ECE 2010 (Proposed): Electrical and Computer Engineering I for Transfer Students Lecture

Course Description
Lecture component of ECE 2000, for transfer students only.

Transcript Abbreviation: ECE 1 Transfer Lec
Grading Plan: Letter Grade
Course Deliveries: Classroom
Course Levels: Undergrad
Student Ranks: Sophomore
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, Marion
Prerequisites and Co-requisites: Prereq: Permission of department, and: Math 1152 (152) or 1161.01 or 1161.02 or 1172 or 1181H, and Physics 1250 or 1260, and CSE 1222 or 2221 or Engr 1281.01H or 1281.02H or 1222; and Engr 1182.01 or 1182.02 or 1182.03 or 1282.01H or 1282.02H or 1282.03H, or Engr 1186 and 1187 with 1188 concurrent, or Engr 1187 and 1188 with 1186 concur, or major in CIS or CIS-PRE. Concur: 2017. CPHR 2.0 or above.
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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CpE</td>
<td>Computer Engineering</td>
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<tr>
<td>EE</td>
<td>Electrical Engineering</td>
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General Information

For transfer students only.
Course Goals

Learn the number representations used in today's digital systems and their arithmetic properties and conversion techniques.
Learn to analyze and synthesize networks of combinatorial, digital logic elements
Learn to analyze, design and synthesize digital clocked sequential circuits
Learn sampling, analog to digital and digital to analog conversion
Learn the fundamentals of Discrete Linear Time Invariant Systems
Learn Z transforms techniques to handle discrete systems
Explore digital circuit design methods

Course Topics

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<thead>
<tr>
<th>Topic</th>
<th>Lec</th>
<th>Rec</th>
<th>Lab</th>
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<tbody>
<tr>
<td>Number systems and conversion</td>
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<td>Boolean algebra</td>
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<td>Karnaugh maps</td>
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<td>Multi-level gate circuits</td>
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<td>Multiplexers, decoders and PLDs</td>
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<td>Latches and flip-flops</td>
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<td>Registers and counters</td>
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<td>Timing (delays, timing diagrams)</td>
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<td>Analysis of clocked sequential circuits (general models for sequential circuits, timing charts, state tables, graphs)</td>
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<td>Design of clocked sequential circuits</td>
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<td>Introduction to complex numbers</td>
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<td>Sinusoidal signals, periodic signals, Fourier series, time-frequency spectrum</td>
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<td>Sampling, aliasing, sampling theorem</td>
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<td>Discrete linear time invariant (LTI) systems</td>
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<td>Impulse response and convolution for discrete systems</td>
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<td>z-Transforms, properties, convolution and the inverse z-transform</td>
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Grades

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<td>Midterm Exam 2</td>
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<tr>
<td>Final Exam</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>Signal Processing First, 2003</td>
<td>McCellan, Schafer and Yoder</td>
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### ABET-EAC Criterion 3 Outcomes

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<tr>
<th>Course Contribution</th>
<th>College Outcome</th>
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### Additional Notes or Comments

Revised grading scheme 4/24/13

Remove 2000.07, 2000.08 from exclusion list

Prepared by: Betty Lise Anderson