





# **Course Specifications**

<b>Course Title:</b>	Mobil Application Development	
Course Code:	415CIS-3	
Program:	Information System	
Department:	Information System	
College:	Computer science and information systems	
Institution:	Najran University	





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#### **A. Course Identification**

1. Credit hours: 3(2,2,1)			
2. Course type			
<b>a.</b> University College Department $$ Others			
<b>b.</b> Required $$ Elective			
3. Level/year at which this course is offered: Year 4 / Level 8			
4. Pre-requisites for this course (if any):			
5. Co-requisites for this course (if any):			

#### **6. Mode of Instruction** (mark all that apply)

No	Mode of Instruction	<b>Contact Hours</b>	Percentage
1	Traditional classroom	90	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

#### 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Conta	ct Hours	
1	Lecture	15
2	Laboratory/Studio	60
3	Tutorial	15
4	Others (specify)	
	Total	90
Other	Learning Hours*	
1	Study	10
2	Assignments	10
3	Library	
4	Projects/Research Essays/Theses	10
5	Others (specify)	
	Total	30

## **B.** Course Objectives and Learning Outcomes

#### **1.** Course Description

This is an advanced programming course that teaches students the skills necessary to develop mobile applications and also provides extensive hands on practice by creating multiple real life applications. Students will learn about the mobile application development framework and its design patterns, various user interface elements, event handling, database connectivity, web connectivity, device to device messaging, cloud to device messaging, interfacing with third party libraries, geolocation APIs and interfacing with on device sensors.

#### 2. Course Main Objective

The students will learn to use android framework in developing mobile applications.

#### **3.** Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge:	
1.1	Explain the concepts and theory of developing android application	K1, K3
2	Skills :	
2.1	Design graphics and multimedia based mobile applications in Android.	S5
2.2	Apply various events handling processes on appropriate android widgets	S2
	for user interaction.	
2.3	Develop database-driven mobile applications in Android.	S4
2.4	Use android framework in developing mobile applications.	S5
2.5	Apply android widgets and responsive layouts to develop mobile	S2
	applications in Android.	
2.6	Design full mobile application with the team	C1,c2,c3
3	Competence:	
3.1	Practice the developing of android application using tools available in the lab such as android studio, android SDK and Java JDK	C1

### **C.** Course Content

No List of Topics		Contact Hours
1	Course Overview	2
2	Android Framework, Linux Kernel, Android Runtime, Libraries, Application Framework	3
3	Application building blocks, Activity, Intent, Services, content provider, development tools and software.	5
4	Android user interface design, Components like EditText, TextView, Button, ImageButton, AutoTextView etc.	5
5	Application designing using Android widgets and layouts.	5
6	Use Progressbar, DatePicker, TimePicker etc. on Mobile applications.	5
7	Android Graphics Programming, 2D, 3D, Canvas, Paint	5
8	Line drawing, Circle, Rectangle, Oval and Mix graphics	5
9	The event, Event Handlers, Event Listeners and Event Management on different widgets	5
10	SQLite, Classes, Commands, connectivity code, implementation queries	10
11	Menus, Toast, Intents	5
12	fragments, Notifications and dialogs	5
13	advanced Android development concepts: device to device messaging, cloud to device messaging,	5
14	interfacing with third-party APIs, geolocation APIs,	5
15	interfacing with on-device sensors etc. to develop mobile applications	5
	Total	75



## **D.** Teaching and Assessment

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

Code	<b>Course Learning Outcomes</b>	<b>Teaching Strategies</b>	Assessment Methods
1.0	Knowledge	-	
1.1	Explain the concepts and theory of developing android application	<ul> <li>Lectures, active learning, collaborative and cooperative learning and independent study assignments are used as teaching strategies.</li> <li>Showing and delivering PPT presentation in the class.</li> <li>Using white board to explain important points in more detail.</li> <li>Motivating students to be active during class by asking questions regularly during lecture.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments related to real world problem solving and Java implementation.</li> <li>Let students to solve the problems related to real world problems and Java</li> <li>Motivating students to be active during class.</li> <li>Motivating students to be active during class.</li> </ul>	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Midterm exam1 and Midterm exam2 Final Exam

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Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods
		Giving students' tutorials related to importance of Object Oriented Programming and its implementation etc.	
2.0	Skills		
2.0	Skills Apply android widgets and responsive layouts to develop mobile applications in Android.	<ul> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> </ul>	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Midterm exam1 and Midterm exam2 Final Exam

Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods	
		Object-Oriented		
		Techniques.		
2.2	Design graphics and multimedia based mobile applications in Android.	<ul> <li>Object-Oriented Techniques.</li> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>Use of Java to implement the different</li> </ul>	<ul> <li>Following methods are used to assess student's knowledge acquire in this course.</li> <li>Class Quizzes.</li> <li>Midterm exam1 and Midterm exam2</li> <li>Final Exam</li> </ul>	
		Techniques		
	Apply various events handling processes on appropriate android widgets for user interacti	Using the Java     Standard Classes in     a typical program     on white board for	Following methods are used to assess student's knowledge acquire in this course.	

Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods
Code	Course Learning Outcomes	<ul> <li>Teaching Strategies</li> <li>students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>Use of android studio to implement the different</li> </ul>	Assessment Methods <ul> <li>Class Quizzes.</li> <li>Midterm exam1 and Midterm exam2</li> </ul> Final Exam
	Develop database-driven mobile applications in Android.	<ul> <li>mobile application</li> <li>Demonstrate the efficient use of android .</li> </ul>	Following methods are used to assess student's
2.3		<ul> <li>Compute and calculate the area of different geometric shapes which requires numerical analysis and skills</li> </ul>	<ul> <li>Class Quizzes.</li> <li>Midterm exam1 and Midterm exam2</li> <li>Final Exam</li> </ul>
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Couc	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		<ul> <li>Assigning exercise program during the lab.</li> <li>To illustrate the important components of communication skills and based on developing critical skills, observations, experiments, and feedback.</li> <li>Encouraging &amp; motivating the students to use the library and internet resources.</li> </ul>	
2.4	Use android framework in developing mobile applications.	<ul> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and</li> </ul>	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Midterm exam1 and Midterm exam2 Final Exam

<ul> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>Use of android studio to implement the different mobile application</li> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problems-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving class.</li> <li>Motivating students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students'</li> </ul>	Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<ul> <li>2.5 Apply android widgets and responsive layouts to develop mobile applications in Android.</li> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students to importance of abstract class, interface and differentiate between method overridong and related reference</li> </ul>			<ul> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>Use of android studio to implement the different mobile application</li> </ul>	
	2.5	Apply android widgets and responsive layouts to develop mobile applications in Android.	<ul> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students to work in home, to search from internet, to read related reference</li> </ul>	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Midterm exam1 and Midterm exam2 Final Exam

Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods
		<ul> <li>books by giving them assignments.</li> <li>Use of android studio to implement the different mobile application</li> </ul>	
2.6	Design full mobile application with the team	<ul> <li>Using the Java Standard Classes in a typical program on white board for students to make them more familiar with various problem-solving techniques.</li> <li>Let students to solve the problems related to the use of Java built in classes from Application Programming Interface in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Let students to present their work after group discussion session. Giving students' tutorials related to importance of abstract class, interface and differentiate between method overloading and method overriding.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>Use of android studio to implement the different mobile application</li> </ul>	Following methods are used to assess student's knowledge acquire in this course. • Class Quizzes. • Midterm exam1 and Midterm exam2 Final Exam

Code	Course Learning Outcomes	<b>Teaching Strategies</b>	Assessment Methods
3.0	Competence	• •	
3.1	Practice the developing of android application using tools available in the lab such as android studio, android SDK and Java JDK	<ul> <li>Demonstrate the efficient use of android .</li> <li>Compute and calculate the area of different geometric shapes which requires numerical analysis and skills.</li> <li>Assigning exercise program during the lab.</li> <li>To illustrate the important components of communication skills and based on developing critical skills, observations, experiments, and feedback.</li> <li>Encouraging &amp; motivating the students to use the library and internet resources.</li> </ul>	Projects report and presentation and application

#### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	5 <sup>th</sup> , 11 <sup>th</sup>	5%
2	Midterm	6 <sup>th</sup> , 10 <sup>th</sup>	30%
3	Assignment	12 <sup>th</sup>	5%
4	Lab Performance	Throughout semester	10%
5	Lab Final Exam	14 <sup>th</sup>	10%
6	Final Exam	16 <sup>th</sup>	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 :

10 office hours a week

#### **F. Learning Resources and Facilities**



#### **1.Learning Resources**

Required Textbooks	Reto Meier, "Professional Android 4 Application Development", John Wiley & Sons, Inc, 3rd edition (2012), ISBN: 978-1-118-10227-5
Essential References Materials	
Electronic Materials	TutorialPoint.com/android
Other Learning Materials	Youtube videeos about Android

#### 2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lab, classroom
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Projector, android studio software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

# G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	<b>Evaluation Methods</b>
Effectiveness of teaching and assessment	students	Indirect survey
Extent of achievement of course learning outcomes,	students	Indirect survey
Extent of achievement of course learning outcomes,	Instructor	Direct using CLO assessment sheet
Quality of learning resources students	students	Indirect survey

# H. Specification Approval Data

Council / Committee	Department Council	
Reference No.	Session No. 10 (441-38-43300)	
Date	17/02/2020	
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