**Abilene Christian University**
**Course Syllabus**

Physics 336 (1 hour credit) Spring 2012
Introduction to Electronics Laboratory Room S327

Professor: Michael Sadler, Ph. D.
Office: 320B Foster Science Building
Office hours: 9:15-11:00 MWF, 2:30-5:00 MF (or my door is open)

Text: A First Lab in Circuits and Electronics, by Yannis Tsividis

Prerequisites: Calculus II (Math 186) or concurrent enrollment.

| Grading: | | |
|---|---|---|
| | Laboratory notebook | 40% |
| | Project | 10% |
| | Lab practicals | 20% |
| | Subjective (attendance, etc.) | 10% |
| | Lab Final | 20% |

Pre-lab work: A tentative laboratory schedule is included below. You should read the material before coming to class. Other reading or pre-lab work may be required. If so, you will be informed in advance during class or by email.

Working with others: You will work in pairs on the experiments. Students are encouraged to exchange information freely but copying is forbidden.

Laboratory notebook: The laboratory notebook will be due at 5:00 PM on the last Friday of each month. ***Late work will not be graded except by prior arrangement*** (if you only have part of it done, turn in what you have on time). It should be a bound notebook (preferably quadrille to facilitate graphs and sketches) with numbered pages. Reserve the first two pages for a table of contents. For each laboratory experiment, include:

- Title, date, and lab partner at the top of a new page.
- Freehand sketches of any circuits constructed with apparatus, if appropriate.
- Record all original data chronologically, as in a logbook.
- Sample calculations and graphs if required in the laboratory exercise.
- Summary. Briefly state what you did and how it came out.

Practicals: Lab practicals will be hands-on quizzes. They will be given at announced times during the semester or as part of the final. These will test each students understanding of lab equipment, techniques, and concepts from the laboratory exercises. All practicals and and exams will be open lab notebook!

Project: There will be a project that the student chooses and the instructor approves. You will have two free laboratory periods to devote to the project. The

project may be an extension of a previous (or skipped) laboratory. You are encouraged to be innovative in selecting a project, but an acceptable one can be completed by building a device from a kit. One source of kits and ideas is: http://omnitronelectronics.net/phpstore/index.php

Final Exam: The final exam will be comprehensive and will be administered during the laboratory period the last week of class.

Keys to success:
- Be there.
- Be prepared.
- Communicate with me as soon as possible if a problem arises.

# Electronics Lab Schedule, 2012

All labs (i.e., your lab books) are due at 5:00 PM on the last Friday of each month.

| | |
|---|---|
| January 17-19 | Introduction and Lab 1: Measuring DC voltages and currents |
| January 24 | Lab 2: Simple DC circuits; resistors and restive sensors |
| January 27 | Lab books due |
| | |
| January 31 | Lab 3: Time varying signals |
| February 7 | Lab 4: Op amps (this lab is a bit long, make sure you are prepared) |
| February 14 | Lab 5: Amplifier |
| February 21 | Lab 6: RC circuits |
| February 24 | Lab books due |
| | |
| February 28 | Lab 7: Filters |
| March 6 | Lab 9: Diodes |
| March 13 | Spring Break!!!!!!! |
| March 20 | Lab 11: MOSFET's |
| March 27 | Lab 14: Digital Electronics |
| March 30 | Lab books due |
| | |
| April 3 | Lab 15: D Flip Flops |
| April 10 | Lab 16: JK Flip Flops |
| April 17 | Build projects |
| April 24 | Finish projects |
| | |
| May 1-3 | Lab final (Open lab book). Lab books due. |

All labs and projects must be completed by April 28.