



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications					Branch/Spec.	Computer Application		
Semester	II					Version	1.0.0.0		
Effective from Academic Year			2026-27			Effective for the batch Admitted in		July 2026	
Subject Code	P12A3CPA		Subject Name			Cross Platform Application Development			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CIA	SEE	Total
	L	TU	P	TW					
Credit	2	0	2	0	4	Theory	40	60	100
Hours	2	0	4	0	6	Practical	20	30	50

Objective:

- Able to write a single codebase using frameworks like Flutter that works across multiple OS.

Pre-requisites:

Students should possess knowledge of: Object-Oriented Programming Concepts, Mobile Computing fundamentals

Course Outcomes:

- 1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High); “-” = No Correlation

Name of CO	Description							
CO1	Understand the principles, architecture, and development lifecycle of cross-platform mobile application development.							
CO2	Develop responsive, reusable, and platform-independent mobile applications using modern cross-platform frameworks.							
CO3	Implement device capabilities, cloud services, APIs, and local data management within cross-platform applications.							
CO4	Evaluate application performance, security, deployment strategies, and optimization techniques for production-ready applications.							
	Mapping of CO and PO							
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	2	-	-	-
CO2	3	3	3	2	3	-	-	-
CO3	2	3	3	2	3	1	-	-
CO4	2	3	2	3	3	2	1	2

Content:

Unit	SECTION-I	Hours
1	Introduction to Cross Platform Development Evolution of Mobile Application Development, Native vs Hybrid vs Cross Platform, Introduction to Flutter, Dart Programming Essentials, Flutter SDK Installation, Android Studio / VS Code Setup, Flutter Project Structure, Widgets Overview, Material Design, Cupertino Widgets, Stateless Widget, Stateful Widget	7
2	User Interface Development Layout Widgets, Row, Column, Container, Stack, ListView, GridView, Navigation, Routes, Forms, Input Controls, Validation, Themes, Responsive Design, Custom Widgets	8
SECTION-II		
3	Backend Integration REST API Integration, JSON Parsing, HTTP Package, Firebase Introduction, Firebase Authentication, Cloud Firestore, Shared Preferences, SQLite, File Storage, Camera, GPS, Sensors, Notifications, Image Picker, Connectivity, Permissions	7
4	Testing, Deployment and Optimization Debugging, Widget Testing, Error Handling, Performance Optimization, App Security Basics, Code Optimization, Build APK, Build App Bundle, Play Store Publishing Process, Version Control using Git	8
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics.		
Text Books:		
<u>1</u>	Beginning Flutter, Marco L. Napoli, Wiley, 2023	
<u>2</u>	Practical Flutter, Frank Zammetti, Apress, 2022	
3	Flutter Complete Reference, Alberto Miola, Packt, 2023	
<u>4</u>	Flutter in Action, Eric Windmill, Manning, 2025	
<u>5</u>	Flutter Projects, Simone Alessandria, Packt, 2023	
Reference Books:		
1	Mobile Application Development, Richard Rose, Pearson, 2023	
2	Head First Android Development, David Griffiths, O'Reilly, 2024	
3	Flutter for Dummies, Barry Burd, Wiley, 2023	
4	Flutter Essentials, Neil Smyth	
5	Flutter Documentation, Google Flutter Team, Google, 2025	
MOOC/Certification Courses:		
1	Cross Platform Application Development using Flutter https://onlinecourses.swayam2.ac.in/e-learning/preview/nou25_cs32	
2	Dart Programming https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0130086701657047041342_shared/overview	
Question Paper Scheme:		
University Examination Duration: 3 Hours		
Note for Examiner: -		
(I) Questions 1 and 4 are compulsory with no options.		

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION – I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 –11 Marks