



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Introduction to Analog Systems and Circuits Lab for Transfer Students

ECE 2027

Credit Hours:

0.50 - 0.50

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lab

Course Description:

Laboratory-only component of ECE 2020, for transfer students. Laboratory practice with circuit theory, analog systems, and applications of passive components and Op amps.

Prerequisites and Co-requisites:

Prereq: 2021, and CPHR 2.00 or above.

Course Goals / Objectives:

- Be competent in implementing circuits using Ohm's Law, Kirchhoff's laws and superposition
 - Be competent in implementing RC, RL, and RLC circuits and characterizing their steady state and transient behavior
 - Be competent in implementing simple active filters based on ideal Op amps and characterizing their behavior
 - Be familiar with how to use modern computer tools for analog simulation
 - Be competent in how to use laboratory instruments and laboratory methodology
 - Be competent with methodology for critical troubleshooting skills
 - Be competent in reporting standards
-

Course Topics:

- Introduction to Lab Equipment, troubleshooting skills
 - Ideal op amp, feedback, active filters, cascaded active filters
 - RC and RL first-order circuits, natural and total response, RC Op amp circuits
 - Initial and Final Conditions, Series and Parallel RLC, General solution of second-order circuits
 - RC, RL, RLC frequency response vs transient response
 - Bode Plots, Passive and Active Filters
 - Multisim circuit analysis
-

Designation:

Elective

Required