

KOENIG SOLUTIONS • COURSE OUTLINE

Certified Flutter Application Development (Android ATC)

Learn to build cross-platform mobile apps with Flutter and Dart, from core syntax to Firebase integration, maps and app store publishing.

5 Days

40 HOURS

11

MODULES

152

TOPICS

12

HANDS-ON ACTIVITIES

COURSE 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.

WHO THIS COURSE IS FOR

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

What You Will Learn

- Explain Dart syntax, variables, data types and control structures
- Apply Dart functions and object-oriented programming concepts
- Configure Flutter SDK, Android Studio and development environments
- Build layouts using core Flutter widgets such as Scaffold and Container
- Implement navigation and routing between app screens
- Apply Material Design widgets for input, dialogs and panels
- Integrate Firebase authentication and database services
- Develop location-aware apps using GPS and Google Maps

COURSE SYLLABUS

11 Modules, 152 Topics

01

Lab

Introduction to Flutter and Dart Programming Language

TOPICS

- Introduction
- Importance of Flutter
- Introduction to Dart
- Writing Dart code
- Dart Pad
- Installing Dart SDK
- IntelliJ IDEA
- Installing IntelliJ IDEA
- Creating a Dart Project Using IntelliJ IDEA25
- Using Dart Pad

02

Lab

Dart Programming – Syntax

TOPICS

- 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

Dart Functions & Object-Oriented Programming (OOP)

TOPICS

- 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

Introduction to Flutter

TOPICS

- 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 Material App Widget?

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Lab

Flutter Widgets Fundamentals

TOPICS

- 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

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Lab

Navigation and Routing

TOPICS

- 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

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Lab

Lab A

Lab B

Visual, Behavioural, and Motion-Rich Widgets Implementing Material Design Guidelines - Part 1

TOPICS

- 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

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Lab

Visual, Behavioural, and Motion-Rich Widgets Implementing Material Design Guidelines - Part 2

TOPICS

- 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

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Lab

Firestore

TOPICS

- Introduction
- What is the JSON?
- How does Firestore Database work?
- Firestore authentication (Signup and Login to Flutter App)
- Configure Your App to use Firestore Services
- Adding Firestore to your Android App
- Adding Firestore to your iOS App
- Configuring Firestore Authentication
- Login to an App Using Firestore User Accounts
- Logout Configuration
- Firestore Database
- Which database is right for your project?
- Real Time Database
- Cloud Firestore

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Lab

Location-Aware Apps: Using GPS and Google Maps

TOPICS

- 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
- Getting a Google API key

Location-Aware Apps: Using GPS and Google Maps (continued)

TOPICS (CONTINUED)

- 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

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App Testing & Publishing

TOPICS

- 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

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	Introduction to Flutter and Dart Programming Language	Lab: Lab 1: Installing Dart IDE and Writing Dart Program
02	Dart Programming – Syntax	Lab: Lab 2: Create a Pizza Order Program
03	Dart Functions & Object-Oriented Programming (OOP)	Lab: Lab 3: Create a Small Overtime Payment Program
04	Introduction to Flutter	Lab: Lab 4: Creating a Simple Flutter App
05	Flutter Widgets Fundamentals	Lab: Lab: Creating a Restaurant Menu
06	Navigation and Routing	Lab: Lab 6: Navigation and Routing a Pizza Store App
07	Visual, Behavioural, and Motion-Rich Widgets Implementing Material Design Guidelines - Part 1	Lab: Lab 7 Lab A: Creating a Flutter App using Bottom Navigation Bar Navigation Technique Lab B: Using Data Table Sorting Built-in function
08	Visual, Behavioural, and Motion-Rich Widgets Implementing Material Design Guidelines - Part 2	Lab: Lab 8: Creating a Hotel Reservation App

#	MODULE	ACTIVITY
09	Firestore	Lab: Lab 9: Create a User Profile Interface using Firestore
10	Location-Aware Apps: Using GPS and Google Maps	Lab: Lab 10: Location-Aware Apps Using GPS and Google Maps

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

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