BEE 332: Devices and Circuits II Fall Quarter 2011

Department of Electrical Engineering, University of Washington

Goals:

To learn the physics, characteristics, applications, analysis, and design of circuits using bipolar and field-effect transistors with an emphasis on small-signal behavior and analog circuits. To understand and apply the principles of device modeling to circuit analysis and design. To gain hands-on experience with laboratory instrumentation and analog circuit troubleshooting.

Learning Objectives:

- 1. Calculate model parameters for bipolar and FET devices in SPICE.
- 2. Design and construct simple single and multi-stage amplifier circuits using both bipolar and FET devices.
- 3. Explain the design concepts behind commercial op-amps such as the 741, OP-7, OP-27.
- 4. Obtain a good foundation for senior level electronics design courses such as EE 433.
- 5. Design an analog project from an open ended specification.

Class Information:

Instructor:	Tai-Chang Chen	tcchen[at]uw.edu	
Office Hours:	Thursdays 1:00-3:00pm		
Webpage:	http://faculty.washington.edu/tcchen/BEE332/		
	Make sure to check the class web frequently for class announcements, and reading assignments. Exam dates, holidays, The solution to the problem sets will be posted after collecting HWs as well.		
Lectures:	TuTh 5:45 – 7:45pm at UWBB 260		
Textbook:	R.C. Jaeger, Microelectronic Circuit Design., 4 th edition, New York : McGraw-Hill, 2010 (required)		
	Lab Handbook: Print from the class webpage		
Grading:	<u>Segment</u>	Weighting	
	Homeworks Laboratory Reports Design Project Midterms Final Exam	18% (the lowest will be dropped) 12% (4 total, 3% each) 10% 40% 20% Total: 100%	

Homeworks:	There will be weekly homework assignments. Be prepared since some of the assignments may require a significant time commitment. Homeworks will be posted each Thursday and collected at the beginning of the class the following Thursday. No late homework will be accepted. You are encouraged to discuss the problems with other students but the final work that you hand in should be your own work. There will be a total of 8 homeworks. You will have the option of dropping the one with the lowest grade; so only seven of the homework assignments will be counted towards your final grade.
Exams:	There will be two in-class midterms and one final exam. No make-up exam will be given. Failure to attend an exam or to make prior arrangements will result in a zero. Incompletes are not given out as course grades. The exams are normally closed book, closed-note, and closed homework. A one-page write-up sheet will be allowed. Make sure to bring a calculator to all exams.
Laboratory:	Making real, working systems is the ultimate goal of engineering. In this course we will have weekly lab sessions. Laboratory results should be your group original work. Copying measurements made by another group without indicating in your report is cheating. So is letting someone copy your measurements.
	design project. Here, you will be presented with a current engineering problem. The scores you receive for the lab reports and the design project will determine your final lab grade.
Computers:	We will be using a simulation program (Multisim or PSPICE) for many of the assignments. There is a quick tutorial document in the course website.
Academic Integrity	

If you cheat, you cheat yourself of the opportunity to learn the material, and you cheat your classmates — all of your classmates — out of grades they have earned. If you let someone else copy your work, you are allowing them to devalue your grade and that of your fellow students. Cheating is a bad way to embark on a career in engineering. Cheaters make bad engineers, and you should be a good one. You can help by not tolerating cheating by your fellow students. The TAs and I will monitor for cheating and I will resolve all cheating cases in accordance with College of Engineering and University policy. Please help avoid this by avoiding even the appearance of possible cheating. Cheating can result in failure of the course and/or eventual expulsion from the University.