



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Electronics for CSE majors

ECE 2360

Credit Hours:

3.00 - 3.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Lab

Course Description:

Electronics course for CSE majors. Basics of circuit analysis and design around embedded systems.

Prerequisites and Co-requisites:

Prereq: Engr 1182.01, 1182.02, 1182.03, 1282.01H, 1282.02H, 1282.03H, or 1282.04H, or 1186 and 1187 and 1188 concurrent; and Math 1152, 1161.01, 1161.02, 1172, or 1181H; and Physics 1250 or 1260; and CPHR 2.00 or above; and enrollment in CSE major.

Course Goals / Objectives:

- Learn basics of analysis and design of modern electronics
 - Introduction to electronic circuits lab
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Course Topics:

- Course introduction and structure.
 - Electronics circuits for ubiquitous computing
 - Electronic circuits top-down overview
 - Digital, microcontroller, and analog functions in digital circuits
 - Lab design and project methods
 - Electrical energy via current and voltage; resistor and device abstraction
 - Circuit schematic analysis: voltage node method, energy storage and memory preview
 - Circuits for digital electronics: inverters, logic, repeaters and amplifiers
 - Internet of Things; robot circuits
 - Electronics: bottom-up approach
 - Linear vs. nonlinear hardware vs algorithms
 - Diodes
 - MOS transistors inside digital electronics; trillion-component computers
 - Physical digital abstractions; bipolar transistors in board design
 - Analog energy storage in lumped field: capacitance, inductance, delay, and frequency, LCR abstractions
 - I/O interfaces, operational amplifiers
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Designation:

Elective