Uka Tarsadia University

B. Tech. Information Technology

Semester VI

ADVANCED MOBILE APPLICATION DEVELOPMENT

IT5050

EFFECTIVE FROM July-2024

Syllabus version: 1.00

Subject Code	Subject Title
ITXXXX	**Advanced Mobile Application Development**

Teaching Scheme				Examination Scheme			
Hours		Credits		Theory Marks		Practical Marks	Total Marks
Theory	Practical	Theory	Practical	Internal	External	CIE	
3	2	3	1	40	60	50	150

Objectives of the course:

- To build robust, powerful, and interactive mobile applications
- To targeting and deploying on multiple platforms with a single Codebase

Course outcomes:

Upon completion of the course, the student shall be able to

CO1: Comprehend basic concepts of cross-platform mobile application development, Environment setup and development and understanding of project structure.
CO2: Designing user interfaces using various components and handles its events.
CO3: Developing an application through navigation, routing and manage data using state management.
CO4: Understand the concept of storing the application data using various mechanisms.
CO5: Design an application which communicates with the web resource.
CO6: To Deploy applications on multiple platforms.

Sr. No.	Topics	Hours
	Unit – I	
1	**Introduction:** Introduction to cross platform Development, Types of available framework, Framework features and advantages, Limitation, setting up the development Environment, Creating your first project, Understanding the Architecture.	8
	Unit – II	
2	**User Interface Design:** Introduction to Widget, Stateless and Stateful Widgets, Basic Widgets (Text, Image, Container, Elevated Button etc.), Building layouts using Row and Column widgets, Designing Responsive Layout.	11

Unit – III		
3	**Navigating, Routing and State Management:** Manage Application Navigation, Passing data between screens, Manage Application Routing, State Management.	4
Unit – IV		
4	**Working with data storage mechanism:** Introduction to SQLite and its integration, Introduction to Shared Preferences and its integration, Introduction to firebase and its integration.	9
Unit – V		
5	**Networking and Data Handling:** Making http requests, Handling JSON data, Working with APIs and asynchronous operations, Displaying data from an API to an application.	8
Unit – VI		
6	**Publishing Application:** Application Configuration, Custom App Icon & splash screen, Android deployment, iOS deployment, Web deployment.	5

Sr. No.	Advanced Mobile Application Development (Practical)	Hours
1	Introduction to widgets and create application that create say hello app (Use name as input and print hello name on screen)	2
2	Introduction to stateless and stateful widget and create a quiz application.	4
3	Introduction to lists, container, column/rows, IconButton, Transaction, Models, Images, Datepicker.	4
4	Styling application by applying responsive and adaptive design concepts.	4
5	Introduction to navigation, navigation drawer and create multi-screen application.	4
6	Create Recipe application [Category listing, Recipe list, Recipedetails].	2
7	Introduction to Validating, Submitting form and HTTP requests.	4
8	Create Shop application [Product listing, add to cart, update cart, models, create/update products].	6

Text book:

1. Fu Cheng – Flutter Recipes – Mobile Development Solutions for iOS and Android – Apress.

Reference books:

1. Rap Payne-Beginning App Development with Flutter -Apress.
2. Alessandro Biessek – Flutter for Beginners – PACKT publishing.

Course objectives and Course outcomes mapping:

- To build robust, powerful, and interactive mobile applications. - CO1, CO2, CO3
- To targeting and deploying on multiple platforms with a single codebase. - CO4, CO5, CO6

Course units and Course outcomes mapping:

Unit No.	Unit Name	Course Outcomes					
		CO1	CO2	CO3	CO4	CO5	CO6
1	Introduction	✓					
2	User Interface Design		✓				
3	Navigating, Routing and State Management			✓			
4	Working with data storage mechanism				✓		
5	Networking and Data Handling					✓	
6	Publishing Application						✓

Programme outcomes:

PO 1: Engineering knowledge: An ability to apply knowledge of mathematics, science, and engineering.

PO 2: Problem analysis: An ability to identify, formulates, and solves engineering problems.

PO 3: Design/development of solutions: An ability to design a system, component, or process to meet desired needs within realistic constraints.

PO 4: Conduct investigations of complex problems: An ability to use the techniques, skills, and modern engineering tools necessary for solving engineering problems.

PO 5: Modern tool usage: The broad education and understanding of new engineering techniques necessary to solve engineering problems.

PO 6: The engineer and society: Achieve professional success with an understanding and appreciation of ethical behaviour, social responsibility, and diversity, both as individuals and in team environments.

PO 7: Environment and sustainability: Articulate a comprehensive world view that integrates diverse approaches to sustainability.

PO 8: Ethics: Identify and demonstrate knowledge of ethical values in non-classroom activities, such as service learning, internships, and field work.

PO 9: Individual and team work: An ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give/receive clear instructions.

PO 11: Project management and finance: An ability to demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: A recognition of the need for, and an ability to engage in life-long learning.

Programme outcomes and Course outcomes mapping:

Programme	Course Outcomes

Outcomes	CO1	CO2	CO3	CO4	CO5	CO6
PO1		✓	✓	✓	✓	✓
PO2		✓	✓	✓	✓	✓
PO3	✓	✓	✓	✓	✓	✓
PO4						
PO5		✓	✓	✓	✓	✓
PO6						
PO7						
PO8						
PO9						
PO10						
PO11						
PO12						