

SYLLABUS ECE 3020: INTRODUCTION TO ELECTRONICS

Spring 2018

Description: Electronics: diode and transistor models for amplifiers, switches, and logic gates. Multiple transistor circuit analysis, op amps, and electronic systems.

Learning Goals:

1. Student will learn a detailed view of Electronic Systems and are given a design problem requiring use of analysis methods on individual devices
2. Learn to use a circuit simulator

Instructor:

Tawfiq Musah
316 Dreesse Lab
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Text:

Required: *Microelectronic Circuits, 7th Edition*, A. Sedra and K. Smith, Oxford University Press (2015) ISBN 978-0-19-933913-6

References (supplemental reading):

Razavi, *Fundamentals of Microelectronics*, Wiley, 2014)

Topics and Number of Lectures:

Electronics Overview, Basic Concepts (4)
Operational Amplifiers (Op-Amps) (6)
Introduction to Feedback (4)
Filters (4)
Diodes and Applications (6)
Field Effect Transistors (FETs) and Applications (6)
Bipolar Junction Transistors (BJTs) and Applications (4)
Circuit Simulation Software (6)

Grading:

Midterm 1	25%
Midterm 2	25%
Final Exam	35%
Homework Quizzes	15%

Homework: Homework problems will be assigned throughout the semester, and solutions will be posted after a few days. Students are encouraged to work together on the homework problems, but they will not be due nor count towards your grade. Mastery of the problems will help with quizzes.

Homework Quizzes: These will be 15 minutes closed book/closed note single-problem quiz, similar to (but not the same as) the homework problems.

Exams: Exams are closed book. You will be allowed a single cheat sheet, 8.5" by 11", with handwritten notes only, on one side only (no magnifying glasses). No internet-enabled devices are permitted. Calculators may or may not be allowed. No working with others.

Missed exams: Any missed exam will result in a zero grade unless arrangements are made in advance. Suitable circumstances include illness, death in the immediate family, and situations of comparable gravity. In such cases, *if and only if arrangements are made in advance*, a make-up exam can be arranged. Midterms dates are announced well in advance, so plan your job interviews and such around them.

Office hours: I will hold office hours on Mondays 11:30-1:00 and Thursdays 1:00-2:30.

Reaching me: You may reach me during office hours, or make an appointment by email if you cannot make my office hours. **Please do not "drop by" without an appointment.**

FINAL EXAM: Our final exam will be Thursday, April 26, from 10:00-11:45. No make-up or early exams allowed.

Disabilities Statement

Any student who feels s/he may need an accommodation based on the impact of a disability should contact the instructor privately to discuss specific needs. Please contact the OSU Office for Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies. If you require accommodation, please let the instructor know at the beginning of the term, and not later than the second Friday, so that if arrangements are needed regarding midterms, there will be time to set them up.

Academic Misconduct Statement

Any student found to have engaged in academic misconduct, as set forth in the Code of Student Conduct Section 3335-23-04, Prohibited Conduct, will be subject

to disciplinary action by the university. Academic misconduct is any activity that tends to compromise the academic integrity of the university, or subvert the educational process.

Student Conduct

Students are expected to abide by the provisions in the Code of Student Conduct. The University's [Code of Student Conduct](#) and [Sexual Harassment Policy](#) are available on the OSU Web page

Student Counseling and Consultation Services

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling [614-292-5766](tel:614-292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at [614-292-5766](tel:614-292-5766) and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.