KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

COURSE NAME			
Course Title	Mobile Technology & Application		
Course Code	CPS4442C	**No. of Credits**	4
Department	Computer Science	**College**	Science
Pre-requisites Course Code	CPS3460C	**Co-requisites Course Code**	
Course Coordinator(s)			
Email	miran.hikmat@komar.edu.iq	**IP No.**	
Other Course Teacher(s)/Tutor(s)	Miran Hikmat Mohammeed		
Class Hours	Mon (15.30 – 17.30) B-B06 and Wed (15.30 – 17.30) B-B06		
Office Hours			
Course Type	Department Course		
Offer in Academic Year	Fall 2023		

COURSE DESCRIPTION

Course Description: This course focuses on a range of mobile technologies, mobile devices, standards and services that enable interaction between people and businesses. This includes the modern software and operating systems that drive mobile devices. The students study the issues of performance, program development, system testing, re-usability, and maintenance in such systems via laboratory experimentation and current industry examples. Android iOS and appropriate emulators are used in experiments and projects to develop applications for mobile devices.

COURSE OBJECTIVES

1. To explain how to design, develop, test and deploy Android mobile applications using modern mobile development tools.
2. To study the application of layout management and multi-layout techniques to create adaptable user interfaces for mobile applications that share a common data model.
3. To discuss the management of user data and multimedia on a mobile device via the Android framework libraries.
4. To explain how sensors available on mobile devices enhance user interaction and feedback.

COURSE LEARNING OUTCOMES (CLOs)

1. Understand mobile apps development, including features of mobile devices, types and lifecycle of applications, and markets [ABET E,F,and K].
2. Ability to develop mobile applications using common IDEs in the community [ABET B, C, E, and K].
3. Employ various components for interactive mobile application development, including user interface design, graphics, handling of concurrency, local database, network, multimedia, use of sensors and location services,
testing and publication of mobile apps [ABET C, I, J, and K].
4. Apply and Exercise project management skills including ideation, reading, writing, coding, and presentation
{ABET B, C, E and K].
5. Possess the mentality to deal with the fast-changing future mobile application development world [ABET C, H,
K].

GUIDELINES ON GRADING POLICY

Grades	Letter	GPA	Grades	Letter	GPA
95 -100%	A	4.0	65-69%	C	2.0
90-94%	A–	3.7	60-64%	C–	1.7
85-89%	B+	3.3	55-59%	D+	1.3
80-84%	B	3.0	50-54%	D	1.0
75-79%	B–	2.7	0-49%	F	0.0
70-74%	C+	2.3			
W	Withdrawal		I	Incomplete	

Note: Passing Grade is: 65%

COURSE CONTENT

Course topics include:

- Mobile System
- Mobile Interface and Applications
- Optimizations in Mobile Systems
- Fundamentals of mobile application development
- Design patterns of mobile apps development
- Mobile App Development Architecture
- IOS and Android OS
- Introduction to Dart Programming
- Flutter Widgets
- Stateful and Stateless widgets
- Exploring Building Blocks
- Building a Simple User Interface

- Managing Application Resources
- Case Study: Design App
- Data persistence and storage
- Getting Data From an API
- App Publishing

COURSE TEACHING AND LEARNING ACTIVITIES

QA suggests to use the followings (depends on the course) for applying Student-Centered Approach:

- Problem or Project based Learning.
- Interactive class discussion
- Lectures
- Lab assignment
- Quizzes
- Class activity and participation
- Practical test

COURSE ASSESSMENT TOOLS (Kindly select the Assessment Tools according to the categories issued in the Vice-President Order (F22-201-47) and the nature of the course in a way that serves the Student-Centered Approach) Consult with the chairmen of your department.

