Course Description
EE 3339 Electronics I

2000-02 Catalog Data. An introduction to the design and analysis of modern electronic circuits. Signal and amplifier concepts, operational amplifiers, diodes, bipolar junction transistors, field-effect transistors, and basic amplifier configurations. Prerequisite: EE 3352 with a grade of "C" or better. EE 3352 may be taken concurrently with EE 3339.

Prerequisite by Topic
1. Complex Numbers
2. Reactance and Impedance Concepts
3. Voltage and Current Division
3. Loop and Nodal Analysis

Textbook
Microelectronic Circuits, Fourth Edition
Sedra and Smith – University of Toronto
Oxford University Press

Course Outcomes
By the end of this course, students will be able to

- Apply basic scientific and mathematical concepts to electronic circuit problems
- Analyze basic electronic circuits built with diodes and transistors
- Design simple power supplies and audio amplifiers
- Work effectively and efficiently in an electronic engineering team
- Develop oral and written communication skills

Topics Covered
The main topics are

- Diode I-V characteristics
- Diode-based rectification
- RC filtering
- Zener regulation
- BJT I-V characteristics
- BJT ac model
- Common emitter configuration
- Common collector configuration
- Cascade BJT amplifier
- FET I-V characteristics
- FET ac model
- Common source configuration
- Common drain configuration

Class Schedule
Three hours of lecture per week

Contribution to Professional Component

EE3339 is a junior required course. It is the first course of a two-course sequence taken by all electrical engineering majors to develop a basic understanding of analog electronic circuit theory.

Relationship to Program Outcomes

- Ability to apply knowledge of mathematics, science, and engineering:
Students use concepts from physics, chemistry, calculus, and networks in the analysis of electronic systems.

- Ability to design a system or component to meet desired needs:

  Students design, simulate, and implement basic audio and radio-frequency electronic circuits according to technical specifications.

- Ability to function in multidisciplinary teams:

  Students are assigned to study base teams from the start of the semester and are required to follow cooperative learning rules of engagement.

- Ability to identify, formulate and solve engineering problems:

  Students work homework problems, perform design calculations, and analyze electronic circuits.

- Ability to communicate effectively:

  Students are selected at random to make oral presentations of homework problems and poster presentations of team projects. Students also write one-minute essays, group-processing reports, and a final project technical report.

**Computer Usage**

Students use PSPICE to simulate power supplies and amplifier circuits.

**Prepared by**

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