should not expect that additional time will be available.

**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/>).