Mobile Apps Development **(Elective Course)**

Evaluation:

	Theory	Practical	Total
Sessional	30	20	50
Final	50	-	50
Total	80	20	100

Course Objectives:

1. To provide students with the knowledge of recent trends in mobile application development.
2. To give the overview of all existing mobile operating systems and the development SDKs required to develop applications on them.
3. To teach students the basics of application development in Android in depth.

1. Introduction to Mobile OSes

1.1 Introduction of Mobile OSes: Android, iOS, Ubuntu, Touch, Blackberry, Tizen, Firefox OS, Symbian, Windows Phone
1.2 Build and Structures of Mobile OSes
1.3. Introduction to development environment (Native v/s HTML5)
1.4. Introduction to Android
1.4.1 API levels/versions of Android
1.4.2.Pros and Cons of Android
1.4.3.Comparison of Android with other Mobile OSes
1.5. Introduction to Android VM and Runtime (Dalvik and ART)
1.6. Installation and configuration of Android SDKs and Eclipse IDE
1.6.1. Their integration using ADT Plugin
1.6.2. Running an emulator
1.7. Using ADB command line interface

2. Android Classes and Basics

2.1. Android Fundamentals
2.1.1. Creating an Android App,
2.1.2. Android Manifests File
2.2 The Activity Class
2.2.1. Activity Lifecycle
2.2.2. Extending the activity class
2.2.3. Creating Default Activity
2.2.4.Creating Splash and Login Activities
2.3. The Intent Class
2.3.1. Creating Intent
2.3.2. Switching between Activities using Intent
2.4. Permissions
2.4.1. Allow APP permissions in Android Manifest
2.5. The Fragment Class and Its usage

3. **Android User Interface**
   - 3.1. Introduction to Multiple Screen Size and Orientation Interfaces
   - 3.2. User Interface Classes
   - 3.3. Android XML Layouts, Resources and Styles
   - 3.4. Android 3rd party UI/UX Libraries

4. **Advanced Topics**
   - 4.1. User Notifications
   - 4.2. The BroadcastReceiver class
   - 4.3. Threads, AsyncTask and Handlers
   - 4.4. Alarms
   - 4.5. Networking

5. **Grahics and Multimedia**
   - 5.1. Graphics and Animations
   - 5.2. Multitouch and Gestures
   - 5.3. Multimedia

6. **APIs and Sensors**
   - 6.1. Sensors
   - 6.2. Camera API
   - 6.3. Location and Maps API
   - 6.4. Device Manager API
   - 6.5. Play Services API
   - 6.6. Multiplayer Gaming API

7. **Packaging and Monetizing**
   - 7.1 Data Management (using sqlite database, local storage)
   - 7.2 The ContentProvider Class
   - 7.3 The Service Class
   - 7.4 Google Mobile Ads SDK
   - 7.5 Signing and Exporting an APP
   - 7.6 Publishing your app to the Play Store

Laboratory:
The laboratory classes should be based on the topics covered in the lecture classes that should give the students a hands-on training and familiarize them with the development environment.

The Laboratory works should enable students to setup and run their own development environment and provide them with the base for their application development and publishing. It should also focus on publishing the application to the App Store and also monetize the apps using one of the advertising networks provided by the SDK.

Text Books:

1. Zigurd Mednieks, Liard Dornin, G.Blake Meike, Mausami Nakamura "Programming Android: Java Programming for the New Generation of Mobile Devices", 2nd Edition , O'Reilly 2012
2. Reto Meier, "Professional Android Application Development", Weily Publishing Inc, 2009, ISBN: 978-0-470-34471-2

Reference Books

1. Barry Burd, Android Application Development All-in-One For Dummies, John Wiley & Sons, Inc 2012.