PHYS 431  ANALOG ELECTRONICS

WINTER 2009

Class Times: Tue,Thu 5:00-6:20pm  Location: Will 318

Lab Periods (See Lab Roster): Tue 2:00-5:00pm or Wed 4:00-7:00pm Location: Will 11

Instructor: Steve Gregory  Office: Will 162  Tel: 6-4764  sgregory@uoregon.edu

Teaching Assistant: Bert Schumann  Office: Will 154  Tel: 6-5853  ratsnake@uoregon.edu

"Syllabus"

The emphasis will be on a basic working knowledge of analog devices and building blocks.

This is the first time I have taught this course and I can't judge how quickly we will be able to go, so this "syllabus" is a list of topics, but with no specific schedule. However, I certainly intend to cover material at least concurrently with it's appearance in lab modules.

Topics:

- Passive components (resistors, capacitors, inductors, diodes)
- AC circuit analysis
- Transistor properties and basic circuits
Operational amplifiers (op amps), positive and negative feedback
Common useful applications of op amps: amplifiers, filters, buffers
Power circuits and regulators

Text

The main text is "Fundamentals of Electrical Engineering" by Rizzoni, which should be available at the bookstore.

In the past this course has used "The Art of Electronics" by Horowitz and Hill, which is an excellent reference text and is on the bookshelf of many scientists and engineers. However, I don't think it is as useful as a course book. So let's see how things work out with Rizzoni. By the way, Rizzoni has a student Website.

Homework

Homework will be assigned weekly, on Thursday, and collected on the following Thursday.

Labs

The lab schedule must be coordinated with the graduate digital electronics course, which shares lab space with our course and it is still under discussion. A sign-up sheet will be passed around during the first class period.

There will be one 3 hour lab a week, in which you will work on your own. The T.A. or professor will be available during the scheduled lab times, but later in the term, you should be able to work on your own outside the scheduled times if necessary.

The laboratory is a very important component of this course. All students should, by the end of the course, feel comfortable with basic practical electronics and associated techniques. Please obtain a lab notebook, preferably hardcover with quadrille paper, or use one of the notebooks provided. This will be the primary record of your lab work. Your lab report should include any pre-lab notes which are useful to you for carrying out the in-lab work. All data, observations, notes, calculations, etc. should be entered in the notebook.

After each lab, produce a brief report summarizing the work you did in the lab. Provide headings for your entries which correspond to those of the lab instructions. Clearly indicate the location of required material within your report. Note any unusual or unexpected results. Your reports should be turned in to the instructor by noon on Monday for grading.

In order to pass the course, you must complete the labs!

Lab Roster
Tue 2-5pm

Garrett GIliland
Erik Keever
Charlie Rojas
Rong Wu
Alex Elia
Cade Gledhill

Wed 4-7pm

James Adney
Joshua Rose
David Sewell
James Kunert
Mary Ames
David Bell

Exams

There will be one mid-term on Tuesday 10th February, in class, and a final exam at the scheduled time, which I cannot yet figure out, so stay tuned.

Grade Composition

The grades for the course will be based on homework (35%), labs (35%), the midterm (10%) and the final exam (20%).