



Course Specifications

Course Title:	Mobile Application Development
Course Code:	4170CCS-3
Program:	BSc in Computer Science
Department:	Computer Science
College:	College of Computer Science and Information Systems
Institution:	Najran University

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A. Course Identification

1. Credit hours: 5(3,4,0)				
2. Course type				
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>	Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>		
3. Level/year at which this course is offered: Year 5 / Level 13				
4. Pre-requisites for this course (if any): 2120CCS-6 (Object Oriented Programming)				
5. Co-requisites for this course (if any): None				

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	20
3	Tutorial	10
4	Others (specify)	0
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

This course provides an overview of mobile computing systems. Topics to be covered include descriptions of Android platform, ingredients of Android applications, tools for Android software development, building a view, fragments and multiplatform support, drawing 2D and 3D graphics, handling and persisting data, a framework for a well-behaved application, building a user interface, using content providers, search, location and mapping, multimedia, sensors, and social media. Laboratory exercises will be used to demonstrate practical aspects of developing mobile applications.

2. Course Main Objective

1. What is the main purpose for this course?

The main purpose for this course is to:

1. Describe mobile computing systems and applications: Native, Hybrid, Web Apps.

2. Explain techniques to build Android application, Application Components, activities, services, broadcast receivers, content providers, declared in manifest file.
3. Explain the life cycle of an activity and the use of Intents: implicit and explicit to realize the communication between components of the Android App.
4. Design Activity's layout, views, view groups, widgets for building a user interface.
5. Use Event Handling in UI with both XML and JAVA code solutions.

Maintain software on individual devices as well as to distribute applications on the marketplace.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field)

- Access to the Saudi Digital Library (SDL).
- Using the learning management system of the university
- Incorporating animations and videos related to databases.

Incorporating new developments as determined by faculty through their participation in conferences and symposia.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Describe mobile computing systems and applications: Native, Hybrid, Web Apps.	K ₁
1.2	Explain techniques to build Android application, Application Components, activities, services, broadcast receivers, content providers, declared in manifest file.	K ₁ , K ₂
1.3	Explain the life cycle of an activity and the use of Intents: implicit and explicit to realize the communication between components of the Android App.	K ₁
2	Skills :	
2.1	Design Activity's layout, views, view groups, widgets for building a user interface.	S ₁
2.2	Use Event Handling in UI with both XML and JAVA code solutions.	S ₂ , S ₄ , S ₅
2.3	Maintain software on individual devices as well as to distribute applications on the marketplace	S ₁ , S ₄
3	Values:	
3.1	Ability to meet deadlines on assignments and projects.	C ₁
3.2	Communicate concepts and techniques in oral presentations	C ₂

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Android Programming	5
2	Android Application Frameworks	5
3	Interface and Layout	8
4	Event Handling in UI	8
5	Case Study: Calculator App. – Design Challenges	8
6	Handling and persisting data (SQLITE)	8

7	Building a Simple User Interface	8
8	Using Content Provider	10
Total		60

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Describe mobile computing systems and applications: Native, Hybrid, Web Apps.	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Midterm exam Final Exam
1.2	Explain techniques to build Android application, Application Components, activities, services, broadcast receivers, content providers, declared in manifest file.	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Midterm exam Final Exam
1.3	Explain the life cycle of an activity and the use of Intents: implicit and explicit to realize the communication between components of the Android App.	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Midterm exam Final exam
2.0	Skills		
2.1	2.1	Design Activity's layout, views, view groups, widgets for building a user interface.	<ul style="list-style-type: none"> Lectures Assignments
2.2	2.2	Use Event Handling in UI with both XML and JAVA code solutions.	<ul style="list-style-type: none"> Lectures Assignments
2.3	Maintain software on individual devices as well as to distribute applications on the marketplace.	<ul style="list-style-type: none"> Lectures Assignments 	<ul style="list-style-type: none"> Homework Midterm exam Final exam
3.0	Values		
3.1	Ability to meet deadlines on assignments and projects.	Small Groups	<ul style="list-style-type: none"> Reports Class discussions
3.1	Communicate concepts and techniques in oral presentations.	Oral Presentations	Oral Presentations
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First Assignments	3 rd	5%
2	Second Assignments or mini project (presentation)	5 th	10%
3	First Quiz	2 nd	5%
4	Second Quiz	9 th	5%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
5	Midterm Exam	6 th	20%
7	Lab Performance	1 st -10 th	5%
8	Final Lab Exam	11 th	10%
9	Final Exam	12 th and 13 th	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Faculty - 10 hours per week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Maximiliano Firtman, "Programming the Mobile Web," O'Reilly Media, 2013.
Essential References Materials	Zigurd Mednieks et. al, "Programming Android," O'Reilly Media, 2012.
Electronic Materials	<ul style="list-style-type: none"> ACM (Association for Computer Machinery) web site - http://www.acm.org/ ACM SIGMOBILE (Special Interest Group on Mobility of Systems, Users, Data, and Computing) - http://www.sigmobile.org/ IEEE Computer Society web site http://www.computer.org/portal/web/guest/home Open access course material online
Other Learning Materials	NA

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> Lecture rooms with 30 seats with a multimedia projector. White board, personal computer, one table. An instructor computer station with: <ul style="list-style-type: none"> High speed Internet connection. A desktop computer with a common database managements system access. Power outlets for instructor's laptop plug-in.

Item	Resources
	<ul style="list-style-type: none"> - A digital image projection system with connection and switches to desktop computer and laptop computer. <p>All laboratories should have computers with access to at least one major database management system.</p>
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Desktop/ Laptop computer • Projector system • All students should have: <ul style="list-style-type: none"> - A laptop or access to a desktop computer with access to a major database management system. - High speed Internet connection. <p>Power outlets for student's laptop plug-in.</p>
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> • A lab with high speed internet connection and installed the last version of Android Studio

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Learning outcomes	Instructor	Direct
Teaching strategies	Quality unit	Indirect
Assessment methods	Quality unit	Indirect
Instructor performance	Quality unit	Indirect
Instructor support	Quality unit	Indirect
Course content	Quality unit	Indirect
Student satisfaction	Quality unit	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Computer Science Departmental Council
Reference No.	14440203-0185-00002
Date	1st Sep, 2022