

ECE 342

Electronics II

Tuesday, 9:00 AM- 10:50 AM

Wednesday, 9:00 AM - 10:50 AM

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Office Location: 612

Office Hours: Tuesdays 12:00 PM - 2:00 PM or by appointment.

Course Description: MOS circuits: DC operation and analysis. Single stage MOS amplifiers, circuit design, DC and small signal analysis. Cascode amplifier. Current mirrors, active loads. BJT and MOS differential amplifiers. Monolithic operational amplifiers. Output stages. Frequency response. Introduction to feedback theory, amplifier topologies. Circuit simulation software LTSpice, Cadence/Spectre.

Prerequisite(s): ECE 241 and ECE 211

Credit Hours: 4

Text (required):

Fundamentals of Electronics, Behzad Razavi.

Suggested Texts:

Microelectronic Circuits, Sedra et. al.

Microelectronic Devices and Circuits, Fonstad.

Grade Distribution:

Quizes	35%
Simulation-based Project/s	35%
Final Exam	30%

Online submission of, or placing one's name on an exam, assignment, or any course document is a statement of academic honor that the student has not received or given inappropriate assistance in completing it and that the student has complied with the Academic Honesty Policy in that work.

Tentative Course Outline:

- Review of Physics of Bipolar Transistors (Chapter 4)
- Bipolar Amplifiers (Chapter 5)
- Review of Physics of MOS Transistors (Chapter 6)
- Circuit Simulation Software: LTSpice, Cadence-Spectre
- CMOS Amplifiers (Chapter 7)
- Cascode Stages and Current Mirrors (Chapter 9)
- Differential Amplifier (Chapter 10)
- Frequency Response (Chapter 11)
- Feedback (Chapter 12)
- Operational Amplifier as a Black Box (Chapter 8)