ECE 3557: Control Systems Laboratory

Course Description
Utilization of real-world plants for computer control; use of a commercially available software package (Matlab) for computer-aided analysis and design.

Prior Course Number: 557
Transcript Abbreviation: Control Laboratory
Grading Plan: Letter Grade
Course Deliveries: Classroom
Course Levels: Undergrad
Student Ranks: Junior, Senior
Course Offerings: Autumn, Spring
Flex Scheduled Course: Never
Course Frequency: Every Year
Course Length: 14 Week
Credits: 1.0
Repeatable: No
Time Distribution: 3.0 hr Lab
Expected out-of-class hours per week: 0.0
Graded Component: Lecture
Credit by Examination: No
Admission Condition: No
Off Campus: Never
Campus Locations: Columbus
Prerequisites and Co-requisites: Prereq or concur: 3551 (551), and enrollment in ECE or EngPhysics major.
Exclusions: Not open to students with credit for 557.
Cross-Listings: 

Course Rationale: Existing course.

The course is required for this unit's degrees, majors, and/or minors: No
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>
</tr>
<tr>
<td>EE</td>
<td>Electrical Engineering</td>
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Course Goals

Utilize real-world plants for computer control, and learn to use a commercially available software package (Matlab) for computer-aided analysis and design

Course Topics
Representative Assignments
Pre-lab assignment carried out prior to entering lab
Lab write-up focused on topics

Grades

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Pre-labs</td>
<td>15%</td>
</tr>
<tr>
<td>Individual lab write-ups</td>
<td>60%</td>
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<tr>
<td>Lab practical exam</td>
<td>25%</td>
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</tbody>
</table>

Representative Textbooks and Other Course Materials

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
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<tbody>
<tr>
<td>Control Systems Technology Lab</td>
<td>Yurkovich and Abiakel</td>
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ABET-EAC Criterion 3 Outcomes

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

CpE ABET-EAC Criterion 9 Program Criteria Outcomes
## Course Contribution | Program Outcome
--- | ---
** | 1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
 | 2 an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
 | 3 an ability to communicate effectively with a range of audiences
 | 4 an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
** | 5 an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
* | 6 an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
* | 7 an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

** EE ABET-EAC Criterion 9 Program Criteria Outcomes **

| Course Contribution | Program Outcome |
--- | ---
** | 1 an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
 | 2 an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
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### Additional Notes or Comments

Updated prereqs, exclusions, goals and topics to match university format 3/20/12

update text info, 5/10/17, CED

Prepared by: Betty Lise Anderson