

ECE323**Electronic Analysis, Design, and Simulation**

Objectives: Learn the basics of analysis and design of modern electronics, mainly for preparation for advanced courses. Introduction to electronics design projects.

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Text: Microelectronic Circuits by Sedra/Smith 5th ed.

Course Outline:

Electronics Overview, Design and Project methods: Chp. 1, notes.

Op Amps Chapter 2, Secs. part of 2.1 – 2.4, skim 2.5 – 2.7, part of 2.9

Diodes Chapter 3, Secs. part of 3.1 – 3.5, and 3.9

MOS Transistors Chapter 4, Secs. 4.2 – 4.9, and 4.12

BJT Transistors Chapter 5, Secs. part of 5.2 – 5.9, and 5.11

Analog ICs Chapter 6, Secs. 6.3 and 6.5 Current Mirror Loads

MOS Diff. Pair Chapter 7, Secs. 7.1 and 7.2

Feedback Chapter 8, Secs. 8.1 and 8.2

Digital ICs Secs. 1.7, 4.10, and 10.1

Tuned Amps and Sec. 12.11.1 – basic principle of tuned MOS amp

Op Amp Filters Sec. 12.12 Ex. 12.6 Spice simulation of Tow-Thomas biquad

Deliverables and Grading:

Homework (maybe quizzes) – 20%

Exam 1 (open book) – 30%

Exam 2 (open book) – 35%

Design Report – 15 %

ECE Honor System for Individual work.