# ANDROID

*Revised 2/15/2011*

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# Introduction to Android™

Course Length
3 Days

TE7204_20110113

**Course Description:** Introduction to programming for the Android platform course is designed to quickly get you up to speed with writing apps for Android devices. You will learn the basics of the Android platform, and gain an understanding of the application lifecycle. By the end of the course, you will be able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more. This is a perfect course to get started with Android programming. Upon completion of this course, we suggest you take Advanced Android training, or take both courses together as Android Bootcamp.

**Who Should Attend:** This course is for students who wish to get up to speed with writing apps for Android devices.

**Prerequisites:** Students should have basic Java programming skills, or equivalent OOP language experience.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Write simple GUI applications.
- Use built-in widgets and components.
- Work with the database to store data locally.

## Course Outline:

### Android Overview and History
How it all got started
Why Android is different (and important)

### Android Stack
Overview of the stack
Linux kernel
Native libraries
Dalvik
App framework
Apps

### SDK Overview
Platforms
Tools
Versions

### Hello World App
Creating your first project
The manifest file
Layout resource
Running your app on Emulator

### Main Building Blocks
Activities
Activity lifecycle
Intents
Services
Content Providers
Broadcast Receivers

### Basic Android User Interface
XML versus Java UI
Dips and sps
Views and layouts
Common UI components
Handling user events

### Android System Overview
File System
Preferences
Notifications
Security model

### Advanced UI
Selection components
Adapters
Complex UI components
Building UI for performance
Menus and Dialogs
Graphics & animations

### Multimedia in Android
Multimedia Supported audio formats
Simple media playback
Supported video formats
Simple video playback

### SQL Database
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

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# Advanced Android™

Course Length
2 Days

TE7202_20110112

**Course Description:** Advanced Android™ training is taking mobile application development to the next level. You will learn how to create custom widgets, create animations, work with cameras, use sensors, create and use advanced content providers, and much more. The course goes into testing and deployment of Android applications, as well. This course is also part of the Android Bootcamp.

**Who Should Attend:** This course is for students who are familiar with basic Android development practices and want to learn more advanced concepts.

**Prerequisites:** Students should have familiarity with basic Android development practices. They should have taken Intro to Android™ training or have equivalent experience.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Create custom widgets.
- Create animations.
- Work with cameras.
- Use sensors.
- Create and use advanced content providers.

## Course Outline:

### Custom Content Providers
Why Content Providers
Where the content comes from
Implementing the API Supporting content files

### Location Services
Working with the Location Manager
Working with Google Maps extensions

### Services
Overview of services in Android
Implementing a Service
Service lifecycle
Bound versus unbound services

### Broadcast Receivers
What are Broadcast Receivers
Implementing broadcast receiver
System broadcasts and how to use them

### Intent Filters
Role of filters
Intent-matching rules
Filters in your manifest
Filters in dynamic Broadcast Receivers

### Networking
Working with web services
Best practices

### Sensors
How Sensors work
Listening to Sensor readings
Best practices for performance

### WiFi
Monitoring and managing Internet connectivity
Managing active connections
Managing WiFi

### Telephony
Making calls
Monitoring data connectivity and activity
Accessing phone properties and status
Controlling the phone

### Camera
Taking pictures
Rendering previews

### Bluetooth
Controlling local Bluetooth device
Discovering and bonding with Bluetooth devices
Managing Bluetooth connections
Communicating with Bluetooth

### Automated Testing
Why automate tests
Instrumentation and unit testing

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# Android™ Bootcamp Training

Course Length
5 Days
TE7203_20110112

**Course Description:** Android™ Bootcamp Training is a hands-on guide to designing and building mobile applications using Google's Android™ open-source platform. The course explains what Android™ is and how it compares to other mobile environments, the setup of the Android™ Eclipse-based development tools, the Android™ SDK, all essential features, as well as the advanced capabilities and APIs such as background services, accelerometers, graphics, and GPS. This complete hands-on course encourages students to learn by building increasingly more sophisticated and meaningful mobile applications for Android™ phones. By the end of the course, participants will build their own complete Android application incorporating most of the key aspects of the platform. Typically, we build a Twitter app for Android, but there are other choices, depending on participants' interests.

**Who Should Attend:** This course is designed for software developers interested in designing, creating, deploying, and testing applications for the Android™ mobile phone platform. It is valuable to both novices and gurus, who already have experience in developing mobile applications for other platforms.

**Prerequisites:** Java experience is required to get the most benefit from this training.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Build your own Android apps.
- Explain the differences between Android™ and other mobile development environments.
- Understand how Android™ applications work, their life cycle, manifest, intents, and using external resources.
- Design and develop useful Android™ applications with compelling user interfaces by using, extending, and creating your own layouts and Views and using Menus.
- Take advantage of Android's APIs for data storage, retrieval, user preferences, files, databases, and content providers.
- Tap into location-based services, geocoder, compass sensors, and create rich map-based applications.
- Utilize the power of background services, threads, and notifications.
- Use Android's communication APIs for SMS, telephony, network management, and internet resources (HTTP).
- Secure, tune, package, and deploy Android™ applications.

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