

### Third Year B.C.A. (Under Science) Semester VI

**Course Code: BCA601**

**Course Title: Android Programming**

**Total Contact Hours: 48 hrs.**

**Total Credits: 04**

**Total Marks: 100**

**(60 Lectures)**

**Teaching Scheme: Theory- 05 Lect./ Week**

#### **Course Objectives:**

The objective of this course is to understand the Android Operating System and develop applications using Google's Android open-source platform.

<b>UNIT NO.</b>	<b>DESCRIPTION</b>	<b>No. of LECTURES</b>
<b>UNIT 1</b>	<b>1. Introduction to Android</b> 1.1. Overview 1.2. History 1.3. Features of Android 1.4. Architecture of Android <ul style="list-style-type: none"><li>• Overview of Stack</li><li>• Linux Kernel</li><li>• Native Libraries</li><li>• Android Runtime</li><li>• Application Framework</li><li>• Applications</li></ul> 1.5. SDK Overview <ul style="list-style-type: none"><li>• Platforms</li><li>• Tools – (JDK, SDK, Eclipse/Android Studio, ADT, AVD, Android Emulator)</li><li>• Versions</li></ul> 1.6. Creating your first Android Application	<b>06</b>
<b>UNIT 2</b>	<b>2. Activities, Fragments and Intents</b> 2.1. Introduction to Activities 2.2. Activity Lifecycle 2.3. Introduction to Intents 2.4. Linking Activities using Intents 2.5. Calling built-in applications using Intents 2.6. Introduction to Fragments 2.7. Adding Fragments Dynamically 2.8. Lifecycle of Fragment 2.9. Interaction between Fragments	<b>09</b>
<b>UNIT 3</b>	<b>3. Android User Interface</b> 3.1. Understanding the components of a screen <ul style="list-style-type: none"><li>• Views and ViewGroups</li><li>• LinearLayout</li></ul>	<b>10</b>

	<ul style="list-style-type: none"> <li>• AbsoluteLayout</li> </ul>	
	<ul style="list-style-type: none"> <li>• TableLayout</li> <li>• RelativeLayout</li> <li>• FrameLayout</li> <li>• ScrollLayout</li> <li>• ScrollView</li> </ul> <p>3.2. Adapting to Display Orientation</p> <ul style="list-style-type: none"> <li>• Anchoring Views</li> <li>• Resizing and Repositioning</li> </ul> <p>3.3. Managing Changes to Screen Orientation</p> <ul style="list-style-type: none"> <li>• Persisting State Information during Changes in Configuration</li> <li>• Detecting Orientation Changes</li> <li>• Controlling the Orientation of the Activity</li> </ul> <p>3.4. Utilizing Action Bar</p> <ul style="list-style-type: none"> <li>• Adding Action Items to the Action Bar</li> <li>• Customizing the Action Items and Application Icon</li> </ul>	
<b>UNIT 4</b>	<p><b>4. Designing Your User Interface with Views</b></p> <p>4.1. Using Basic Views</p> <ul style="list-style-type: none"> <li>• TextView</li> <li>• Button, ImageButton, EditText, CheckBox</li> <li>• ToggleButton, RadioButton, and RadioGroup Views</li> <li>• ProgressBar View</li> <li>• AutoCompleteTextView View</li> </ul> <p>4.2. Using Picker Views</p> <ul style="list-style-type: none"> <li>• TimePicker View</li> <li>• DatePicker View</li> </ul> <p>4.3. Using List Views to Display Long Lists</p> <ul style="list-style-type: none"> <li>• ListView View</li> <li>• Using the Spinner View</li> </ul> <p>4.4. Understanding Specialized Fragments</p> <ul style="list-style-type: none"> <li>• Using a ListFragment</li> <li>• Using a DialogFragment</li> <li>• Using a PreferenceFragment</li> </ul>	<b>10</b>
<b>UNIT 5</b>	<p><b>5. Displaying Pictures and Menus</b></p> <p>5.1. Using Image Views to Display Pictures</p> <ul style="list-style-type: none"> <li>• Gallery and ImageView views</li> <li>• Image Switcher</li> <li>• Grid View</li> </ul> <p>5.2. Using Menus with Views</p> <ul style="list-style-type: none"> <li>• Creating the helper methods</li> <li>• Options Menu</li> </ul>	<b>05</b>

	<ul style="list-style-type: none"> <li>Context Menu</li> </ul>	
<b>UNIT 6</b>	<b>6. Databases – SQLite</b> 6.1. Introduction to SQLite 6.2. SQLiteOpenHelper and SQLiteDatabase 6.3. Creating , opening and closing database 6.4. Working with cursors, Insert, Update, Delete 6.5. Building and executing queries	<b>06</b>
<b>UNIT 7</b>	<b>7. Messaging and E-mail</b> 7.1. SMS Messaging <ul style="list-style-type: none"> <li>Sending SMS Messages Programmatically</li> <li>Getting Feedback after Sending a Message</li> <li>Sending SMS Messages Using Intent</li> <li>Receiving SMS Messages</li> <li>Caveats and Warnings</li> </ul> 7.2. Sending E-mail	<b>06</b>
<b>UNIT 8</b>	<b>8. Location-Based Services and Google Map</b> 8.1. Display Google Maps <ul style="list-style-type: none"> <li>Creating the project</li> <li>Obtaining the Maps API Key</li> <li>Displaying the Map</li> <li>Displaying the Zoom Control</li> <li>Changing Views</li> <li>Navigating to a specific location</li> <li>Adding Markers</li> <li>Getting the location that was touched</li> <li>Geocoding and Reverse Geocoding</li> </ul> 8.2. Getting Location Data 8.3. Monitoring a Location	<b>08</b>

**Reference Books:**

1. Beginning Android4 Application Development, By Wei-Meng Lee  
WILEY India Edition WROX Publication
2. Professional Android 4 Application Development, By Reto Meier  
WROX Publication
3. The official site for *Android developers* -  
<https://developer.android.com>