

CSE 1212 (Approved): Computational Thinking in Context: Mobile Applications

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.

Transcript Abbreviation: Comp Thkng: Mobile

Grading Plan: Letter Grade

Course Deliveries: Classroom

Course Levels: Undergrad

Student Ranks: Freshman

Course Offerings: Autumn, Spring

Flex Scheduled Course: Never

Course Frequency: Every Year

Course Length: 14 Week

Credits: 3.0

Repeatable: No

Time Distribution: 2.0 hr Lec, 1.5 hr Lab

Expected out-of-class hours per week: 5.5

Graded Component: Lecture

Credit by Examination: No

Admission Condition: No

Off Campus: Never

Campus Locations: Columbus

Prerequisites and Co-requisites:

Exclusions:

Cross-Listings:

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: 14.0901

Subsidy Level: Baccalaureate Course

General Information

Recommended for students with little or no computer programming experience or who are not confident in their programming background.

Course Goals

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.

Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Course introduction, software installation, and basic concepts	1.5		1.0					
Introduction to programming for mobile platforms	3.0		2.5					
Loops, new definitions, simple controls	3.0		2.5					
Loops, conditionals, Boolean expressions, advanced controls	6.0		4.0					
Nested loops, complex control structures	3.0		2.0					
User interaction with buttons and text boxes	3.0		2.0					
Course project: discussion and evaluation of preliminary ideas	2.0		1.0					
Course project: discussion of problems encountered and possible solutions	3.0		1.0					
Course project: presentation and evaluation of final projects	3.0		1.0					

Representative Assignments

Students will build a drawing program similar to etch-a-sketch, including shaking to clear screen.
Students will build a quiz-game using radio buttons and timers for user interaction

Grades

Aspect	Percent
Quizzes	5%
Midterms	15%
Final	20%
Attendance	7%
Attendance at Project Presentations	3%
Homeworks	10%
Lab Assignments	20%
Project	20%

Representative Textbooks and Other Course Materials

Title	Author
<i>Custom handouts and support documentation</i>	
<i>On-line App Inventor manual, guide, and tutorials, all available through: http://appinventor.googlelabs.com/about/index.html</i>	

ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
***	a	An ability to apply knowledge of mathematics, science, and engineering.
	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
**	c	An ability to design a system, component, or process to meet desired needs.
*	d	An ability to function on multi-disciplinary teams.

Course Contribution		College Outcome
	e	An ability to identify, formulate, and solve engineering problems.
	f	An understanding of professional and ethical responsibility.
*	g	An ability to communicate effectively.
	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
*	i	A recognition of the need for, and an ability to engage in life-long learning.
	j	A knowledge of contemporary issues.
*	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Prepared by: Rajiv Ramnath