



Future Academy
Higher Future Institute for Specialized Technological Studies

Course Specification

1- Course information:

Course Code:	CSC413
Course Title:	Mobile Programming
Year/level	4 th
Academic Programs	Computer Science Program (B.Sc.)
Contact hours/ week	(Theoretical = 2hrs, Practical = 2hrs), Total = 4hrs

2- Course aims:

This course aims to provide students with comprehensive knowledge to build mobile-based applications to unleash the full power of mobile devices, as well as, the difference between mobile programming and windows programming. Through this course a lot of topics will be covered such as Design and implement a mobile application for mobile platforms, discuss the performance vs. power tradeoff. Discuss the constraints that mobile platforms put on developers. Topics includes: mobile programming languages, challenges with mobility and wireless communication, Location-aware applications, UI design, application publishing, performance/power tradeoffs, mobile platform constraints, Mobile OS: Android and iOS. Emerging technologies.

3- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding:

On successful completion of this course, the student should be able to:

- a1- **Present** the main benefits and drawbacks of native, cross-platform and hybrid mobile applications.
- a2- **Identify** the basic difference between Ahead-of-Time and Just-in Time mechanism.
- a3- **Outline** the importance of using various Integrated Development Environments to facilitate programming process.
- a4- **Recognize** how to use Control Flow, loop, nested conditional loop statements in Dart Language.
- a5- **Define** the main difference between the different types of widgets
- a6- **Recognize** the importance of using custom widgets to build a custom component.

b- Intellectual skills:

On completing this course, the student should be able to:

- b1- **Describe** the different requirements for building cross platform mobile applications.
- b2- **Develop** a wide range of problems using Dart language.
- b3- **Compare the different methods** for constructing Flutter-based widgets.
- b4- **Construct** different approaches for building a custom flutter widget.

c- Professional and practical skills:

At the end of this course, the student will be able to:

- c1- **Utilize** comment statements, variables, constants and the different types of built-in data types in building simple programs
- c2- **Examine** building Dart programs using DratPad, Visual Studio Code IDE and IntelliJ IDEA.
- c3- **Prepare** Visual studio code IDE, Android Studio IDE and different mobile Emulators for building mobile applications

d- General and transferable skills:

On successful completion of this course, the student should be able to:

- d1- **Compute** the personal responsibility by working to multiple deadlines in relation to the course requirements.
- d2- **Working in groups** to the deployment of communication skills.

4- Course contents

Week No.	Topics/units	Number of hours		ILO's
		Lecture hours	Practical hours	
1	Introduction to mobile Development	2	2	a1, b1
2	Native, Cross Platform and Hybrid approaches	2	2	a1, d1
3	Introduction to dart programming Language	2	2	a3, b2, c1
4	Using String and List operations I Dart+ Quiz 1	2	2	a3, b2, c1
5	Using Different Types of loops in Dart	2	2	a4, b2
6	Using conditional statement and different built-in dart Libraries	2	2	a4, b2
7	Midterm Exam			
8	Dart and OOP	2	2	b2, c2
9	Introduction to Flutter Frame work	2	2	a2, a3, b3, c3
10	Flutter Architecture and Widgets	2	2	a5, b3, b4

11	Stateless and Stateful Widgets + Quiz 2	2	2	a5, b3,
12	Create custom flutter Widgets	2	2	a6, b4, d1
13	Building UI in Flutter using State management	2	2	a5, a6, b3, b4, d1, d2
14	Final Revision	2	2	

5- Teaching and learning methods

Methods															
	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	c1	c2	c3	d1	d2
Lectures	√	√	√	√	√	√	√		√		√	√	√		
Training visits															
Practical sections								√	√		√	√	√		
Self-learning															√
Summer training															
Problem solving							√	√			√				
Assays and reviews															
Discussion groups														√	
Brainstorming															
Blended-learning															
E-learning															

6- Teaching and learning methods for Low-achieving students

- Additional teaching hours for those who need help.
- More assignments to assess their ability for understanding the course.
- Encourage the teamwork for those students with other advanced ones to increase their participation and understanding.

7- Student assessment

Assessment method	Time	Grade weight (%)	Week	ILOs
Course Work (Tutorial Exercise and Assignments)	Through the semester	10	Every Week	a1, b2, d1, d2
Quiz 1	Through the lecture	5	Week#4	a2, b2, c1
Mid-term exam	1 hours	10	Week#7	a1, a4, c1
Quiz 2	Through the lecture	5	Week#11	a4, a5, b3
Practical exam	2 hours	10	Week#14	a4, a5, a6, b3, b4, d1
Final Written exam	2 hours	60	Week# 15-16	a1, a2, a4, a5, a6, b2, b3, b4, c2

8-List of references

8.1. Student notebooks:

- Flutter Complete Reference, Alberto Miola, First Edition, ISBN-13: 979-8691939952, 2021

8.2. Essential textbooks:

- Flutter for Beginners, Alessandro Biessek, First Edition, ISBN-13: 978-1788996082, 2020

8.3. Recommended textbooks:

- Learn Google Flutter Fast: 65 Example Apps , Mark Clow, First Edition, ISBN-13: 978-1092297370, 2019

8.4. Journals, Periodical and Reportsetc.

8.5. Websites

- <https://flutter.dev/>
- <https://dart.dev/guides>
- <https://www.geeksforgeeks.org/flutter-tutorial/>

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Date: 24/7/2024