Introduction to Analog Systems and Circuits Lab for Transfer Students

ECE 2027

Description / Conditions

Transcript Abbreviation:
AnlgSys&CircuitLab

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.

Course Levels:
Undegraduate (1000-5000 level)

Designation:
Elective
Required

General Education Course:
(N/A)

Cross-Listing:
(N/A)

Course Detail

Credit Hours (Minimum if “Range” selected):
0.50

Max Credit Hours:
0.50
Introduction to Analog Systems and Circuits Lab for Transfer Students - 2/5

Select if Repeatable:
Off

Maximum Repeatable Credits:
(N/A)

Total Completions Allowed:
(N/A)

Allow Multiple Enrollments in Term:
No

Course Length:
14 weeks (autumn or spring)
12 weeks (summer only)

Off Campus:
Never

Campus Location:
Columbus

Instruction Modes:
In Person (75-100% campus; 0-24% online)

Prerequisites and Co-requisites:
Prereq: 2021, and CPHR 2.00 or above.

Electronically Enforced:
No

Exclusions:
Not open to students with credit for 2020, 2100, 2100.02, 2100.07, 2100.08, 2127, 2137, 209, 292, or 294.03.

Course Goals and Learning Objectives
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

Check if concurrence sought:
No

Contact Hours

Contact Hours:

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<tr>
<th>Topic</th>
<th>LEC</th>
<th>REC out-of-class</th>
<th>REC in-class</th>
<th>Weekly LAB out-of-class</th>
<th>Weekly LAB in-class</th>
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<tbody>
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<td>Introduction to Lab Equipment, troubleshooting skills</td>
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<td>0.0</td>
<td>0</td>
<td>3.0</td>
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<tr>
<td>Ideal op amp, feedback, active filters, cascaded active filters</td>
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<td>RC and RL first-order circuits, natural and total response, RC Op amp circuits</td>
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<td>Initial and Final Conditions, Series and Parallel RLC, General solution of second-order circuits</td>
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<td>RC, RL, RLC frequency response vs transient response</td>
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Grading and Texts

Grading Plan:
Letter Grade

Course Components:
Lab

Grade Roster Component:
Lab

Credit by Exam (EM):
No

Grades Breakdown:

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<th>Aspect</th>
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<td>Lab Reports</td>
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Representative Textbooks and Other Course Materials:

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
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<tbody>
<tr>
<td>Circuits</td>
<td>Ulaby and Maharbiz</td>
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ABET Student Learning Outcomes

ABET-CAC Criterion 3 Outcomes:
(N/A)

ABET-ETEC Criterion 3 Outcomes:
(N/A)

ABET-EAC Criterion 3 Outcomes:
(N/A)

Embedded Literacies (UG courses only)

Embedded Literacies Info:
Attachments / Additional Notes or Comments

Attachments:
(N/A)

Additional Notes or Comments:
(N/A)