

FACULTY OF COMPUTER SCIENCE
Master of Computer Application(Integrated) (Sem-VII)
 In Effect from Academic Year 2023-24

Branch Name:	IMCA
Program Code:	CS301
Course Name:	Mobile Computing-II
Course Code:	1CS3010701T
Pre-requisite Course:	Knowledge of the C and C++ and Java Language Logic and Concept and database SQL concepts. Programming Skill. Basic Understanding of Mobile Applications.

Course Objectives:

- ☐ To understand advanced Android application development concepts.
- ☐ To implement networking and web services in mobile applications.
- ☐ To develop location-based and cloud-integrated mobile apps.
- ☐ To learn mobile security and performance optimization techniques.
- ☐ To publish and maintain applications on the Play Store.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
4	-	-	4	60	40	-	-	100

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Advanced Android Components - Services (Started & Bound Services) - Broadcast Receivers - Content Providers - Fragments and Fragment Lifecycle - Multi-screen support	6	20
2	Data Storage & File Handling - Shared Preferences - Internal & External Storage - SQLite Advanced Concepts - Room Database (Introduction) - JSON & XML Parsing	8	20
3	Networking in Mobile Applications - HTTP/HTTPS Communication - RESTful Web Services - APIs Integration - Libraries (Retrofit, Volley) - AsyncTask / Background Processing	8	20

4	Location-Based & Sensor-Based Applications ● GPS and Location Services ● Google Maps Integration ● Geocoding & Reverse Geocoding ● Sensors (Accelerometer, Gyroscope) ● Real-time tracking applications	8	15
5	Cloud Integration & Firebase ● Introduction to Cloud in Mobile Apps ● Firebase Setup ● Authentication (Email, Google Sign-in) ● Firebase Realtime Database / Firestore ● Push Notifications (FCM)	8	15
6	Mobile Security & App Deployment ● Android Security Model ● Permissions & Data Protection ● Secure Coding Practices ● App Testing & Debugging ● APK Generation & Play Store Deployment	8	10

Text Books:

1. Advanced Android Application Development – Joseph Annuzzi
2. Android Programming: The Big Nerd Ranch Guide
3. Mobile and Ubiquitous Systems: Computing, Networking and Services, Ahmet Soylu, Fan Liu, Karan Mitra, Yan Zhang, Tor-Morten Grønli, Springer, 2026
4. Advances in Mobile Computing and Multimedia Intelligence, Pari Delir Haghighi, Solomiia Fedushko, Gabriele Kotsis, Ismail Khalil, Springer, 2025
5. Advanced Mobile Computing, Author: Dr. Vishnu Sharma, Publisher: S.K. Kataria & Sons Year 2023

Reference Books:

1. Professional Android Development – Reto Meier
2. Android Cookbook – Ian F. Darwin
3. Firebase Essentials – Ashok Kumar S
4. Mobile Computing. Author Vishnu Sharma, Publisher S.K. Kataria & Sons Year 2023
5. Mobile Computing and Sustainable Informatics, Editors Subarna Shakya, George Papakostas, Khaled A. Kamel, Publisher Springer Singapore Year 2023

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the lifecycle of mobile app development	2 Understanding 3 Applying,

CLO2	Understand the Widget tree and learn to use pre-made Flutter Widgets for user interface design.	3 Applying, 6 Creating
CLO3	Learn to incorporate Image and Text Widgets to create simple	2 Understanding,
CLO4	Create a full-fledged mobile app and deploy.	3 Applying, 6 Creating
CLO5	To understand the major tools, tools types with its properties, methods and events.	3 Applying,
CLO6	To understand the concept of Project development at server level.	6 Creating

Mapping of CLO with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	H	L			L		M	M	L	M	H	H	M	M
CLO2	M	H		M	L		M	H		H	M		M	H
CLO3	M	M	H	L	H		M	L		L	H	M	H	H
CLO4	L	H	M	H	M	L	M		M		M	L	M	H
CLO5	M	H	H	M	H	L	H		L		H	L	H	H
CLO6	M	M	M	H	M		M	H	H	H	M	M	M	H

H: High, M: Medium, L: Low