City University of Hong Kong
Course Syllabus

offered by Department of Electrical Engineering
with effect from Semester B in 2022/2023

Part I Course Overview

Course Title:	Mobile Applications Design and Development
Course Code:	EE5415
Course Duration:	One Semester (13 weeks)
Credit Units:	3
Level:	P5
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	EE2311 Object-Oriented Programming and Design or EE3206 Java Programming and Applications or EE5414 Development and Design in Embedded Systems or equivalent
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course aims to provide students with an understanding of the principle and hand-on experience on Android mobile application design and development. The course combines a conceptual overview, design issues, and practical development via Android mobile apps projects. Students will learn skills leading to creating and deploying mobile applications, with particular emphasis on software engineering topics including software architecture, software process, usability, and deployment in embedded systems.

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.	Describe the principles of software requirements for the Android mobile application design and development, and the skills required to produce and maintain a high-quality mobile application.		✓	✓	
2.	Apply the principles of software requirements engineering, to the mobile application software development.		✓	✓	✓
3.	Evaluate and apply software process and software best practices.		✓	✓	
		100%			

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.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3				
Lectures with Demonstrations	Key concepts are described and illustrated	✓	✓	✓				3 hrs/wk (*Some of the lecturers will be conducted in the laboratory)*
Labs	Lab exercises on related topics are provided for students to get hands-on experience of mobile application development.	✓	✓	✓				
Tutorials and Group Discussion	Key concepts are worked out based on problem in tutorials. Group discussions are done in class to study user habits and market needs on mobile applications. Each group will perform the requirements analysis on a specific topic proposed.	✓	✓	✓				
Group project with presentation, written reports	The group project is carried out by a team of 3 or 4 students. They are required to plan their tasks and schedule so as to allow members to work collaboratively. Students are required to present their group project and progress in both oral and written form according to the given guideline and standard. Certain deliverables such as presentation, written reports will be collected as evidences.	✓	✓	✓				

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					
Continuous Assessment: 60%								
Lab Exercises with quizzes and programming assignments	✓	✓	✓				10%	
Programming Test	✓	✓	✓				20%	
Individual Project	✓	✓	✓				5%	Students are encouraged to work with Faculty members, research students and staff in these projects.
Group Project with proposal, progress report, final report and presentation	✓	✓	✓				25%	
Examination:(duration: 2 hours)	✓	✓	✓				40%	
							100%	

Remark:

To pass the course, students are required to achieve at least 30% in course work and 30% in the examination. Also, 75% laboratory attendance rate must be obtained.

5. Assessment Rubrics

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

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B,)	Marginal (B-, C+, C)	Failure (F)
1. Examination	Achievements in CILOs	High	Medium	Low	Not even reaching marginal level
2. Coursework	Achievements in CILOs	High	Medium	Low	Not even reaching marginal level

Applicable to students admitted before Semester A 2022/23

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Examination	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal level
2. Coursework	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal level

6. Constructive Alignment with Programme Outcomes

PILO	How the course contribute to the specific PILO(s)
1,2,3,4,5	This course provides essential knowledge and techniques for designing and implementing mobile application software product. Students have ample opportunities to practice these skills with modern software development tools. A mobile app design project will be carried out by students. They are required to propose their mobile app, analyse some practical problems, develop and present their own solutions with a demonstration.

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

1. Keyword Syllabus

Android Mobile App Design and Development Principles
Overview and history of Andriod mobile app, mobile app markets, design principles, software architecture, software development cycles, software development tools, programming languages, operating systems for mobile devices, usability, and deployment.

User Interface and Functionality Design
UI Overview, Activities, Application Lifecycle, Intents, Intent Filters, Broadcasts, Broadcast Receiver, Shared Preferences, Files, SQLite DB, Content Provider.

Mobile App Software Development
Automated testing, Test-Driven Development, Google Maps, MapView, MapActivity, Threads, Services, Status Bar Notifications, Deployment to Market, Monetization.

Examples of Mobile Apps Projects:

- Mobile apps for Android based smartphones
- Mobile apps for Android based tablet computers

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.	http://developer.android.com

2.2 Additional Readings

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

1.	Nil