

EE329 Introduction to Electronics

Instructor: Al Davis

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Time and place: MWF, 10:00-10:50, Business 208

Textbook:

Electronic Circuit Analysis and Design, (second edition) by Donald A. Neamen

Office hours:

I do not have explicit office hours. I have an open door policy. If I am with someone else, please let me know of your presence. Don't just silently wait outside the door! Monday, Wednesday, Friday after 3 is usually a good time.

Catalog description:

Introduction to semiconductor theory, operational amplifiers, diode and transistor circuits. Includes 1/2 credit laboratory component. Prerequisite: ENGR313.

Course outline:

We will cover Part 1 of the Neamen text, plus a little extra on simulation. We will not cover the full depth of the text, but you are encouraged to read it on your own.

1. Introduction to simulation
2. Semiconductor Materials and Devices
3. Diode Circuits
4. The Bipolar Junction Transistor
5. Basic BJT Amplifiers
6. The Field-Effect Transistor
7. Basic FET Amplifiers
8. Frequency Response
9. Output Stages and Power Amplifiers (maybe)

Homework:

Homework will be assigned on a regular basis. There are three types .. exercises, labs, and design exercises. For grading purposes, they are all counted together, and make up 20% of your grade. It is expected and encouraged that you will work together. If you work as a group, hand in a single copy of the work for the entire group with all names on it.

The projects are circuit design exercises. In all cases, you will design something and verify it with simulation. In some cases, you will actually build it in the lab.

Tests and quizzes:

There will be several tests and quizzes through the term. They will all be announced. They may be either full hour tests or half-hour tests, depending on the material. There may also be mixed take-home/in-class tests.

Grades:

Grades are based on a weighted sum of tests, homework, and a comprehensive final. Homework (including labs and projects) counts 20% of the total grade. Tests (including the final) count the other 80%

Software, equipment, and costs:

We will be using circuit simulation software. The PSPICE demo, Spectre, Berkeley SPICE, and GnuCap are all available in our labs. You are encouraged to use all of them, and others if you can. I will show you some Unix based software in the Linux lab.

It is my policy to use free/open-source software whenever possible. That way you can run it at home and experiment with it. All software required for this course is available as free/open-source.