



Android App Development Course Syllabus

Duration: 4–6 Months | **Mode:** Offline/Online | **Certificate:** Yes | **Project:** Yes | **Internship:** Optional

◆ Module 1: Introduction to Android

- What is Android?
 - Android History & Versions
 - Android Ecosystem
 - Android Architecture
 - Overview of Android Studio
 - Setting up Emulator / Real Device
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◆ Module 2: Java/Kotlin Basics (*Pick one language to start*)

✓ Java (if using Java)

- Variables, Data Types, Operators
- Control Flow (if-else, loops)
- OOP Concepts: Class, Object, Inheritance, Polymorphism
- Collections, Exception Handling

✓ Kotlin (if using Kotlin)

- Variables and Null Safety
 - Functions & Lambdas
 - Classes, Objects, Inheritance
 - Collections and Scopes
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◆ Module 3: UI Design & Layouts

- XML Layouts
 - Views and ViewGroups
 - LinearLayout, RelativeLayout, ConstraintLayout
 - TextView, EditText, Button, ImageView
 - RecyclerView, CardView
 - ScrollView, ViewPager
 - Material Design Components
 - Toasts, Snackbars, Dialogs
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◆ **Module 4: Activities & Navigation**

- Activity Lifecycle
 - Intents (Explicit & Implicit)
 - Passing Data Between Activities
 - Fragments & Fragment Lifecycle
 - Navigation Component (Jetpack)
 - Toolbar, Drawer Layout, Bottom Navigation
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◆ **Module 5: User Interaction & Inputs**

- Forms & Validation
 - Event Handling (onClick, onTouch)
 - Menus (Options, Context)
 - Animations & Transitions
 - Custom UI Elements
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◆ **Module 6: Data Storage**

- SharedPreferences
 - Internal & External Storage
 - SQLite Database
 - Room Persistence Library (Jetpack)
 - Content Providers
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◆ **Module 7: Networking**

- Using Web APIs (RESTful API)
 - JSON Parsing (Manual / GSON / Moshi)
 - Retrofit / Volley
 - Loading Images using Glide/Picasso
 - Internet Permissions
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◆ **Module 8: Advanced Features**

- Firebase Integration (Authentication, Firestore, Realtime DB)
- Google Maps API
- Push Notifications (FCM)
- Background Tasks (WorkManager, AlarmManager)
- App Permissions (Run-time Permissions)

- Sensors, Camera Integration
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◆ **Module 9: Jetpack Libraries**

- ViewModel
 - LiveData
 - DataBinding / ViewBinding
 - Lifecycle-aware Components
 - Paging & Navigation
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◆ **Module 10: App Publishing & Testing**

- App Testing Basics (Unit & UI Testing)
 - App Signing & ProGuard
 - Creating APK & AAB
 - Publishing App on Google Play Store
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◆ **Final Project (Live App)**

- E-commerce App
 - ToDo App with Firebase
 - News App (API Based)
 - Attendance App (with SQLite/Firebase)
 - Personal Portfolio App
 - Hosting App Data with Backend (optional)
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◆ **Bonus Modules (Optional)**

- Kotlin Coroutines
- MVVM Architecture
- Jetpack Compose (Modern UI toolkit)
- Ads Integration (AdMob)
- Interview Preparation & Freelancing Guidance