PHYS 432  DIGITAL ELECTRONICS

SPRING 2009

Class Times: Mon,Wed 5:00-6:20pm  Location: Will 318

Lab Periods (See Lab Roster): Tue 2:00-5:00pm, Wed 2:00-5:00pm, Thu 1:00-4:00pm

Location: Will 11

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

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

Office Hours:
Tue 3:00-4:00p
Thu 3:00-4:00p
Or by arrangement

Office Hours:
To be announced

"Syllabus"

The emphasis will be on a basic working knowledge of digital electronics and some computer interfacing.

The following "syllabus" is a list of topics, but with no specific schedule. However, I certainly intend to cover material at least concurrently with its appearance in lab modules.

- binary arithmetic and logic gates
- combinational logic: multiplexers, decoders
- sequential logic: flip-flops, counters
- finite state machines
- analog-to-digital (A/D) and D/A conversion
- memory, microprocessors

Text

Those of you who took Analog Electronics should have Rizzoni. It has a pretty good chapter on digital electronics. However, I don't think we really need a course text. I'll put my notes on Blackboard and there are a lot of really good Web sites out there, some with entire courses. I'll add them to the list below as I find or remember them. For people who
don't have Rizzoni, I'll be, We are going to 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. By the way, Rizzoni has a student Website.

**Useful Web Sites:**

- Wikipedia (of course)
- http://www.allaboutcircuits.com
- http://www.ibiblio.org/kuphaldt/electricCircuits

**Homework**

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

**Labs**

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 digital 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 the 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.

Hard copies of the lab handouts will appear on Blackboard in the "Course Documents" area during the weekend before the lab is to be done. A box will be put on the front desk in the physics office in which we will collect the reports

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

**Lab Roster**
Grade Composition

The grades for the course will be based on homework (30%), labs (30%), the midterm (10%) and the project (30%).