

SES's L.S. RAHEJA COLLEGE OF ARTS AND COMMERCE(AUTONOMOUS)



BOARD OF STUDIES: Information Technology and Data Science

PROGRAMME: Bachelor of Science (Information Technology)

SEMESTER: IV

NOMENCLATURE OF THE COURSE: MOBILE PROGRAMMING

NEP Vertical: SEC

Credit: 02

(As Per Choice Based Credit System (under NEP 2020) with effect from the academic year 2025-26)



Programme:	Bachelor of Science (Information Technology)
Nomenclature of the Course	Mobile Programming
Total Marks	50
Semester:	IV
Academic year	2025-26

LEARNING OBJECTIVES:

1. Understand the fundamentals of Flutter programming and basics of Dart programming
2. Familiarize with common Flutter widgets and apply them in building layouts, adding animations
3. Implement backend integration using Firebase and Firestore
4. Create mobile application with animation, database and implement state management.

COURSE OUTCOMES:

1. Integrate Flutter plugin packages to enhance app functionality.
2. Utilize Firebase and Firestore for backend integration and persist data locally within apps.
3. Apply testing strategies, to ensure the quality and performance of Flutter apps.
4. Develop fully functional and interactive Flutter applications using state management, animations, and navigation.

Unit	Course Content	Andragogy	No of Lectures
I	<p>1.1 THE FOUNDATIONS OF FLUTTER PROGRAMMING: Introducing Flutter and Getting Started, Creating a Hello World App, Learning Dart Basics, Creating a Starter Project Template, Understanding the Widget Tree, Using Common Widgets, Adding Animation to an App, Creating an App's Navigation, Creating Scrolling Lists and Effects, Building Layouts</p> <p>1.2 Case Study:</p> <ul style="list-style-type: none"> • Program to demonstrate the features of Dart language. • Designing the mobile app to implement different widgets. • Designing the mobile app to implement different Layouts. • Designing the mobile app to implement Gestures. • Designing the mobile app to implement the theming and styling. 	<ul style="list-style-type: none"> • Use real-life examples: Incorporate real-life examples into lessons. • Give students problems: Provide problems for students to solve independently or in groups. • Focus on practical applications: Present knowledge and abilities in terms of their practical uses. 	15
II	<p>2.1 INTRODUCTION TO PACKAGE: Types of Packages, Using a Dart Package, Develop a Flutter Plugin Package</p> <p>2.2 DATABASE CONCEPTS: Adding the Firebase and Firestore Backend, Adding State Management to the Firestore Client App, Saving Data with Local Persistence</p> <p>2.3 FLUTTER – TESTING: Types of testing, widget testing, steps for testing, working example</p>	<ul style="list-style-type: none"> • Use real-life examples: Incorporate real-life examples into lessons. • Give students problems: Provide problems for 	15

	<p>2.4 Case Study:</p> <ul style="list-style-type: none"> • Designing the mobile app to implement the animation. • Designing the mobile app to implement the state management. • Designing the mobile app working with Firebase. 	<p>students to solve independently or in groups.</p> <ul style="list-style-type: none"> • Focus on practical applications: Present knowledge and abilities in terms of their practical uses. 	
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SUGGESTED READINGS

1. Alessandro Biessek (2019), Flutter for Beginners, Packt Publishing
2. Marco L. Napoli (2020), BEGINNING Flutter® A HANDS ON GUIDE TO APP DEVELOPMENT, Wiley

QUESTION PAPER PATTERN

(A) FOR CONTINUOUS EVALUATION

Particulars	Marks
Practical Implementation	10
Assignment/Quiz	10
Total	20

(B)

QUESTION PAPER PATTERN FOR SEMESTER END EXAMINATION

Maximum Marks: 30

Duration: 1 Hours

Question No.	Description	Total Marks
Q. 1	Attempt the following Unit I	15
A	Remembering	
B	Analysing	
C	Applying	
	OR	
P	Remembering	
Q	Analysing	
R	Applying	
Q. 2	Attempt the following Unit II	
A	Understand	
B	Creating	
C	Creating	
	OR	
P	Understand	
Q	Creating	
R	Creating	