MCA 310: Android Programming

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	Unit Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: - Basics of Java language and PL/SQL

Course Objectives:

1. To gain knowledge of installing Android Studio
2. To learn designing of User Interface and Layouts for Android App.
3. To learn how to use intents to broadcast data within and between Applications.
4. To use Content providers
5. To introduce Android APIs
6. To design basic applications

Detailed Syllabus

UNIT I **JAVA Concepts (10 hrs):** Platform Independency, OOPs Concepts, Inheritance in detail, Exception handling, Packages & interfaces, JVM & .jar file extension, Multi threading (Thread class & Runnable Interface).**SQL:** DML & DDL Queries in brief.
UNIT II **Introduction to Android:** Introduction of Android, Setting up development environment, Installing the SDK, Creating Android Emulator, Android development Tool. **Fundamentals:** Basic Building blocks - Activities, Services, Broadcast Receivers & Content provider, UI Components - Views & notifications, Components for communication -Intents & Intent Filters, Android API levels (versions & version names)
UNIT III **Application Structure:** AndroidManifest.xml, uses-permission & uses-sdk, Resources & R.java, Assets, Layouts & Draw-able Resources, Activities and Activity lifecycle, First sample Application.
UNIT IV **Emulator-Android Virtual Device:** Launching emulator, Editing emulator settings, Emulator shortcuts, Logcat usage, Introduction to DDMS. **Second App:** (switching between activities), Develop an app for demonstrating the communication between Intents.
UNIT V **Basic UI design:** Form widgets, Text Fields, Layouts, [dip, dp, sip, sp] versus px, Examples **Preferences:** Shared Preferences, Preferences from xml, Examples.
UNIT VI **Menu:** Option menu, Context menu, Sub menu, Menu from xml, Menu via code, Examples **UI design:** Time and Date, Images and media, Composite, Alert Dialogs & Toast, Popup, Examples

Text and Reference Books

1. Android Application Development (With Kitkat Support), Black Book, by Kogent Learning Solutions Inc. by Pradeep Kothari
2. *Android Application Development Cookbook: 93 Recipes for Building Winning Apps (WROX), by Wei-Meng Lee*
3. Professional Android 4 Application Development, by Reto Meier

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4. Beginning Android 4 Application Development, Wei-Meng Lee
5. Android Application Development, by Lombardo John and Blake Meike

Course Outcomes:

After completing the course, students will be able to:

1. Understand basic knowledge of Java fundamental concepts and PL/SQL
2. Design and Implement User Interfaces and Layouts of Android App.
3. Use Intents for activity and broadcasting data in Android App.
4. Design and Implement Content Providers.
5. Evaluate performance of Application in terms of activity switching
6. Design menu driven applications