

# Flutter

4- Months | Duration

## Module 1: Introduction to Dart Programming

### 1. Dart Introduction

- What is Dart?
- Where we use Dart?
- What is the role of Dart in Flutter?
- Installing Dart SDK

### 2. Dart Basics

- Variables (var, dynamic, final, const)
- Data Types (int, double, String, bool, List, Map)
- Type Safety Concept
- Null Safety

### 3. Operators

- Arithmetic Operators
- Assignment Operators
- Relational Operators
- Logical Operators
- Type Test Operators



### 4. Control Statements

- if, if-else
- switch-case
- for loop
- while loop
- do-while loop
- break & continue

### 5. Functions

- Function Syntax
- Return Type
- Optional & Named Parameters
- Arrow Function

### 6. OOP in Dart

- Class & Object
- Constructor (Default & Named)
- Inheritance
- Polymorphism
- Abstraction
- Encapsulation
- Interface

## 7. Advanced Dart

- List & Map methods
- Exception Handling (try-catch)
- Async Programming
- Future
- async & await

## Module 2: Introduction to Flutter

### 1. Flutter Introduction

- What is Flutter?
- Flutter Architecture
- Installing Flutter SDK
- Android Studio / VS Code Setup

### 2. Flutter Project Structure

- pubspec.yaml
- lib folder
- main.dart
- assets folder

## Module 3: Flutter Basics



### 1. Flutter Fundamentals

- What is Widget?
- Stateless Widget
- Stateful Widget
- Hot Reload vs Hot Restart

### 2. Basic Widgets

- MaterialApp
- Scaffold
- AppBar
- Container
- Row & Column
- Text
- Icon
- Image
- ElevatedButton
- TextField

### 3. Layout Widgets

- Expanded
- Flexible
- Stack
- Padding
- Center
- SizedBox
- ListView
- GridView

### Module 4: Navigation & Routing

- Navigator
- Push & Pop
- Named Routes
- Passing Data Between Screens

### Module 5: Forms & User Input

- TextField
- Form Widget
- TextEditingController
- Validation
- Radio Button
- Checkbox
- Switch
- Dropdown



### Module 6: State Management

- setState()
- Provider

### Module 7: API Integration

- HTTP Package
- GET API Call
- POST API Call
- JSON Parsing
- Model Class Banana
- FutureBuilder
- Error Handling

### Module 8: Local Storage

- SharedPreferences

## **Module 9: Animations**

- Implicit Animation
- Explicit Animation
- AnimatedContainer
- Hero Animation
- Tween Animation

## **Module 11: Advanced UI**

- Custom Widget Banana
- Reusable Components
- Responsive Design
- MediaQuery

## **Module 12: App Deployment**

- APK Generate Karna
- Play Store ke liye Build Banana

## **Final Projects (Very Important)**

- API Based App

