Computational Thinking in Context: Mobile Applications

CSE 1212

Credit Hours:
3.00

Course Coordinator:

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

Representative Textbooks and Other Course Materials:

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<tr>
<th>Title</th>
<th>Author</th>
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<tr>
<td>Custom handouts and support documentation</td>
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<tr>
<td>On-line App Inventor manual, guide, and tutorials, all available through:</td>
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<td><a href="http://appinventor.googlelabs.com/about/index.html">http://appinventor.googlelabs.com/about/index.html</a></td>
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Course Description:
Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to develop applications for mobile platforms; creativity and imagination encouraged.

Designation:
Elective

Course Goals / Objectives:
Be competent with using basic constructs provided by high-level imperative programming languages: sequencing, selection, and iteration
Be familiar with algorithmic thinking
Be familiar with using basic data structure interfaces such as arrays or lists in simple programs
Be familiar with procedural composition
Be exposed to procedural abstraction by defining new blocks
Be familiar with many of the possibilities available for creative combination in programmed mobile applications
Be familiar with working in a window-based computing environment
Be familiar with using a modern interactive program development environment
### ABET-CAC Criterion 3 Outcomes:

No outcome selected

### ABET-EAC Criterion 3 Outcomes:

| Substantial contribution (3-6 hours) | 1 | an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics |
| Substantial contribution (3-6 hours) | 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 |
| Some contribution (1-2 hours) | 3 | an ability to communicate effectively with a range of audiences - pre-2019 EAC SLO (g) |
| Some contribution (1-2 hours) | 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 |
| Some contribution (1-2 hours) | 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 |
| Some contribution (1-2 hours) | 7 | an ability to acquire and apply new knowledge as needed, using appropriate learning strategies |
**Course Topics:**

- Course introduction, software installation, and basic concepts
- Introduction to programming for mobile platforms
- Loops, new definitions, simple controls
- Loops, conditionals, Boolean expressions, advanced controls
- Nested loops, complex control structures
- User interaction with buttons and text boxes
- Course project: discussion and evaluation of preliminary ideas
- Course project: discussion of problems encountered and possible solutions
- Course project: presentation and evaluation of final projects