Certified Flutter Application Development Course

Course Duration: 40 Hours (5 Days)

Overview

The Certified Flutter Application Development course is a comprehensive training program designed to equip learners with the skills necessary to build high-quality mobile applications using Flutter, Google's UI toolkit, and the Dart programming language. Starting with an introduction to Flutter and Dart, the course covers the essentials of the Dart programming language, its syntax, and core programming concepts such as variables, data types, and control structures. Learners will also get hands-on experience with Dart Pad and the Dart SDK, setting up their development environment using tools like IntelliJ IDEA. As learners progress, they will delve into more complex topics such as Dart Functions, Object-Oriented Programming, and the implementation of Material Design Guidelines in Flutter apps. The course also includes practical labs where students can apply their knowledge by creating projects like a pizza order program and a hotel reservation app. Advanced topics include working with Firebase for backend services, creating Location-aware apps using GPS and Google Maps, and the nuances of app testing and publishing to platforms like the Google Play Store and Apple App Store. By the end of the course, participants will have the skills to build and deploy fully functional mobile apps. This course is beneficial for both beginners and experienced developers, as it provides a structured approach to Flutter app development, ensuring a solid foundation and mastery of both fundamental and advanced Flutter concepts.

Audience Profile

The Certified Flutter Application Development course is designed for aspiring developers keen to build cross-platform mobile applications with Flutter and Dart.

- Mobile Application Developers
- Software Developers
- Front-end Developers
- UI/UX Designers
- Technical Project Managers
- Computer Science/Engineering Students
- Entrepreneurs looking to develop mobile apps
- Freelancers seeking to expand their skillset
- Cross-platform Development Enthusiasts
- Professionals aiming for career growth in mobile app development

Course Syllabus

Lesson 1: Introduction to Flutter and Dart Programming Language

- Introduction
- Importance of Flutter
- Introduction to Dart
- Writing Dart code

- Dart Pad
- Installing Dart SDK
- IntelliJ IDEA
- **Lab 1**: Installing Dart IDE and Writing Dart Program
- Installing IntelliJ IDEA
- Creating a Dart Project Using IntelliJ IDEA25
- Using Dart Pad

Lesson 2: Dart Programming – Syntax

- Introduction
- main() function
- Dart Variables
- Dart Data Types
- Input of Information to Dart Program
- Writing Comments
- Dart Conditional Operators
- If Statement
- If – Else Statement
- If…Else and Else…If... Statement
- If Else and Logical
- For Loops
- While Loops
- Do-while Loops
- Break Statement
- Switch Case Statement
- Lab 2: Create a Pizza Order Program

Lesson 3: Dart Functions & Object-Oriented Programming (OOP)

- Functions
- Function Structure
- Creating a Function
- Function Return Data Types
- Void Function
- Function Returning Expression
- Functions and Variable Scope
- Object-Oriented Programming (OOP)
- Object
- Class
- Creating a Class
- Adding Methods to Classes
- Providing Constructors for Your Classes
- Class — Getters and Setters

- Class Inheritance
- Abstract Class
- Dart Project Structure and Dart Libraries
- Lab 3: Create a Small Overtime Payment Program

Lesson 4: introduction to Flutter

- Understanding Flutter
- Flutter Framework
- Android Studio
- What is Android Studio?
- Android Studio Software Prerequisite
- Installing Android Studio
- Flutter SDK
- Installing and Configuring Flutter SDK
- Creating a New Flutter Project
- Setup an Android Virtual Device
- Run a Flutter App
- Installing Flutter on Mac
- Test Your Flutter App on iOS Phone with Windows O.S
- Android Studio Sugar and Spice
- Run your Apps on a Hardware Device (Physical Phone)
- Run your Flutter App on Android Phone
- Run your Flutter App on iPhone Device
- Emulator Debug Mode
- Introduction to Flutter Widgets
- Creating a Flutter App Using Widgets
- What is a Materia Lapp widget?
- Lab 4: Creating a Simple Flutter App

Lesson 5: Flutter Widgets Fundamentals

- Scaffold Widget
- Image Widget
- Container Widget
- Column and Row Widgets
- Icon Widget
- Layouts in Flutter
- Card Widget
- App Icons for iOS and Android Apps
- Hot Reload and Hot Restart
- Stateful and Stateless Widgets
- Use a Custom Font
- Lab: Creating a Restaurant Menu

Lesson 6: Navigation and Routing

- Button Widget
- Floating Action Button
- Raised Button, Flat Button, and Icon Button.
- Dropdown Button
- Outline Button
- Button Bar
- Popup Menu Button
- App Structure and Navigation
- Navigate to a New Screen and Back
- Navigate with Named Routes
- Send and Return Data Among Screens
- Animate a Widget Across Screens
- WebView Widget in Flutter
- Lab 6: Navigation and Routing a Pizza Store App

Lesson 7: Visual, Behavioural, and Motion-Rich Widgets implementing Material Design Guidelines - Part 1

- Introduction
- Bottom Navigator Bar Widget
- Default Tab Controller, Tab Bar, and Tab Bar View Widgets
- List Tile Widget
- List View Widget
- Drawer Widget
- Data Table Widget
- Selectable Text Widget
- Stack Widget
- Lab : 7
- Lab A: Creating a Flutter App using Bottom Navigation Bar Navigation Technique
- Lab B: Using Data Table Sorting Built-in function

Lesson 8: visual, Behavioural, and Motion-Rich Widgets implementing Material Design Guidelines - Part 2

- Input and Selections
- Text Field Widget
- Checkbox Group and Radioautograph Widgets
- Date Picker
- Time Picker
- Slider Widget
- Switch Widget
- Dialogs, Alerts, and Panels

- Alert Dialog Widget
- Cupertino Alert Dialog Widget
- Bottom Sheet
- Modal Bottom Sheet
- Persistent Bottom Sheet
- Expansion Panel Widget
- Snack Bar Widget
- Lab 8: Creating a Hotel Reservation App

Lesson 9: Firebase

- Introduction
- What is the JSON ?
- How does Firebase Database work?
- Firebase authentication (Signup and Login to Flutter App)
- Configure Your App to use Firebase Services
- Adding Firebase to your Android App
- Adding Firebase to your iOS App
- Configuring Firebase Authentication
- Login to an App Using Firebase User Accounts
- Logout Configuration
- Firebase Database
- Which database is right for your project?
- Real Time Database
- Cloud Fire store
- Lab 9 : Create a User Profile Interface using Firebase

Lesson 10: Location-Aware Apps: Using GPS and Google Maps

- Introduction
- What is GPS and how does it work?
- The Camera Position
- Adding Google Maps to a Flutter app
- Getting a Google API key
- Adding Google Maps Flutter plug-in as a dependency
- Adding your API key for your Android app
- Adding your API key for your iOS app
- Adding a Google Map on Your Flutter App Screen
- Adding a Google Map Marker
- Google Map Types
- Moving the Camera (Camera Animation)
- Capturing an App User's Location for iOS and Android Apps
- Lab10: Location-Aware Apps Using GPS and Google Maps
- Getting a Google API key

- Creating an App Interface
- Configuring your App to Use Your API Key
- Adding a Google Map on your Flutter App Screen
- Adding a Google Map Marker

Lesson 11: App Testing & Publishing

- Testing and Feedback for Your App
- Setting up a Test Environment
- Usability Testing by Participants
- Starting your Test Session
- Analysing your Test
- Publishing Flutter Apps
- Publishing Android App on Google Play Store
- Publishing iOS app on Apple Store