

# ENTRI elevate

*In-Demand Coding Program*

# Flutter



## DIGITAL HANDBOOK

### AI POWERED FLUTTER

AI powered Flutter course empowers learners to master Flutter, Google's powerful UI toolkit for building beautiful, natively compiled applications for mobile, web, and desktop from a single codebase. You'll learn Dart programming, responsive UI design, state management, API integration, and deployment strategies. By the end of the course, you'll be able to develop and publish fully functional cross-platform apps — ready for real-world use.





# SYLLABUS

## 1. Introduction to Dart Programming

Overview of Dart, Setting up Dart environment (DartPad, VSCode, IntelliJ), Variables & Data Types (int, double, String, List, Map, etc.), Control Flow Statements (if-else, switch-case), Loops (for, while, do-while), Functions and Parameters, Return types, Named & Optional Parameters, Lambda Expressions & Arrow Functions, Exception Handling (try-catch, custom exceptions)

Classes & Objects, Constructors- Factory Constructors, Named Constructors, Inheritance & Polymorphism

Getters & Setters, Static and Const Keywords, Abstract Classes & Interfaces, Collections - List, Set, Map, Asynchronous Programming (Futures, async-await), Packages and Libraries in Dart.

## 2. Introduction to Flutter & Basic UI

Introduction to Flutter Framework, Setting up Flutter on Windows/macOS, Understanding Flutter Architecture (Widgets, State, and Build method), Material & Cupertino Design package, Flutter project creation and overview, Running your first Flutter app, Hot Reload & Hot Restart, Stateless & Stateful Widgets, Basic Widgets: Text, Container, Image, Icon, Scaffold, Row, Column, Buttons - Elevated, Icon, FloatingActionButton, OutlineButton, IconButton, PopupMenuButton, Forms, TextFields, Validation, Keyboard Handling, Gestures - Tap, Swipe, Long Press, Custom Widgets & Reusable Components, Flex and Expanded Widgets - SnackBars, Bottom Sheets, App Bar.

## 2. Introduction to Flutter & Basic UI

Expansion Panel Widget, Navigation Basics: Navigator.push, pop, Routes - Navigation with Named Routes, Navigation Drawer, Custom Dialogs, Bottom Navigation Bar, Custom Widgets, ListView and GridView, Reordering and Refreshing Lists, ListView and GridView, Implementing Swipe to Delete in Lists, ListView and GridView, Passing Data Between Screens (Send and Return Data Among Screens), Making Adaptive Screens (Use of MediaQuery, LayoutBuilder, Packages, Alternatives..)

Git Basic Workflow - Working with repositories, Branching, Handling Merge Conflicts (Basics), Git ignore files & Commit Messages, Undoing Changes.

## 3. Advanced Figma - Auto Layout & Constraints

Introduction to State Management - Stateful vs Stateless Widgets, Using setState() to Manage UI, Counter app/ Add to cart. Introduction to Provider Package - Creating and Injecting Providers, ValueNotifier and ChangeNotifier, Handling Data Across Widgets with Provider. Introduction to Data Persistence & Local Databases - Storing Key-Value Data using Shared Preferences, Local Database with Hive in Flutter.

Introduction to REST API, REST API Fundamentals (GET, POST, PUT, DELETE), Fetching Data from an API using the http package, Displaying Fetched Data in the UI, Handling Errors and Loading States in API Calls.





# SYLLABUS

## 4. Firebase and Backend Integration & Google Map

Introduction to Firebase - Setting up Firebase for Flutter (Android/iOS), Firebase Authentication (Email/Password, Google Sign-In), Managing User Sessions & Logout Functionality, Introduction to Cloud Firestore - CRUD Operations with Firestore, Handling Images and Media Files - Displaying Uploaded Images in Flutter, Managing File Upload Errors, Introduction to Firebase Cloud Messaging (FCM) - Setting up Push Notifications for Android & iOS - Sending Push Notifications from Firebase Console, Handling Notifications in the Flutter App

Introduction, setting up GoogleMap, Integrating Google Maps in Flutter, Displaying User's Location, Adding Markers & Polylines, Reverse Geocoding (Get Address from Coordinates).

### AI Module:

- Build Open AI Powered Chat App with ChatGPT SDK | Gemini AI
- Sentiment Analysis – Analyze User Sentiment Using an API + AI

## 5. App Deployment

Implementing Dark Mode in Flutter, Customizing Themes & Fonts, Implementing Dark Mode in Flutter, Optimizing UI for Different Screen Sizes, Handling Different Orientation, Preparing Your App for Release (Android & iOS), Creating Signed APKs and Bundles, Setting up App Icons and Splash Screens, Publishing to Google Play Store, (Apple App Store - optional), Publishing to Google Play Store,(Apple App Store - optional).