Assessment Tool	Description	Weight
Quiz	3 Quizzes as scheduled by the department 4,8 and 10	**20%**
Class Activity and participation	Active students during the semester VS non-active one.	**5%**
Lab Assignment	One practical test 10% and two lab assignment 5% each.	**15%**
Final Project + Presentation	One project consists of two parts: The proposal of the project presented by (week 7, 5%). The final due date for the project and presentation will be in (week 12, 15%).	**25%**
Final Exam	Theoretical Exam	**40%**

Assessment Tools	Course Learning Outcomes (CLOs)	Weight (%)
Quiz	**1,2,3,4,5, and 6**	**Equally**
Class Activity	**1,2,3,4,5, and 6**	**Equally**
Final Project	**1,2,3,4,5, and 6**	**Equally**
Assignment	**1,2,3,4,5, and 6**	**Equally**
Final Exam	**1,2,3,4,5, and 6**	**Equally**

Textbooks:

Napoli, M.L. (2020) Beginning flutter: A hands on guide to app development. Indianapolis, IN: Wrox, a Wiley brand.

References:

1. Flutter documentation https://docs.flutter.dev/
2. Dart Programming Language https://dart.dev/language
3. Downloading and installing flutter components https://docs.flutter.dev/get-started/install

COURSE POLICY *(including plagiarism, academic honesty, attendance etc)*

Attendance Policy:
Students are expected to attend each class for the entire semester. Students are responsible for the material presented in lectures. Only students with official KUST absences, family crises, and illness are excused from class. Three occasions of lateness count as one absence. The student who misses 10% of the classes will be considered as failed.

Make-up Policy:
Since all examinations are announced in advance, ZERO grades will be given to any missed examination unless a student has an acceptable reason, such as illness, for not being able to take the examination during all those days when the examination was announced.

Academic Dishonesty:
Any type of dishonesty (Plagiarism, copying another's test or homework, etc) will not be tolerated. Students found guilty of any type of academic dishonesty are subject to failure in this course, plus further punishment by the Vice-president's order on cheating.

GUIDELINES FOR SUCCESS

1. Read and strive to understand (e.g. re-read, ponder) the materials assigned.
2. Illustrate interest and dedication to the course activities and deliverables.
3. Participate and respond to the instructor feedback sessions.
4. Be able to work independently and in a group.
5. Try not to miss the classes.

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Course Schedule (Fall 2023)

Week	Beginning Dates	Topics (Chapters)	Assessment Tool
1	September 9th 2023	• Course overview • Mobile System • Mobile Interface and Applications • Optimizations in Mobile Systems	
2	September 16th 2023	• Fundamentals of mobile application development • Basic principles and constraints of mobile apps • Lifecycle of mobile apps • Design patterns of mobile apps development • Mobile App Development Architecture	
3	September 23rd 2023	• Introduction to Dart • Data Type in Dart • Variables and Functions in Dart • Comments in Dart • Decision Making and Loops • Continue and Break • Final and Const Keyword • Object-Oriented Programming	
4	September 30th 2023	• Introduction to Android & IOS OS • Introduction to Emulator and their types • Some principles and required techniques for interaction with Flutter environment • Flutter Application Frameworks • Create First Mobile App using flutter	Quiz-1
5	October 7th 2023	• Introduction to Flutter Widgets • Flutter Widget Tree • Types of Widgets • State Management Widget • Flutter Layouts • Layout of a Widget • Types of Layout Widgets	Project Presentation -1
6	October 14th 2023	• Stateful and Stateless widgets • Layouts, Views, and Resources • Exploring Building Blocks	Assignment -1
7	October 21st 2023	• Building a Simple User Interface • Case Studies: Design Apps	Project Presentation -2

8	October 28th 2023	• User Interaction • User input controls • Menus • Drawable, Styles, and themes • Case Study: Design App	Quiz-2
9	November 4th 2023	• App Structure and Navigation • Navigate to a New Screen and Back • Passing data with Navigator and Provider • Navigate with Named Routes • Send and Return Data Among Screens	Practical Test
10	November 11th 2023	• AnimatedWidget • AnimatedBuilder • AnimatedController • CurvedAnimation	Quiz -3
11	November 18th 2023	• Connection with databases • SQLite Database • Firebase	
12	November 25th 2023	• Catch up session • App Publishing	Assignment -2
13	December 2nd 2023	**Review Week: There will be an assessment in this week**	Final Project
14	December 9th 2023	**FINAL EXAMINATION**	