

**Department of Electrical and Computer Engineering  
University of Massachusetts/Amherst**

**ECE 311: Intermediate Electronics, Spring 2020**

**Course Synopsis**

Intermediate level electronic circuits are covered. Basic single stage circuits are combined to create higher performance multi-stage subsystems. Noise analysis, specification and design are applied to create sensitive circuits for low signal level applications. Power amplifier design techniques will be investigated for subsystems that are efficient producers of high signal level power. Circuit blocks such as oscillators, filters, and mixers will be discussed (3 credits)

**Prerequisites**

E&C ENG 310 (Circuits & Electronics II), E&C ENG 315 (Signal Processing Methods)

**Instructor:** Robert W. Jackson, 215G Marcus Hall, [jackson@ecs.umass.edu](mailto:jackson@ecs.umass.edu)  
Office Hours: TBD

**Teaching Assistant:** Minghao Dong [minghaod@umass.edu](mailto:minghaod@umass.edu) Office Hours:TBD

**Course Meeting Times:** Lectures: MWF, 11:15-12:05pm, ELAB 306

**Grading Scheme:** Letter grade based on the following weights:

(1) Homework (25%), (2) Two Midterm Exams (21% each), (3) Final (33%)

Note on Homework: Tentatively there will be twelve homework assignments. Four of the assignments will be Design homework assignments that will count 5 times more than a regular assignment. Design assignments include simulations and more detailed analysis. All homeworks must be submitted on Gradescope by 5:00 pm on the due dates. *No late regular homework will be accepted.*

**Textbook:** Sedra, A.S., and K.C. Smith, *Microelectronic Circuits*. Oxford University Press, 8<sup>th</sup> edition.

**Software**

Students can use either ORCAD PSPICE or CIRCUITLAB for circuit analysis. PSPICE is recommended since it is a more professionally oriented simulator. PSPICE can be downloaded free from <https://www.orcad.com/resources/download-orcad-lite> . Mac users will need a Windows emulator to run PSPICE.

**Course Goals**

**Objectives:**

- Understand intermediate level electronic circuits;
- Understand circuit effects relevant to electronic systems;
- Learn about more diverse types of circuits;
- Be able to analyze noise effects in circuits
- Be able to analyze large signal circuits.

## **ECE ACADEMIC HONESTY POLICY**

An Honor Code Policy has been adopted for all ECE students at UMass Amherst, the result of a joint initiative between students in Eta Kappa Nu (the ECE student honor society) and the Faculty of the ECE Department. The purpose of this policy is to emphasize engineering ethics as an important part of your education and career, and to enhance the value of your ECE degree from UMass. Simply put, the policy requires that each ECE student demonstrate high ethical standards by attesting to personal honesty and integrity for each examination taken and laboratory report completed. The policy fits within the framework of the existing Academic Honesty Policy of the University, and is similar to that used by other universities. Cheating will not be tolerated. A student found cheating on an exam will receive an automatic grade of F on the exam, and likely will fail the course as well.