ECEN3250, Microelectronics Spring 2017 Professor. J. Gopinath

Syllabus

Time, Location: Mon/Wed/Fri 11:00 – 11:50 am, Fleming 156

Texts: Required:
*Microelectronic Circuits, 7th edition* (2015), Sedra and Smith, Oxford University Press

**Required text is on hold at Engineering Library.**

Homework: Due Fridays at beginning of class. No late homework accepted.

Quizzes: Wednesdays at beginning of class.

Grading:

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<td>Homework</td>
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<td>Quizzes</td>
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<td>Midterm I</td>
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<td>Midterm II</td>
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<td>Final Exam</td>
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Instructor: Professor J. Gopinath
E-mail: Juliet.Gopinath@colorado.edu
Tel: 303-492-5568
Office: ECEE 1B43
Office hours: Wednesdays 1-2 pm and Thursdays 3-4 pm

Webpage: [http://ece.colorado.edu/~ecn3250/](http://ece.colorado.edu/~ecn3250/)

Grader: Shiril Tichkule
Shiril.Tichkule@Colorado.EDU

Prerequisite: ECEN 2260, Circuits as Systems
Important dates to remember

Midterm I: March 1, in class
Midterm II: April 7, in class
Final: Sunday May 7, 7:30 – 10:00 pm, Fleming 156

Course Goals:

• Understand how to approach analysis and design of circuits with nonlinear elements, including diodes, BJTs and MOSFETs, with an emphasis on design oriented analysis techniques.
• Understand the principles of operation for pn junctions, semiconductor diodes, MOSFETs and BJTs, including intuition behind the physical meaning of device model parameters and limitations of models.
• Understand how to analyze and design basic amplifier gain stages and digital logic gates using MOSFETs and BJTs.

Material to be Covered:

• Review of analysis techniques for linear, time-invariant (LTI) circuits
• Physical operation of diodes and design and analysis of diode circuits
• Physical operation of MOSFETs and design and analysis of MOSFET circuits and amplifiers
• Physical operation of BJTs and design and analysis of BJT circuits and amplifiers
• Design of logic gates using transistors
• Frequency response of basic amplifier gain stages
• Differential amplifiers

Attendance: Attendance is required at all lectures.

Homework: You are allowed and encouraged to collaborate with other students taking the class. However, just copying someone else's work is strictly prohibited - you must turn in your own original work. Identical homework will be considered cheating. Plagiarism is also considered an honor code violation.

Quizzes and Exams: Quizzes and exams are in-class and closed-book. Absolutely no collaboration is allowed. Show all work.

Calculators Calculators are allowed for quizzes and exams. Cell phones are not permitted (even with calculator function).

Make-up Exams and Quizzes: There are no make-up quizzes or exams, and no late work will be accepted, except in cases of documented medical emergencies. Conflicts in your schedule with the midterm exams must be discussed with the instructor within the first two weeks of class. If you have three or more final exams scheduled on the
same day, you may arrange to take the last exam at a different time, but you must make arrangements before the end of the sixth week of the semester.

**Disability/Illness:** If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and http://www.Colorado.EDU/disabilityservices

If you have a temporary medical condition or injury, see guidelines at http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html

**Relig. Observance:** Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, any student with a religious obligation will be given an opportunity to reschedule a homework or exam.

**Decorum:** Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

**Discrimination/Harrassment:** The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH, the above referenced policies and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at http://www.colorado.edu/odh

**Honor Code:** All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of
the academic integrity policy will be subject to both academic sanctions (ranging from a zero on the assignment and a full letter grade reduction in the course to an ‘F’ in the course) and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at http://www.colorado.edu/policies/honor.html and at http://www.colorado.edu/academics/honorcode/