Syllabus Spring 2009

EE30342 Electronics II

Instructor: Alan Seabaugh

Time TH 9:30-10:45

Class: 356A Fitzpatrick Hall

Lab: 253 Fitzpatrick Hall

Website: Concourse

Prerequisite: EE20242

Textbook: Fundamentals of Microelectronics, Behzad Razavi
2008 John Wiley & Sons, ISBN 978-0-471-47846-1

Description: This course teaches the fundamentals of transistor integrated circuit design including frequency response, feedback, and stability, with application to operational and power amplifiers, oscillators, and AM/FM transmission/reception. A laboratory provides a bridge between theory and practice.

Homework: Homework will be due on Tuesdays at the beginning of class. Late homework will be accepted only under extraordinary circumstances.

Office hours: Mondays, 5 – 6 pm or by appointment, Fitzpatrick 266

Grading: Homework (10%), exams (3 x 15%), Lab (25%), final exam (20%)

Objectives: Students will learn how to analyze, design, and construct transistor circuits.

EE30342 Plan

Class	Date	Plan	Lab	Homework
1	13-Jan	Introduction		
2	15-Jan	Transistor amplifiers - cascode stage		
3	20-Jan	Current mirrors - bipolar	1	1
4	22-Jan	Current mirrors - MOS		
5	27-Jan	Differential amplifiers	2	2
6	29-Jan	Bipolar differential pair		
7	3-Feb	MOS differential pair	3	3
8	5-Feb	Cascode differential amplifiers		
9	10-Feb	Common-mode rejection	4	4
10	12-Feb	Differential pair with active load		
11	17-Feb	SPICE		
12	19-Feb	Exam 1		
13	24-Feb	Frequency response, Bode plots, Miller's theorem	5	5
14	26-Feb	CE and CS stages		
15	3-Mar	CB and CG states	6	6
16	5-Mar	Frequency response of differential amplifiers		
	10-Mar	MIDSEMESTER BREAK		
	12-Mar	MIDSEMESTER BREAK		
17	17-Mar	Feedback - properties of negative feedback	7	7
18	19-Mar	Sense and return techniques		
19	24-Mar	Feedback topologies		
20	26-Mar	Exam 2		
21	31-Mar	Nonideal input/output	8	8
22	2-Apr	Stability in feedback systems		
23	7-Apr	Phase margin and compensation	9	9
24	9-Apr	Output stages and power amplifiers		
25	14-Apr	Push-pull	10	10
26	16-Apr	Short circuit protection and heat dissipation		
27	21-Apr	Exam 3		
28	23-Apr	Oscillators		
29	28-Apr	Wrap-up and review		
	8-May	FINAL EXAM - 10:30 am -12:30 pm		