

Devi Ahilya University, Indore, India Institute of Engineering & Technology				III Year B.E. Information Technology (Full Time)				
Subject Code & Name		Instructions Hours per Week			Credits			
6ITRL4 Mobile Technology Lab		L	T	P	L	T	P	Total
		0	0	2	0	0	1	1
Duration of Practical: 2 Hours								

Learning Objectives:

To learn Android programming skills to develop mobile applications for modern computing requirements.

- To provide knowledge of different mobile technologies.
- To familiarize students with Android operating system.
- To provide knowledge of Android programming language and platform.
- Develop skills to design and implement various Mobile applications.

Prerequisite:

Programming Concepts. Programming languages, Core JAVA, Database

CO No.	Course Outcome	Program Outcomes (PO)
CO1	Understand Android architecture, operating system, and its SDK.	PO1, PO2, PO12
CO2	Develop mobile applications using Android technology.	PO2, PO4, PO5, PO10
CO3	Design user interfaces and handle user interactions in Android apps.	PO2, PO4, PO5
CO4	Implement data storage solutions and manage data using Android APIs.	PO1, PO2, PO4, PO5, PO9, PO10, PO11, PO12
CO5	Utilize connectivity and networking features in Android.	PO3, PO4, PO9, PO12
CO6	Apply best practices in Android development and perform app testing.	PO2, PO4, PO5, PO10

CO-PO Relationship Matrix

CO\PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3	3	-	-	-	-	-	-	-	-	-	2
CO2	-	3	-	3	3	-	-	-	-	2	-	-
CO3	-	3	-	3	3	-	-	-	-	-	-	-
CO4	3	3	-	3	3	-	-	-	2	2	2	3
CO5	-	-	3	3	-	-	-	-	3	-	-	3
CO6	-	3	-	3	2	-	-	-	-	3	-	-

COURSE CONTENTS

UNIT-I

Introduction: Introduction to Android architecture and core building blocks, Installing Android SDK and Software Stack, mobile App APK ;**Android UI Design:** Working with buttons & other components, Activity lifecycle, Intent – implicit and explicit, Fragment lifecycle, Menu, Layout manager, Adaptor and view.

UNIT-II

Android Service & Data Storage: Introduction, Android service API, Android service life cycle, Shared preferences, internal storage, external storage, SQLite, XML & JSON.

UNIT-III

Android Content Provider & Notification: Contact content provider, other built-in content providers, Understanding content URI, Content Resolver, Content sharing, Content Searching, Notification API, Setting notification properties, issuing notification.

UNIT-IV

Android APIs & Connectivity: Overview of TextToSpeech API, Telephony API, Location API and Sensor API, Bluetooth API, Wi-Fi API:Creating P2P Connections with Wi-Fi, Using Network Service Discovery, Using Wi-Fi P2P for Service Discovery, Networking Operations: Connecting to the network, Managing network uses, Parsing XML Data.

UNIT-V

Best Practices: Interaction & Engagement, User Interface, User Input, Background Jobs, Performance, Security & Privacy, Permissions & Identifiers;

Testing Apps on Android :Fundamentals of Testing, Building Effective Unit Tests ,Automating UI Tests, Testing App Component Integrations, Testing UI Performance, Espresso ;Using google play to distributing;

Learning Outcomes:

Upon completing the course, students will be:

- 1) Familiar with Android architecture, operating system and its SDK.
- 2) Able to develop mobile applications using Android technology.

Books Recommended:

- [1] Programming Android by Z. Mednieks, L. Dornin, G. Blake, M. Nakamura, Oriely'spublication.
- [2] Professional Android™ 4 Application Development by Reto Meier, John Wiley & Sons publication.
- [3] Beginning Android™ 4 Application Development by Wei-Meng Lee, John Wiley & Sons publication.
- [4] Android Programming for Beginners by John Horton, Packt Publishing Ltd.
- [5] <https://developer.android.Com/Training/Index.Html>
- [6] https://www.Tutorialspoint.Com/Android/Android_Tutorial.Pdf.

List of Practical Assignments:

1. Techniques of designing layout, fragment, views and menu with view.
2. Concept of Android service API's and storages.
3. To work with database interface (Sqlite).
4. Concepts of using server side database.
5. To work with content provider for data sharing, searching, Saving and Loading User
6. Concept of networking using API's.(use of Wifi, Bluetooth, GPS)
7. A project to be developed which uses the above concepts.