Department of Electrical and Computer Engineering University of Idaho

ECE 310 MICROELECTRONICS

Syllabus and Policies

Spring 2018

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Dr. Vishal Saxena

ECE 310: Microelectronics I

Spring 2018, University of Idaho

Instructor: Vishal SaxenaEmail: vsaxena AT uidaho.eduTime: MWF 10:30 AM - 11:20 AMCourse dates: Jan 10 - May 4, 2018Location: EP 205Course Home-page : http://lumerink.com/courses/ECE310/s18/ECE310.htm

Course content -

- Basics of Semiconductor Physics
- Diode Models and Circuits
- MOS Transistors
- CMOS Amplifiers and Mirrors
- CMOS Inverters
- Bipolar Transistors
- Bipolar Amplifiers
- Operational Amplifiers

Prereq – ECE 212, Coreq – ECE 311

Textbook – <u>Fundamentals of Microelectronics</u> – Behzad Razavi, 2nd Edition, Wiley, 2013.

Workload (Grading)

25% Homeworks45% Exams (3)30% Final Exam

Make-Up Policies

Only students presenting medical or official university excuses to the instructor will be allowed to take a make-up exam or other missed assignments. Whenever possible, arrangements should be made with the instructor prior to the regularly scheduled exam or assignment due date. Making these arrangements is entirely the responsibility of the student. Make up exams or other assignments may differ from those given at the regularly scheduled time, and whether an absence is deemed to be excusable is at the discretion of the instructor.

Academic Honesty

Academic honesty is governed by Article II of the University of Idaho's Student Code of Conduct <u>http://www.webs.uidaho.edu/fsh/2300.html</u>. Cheating on classroom or outside

assignments, including examinations is a violation of this code. Incidents of academic dishonesty will be kept on file by the instructor and may be reported to the dean of students. Such instances of academic dishonesty may warrant expulsion from the course and a failing grade. All students should be aware that even one incident of academic dishonesty may also merit expulsion from the University.

Policies

- Homework and exam scores become final one week after they are returned to the class.
- Late submissions of assignments and project reports are not encouraged; however, if you cannot finish in time and submit late before the solutions are available, a 25% per day compounding deduction will be applied on the final grade. (Ex.:100 points assignment submitted 3 days late will be graded on 42 points, 1 day on 75, 2 days 56, 4 days 32, etc.).
- Submission will not be accepted if the solutions are distributed by any means.
- Assignments have to be turned in during class session. I will not accept any assignment dropped in my office mailbox without getting my permission earlier. You may consult with others on assignments, provided you only submit your attempt at the work. Identical assignments will receive a grade of zero and be considered as academic dishonesty case. Assignment is considered one day late if it is not turned in before 12:30 PM on the day it is due.
- Final exam will not be returned at the end of the semester.

TENTATIVE COURSE OUTLINE

Week	Day	Date	Topics	Readings
1	W	1/10	Course Introduction	Ch. 1
	F	1/12	Circuits Review	
2	М	1/15	MLK Day	
	W	1/17	Semiconductor Physics	
	F	1/19	Semiconductor Physics	
3	М	1/22	Semiconductor Physics	Ch. 2
	W	1/24	Semiconductor Physics	
	F	1/26	Diode Models and Circuits	
4	М	1/29	Diode Models and Circuits	Ch. 3
	W	1/31	Diode Models and Circuits	
	F	2/2	Diode Models and Circuits	
5	М	2/5	Diode Models and Circuits	
	W	2/7	Diode Models and Circuits	
	F	2/9	Exam 1	
	М	2/12	MOS Transistors Physics	Ch. 6
6	W	2/14	MOS Transistors Physics	
	F	2/16	President's Day	
	М	2/19	MOS Transistors Physics	
7	W	2/21	MOS Transistors Physics	
	F	2/23	MOS Transistors Physics	
	М	2/26	CMOS Amplifiers	Ch. 7
8	W	2/28	CMOS Amplifiers	
	F	3/2	CMOS Amplifiers	
	М	3/5	CMOS Amplifiers	
9	W	3/7	CMOS Amplifiers	
	F	3/9	Exam 2	
10	М	3/12	Spring Recess	Ch. 4
	W	3/14		
	F	3/16		
11	М	3/19	Current Mirrors	
	W	3/21	Current Mirrors	Ch. 5
	F	3/23	Current Mirrors	
12	М	3/26	Current Mirrors	
	W	3/28	Bipolar Transistors Physics	
	F	3/30	Bipolar Transistors Physics	
13	М	4/2	Bipolar Transistors Physics	Ch. 9
	W	4/4	Bipolar Amplifiers	
	F	4/6	Bipolar Amplifiers	
14	М	4/9	Exam 3	Ch. 8

This is tentative schedule. The class lecture website will supersede these dates.

	W	4/11	Bipolar Amplifiers	
	F	4/13	Bipolar Current Mirrors	
15	М	4/16	Bipolar Current Mirrors	
	W	4/18	Operational Amplifiers	
	F	4/20	Operational Amplifiers	
16	М	4/23	Operational Amplifiers	
	W	4/25	Operational Amplifiers	`
	F	4/27	Operational Amplifiers	
17	М	4/30	Digital CMOS Circuits	Ch. 16
	W	5/2	Digital CMOS Circuits	、 、
	F	5/4	Digital CMOS Circuits	
5/7			Final Exam	

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