

SYLLABUS ECE 3020: INTRODUCTION TO ELECTRONICS

Spring 2019

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 circuits and systems
2. Students will learn to analyze simple electronic circuits
3. Learn to use a circuit simulator

Instructor:

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Text:

Required: *Microelectronic Circuits, 7 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 Covered:

Basic Concepts: Electronics Overview, Design and Simulation
Operational Amplifiers (Op-Amps)
Introduction to Feedback
Filters
Diodes and Applications
MOS Field Effect Transistors (FETs) and Applications
Bipolar Junction Transistors (BJTs) and Applications
Digital and Mixed-Signal Circuits

Grading:

Exam I	25%
Exam II	25%
Final Exam	35%
Homework & Quizzes	15%

Homework: Homework problems will be assigned throughout the semester, and solutions will be posted after the due dates. The grading will be quantized to 10 (mostly correct), 5 (partially correct) and 0 (little or no effort). Students could