



# 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 Overview**
- ❖ **Why Android is different?**
- ❖ **Installaton**
- ❖ **Getting started with Android**

### Android Stack

- ❖ Overview of the Stack
- ❖ Linux Kernel
- ❖ Native Libraries
- ❖ Dalvik Virtual Machine
- ❖ Application Framework
- ❖ Applications

### SDK Overview

- ❖ Platforms
- ❖ Tools
- ❖ Versions

### Main Building Blocks

- ❖ Activities
- ❖ Activity Lifecycle
- ❖ Intents
- ❖ Services
- ❖ Content Providers
- ❖ Broadcast Receivers

### Basic Android User Interface

- ❖ XML Vs Java UI
- ❖ Views & Layouts
- ❖ Common UI Components
- ❖ Handling User interaction Events
- ❖ Working with Resources
- ❖ Grouping, accessing of Resources

### Advanced User Interface

- ❖ Selection Components
- ❖ Adapters
- ❖ Complex UI Components
- ❖ Building UI for Performance
- ❖ Menus & Dialogs
- ❖ Graphics & Animations

### Android System Overview

- ❖ File System
- ❖ Saving State & Preferences
- ❖ Notifications
- ❖ Security Model
- ❖ Debugging Android Applications

### Intent Filters

- ❖ Role of Filters
- ❖ Intent-matching rules
- ❖ Filters in your manifest
- ❖ Filters in Dynamic Broadcast Receivers

## COURSE CONTENTS

### Multimedia in Android

- ❖ Multimedia
- ❖ Multimedia supported audio formats
- ❖ Simple media play back
- ❖ Supported Video formats
- ❖ Simple video play back

### Data Storage

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

### SQL Databases

- ❖ Introducing SQLite
- ❖ SQLiteOpenHelper and creating a Database
- ❖ Opening and Closing a Database
- ❖ Working with Cursors, Inserts, Updates and Deletes

### Basic Content Providers

- ❖ Content Provider MIME Types
- ❖ Searching for Content
- ❖ Adding, Changing and Removing Content
- ❖ Working with Content Files

### Graphics & Animations

- ❖ Drawing Graphics in Android
- ❖ Drawing with XML

- ❖ Canvas Drawing
- ❖ Programmatically creating Animations
- ❖ Tweened Animations

### Dealing with Threads

- ❖ Getting through the Handlers
- ❖ Messages
- ❖ Runnables
- ❖ Running in Place

### Location Services

- ❖ Working with the Location Manager
- ❖ Geocoding and location based services
- ❖ Finding Current Location
- ❖ Working with Google Maps Extensions

### Services

- ❖ Overview of Services in Android
- ❖ Implementing a Service
- ❖ Service Life Cycle
- ❖ Bound Vs Unbound Services

### Network Programming

- ❖ Working with Web service
- ❖ XML Parsing
- ❖ JSON Paring
- ❖ Managing HTTP Calls

## COURSE CONTENTS

### Sensors

- ❖ How Sensors work
- ❖ Listening to Sensor Readings
- ❖ Best practice for performance

### WIFI

- ❖ Monitoring and Managing Internet Connectivity
- ❖ Managing Active Connections
- ❖ Managing WIFI

### Telephony & SMS

- ❖ Making Calls
- ❖ Monitoring Data connectivity with Activity
- ❖ Accessing Phone properties and Status
- ❖ Controlling the Phone
- ❖ Working with SMS

### Camera

- ❖ Taking Pictures
- ❖ Rendering Previews

### Bluetooth

- ❖ Controlling local Bluetooth Device
- ❖ Discovering and bonding with Bluetooth devices
- ❖ Managing Bluetooth Connections
- ❖ Communicating with Bluetooth

### Using Accelerometer & Compass

### Android Market