**Overview**

In response to Google’s *Kotlin-first* policy for Android, every team doing or considering Android development needs to consider Kotlin. This course teaches Android development using Kotlin. On the first day students will learn about Kotlin fundamentals, the remaining four days are dedicated to applying those fundamentals and learning core Android development.

After completing this course, students will be able to:

* Understand the Kotlin Language
* Use Google’s Android Development Tools
* Build Android applications
* Combine Kotlin and Java code in Android apps
* Use Dagger for dependency injection
* Implement common Android patterns
* Design Android UIs
* Test Android applications in an emulator
* Prepare Android Applications for production

This course consists of a combination of instructor-led discussion and hands-on lab exercises for students.

Duration: 5 days  
  
Pre-requisites: Proficiency in any programming language.

| **Course Agenda**  **Android Development in Kotlin** | | |
| --- | --- | --- |
| **Day** | **Module** | **Contents** |
| Day 1 | Basic Kotlin | * + Characteristics of Kotlin   + Variables and Type   + Control Statements   + Null Safety |
| Day 1 | Classes and Objects | * + Construction and Initialization   + Inheritance, Interfaces and Delegation   + Nested Classes   + Companion Objects |
| Day 1 | Functions and Lambdas | * + Parameters   + Function Types   + Lambdas   + Higher Order Functions |
| Day 1 | Generics and Collections | * + Generics   + Lists   + Sets   + Maps |
| Day 1 | Concurrency in Kotlin | * + Coroutines and Threads   + Dispatch   + Channels   + Shared Mutable State |
| Day 2 | Anatomy of an Application | * + The Application   + Activities   + Views   + Lifecycle |
| Day 2 | Building a UI | * + Views   + Layout   + Graphical design   + XML Layout |
| Day 2 | Notifications | * + Toasts   + Status Bar Notification   + Progress Dialog   + Other notifications |
| Day 3 | Complex Views | * + Spinners   + View Pager   + Tabs   + View Flipper |
| Day 3 | Intents | * + Intents   + Intent Filters   + Starting Activities   + Implicit and explicit targeting |
| Day 3 | Navigation | * + Menus   + Action Bar   + The back button   + Gestures |
| Day 3 | Services | * + Running in the background   + Starting a service   + Communicating with a service   + Bound Services |
| Day 4 | Content Providers | * + URLS   + Creating a Content Provider   + Queries   + Inserts |
| Day 4 | Broadcast Receivers | * + Events   + Registering   + Intents   + Sticky Events |
| Day 4 | Tasks | * + Handlers   + Async Task   + Callbacks   + Updating the GUI |
| Day 4 | Data | * + Shared Preferences   + Internal Storage   + SQL Lite   + Resource Files |
| Day 5 | Accessing RESTful Services | * + HTTP   + Connections   + JSON   + Asynchronous requests/responses |
| Day 5 | The WebView | * + The WebView   + Navigation   + Local content   + JavaScript |
| Day 5 | Fragments | * + Screen sizes   + Responsive Layouts   + Alternate Resources   + Images |
| Day 5 | JetPack | * + Navigation   + Paging   + Slices   + Work Manager |