



# Course Brochure

## ANDROID

### Overview

• This course introduces mobile application development for the Android platform. Participants will learn to create and deploy Android applications, with particular emphasis on software engineering topics including software architecture, software process, usability and deployment.

### Pre-requisites

• Basic Java programming is essential

### Applications

## COURSE CONTENTS

### Introduction

- ❖ Mobile Application Development
- ❖ Android Introduction
- ❖ History & Versions of Android
- ❖ Android Features
- ❖ Dalvik Virtual Machine
- ❖ Android Architecture
- ❖ Application Building Blocks
- ❖ Build Process of an Android Application

### Android Installation

- ❖ Java & JDK
- ❖ Eclipse IDE
- ❖ Android SDK
- ❖ Eclipse – ADT Plugin
- ❖ Creating Android Virtual Device
- ❖ **Android Studio Setup**
- ❖ Developing an Android Application
- ❖ R.java
- ❖ Android Manifest file
- ❖ Toast Notifications
- ❖ Localization
- ❖ Case Studies

### Android Application

- ❖ Activities
- ❖ Activity Lifecycle
- ❖ Intents
- ❖ Linking Activities using Intents
- ❖ Passing Data using an Intent
- ❖ Returning data from Activity
- ❖ Calling Built-in Applications using Intent
- ❖ Explicit Intents
- ❖ Implicit Intents
- ❖ Intent Filters
- ❖ Resources in an Android Application

- ❖ Debugging in Android Applications
- ❖ Dalvik Debug Monitor Server - DDMS
- ❖ LogCat

### Basic Android User Interface

- ❖ View Hierarchy
- ❖ How Android draws Views?
- ❖ Common Layout Objects
- ❖ FrameLayout
- ❖ LinearLayout
- ❖ TableLayout
- ❖ RelativeLayout
- ❖ AbsoluteLayout
- ❖ GridLayout
- ❖ Scroll View
- ❖ Text Controls
- ❖ Button Controls
- ❖ Other Common UI Components
- ❖ Handling User interaction Events

### Advanced User Interface

- ❖ List Controls
- ❖ Custom List Controls
- ❖ Date & Time Pickers
- ❖ Selection Components
- ❖ Spinner
- ❖ Adapters
- ❖ Card View, Web View
- ❖ Grid View, Gallery View, RecyclerView
- ❖ Drawer Layout
- ❖ TabHost
- ❖ Canvas & Paint
- ❖ Progress Bar
- ❖ Supporting Multiple Screens & Devices
- ❖ Styles & Themes
- ❖ Custom Themes

## COURSE CONTENTS

### Animations & Graphics

- ❖ Frame by Frame Animations
- ❖ Tween Animations
- ❖ Programmatically creating Animations
- ❖ Drawing Graphics in Android

### Menus & Dialogs

- ❖ Creating Menus
- ❖ Options Menu
- ❖ Context Menu
- ❖ Popup Menus
- ❖ Action Menus
- ❖ Alert Dialog
- ❖ Progress Dialog
- ❖ Date Picker Dialog
- ❖ Time Picker Dialog
- ❖ Status Bar Notifications

### Custom Components

- ❖ Custom Dialogs
- ❖ Custom Views
- ❖ Custom Adapters
- ❖ Custom ListView

### Multimedia

- ❖ MediaPlayer : Audio
- ❖ VideoView : Video
- ❖ Recording Media

### Preferences & Data Storage

- ❖ Shared Preferences
- ❖ Internal Storage
- ❖ External Storage
- ❖ Database Storage

### SQL ITE Databases

- ❖ Introducing SQLite
- ❖ SQLiteOpenHelper
- ❖ Creating a Database
- ❖ Opening and Closing a Database
- ❖ Creating Tables
- ❖ Create, Insert, Update & Delete data
- ❖ Working with Cursors
- ❖ Cursor Adapters
- ❖ Pre-creating a Database using SQLite Browser

### Android Services

- ❖ Overview of Services in Android
- ❖ Implementing a Service
- ❖ Service Lifecycle
- ❖ How to start and Stop a Service
- ❖ Threads for Service
- ❖ AsyncTask

### Web services

- ❖ XML
- ❖ XML Parsing
- ❖ JSON
- ❖ Exploring HttpURLConnection
- ❖ Thread & Runnable
- ❖ Using AsyncTask to Fetch & Parse JSON
- ❖ **Using Retrofit to Fetch & Parse JSON**
- ❖ Implementing SOAP Services
- ❖ Consuming a Web Service
- ❖ Android App working with PHP Web App

### Location based Services & GPS

- ❖ Working with Location Manager
- ❖ Fetch Users Current Location
- ❖ Reverse Geocoding using Geocoder
- ❖ Map Fragment

## COURSE CONTENTS

- ❖ Showing Current Location on Map
- ❖ Showing Markers on Map
- ❖ Exploring different Map Types
- ❖ Animated Zooming using Camera

### **Fragments**

### **Networking**

### **SMS & Email**

### **Picasso for Image Loading**

### **Butter Knife for Injecting Views**

### **Palette for extracting colors from images**

### **Times Square for showing Calendar View**

### **Cupboard for ORM**

### **Facebook Integration**

### **Google Drive Integration**

### **Dropbox Integration**

### **Broadcast Receivers**

### **Sensors**

### **WiFi**

### **Camera**

### **Telephony Manager**

### **Bluetooth**

### **Content Providers**

### **Publishing Android Applications**