

City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester B 2017/18

Part I Course Overview

Course Title: iOS Application Development

Course Code: CS4298

Course Duration: One semester

Credit Units: 3 credits

Level: B4

Arts and Humanities

Proposed Area:
(for GE courses only)

Study of Societies, Social and Business Organisations

Science and Technology

Medium of Instruction: English

Medium of Assessment: English

(CS2311 Computer Programming or
CS2312 Problem Solving and Programming or
CS2313 Computer Programming or
CS2360 Java Programming)
And
(CS1303 Introduction to Internet and Programming or
CS2204 Fundamentals of Internet Applications Development or
CS3201 Computer Networks or
CS3270 Fundamentals of Computer Networks and the Internet)

Prerequisites:
(Course Code and Title) CS3270 Fundamentals of Computer Networks and the Internet)

Precursors:
(Course Code and Title) Nil

Equivalent Courses:
(Course Code and Title) Nil

Exclusive Courses:
(Course Code and Title) CS4295 Mobile Application Programming

Part II Course Details

1. Abstract

This course aims to provide an advanced study of designing and building mobile applications, particularly on iOS platform. As one of the major mobile platforms, iOS programming is an essential skill for mobile applications developer. This course will provide in-depth knowledge on iOS development including the development tools, programming languages, model-view-controller paradigm and various frameworks of iOS. Students are expected to design and develop applications on iOS platform that meets the constraints and requirements of high quality mobile applications.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Identify and describe the essential requirements and constraints of developing mobile and iOS applications.	15%	✓	✓	
2.	Demonstrate working knowledge on model-view-controller (MVC) paradigm and various frameworks of iOS.	25%		✓	
3.	Demonstrate working knowledge on sensor, camera and location based programming.	25%		✓	
4.	Provide qualitative evaluation on mobile applications and explores new applications that utilizes the sophisticated features of contemporary mobile devices.	20%	✓	✓	✓
5.	Explore and develop sophisticated and robust applications on iOS devices.	15%	✓	✓	✓
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

Teaching pattern:

Suggested lecture/tutorial/laboratory mix: 2 hrs. lecture; 1 hr. tutorial.

TLA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	Lectures will cover the essential constraints, requirement knowledge, system models and frameworks on iOS application development.	✓	✓	✓	✓	✓	
Tutorial	Tutorials will provide hands-on practices on iOS application development. Programming tools and platform such as xCode, Objective-C/Swift will be covered extensively, together with various mobile application programming topics like sensor, location-based service and multimedia programming.	✓	✓	✓	✓	✓	
Programming Assignment	Student will develop a mobile application on iOS platform that <ul style="list-style-type: none"> demonstrates a good understanding of the characteristics and constraints of mobile applications. utilizes the sophisticated features of contemporary mobile devices. explores new applications on mobile devices. 	✓	✓	✓	✓	✓	
Written assignment	Students will conduct a survey on common mobile applications and provide evaluations and potential improvements of their findings.	✓	✓	✓			

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks
	1	2	3	4	5		
Continuous Assessment: <u>50%</u>							
Written Assignment	✓	✓	✓			10%	
Quiz	✓	✓	✓	✓	✓	20%	
Programming Assignment	✓	✓	✓	✓	✓	20%	
Examination [^] : <u>50%</u> (duration: 2 hours)							

* The weightings should add up to 100%.

100%

[^] For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Written Assignment	ABILITY to identify the essential constraints and requirements of mobile applications	High	Significant	Moderate	Basic	Not even reaching marginal levels
	ABILITY to provide concise and thorough evaluations on mobile applications	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Programming Assignment	ABILITY to identify the characteristics and constraints of the selected mobile applications and consider these factors in developing their applications	High	Significant	Moderate	Basic	Not even reaching marginal levels
	ABILITY to justify their system design and implementation based on a thorough understanding of the iOS development platform	High	Significant	Moderate	Basic	Not even reaching marginal levels
	ABILITY to utilize sophisticated features of contemporary mobile devices in developing an innovative mobile application	High	Significant	Moderate	Basic	Not even reaching marginal levels
	DEVELOP a robust and sophisticated mobile application	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Exam	ABILITY to describe and identify the essential constraints and requirements of developing iOS applications	High	Significant	Moderate	Basic	Not even reaching marginal levels
	ABILITY to evaluate and compare various techniques in developing iOS applications and justify their applications under different scenarios	High	Significant	Moderate	Basic	Not even reaching marginal levels
	ABILITY to demonstrate working knowledge of the technologies and skills required to develop iOS applications with MVC paradigm and appropriate frameworks	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

iOS, xCode, Objective-C/Swift, Cocoa, multi-touch technologies, model-view controller paradigm, memory management, power management, multi-threading, location-based service, camera and sensors.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1. Stephen G. Kochan, *Programming in Objective-C (6th Edition)*, Developer's Library, 2014

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1. Joe Conway, Aaron Hillegass, *iOS Programming: The Big Nerd Ranch Guide, 3rd Edition*, Pearson, 2012
2. [online resource] Objective-C
<https://developer.apple.com/library/mac/documentation/Cocoa/Conceptual/ProgrammingWithObjectiveC/Introduction/Introduction.html>
3. [online resource] Swift
https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/GuidedTour.html