

GOOGLE FLUTTER



ZETLAN TECHNOLOGIES



e-Learning Course

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COURSE MODULES

Module 1: Introduction to Flutter & Dart

- Overview of Flutter & Advantages of Flutter
- Understanding Flutter architecture
- Installing Flutter SDK & setting up an IDE
- Creating your first Flutter project
- Running the app on an emulator/device
- Understanding the Flutter project structure

Module 2: Dart Programming Basics

- Dart syntax and data types
- Variables & constants
- Functions in Dart
- Control flow statements (if, switch, loops)
- Exception handling in Dart
- Object-Oriented Programming in Dart (Classes, Objects, etc.)
- Async programming (Future, async/await, Streams)

Module 3: Flutter Basics – UI & Widgets

- Introduction to Widgets (Stateless vs. Stateful)
- Material Design & Cupertino Widgets
- Text, Image, Icons, Buttons
- Layouts: Column, Row, Stack, ListView, GridView
- Padding, Margins, and Alignment
- User Input: TextField, Forms, Validation
- Handling gestures & user interactions

Module 4: Navigation & State Management

- Navigation using Navigator and Routes
- Passing data between screens
- Drawer, Bottom Navigation Bar, and TabBar
- Understanding State Management
 - setState() (Local State)
 - Provider (Basic State Management)
 - Riverpod, Bloc, Redux (Advanced State Management)

Module 5: Working with APIs & Firebase

- HTTP Requests with http package
- Fetching data from REST APIs
- Parsing JSON data
- Error handling in API calls
- Firebase integration
 - Firebase Authentication (Google, Email/Password, Phone)
 - Firebase Firestore (Database)
 - Firebase Cloud Messaging (Push Notifications)
 - Firebase Storage

Module 6: Local Storage & Database

- Shared Preferences (Key-Value Storage)
- SQLite with sqflite package
- Object storage with Hive & Drift
- File handling in Flutter

Module 7: Advanced UI & Animations

- Custom widgets & themes
- Hero animations
- Implicit and Explicit animations
- Lottie animations
- Animating with Rive

Module 8: Working with Device Features & Packages

- Accessing camera & gallery
- Using geolocation & Google Maps
- Working with sensors & accelerometer
- Integrating Bluetooth & NFC
- Using native code (Kotlin/Swift) with Platform Channels

Module 9: Flutter for Web & Desktop

- Flutter Web setup
- Adapting UI for different screen sizes
- Running Flutter apps on Windows, macOS, and Linux

Module 10: Testing & Debugging

- Debugging with Flutter DevTools
- Unit testing & Widget testing
- Integration testing with Flutter Driver
- Performance optimization & best practices

Module 11: Deploying Flutter Apps

- Preparing for app release
- Creating APK & AAB for Android
- Signing iOS apps for App Store
- Continuous Integration (CI/CD) with GitHub Actions & Codemagic
- Publishing apps to Google Play Store & Apple App Store