## Capstone Project

### ***Plan and Start a Full-Fledged Flutter App***

- Project Planning and Wireframing
- UI/UX Implementation
- State Management & Navigation
- Authentication & User Management
- Database & API Integration
- Notifications & Background Processes
- Offline Support & Data Persistence (Research)
- Maps & Location Services (Optional)
- Deployment & Documentation





## SCORE CARD

We will be maintaining a Scorecard to keep track of your assessment scores -- assignments, module-end assignments, projects, and final exams. This scorecard will be issued to the eligible candidates at the end of the course along with the certificate. Check Page 5 for the Eligibility Criteria.

### What is inside Scorecard?

**Formative Assessments** These assessments occur during the learning phase of the course to monitor learner progress with ongoing feedback. This includes the weekly assignments.

**Comprehensive Assessments** These assessments occur during the learning phase of the course to assess the learners overall understanding of each module and their skills. This includes the module end projects.

**Summative Assessments** These assessments occur at the end of the learning process to evaluate the knowledge and skills of the learner. This includes the MCQ and Codeathon.

### Summative & Intermediary Assessment

1. You will have a maximum of 2 attempts for the Summative Assessment
2. The first attempt is free of cost, and the second attempt will be upon a cost of INR 550/-
3. Intermediary Assessment - you will have only 1 chance, that too as per the schedule



# The Entri Way

## ★ BEST PRACTICES!

- Allocate a minimum of 12 hours per week for learning and practice
- Watch & practice all in-app videos for the current week before attending live sessions
- Join the live sessions on time and stay till the end
- Notify the course coordinator and mentor 24 hours in advance if you'll miss a session.
- Complete midweek tasks and module-end assignments on time
- Have a dedicated, distraction-free workspace for your practice and learning
- Use a 64-bit machine with a minimum of Windows 8.1 or OS X 10.
- Possess a headset with a microphone and a webcam for live sessions.

## ESCALATION MATRIX

You may connect with the below members for any concerns:

- 1.Course Coordinator: Queries related to your Fees, Attendance, In-App support
- 2.Batch Mentor: Academic doubts & support
- 3.Lead Mentor: If you cannot connect with the course coordinator or batch mentor
- 4.Placement Associate: Regarding placement queries



## CODE OF CONDUCT

**Respect Others**We value diversity and inclusion. Treat every member of our community with respect and kindness, and refrain from any behavior that is discriminatory, harassing, or abusive.

**Be Honest**Maintain academic integrity by avoiding cheating or plagiarism. Take responsibility for your work and give proper credit when using external sources.

**Be Punctual**Attend all classes and be on time. If you cannot make a class or will be late, notify your instructor in advance to minimize any disruptions.

**Collaborate**Embrace teamwork and cooperation. Engage with your fellow students and use Slack, our official communication platform, for doubts and helping others.

**Be Communicative**Keep your microphone and video accessible during classes to foster an engaging and interactive learning environment.

**Report Concerns**If you encounter behavior that violates our Code of Conduct, promptly report it to your instructor following our Escalation Matrix.



# ELIGIBILITY

## CERTIFICATE ELIGIBILITY

Learner can earn the course certificate only after meeting the below criteria:

1. Learner should have minimum 85% attendance for the live sessions
2. Learner should complete all the assignments, assessments and project as per the course agenda on time
3. Learners should score 40% or above separately for the Formative, Comprehensive & Summative Assessment

## PLACEMENT ELIGIBILITY

- Watch all video sessions on the app
- Maintain a minimum of 85% attendance in live sessions
- Complete all capstone and module-end assignments within the scope and time
- Meet the formative and comprehensive assessment
- Successfully complete the summative assessment
- Attend and pass mock interviews





# GENERAL GUIDELINES



This is a 24-week strict program where you are expected to adhere to the program's timeline.

- According to our teaching model, you learn the concept from the In-app videos and learn the practical implementation in the Live session.
- It is mandatory to join the session through a laptop or a desktop computer. Ideal machine requirements 64-bit Machine, Windows 8.1 above, OS X 10.
- A headset with a microphone and webcam is essential for virtual learning, facilitating visual communication in live sessions.
- Use your official full name as the Display Name and maintain a professional display picture when interacting with mentors on all platforms.
- If unable to attend a session, notify the course coordinator and mentor at least 24 hours in advance.
- Mentors won't repeat missed sessions; review VODs and recorded live sessions independently. Post doubts on the Slack channel if needed.
- We use Slack as our official communication platform and you will be required to use it for any communication outside of live sessions. Connect with the mentors strictly through Slack only and not any other media.
- You are supposed to react or respond to mentors' messages such as polls, intimations, and updates duly, and should ask for clarity if required.
- You should be able to unmute and speak when a question is directed to you from mentors.
- Join and stay for the entire live session for attendance to count. Attendance and in-app activity will be monitored for placement eligibility.



A reliable internet connection (10 Mbps upload and download speed) is crucial for online classes. Download the necessary software, and communicate with mentors and fellow students.

- Mock interviews are mandatory for interview preparation. Notify the coordinator 24 hours in advance if unable to attend. Missing two mock interviews will result in exclusion from placements.





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