1. Introduction & Setup

A. Course Overview & Objectives
B. Android Ecosystem & Market Overview
C. Installing Tools:
   i. Java JDK / Android Studio
   ii. SDK & Environment Setup
D. First Android Project:
   i. Project structure
   ii. Hello World App

2. Kotlin Fundamentals

A. Overview of Kotlin & Features
B. Basic Syntax, Variables, Data Types
C. Control Flow (if/else, loops, when)
D. Functions & Parameters
E. Collections & Arrays
F. Null Safety & Exception Handling
G. OOP in Kotlin:
   i. Classes/Objects/Inheritance/Interfaces
H. Lambdas & Higher-Order Functions

3. Android Framework & App Components

A. Android Architecture
B. Activities & Lifecycle
C. Intents & Navigation
D. Fragments & Lifecycle
E. Views & ViewGroups
F. Layouts (XML & ConstraintLayout)

4. UI Design & Interaction

A. UI Elements (Buttons, TextViews, EditTexts)
B. Handling User Input & Events
C. Scrollable Lists (RecyclerView)
D. Menus, Dialogs, Toasts & Notifications
E. Material Design Principles

5. Data Handling & Storage

A. SharedPreferences
B. SQLite Basics
C. Room Persistence Library
D. JSON Parsing
E. Data Binding & View Binding

6. Networking & APIs

A. RESTful APIs & Web Services
B. Retrofit & OkHttp Clients
C. Coroutines for Async Calls
D. Handling Responses & Errors

7. Advanced Android Concepts

A. Navigation Component
B. LiveData & ViewModel (MVVM basics)
C. Jetpack Libraries Overview
D. Background Services
E. Notifications & Broadcast Receivers

8. Testing, Debugging & Deployment

A. Debugging Techniques
B. Unit Testing (JUnit)
C. UI Testing (Espresso)
D. Preparing for Google Play Release
E. App Publishing Checklist

Practical:

A. Writing, compiling, and running basic Rust programs
B. Variables, data types, mutability, and control flow exercises
C. Functions, modules, and ownership–borrowing based programs
D. Structs, enums, traits, and implementation blocks
E. Error handling, generics, collections, and file I/O programs
F. Mini projects using Rust standard library and advanced features