
Prerequisite: EE 3329. Co-requisite: EE 4429L/5529L.

Lectures: Mon/Wed 12:00pm – 12:50pm, LIBR 07/CHE 311
Labs: Tue 3:00pm – 5:30pm, LEL 09

Catalog Descriptions:
EE 4429/5529 – Introduction to operational amplifiers and their applications, current mirrors, active loads, differential amplifiers, feedback and stability, filters, oscillators, Schmitt triggers, power amplifiers and voltage regulators.
EE 4429L/5529L – Transistor biasing, amplifiers and other basic analog circuit designs.

Instructor: Dr. Steve C. Chiu, Associate Professor of Electrical Engineering, email: chiustev@isu.edu. Office and Office Hours: LEL 210, Thursday 1:30pm – 3:00pm, or by appointment.

Teaching Assistant: Mr. Durgasamanth Pidikiti, MCE graduate student and research assistant, email: pididurg@isu.edu. Office and Office Hours: TBA, or by appointment.

Grading Policy: Course grades will be based on the following distribution: 1 mid-term exam (20%), 5 laboratory assignments (30%), 1 final exam (20%), 1 term report (20%), and laboratory attendance (10%). All laboratory assignments and the term report are group-based. Both the mid-term and final exams are individual.

Late Policy: If an assignment or the term report cannot be submitted by the deadline, you must contact the instructor before the deadline to arrange for a late submission. Otherwise, it will not be accepted and will receive a grade of zero. A late submission will entail a penalty of 10% of the maximum points per delayed day. For example, a submission that is 2 days late and would have received 80 points out of 100 will receive 80 – 100 * 10% * 2 = 60 points.

Planned Class Schedule and Topics Covered:
August Operational Amplifiers (Op-Amp)
September Op-Amp Applications, Current Mirrors
October Active Loads, Differential Amplifiers
November Schmitt Triggers, Oscillators, Active Filters
December Active Filters, ADC and DAC
If time permits, topics beyond the ones listed above will also be covered.

Midterm Exam: mid of October
Final Exam: during Finals Week
Course Learning Objectives:

1. Students have knowledge of op-amp and transistor based active analog devices and systems.
2. Students have essential laboratory skills of microelectronic synthesis and evaluation.

ABET Student Outcomes – these are specific learning skills that the students attain at the end of the course and that reflect the broader course objectives:

A. Ability to apply knowledge of mathematics, science, and engineering
C. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

How to do well in this class:

It will be necessary to memorize certain essential principles to practice with them. But memorization alone will not ensure a good grade. You need to understand the concepts that we discuss in this class and be able to apply them. You will not be able to successfully prepare for the exams the night prior to the exam, nor will you be able to complete an assignment the day before it is due. Come to class, pay attention and ask questions. Review the material after each class. Work hard on the assignments. A couple of days before the exam, go over the material and summarize, then spend time on your summary.

If you missed or will miss an exam, you must provide documentation justifying your absence, or you will receive a grade of zero on the exam. In case of illness, you must provide written documentation from your physician. In case of personal problems, you must provide a statement from a responsible independent source justifying your absence. No other flexibility will be provided.

Ethics and Code of Conduct:

Engineers have an immense responsibility for public safety. Our civilization is built in large part upon the technology created by engineers. The technology must be safe and effective. Generations of engineers have earned the respect of the public through their ethical and professional behavior. A cornerstone of that ethical behavior is the voluntary admission of ignorance. An engineer does not misrepresent his capabilities; he does not claim to be able to design something unless he is truly able to do so. Misrepresentation of ability endangers the public.

As engineering students, you are held to the same high standard of ethical behavior as professional engineers. The very idea of cheating is anathema to engineers. This policy on academic dishonesty is a consequence of the engineering profession's responsibility for public safety.
Academic Integrity

*Academic integrity* is a fundamental expectation of all students in this course. Cheating, plagiarism, and other forms of academic misconduct will not be allowed in this course. Below is a list of commonly seen misconducts. Please note that this is *not* a complete list. It is your responsibility to be familiar with the student code of conduct, and conduct yourself according to the standards.

- Copy answers from another student's examination sheet, assignment, or term report.
- Copy answers from solutions provided to students who took the course previously.
- Copy answers from other sources or discussions that you did not participate in.
- Make use of notes during a closed book or closed notebook examination.
- Make use of electronic devices that are not allowed in the exam.
- Allow another student to take an exam in your place.
- Represent the work of another individual as your own.
- Assist another student to violate academic integrity.