

University of California, Santa Cruz
Electrical and Computer Engineering Department
ECE-174, Spring 2019

Introduction to EDA Tools and PCB Design

Lecture Room: JBE 115; MWF 0920 - 1025
 Laboratory Room: JBE 115
 Instructor: S.C. Petersen (petersen@soe.ucsc.edu)
 Office: BE250

Course Description:

This course introduces the board-level EDA tool chain required to design and produce high-quality electronic printed circuit boards through a guided series of tutorial laboratories. A major aim of this class is to competently prepare you for later work in the capstone project classes. Besides a general overview of EDA tools and the concept of design flow, we will first look at graphic-based designs expressed or “captured” as traditional schematics. After this we will turn our attention to the creation of printed circuit boards that implement captured schematic designs through a suitable PCB layout program. After gaining skills and expertise, a final project will be assigned. Here, you will have the opportunity to exercise all the skills learned in this class to capture and layout a real custom PCB of your own. Organization of the course is designed for mature, self-motivated students, capable of pacing themselves through the series of laboratories without the need for assignments to keep you punctual. You will also be introduced to the practice of keeping a professional engineering notebook.

Admission to this class requires successful completion of EE101 or by instructor consent.

References:

There is no textbook for this class, but we will rely heavily on notes and papers available on our website. The website is not intended to substitute for attending normally scheduled lecture times. I won’t necessarily post on the website all material presented in class.

Assessment

Problem / project assignments will be given as homework throughout the course and constitute the core of what we will be doing this quarter. Grades will be given for each significant block of work following an oral interview with the instructor. A grace period of one week will be extended for work not completed on time. There will be no consideration thereafter.

You will be expected to keep a bound proper chronologically ordered *engineering notebook*. Details about this will be discussed in lecture and available as a written document on our website.

Note that 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). Immediately report any problems pertaining to the laboratory to them; they can also be consulted for parts you may need.

Evaluation:

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| Homework | 15% |
| Oral Laboratory reviews and attendance | 85% |

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.