

LAB INFORMATION

- **Lab Supplies:** Before starting Lab 1, purchase from the ECE Shop (HFH 1160) the following supplies (about \$50) which will be needed in addition to the parts kits for each lab: soldering iron (30 Watt), soldering stand w/sponge, solder (rosin-core), needle-nose pliers (optional), wire-cutters/strippers solderless breadboard (2390 or 3220 points), wire jumper kit (optional), and tool box (small or medium) (optional). Also purchase a Lab Notebook as described below in the next section. You won't be allowed into the lab unless you have this material which will also be used in subsequent ECE lab courses. There are seven labs in this course. Before starting a new lab, read over the pre-lab material in the lab handout and go to the ECE Shop to purchase the required package of components. You only need one set of components per lab group for each lab. Should you burn out or otherwise render inoperative any of these devices, you will be required to buy your own replacement. The ECE Shop is open 8:00 a.m. - 5:00 p.m., Monday - Friday. Instructions for the lab experiments are outlined below. Be sure to read about the lab report requirements.
- **Lab Notebook:** You are required to maintain a *bound* (not spiral) lab notebook that can be purchased at the Bookstore. Each page must be numbered and dated (some books come with pre-numbered pages, which is a good option). The TA will check your lab notebook periodically.
 1. You must purchase your lab notebook before you start Lab 1.
 2. All data, measurements, sketches of experiments, etc., are to be entered in ink (not pencil) in the notebook.
 3. On the very first page, create a Table of Contents with the following column entries: 1. Experiment number and title. 2. Date. 3. Page numbers.
 4. Your lab notebook is a complete record of the experiments performed and the data gathered. It is important to do a rough plot of your data in your notebook while in the lab in case you need to redo the experiment (while it is all set up). The contents of your lab notebook will be used to generate your lab reports, so you need to be complete and thorough.
 5. Each experiment should start on a new page, and pages should not be left blank in between.

6. You should include any pre-lab simulations or calculations. The TA must look over and initialize your pre-lab material before you start the lab.
 7. Include tables, rough plots, and data entries collected during the lab. All column headings need to be labeled and the units used should be specified. Use the rough plots made directly in your notebook to make sure that the data makes sense.
 8. Your lab notebook must be signed by the TA before leaving the lab at the end of every lab session. Also, be prepared to answer questions related to the pre-lab work during the lab session.
 9. Do not rip out pages or erase entries. Put a large X across any data or text to be deleted, and then start over again. Also, do not leave any pages blank. If you need to go onto something else, then return later and refer to the pages of the work that is being continued on the new page.
 10. In industry, notebooks like these form the basis for patent applications, so it is important to keep a complete record of your work.
- **Lab Reports:** Lab reports must be typed, stapled, and written clearly and concisely using good grammar and spelling. The cover page should include your name, the day and time of your lab, and the name of your TA. *Everyone does an individual lab report for each experiment, even though you will work in groups.* The lab report should be handed in to your TA during your lab period, usually in the week following the completion of the lab. Refer to the course schedule in Handout #3 for lab due dates. *Each report must contain the following sections.*
 1. **Experiment Title.** Include your name and the day and time of your lab.
 2. **Abstract.** At most a few sentences long, this states the main purposes and conclusions of the lab.
 3. **Introduction and Objective.** At most a couple of paragraphs long, this expands upon the abstract in communicating the main purposes and conclusions of the lab, and their relationship to the lecture material.
 4. **Preliminary Design and Calculations.** This section contains circuit diagrams, derivations of formulas, and calculations leading to the component values chosen.
 5. **Procedure, Results, and Observations.** This section contains the measurements you made in tabular or graphical format (or both – choose what is most appropriate). All tables and graphs should be clearly labeled, including the appropriate units. Include your Lab Record in this section.
 6. **Discussion and Analysis.** Perhaps the most important part of the report, this section should contain clear and concise interpretations of your results and a discussion of their implications. Comparisons between measured and calculated values should be addressed here, and any discrepancies explained.
 7. **Conclusions.** This section should be a brief summary of what you learned in the lab experiment, and the principal ideas that were demonstrated.
 8. **References.** List any references here.

Note that the Abstract, Introduction, and Conclusions should not contain the same sentences, and they must not be copied from the lab instructions.