

Android Development Course Syllabus

Course length: Six daily sessions, eight hours each.

Course goals: Learn and obtain hands-on experience in developing basic and advanced Android apps. The course begins with an overview of required Java programming knowledge. Then we will move on to the world of Android development and create various apps that utilize different capabilities of a modern Android phone, including the usage of vibration, sounds playback and recording, the camera, animations, location, basic 3D graphics, file system, Network operations (UDP/TCP) and more. During the course we will work with the most advanced IDEs including Eclipse and IntelliJIDEA (Android Studio).

Target audience: A background in programming is required in any modern OOP language. Here is the list of prerequisites

- Variables
- Flow Control (If, switch, for, foreach, while, do)
- Arrays and matrices
- Strings
- ArrayList
- Handling Exceptions
- Method overloading
- **OOP (Class, abstract class, interface, inheritance, polymorphism)**
- Function visibility – public, private, protected
- Static variables and methods
- Enums

Course Methodology: Six daily sessions of about eight hours each. This is the basic daily schedule:

- 09:00-10:30 First session
- 10:30-10:45 Recess
- 10:45-12:00 Second session
- 12:00-13:00 Lunch break
- 13:00-15:00 Third Session
- 15:00-15:15 Recess
- 15:15-17:00 Fourth Session

We believe that only practical hands on experience will help fully understand the material at hand. For this reason each session includes a practical exercise where the actual hands on experience can be gained.

The curriculum:

(More details in the next page)

Day 1	09:00-10:30	Session1 - Java Basics and overview
		Break
	10:45-12:00	Session1 - Resumed
		Break
	13:00-15:00	Session2 - Java Basics and overview – Part 2
Day 2		Break
	15:15-17:00	Session2 - Resumed
	09:00-10:30	Session3 - UI in Java (SWT)
		Break
	10:45-12:00	Session3 - Resumed
Day 3		Break
	13:00-15:00	Session4 -First Android App
		Break
	15:15-17:00	Session4 - Resumed
	09:00-10:30	Session5 - Basic Android concepts
Day 4		Break
	10:45-12:00	Session5 - Resumed
		Break
	13:00-15:00	Session6 - Using more Android capabilities
		Break
Day 5	15:15-17:00	Session6 - Resumed
	09:00-10:30	Session7 - Using more Android capabilities – Part 2
		Break
	10:45-12:00	Session7 - Resumed
		Break
Day 6	13:00-15:00	Session8 - Using more Android capabilities – Part 3
		Break
	15:15-17:00	Session8 - Resumed
	09:00-10:30	Session9 - 2D Graphics
		Break
Day 7	10:45-12:00	Session9 - Resumed
		Break
	13:00-15:00	Session10 - 3D Graphics
		Break
	15:15-17:00	Session10 - Resumed
Day 8	09:00-10:30	Session11 - Web Services
		Break
	10:45-12:00	Session11 - Resumed
		Break
	13:00-15:00	Session12 - Google's external libraries
Day 9		Break
	15:15-17:00	Session12 - Resumed

Detailed curriculum:**Session 1 – Java Basics and overview**

- Using variables
- Flow Control
- Arrays and matrices
- Working with Strings
- Exceptions in Java
- Basic OOP

Session 2 – Java Basics and overview – Part 2

- More OOP
- ArrayList and collections
- Enums
- Static variables and methods
- Basic Threading
- Timers

Session 3 – UI in Java (SWT)

- What is UI
- Working with SWT
- UI Events

Session 4 – First Android App

- What is Android
- First Android app
- How to run and debug applications (Emulator vs. Real device)
- Android project structure
- XML files
- Enhancing the first app

Session 5 – Basic Android concepts

- Activity
- Menus
- Intents
- Context

Session 6 – Using more Android capabilities

- IntelliJIDEA / Android Studio
- Permissions
- Working with files
- Working with the network
- Debugging Android apps

Session 7 – Using more Android capabilities – Part 2

- Providing feedback to the user
 - Vibration
 - Sounds
 - Flash
- Raw camera usage
- Touch gestures

Session 8 – Using more Android capabilities – Part 3

- Location
- Status bar notifications
- Localization
- Services

Session 9 – 2D Graphics

- Animations
- 2D graphics

Session 10 – 3D Graphics

- 3D graphics and OpenGL

Session 11 – Web Services

- Soap and Rest overview
- Working with SOAP
- Working with Rest

Session 12 – Google's external libraries

- Google Maps
- Monetizing apps
- Ads
- Publishing and uploading app to Google Play

Good luck!