

ANDROID SYLLABUS

Module 1: Introduction to Android

- What is Android and its architecture
- History and versions of Android
- Features of Android OS
- Setting up environment (Android Studio)
- Overview of Android project structure
- Running first Android app

Module 2: Java/Kotlin Basics

- Introduction to Java/Kotlin for Android
- Variables and data types
- Control statements (if, loops)
- Functions and classes
- OOP concepts (inheritance, polymorphism)

Module 3: UI Design & Layouts

- XML layouts
- Views and ViewGroups
- Layout types (Linear, Relative, ConstraintLayout)
- Buttons, TextView, EditText
- Responsive UI design

Module 4: Activities & Intents

- Activity lifecycle
- Creating multiple screens
- Explicit and implicit intents
- Passing data between activities

Module 5: User Input & Events

- Handling button clicks
- Input fields and validation
- Event listeners
- Toasts and dialogs

Module 6: Navigation & UI Components

- Navigation components
- Menus and toolbars
- RecyclerView & ListView
- Adapters

Module 7: Data Storage

- SharedPreferences
- SQLite database
- Room Database
- File storage

Module 8: Networking

- Internet permissions
- Calling APIs (REST APIs)
- Using libraries (Retrofit/Volley)
- JSON parsing

Module 9: Fragments

- Introduction to Fragments
- Fragment lifecycle
- Communication between fragments
- Dynamic UI with fragments

Module 10: Background Processing

- Threads and AsyncTask
- Services
- WorkManager basics

Module 11: Notifications

- Creating notifications
- Notification channels
- Push notifications (Firebase basics)

Module 12: Media & Camera

- Playing audio and video
- Using camera
- Handling images

Module 13: Permissions & Security

- Runtime permissions
- Data security
- Best practices

Module 14: Firebase Integration

- Introduction to Firebase
- Authentication (Login/Register)
- Firestore/Realtime Database
- Cloud Messaging

Module 15: Material Design

- Material UI components
- Themes and styles

- Animations and transitions

Module 16: Testing & Debugging

- Debugging techniques
- Logcat
- Testing basics

Module 17: Deployment

- Generating APK/AAB
- Publishing on Google Play Store
- App signing
- App optimization

Module 18: Real-World Projects

- Notes App
- Todo App
- API-based App (Weather/News)
- E-commerce App (basic)