ECE 309 Syllabus

Course: ECE 309
Credit Hours: 3
Course Title: Object-Oriented Programming for Electrical and Computer Engineers

Course Description:


Prerequisite(s): Grade of C- or better in ECE 209. CPE or EE majors.

Textbook(s) and/or other required material:


Course objectives. By the end of this course, the student should be able to (use demonstrative verbs):

Design and implement programs in Java using object-oriented methods.
Design and implement data structures using object-oriented methods.
Design classes which abstract data and methods.
Design interface classes.
Write programs which perform stream input and output.
Practice analyzing a program's running time.
Write methods to test other methods and programs.

Topics covered:

Object-oriented design and programming of complex software.
Java programming.
Data abstraction and data structures.
Programming by contract.
Software testing.
Interacting classes and interface design.
Stream input/output, exceptions.
Iterators, recursion, analysis of running time.

Class/laboratory schedule (sessions per week and duration of each session):

2 75 minute class sessions per week.

Contribution of course to meeting the requirements of Criterion 5 - other:

Contribution of course to meeting the requirements of Criterion 5 - math and basic sciences:
## ECE 309 Syllabus

**Contribution of course to meeting the requirements of Criterion 5 - engineering topics:**

3 hours

**Contribution of course to meeting the requirements of Criterion 5 - general education:**

**Relationship of this course to program learning outcomes:**

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Level of Instruction</th>
<th>Related Course Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome A</td>
<td>Major</td>
<td>Students write object-oriented programs in Java to solve problems.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In developing programs, students repeatedly follow the debugging cycle: they develop tests to identify problems, develop further tests to determine the bugs which cause them, fix the bugs, and test the program again.</td>
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<tr>
<td>Outcome B</td>
<td>Major</td>
<td>Students learn to analyze algorithm running times in order to meet speed performance requirements.</td>
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<tr>
<td>Outcome C</td>
<td>Intermediate</td>
<td>Students learn to design programs to solve engineering problems.</td>
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<tr>
<td>Outcome D</td>
<td>N/A</td>
<td>Students gain modern programming skills, developing programs in</td>
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<tr>
<td>Outcome E</td>
<td>Major</td>
<td></td>
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<tr>
<td>Outcome F</td>
<td>N/A</td>
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<tr>
<td>Outcome G</td>
<td>N/A</td>
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<tr>
<td>Outcome H</td>
<td>N/A</td>
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<tr>
<td>Outcome I</td>
<td>N/A</td>
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<tr>
<td>Outcome J</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Outcome K</td>
<td>Major</td>
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End of text.
### Relationship of this course to program learning outcomes:

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<td>Java using Eclipse development environment.</td>
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### Person who last prepared this description and date of preparation:

- Dean, Alexander G. (agdean) - Mar 27th, 2009 (01:51pm)