

KOENIG SOLUTIONS · COURSE OUTLINE

Master Flutter Mobile Application Development

Learn to build, secure and deploy Flutter mobile apps, from Dart foundations and widgets to networking, animations and maps.

7 Days

DURATION

29

TOPICS

7

HANDS-ON LABS

COURSE OVERVIEW

This course begins with Dart language foundations and object-oriented programming before moving into Flutter architecture, core widgets and Material and Cupertino UI components. It then covers advanced UI composition, forms, navigation, networking with HTTP and JSON, and local storage with SQLite. Later modules address animations, error handling, secure API authentication, performance optimisation and best practices, before concluding with Google Maps integration, geolocation and a capstone project that combines authentication, APIs, local storage and deployment basics.

WHO THIS COURSE IS FOR

Mobile App Developers

Flutter Developers

Software Engineers

UI Developers

Application Developers

PREREQUISITES

- Knowledge of Mobile Application Development

LEARNING OBJECTIVES

- Apply Dart language features and object-oriented programming concepts
- Build user interfaces using Material and Cupertino widgets
- Implement navigation with Navigator and named routes
- Integrate REST APIs using the http package and parse JSON
- Configure local storage with SQLite for offline data
- Implement animations using implicit and explicit controllers
- Apply secure storage and token-based API authentication
- Analyse app performance using DevTools and reduce rebuilds

29 Topics

DAY 1 Dart Foundations & OOP

Build a solid base in Dart for Flutter development.

TOPICS

[Lab](#)

- Why Dart for Flutter? Setup & environment.
- **Dart basics:** variables, data types, operators, control flow
- Collections (Lists, Sets, Maps)
- Functions, lambdas, and scope
- **Object-Oriented Programming:** classes, objects, inheritance, encapsulation, abstract classes

DAY 2 Flutter Fundamentals & Widgets

Learn Flutter basics and core widgets.

TOPICS

[Lab](#)

- Flutter architecture, SDK, tools setup
- StatelessWidget vs StatefulWidget
- **Basic UI widgets:** Text, Image, Container, Row, Column, Scaffold
- Material & Cupertino widgets
- **Input controls:** TextField, Buttons, Checkbox, Radio, Stack

DAY 3 UI Composition, Forms & Navigation

Develop complex UIs and navigation.

TOPICS

[Lab](#)

- **Advanced widgets:** ListView, GridView, Card, Stack, Snackbar, Slider, TabBar, BottomNavBar, Slivers
- Forms & validation
- **Navigation:** Navigator, named routes, route management

DAY 4 Networking & Local Storage

Work with external data and persistence.

TOPICS

[Lab](#)

HTTP requests: GET, POST, PUT, DELETE · Using http package for API integration · JSON parsing · SQLite integration for local storage

DAY 5 Animations, Error Handling & Security

Enhance user experience and security.

TOPICS

Lab

- **Animations:** Implicit (AnimatedContainer, AnimatedOpacity), Explicit (AnimationController)
- **Error handling:** try-catch, error widgets, logging
- **Security:** secure storage, input validation, token-based API authentication

DAY 6 Advanced Flutter & Performance

Optimize apps and follow best practices.

TOPICS

Lab

- **Performance optimization:** DevTools, lazy loading (ListView.builder), reducing rebuilds
- **Best practices:** modularization, reusable widgets, theming & styling

DAY 7 Maps, Geolocation & Capstone Project

Apply all concepts in a final integrated project.

TOPICS

Lab

- Google Maps SDK setup & integration
- Adding markers, customizing maps, geolocation & routes

CAPSTONE PROJECT

- Authentication with token storage
- API integration
- Local data storage
- Maps feature with user location
- **Deployment basics:** APK signing, app bundles

HANDS-ON LABS

Practise What You Learn

MODULE	ACTIVITY
Dart Foundations & OOP	Create a “To-Do List” CLI app (with Dart OOP)
Flutter Fundamentals & Widgets	Build a “Hello Flutter” app with custom UI using Material Design
UI Composition, Forms & Navigation	Create a shopping app UI with product list, detail page, and navigation

MODULE	ACTIVITY
Networking & Local Storage	Build an app that fetches API data, displays list items, and saves favorites locally
Animations, Error Handling & Security	Extend API app with animations, error-handling wrappers, and token-based secure calls
Advanced Flutter & Performance	Optimize the shopping app with performance profiling and consistent theming
Maps, Geolocation & Capstone Project	Develop and demo a feature-rich capstone app

WHAT IS INCLUDED

Everything You Need to Succeed

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

Visit koenig-solutions.com

✉ info@koenig-solutions.com