

**University of California, Santa Cruz  
Electrical Engineering Department  
EE-101L, Fall 2015**

**Introduction to Electronic Circuits Laboratory**

Laboratory Room: JBE 150  
Instructor: S.C. Petersen  
Teaching Assistants: Patrick Ellis, William Crawford  
Office: JBE 251 (x9-4782)

**Course Description:**

EE101, *Introduction to Electronic Circuits*, introduces the theory of fundamental circuit analysis. This laboratory builds on that knowledge by applying it to the investigation of the experimental behavior of theoretically understood basic building block circuit elements. This includes three classic passive elements, the resistor, the capacitor and inductor, and one active element, the operational amplifier or “Op-Amp”. An aim of the lab is to bring together the theory and experimental practice of electrical engineering and for students to acquire skills regarding proper documentation and reporting. Our perspective, then, as noted below in the *Report Guidelines* paper, will emphasize experimental work and concisely summarize that work through a discursive reporting style that *expresses each student’s individual grasp and understanding*. Conceptual and analytic depth are both required to do well. Moreover, students are also expected to quickly become familiar with how to independently organize, layout and wire basic circuits without step-by-step instructions.

Students will learn to competently use various pieces of test equipment. This requires skillful use of the basic electrical engineering “lab bench”, consisting of the following pieces of equipment:

1. Power supply.
2. Oscilloscope.
3. Digital voltmeter.
4. Signal generator.

Your success as a student learning to do experimental electrical engineering work critically depends on how well you understand how each of these pieces of gear work, how to use them and what their limitations are. Thus our first laboratory is devoted exclusively to a survey discussion of test equipment.

**General Lab Information:**

Each student is required to have their own laboratory notebook. Students may collaborate and work together, but this is limited to no more than two students, and notebooks and lab reports must be kept and written individual. You are expected to read and follow the paper, “The General Practice of Engineering Notes” handed out at the first lab session. It will also be posted online.

Other information will be discussed by staff during lab.

**Reporting:**

Refer to the paper, “Report Guidelines” handed out the first lab session and also posted online.

**References:**

Lecture text: Fundamentals of Electric Circuits , 5<sup>th</sup> ed. by Alexander and Sadiku, McGraw Hill 2013

Relevant datasheets and applications notes will be handed out in lab and also posted on line.

**Evaluation:** Letter grades will be assigned for all labwork. Averaging will follow the usual 4.0 point scale to determine a weighted final grade point and associated letter grade. Weighting is as follows.

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| Lab Reports:                             | 60% |
| Lab Notebooks:                           | 20% |
| Instructor evaluation:                   | 10% |
| Use and understanding of test equipment: | 10% |

Lab reports will generally be due one week after completing the lab. Late reports will not be accepted. At the time your report is submitted staff will review your lab notebook and make any relevant notions in you report.

**Citizenship in the laboratory:**

Unlimited and unsupervised use of laboratory equipment (computers, printers etc.) and resources (web-access, email, ftp etc.) is a *privilege* not a right. Any abuse of equipment or misuse of resources will result in the immediate loss of these privileges, and may result in disciplinary action by the University. Note too that all food and beverages are expressly prohibited in lab, and the door should never be left propped open. We enjoy competent and professional support from the Baskin Engineering Lab Support Group ([bels@soe.ucsc.edu](mailto:bels@soe.ucsc.edu)). Immediately report any problems pertaining to the laboratory to them; they can also be consulted for parts you may need.

**Academic Integrity:**

The student-instructor relationship is based on imputed trust. Violations of this trust by deceptively offering the work of others as your own, cheating on examinations etc. will result in formal charges of academic dishonesty being brought against you.