



# Flutter

## COURSE OVERVIEW

### **MODULE 1: Introduction to Flutter and Dart**

- ◆ Overview of Flutter: Benefits, features, and setup
- ◆ Introduction to Dart: Syntax, data types, and basic programming concepts
- ◆ Flutter Project Structure: Understanding files and folders
- ◆ Setting Up the Development Environment: IDE setup, emulators, and testing devices

### **MODULE 2: Dart Fundamentals**

- ◆ Variables and Data Types: Strings, numbers, lists, maps, booleans
- ◆ Control Structures: Conditionals, loops
- ◆ Functions: Defining, calling, and parameters
- ◆ Object-Oriented Programming in Dart: Classes, constructors, inheritance
- ◆ Error Handling: Try-catch blocks and exceptions

### **MODULE 3: Flutter Basics**

- ◆ Widgets in Flutter: Stateless and Stateful widgets
- ◆ Basic Widgets: Text, Image, Container, Row, Column, Stack
- ◆ Layouts and Positioning: Alignment, padding, margin, and layout widgets
- ◆ Navigation and Routing: Navigator widget, named routes

## MODULE 4 : User Input and Interactivity

- Handling User Input: TextFields, Buttons, Form validation
- Gesture Detection: Tap, swipe, long press
- Managing State in Flutter: setState, lifting state up

## MODULE 5 : Styling and Theming

- Basic Styling: Colors, fonts, and text styling
- Themes in Flutter: Light and dark themes, custom themes
- Animations and Transitions: Hero animations, page transitions, basic animations

## MODULE 6 : Networking and APIs

- HTTP Requests: Fetching data from an API
- JSON Parsing in Dart: Mapping JSON data to Dart objects
- FutureBuilder and StreamBuilder: Managing asynchronous data
- Error Handling in Network Requests

## MODULE 7 : Advanced Flutter Widgets

- ListView and GridView: Displaying lists and grids
- Custom Widgets: Building reusable components
- Dialogs and Bottom Sheets: Alert dialogs, modal and persistent bottom sheets
- Slivers and CustomScrollViews: Creating advanced scrollable layouts

## MODULE 8 : Local Data Storage

- SharedPreferences: Storing simple data
- SQLite in Flutter: Setting up a local database, CRUD operations
- Introduction to Hive: NoSQL database for storing structured data

## MODULE 9 : State Management

- Provider Package: Basics of state management with Provider
- Riverpod: Advanced state management for larger applications
- Choosing a State Management Solution: Bloc, Redux, and others

## MODULE 10 : Firebase Integration

- Introduction to Firebase: Overview of Firebase services
- Firebase Authentication: User sign-up, login, and logout
- Firestore Database: Storing and retrieving data in real-time
- Push Notifications with Firebase: Setting up notifications for iOS and Android

## MODULE 11 : Deployment and Testing

- App Testing: Writing unit tests and widget tests in Flutter
- Preparing for Deployment: App icons, splash screens, permissions
- Publishing on App Stores: Google Play Store and Apple App Store guidelines
- Project: Finalizing the app for release and deploying

