

**4/4 B.Tech. FIRST SEMESTER
MOBILE APPLICATION DEVELOPMENT**

CS7T2

Required

Credits: 4

Lecture: 4 periods/week

Internal assessment: 30 marks

Tutorial: 1 period /week

Semester end examination: 70 marks

Course Context and Overview: This course introduces you to the design and implementation of Android applications for mobile devices. Students will develop an app from scratch, assuming a basic knowledge of Java, and learn how to set up Android Studio, work with various Activities and create simple user interfaces to make your apps run smoothly.

Prerequisite: NIL

Objectives:

The main objective of this course is to understand the Mobile Application programming features. Students will also learn the advantages of Android OS over the other Mobile operating systems. Various trends and updates help students to keep their skills up to date.

Learning Outcomes:

1. To know the key features of various Mobile Operating Systems (specially Android)
2. To know essential Android programming concepts.
3. To know various applications like content Providers, Rich user interactive interfaces etc. using Android.
4. To have an exposure to the latest trends in Mobile Applications.
5. To show the compatibility and support of Android for various multimedia applications.

UNIT I

Android Introduction and Basics:

Introduction to Android Platform, Android vs. other mobile platforms, Android Stack, Android Versions and Installing Android SDK components, updating SDK components, Android emulator, Sample programs on emulator.

Java role and java for Android:

Reshaping client side java as Android, java type system, scope and idioms of java programming.

UNIT II

Android Applications and its Anatomy:

Android programming model vs. traditional programming models, Activities, Intents andTasks, Other Android Components, Component Life Cycles, Static Application Resources and Context

Android Application Runtime Environment: Activity life cycle, Manifest File, Layout XMLCode, Strings, The R File.

UNIT III

Android Frame Work and User Interface Design:

Android GUI Architecture, Assembling a Graphical Interface, different layouts – Linear Layout and Table Layout etc., Drawable Resources, Resolution and density independence

Working with common widgets, List View and Adapters, The Menu and the Action Bar, View Debugging and Optimization.

UNIT IV

Fragments and Multiplatform Support:

Creating a Fragment, Fragment Life Cycle, Fragment Manager, Fragment Transactions The Support Package, Fragments and Layout.

UNIT V

Handling and Persisting Data:

Relational Database Overview, SQLite, SQL and the Database-Centric Data Model for Android Applications, the Android Database Classes, Database Design for Android Applications, Using the Database API: MJAndroid.

UNIT VI

Content Providers:

Understanding Content Providers, Defining a Provider Public API, Writing and Integrating a Content Provider, File Management and Binary Data, Android MVC & Content observation. Sample Content Provider.

UNIT VII

Location and Mapping:

Location-Based Services, Mapping, the Google Maps Activity, the MapView and MapActivity, Working with MapViews, MapView and MyLocationOverlay Initialization Pausing and Resuming a MapActivity, Controlling the Map with Menu Buttons Controlling the Map with the Keypad.

UNIT VIII

Multi Media ,Communication, Identity, Synchronization:

Audio and Video, Playing Audio and Video, Recording Audio and Video, Stored Media Content, Account Contacts, Authentication and Synchronization, Bluetooth.

Learning Resources

Text Books:

Programming Android, 2nd Edition(Oct-2012), by Zigurd Mednieks, Larid Dornin, G.Blake Meike, Masumi Nakamura , O'reilly (SPD) Publications.

References:

1. Beginning Android 4 Application Development, by *Wei-Meng Lee*, Wiley India
2. Beginning Android 4, (2012) , by *Grant Allen* , Apress publications.
3. Android Application Development (programming with Google SDK), by *Rick Rogers, Jhon Lombarado, Zigurd Mednieks & Blake Meike*, O'reilly(SPD) publications.

Mobile application development is a process of creating software that will run on a mobile device. Such a difficult task requires time, skills, and a sufficient budget. However, even with an experienced team, it is not always possible to create something worthwhile since there are millions of applications, making it difficult to be notable among them. It allows development of various mobile applications with lesser time and efforts. It helps developers to extend the functionality of the application with the help of plug-in architecture. Robust tool for building apps without any special skill set. Download link: <https://phonegap.com/getstarted/>. 6) Ionic: Ionic is HTML5 mobile app development framework. It is widely used for developing hybrid mobile apps. It is a useful tool to build mobile apps using web technologies like CSS, HTML5, and SASS.