

ECE 3020 (Proposed): Introduction to Electronics

Course Description

Electronics: diode and transistor models for amplifiers, switches, and logic gates. Multiple transistor circuit analysis, op amps, and electronic systems.

Prior Course Number: 323

Transcript Abbreviation: Intro Electronics

Grading Plan: Letter Grade

Course Deliveries: Classroom

Course Levels: Undergrad

Student Ranks: Junior

Course Offerings: Autumn, Spring

Flex Scheduled Course: Never

Course Frequency: Every Year

Course Length: 14 Week

Credits: 3.0

Repeatable: No

Time Distribution: 3.0 hr Lec

Expected out-of-class hours per week: 6.0

Graded Component: Lecture

Credit by Examination: No

Admission Condition: No

Off Campus: Never

Campus Locations: Columbus

Prerequisites and Co-requisites: Prereq: 2100 or 2020; or 2021 or 2106, and 2027 prereq or concur; and ECE or EngPhys major, or 2110 prereq or concur and permission of department.

Exclusions: Not open to students with credit for 323.

Cross-Listings:

Course Rationale: Existing course.

The course is required for this unit's degrees, majors, and/or minors: Yes

The course is a GEC: No

The course is an elective (for this or other units) or is a service course for other units: Yes

Subject/CIP Code: 14.1001

Subsidy Level: Baccalaureate Course

Programs

Abbreviation	Description
CpE	Computer Engineering
EE	Electrical Engineering

Course Goals

Learn a detailed view of Electronic Systems and are given a design problem requiring use of analysis methods on individual devices
Learn to use a circuit simulator

Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Electronics overview, design and project Mmethods	4.0							
Diodes	6.0							
MOS and bipolar transistors	9.0							
Analog integrated circuits, differential pairs, and feedback	7.0							
Digital electronics	8.0							
Op amps, op amp filters, and tuned amplifiers	6.0							

Representative Assignments

Homework
Computer circuit simulations

Grades

Aspect	Percent
Homework and possible Quizzes	15%
Exam I	25%
Exam II	25%
Final Exam	35%

Representative Textbooks and Other Course Materials

Title	Author
<i>Microelectronic Circuits</i>	A. Sedra and K. Smith

ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
*	a	An ability to apply knowledge of mathematics, science, and engineering.
	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
*	c	An ability to design a system, component, or process to meet desired needs.
	d	An ability to function on multi-disciplinary teams.
***	e	An ability to identify, formulate, and solve engineering problems.
	f	An understanding of professional and ethical responsibility.
	g	An ability to communicate effectively.
	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
	i	A recognition of the need for, and an ability to engage in life-long learning.
	j	A knowledge of contemporary issues.
*	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Notes or Comments

Add 291 to prereqs

Add 2106 to prereqs 10/30/12

Added "or prereq or concurrent 2010 or 2110, and permission of department." to prereqs
10/20/13

Correct type in prerqs change "2210" to "2110" 1/29/14

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