







Course Title: Mobile Application Development

Course Code: 417CCS-3

**Program: Bachelor of Science in Computer Science** 

**Department: Department of Computer Science** 

**College: Computer Science and Information Systems** 

Institution: Najran University

Version: 2.0

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## A. General information about the course:

### **1. Course Identification**

1. Credit hours: (3)

#### 3 (2, 2, 1) [Theory, Lab, Tutorial]

2. Course type						
Α.	□University	□College	🛛 Depa	rtment	□Track	□Others
В.	🛛 Required			□Electi	ve	
3. Level/year at which this course is offered: (Level 7/Year 4)						
4. Course General Description:						

This course provides an overview of mobile computing systems. Topics to be covered include descriptions of the 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.

### 5. Pre-requirements for this course (if any):

212CCS-4

6. Co-requisites for this course (if any):

None

## 7. Course Main Objective(s):

Upon the successful completion of this course, students will be able to:

- 1. Describe mobile computing systems and applications: Native, Hybrid, and Web Apps.
- 2. Explain techniques to build Android applications, Application Components, activities, services, broadcast receivers, and content providers, declared in the 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, and widgets for building a user interface.
- 5. Use Event Handling in UI with both XML and JAVA code solutions.





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

## 2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100%
2	E-learning		
	Hybrid		
3	Traditional classroom		
	• E-learning		
4	Distance learning		

## 3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	15
5.	Others (specify)	
Total		75

# **B.** Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understand	ing		
1.1	Describe mobile computing systems and applications: Native, Hybrid, Web Apps.	K1	Lectures Assignments	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.	K1, K2	Lectures Assignments	Homework Midterm exam Final Exam





Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
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.	K1	Lectures Assignments	Homework Midterm exam Final exam
2.0	Skills			
2.1	Design Activity's layout, views, view groups, and widgets for building a user interface.	S1	Design Activity's layout, views, view groups, widgets for building a user interface.	Lectures Assignments
2.2	Use Event Handling in UI with both XML and JAVA code solutions.	S2, S4, S5	Use Event Handling in UI with both XML and JAVA code solutions.	Lectures Assignments
2.3	Maintain software on individual devices as well as to distribute applications on the marketplace	S1, S4	Lectures Assignments	Homework Midterm exam Final exam
2.4				
3.0	Values, autonomy, and resp	onsibility		
3.1	Ability to meet deadlines on assignments and projects.	C1	Small Groups	Reports Class discussions
3.2	Communicate concepts and techniques in oral presentations	C2	Oral Presentations	Oral Presentations

# **C.** Course Content

No	List of Topics	Contact Hours
1.	Introduction to Android Programming	5
2.	Android Application Frameworks	10
3.	Interface and Layout	10
4.	Event Handling in UI	10
5.	Case Study: Calculator App. – Design Challenges	10
6.	Handling and persisting data (SQLITE)	10
7.	Building a Simple User Interface	10





8.	Using Content Provider	10
	Total	75

# **D. Students Assessment Activities**

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Assignments	3 <sup>rd</sup>	5%
2.	Second Assignments or mini project (presentation)	5 <sup>th</sup>	10%
3.	First Quiz	$2^{nd}$	5%
4.	Second Quiz	9 <sup>th</sup>	5%
5.	Midterm Exam	8 <sup>th</sup>	20%
6.	Lab Performance	$1^{st}$ - $10^{th}$	5%
7.	Final Lab Exam	$11^{\text{th}}$	10%
8.	Final Exam	$12^{th}$ and $13^{th}$	40%

\*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## **E. Learning Resources and Facilities**

# **1. References and Learning Resources**

Essential References	<ol> <li>Maximiliano Firtman, "Programming the Mobile Web," O'Reilly Media, 2013.</li> </ol>
Supportive References	<ol> <li>Zigurd Mednieks et. al, "Programming Android," O'Reilly Media, 2012.</li> </ol>
Electronic Materials	<ol> <li>ACM (Association for Computer Machinery) website - <u>http://www.acm.org/</u></li> <li>ACM SIGMOBILE (Special Interest Group on Mobility of Systems, Users, Data, and Computing) - <u>http://www.sigmobile.org/</u></li> <li>IEEE Computer Society web site <u>http://www.computer.org/portal/web/guest/home</u></li> </ol>
Other Learning Materials	NA





Items	Resources	
<b>facilities</b> (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul> <li>Lecture rooms with 30 seats with a multimedia projector.</li> <li>Whiteboard, personal computer, one table.</li> <li>An instructor computer station with: <ul> <li>High-speed Internet connection.</li> <li>A desktop computer with a common database management system access.</li> <li>Power outlets for instructor's laptop plug-in.</li> <li>A digital image projection system with connection and switches to the desktop computer and laptop computer.</li> </ul> </li> <li>All laboratories should have computers with access to at least one major database management system.</li> </ul>	
<b>Technology equipment</b> (projector, smart board, software)	<ul> <li>Desktop/ Laptop computer</li> <li>Projector system</li> <li>All students should have: <ul> <li>A laptop or access to a desktop computer with access to a major database management system.</li> <li>High-speed Internet connection.</li> </ul> </li> <li>Power outlets for student's laptop plug-in.</li> </ul>	
<b>Other equipment</b> (depending on the nature of the specialty)	A lab with high-speed internet connection and installed the latest version of Android Studio	

# 2. Required Facilities and equipment

# F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods		
Collecting students' suggestions to facilitate more during the class.	Students	Verbal discussion		
Student's questionnaire once during the semester about course learning outcomes.	Students	Indirect Survey		
Achievement percentage of course learning outcomes, direct evaluation using CLO assessment sheet	Course Instructor	Direct evaluation using CLO achievement calculation		
Teaching strategies	Quality unit	Indirect		
Assessment methods	Quality unit	Indirect		
Instructor performance	Quality unit	Indirect		
Course content	Quality unit	Indirect		
Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)				

tudents, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)





# G. Specification Approval

COUNCIL /COMMITTEE	Computer Science Departmental Council
REFERENCE NO.	14440203-0185-00002
DATE	1st Sep, 2022

