



S Y L L A B U S

iOS App Development with Swift

Duration: 5 Days (Total: 20 Hours)

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1.0 Course Overview

This training module introduces participants to the fundamentals of **iOS app development using Swift and SwiftUI**. By combining theory with hands-on projects, learners will create interactive and beautiful mobile apps while mastering the iOS development environment, Swift syntax, UI design, and deployment workflow.

2.0 Learning Outcomes

By the end of this course, participants will be able to:

- Set up a development environment using Xcode
- Understand Swift syntax, logic, and functions
- Build iOS apps using SwiftUI and interactive components
- Manage data and state across views
- Test, debug, and publish iOS apps to the App Store

3.0 Training Methodology

- Interactive Live Coding Sessions
- iOS Device Simulators & Xcode Labs
- Group Discussions and UI Critiques
- Guided Projects & App Challenges
- Visual Demos & Real-Time Troubleshooting

4.0 Introduction to iOS Development and Xcode (3 Hours)

Objectives:

- Get familiar with iOS development tools and the app development lifecycle

Topics Covered:

- What is iOS App Development?
- Tools Overview: macOS, Xcode, Swift, SwiftUI
- Creating a New Xcode Project
- Using iOS Simulators and Device Previews
- App Lifecycle and Project Structure

Activities:

- Lab: Set up and launch your first "Hello, iOS!" app
- Tour: Xcode interface walkthrough
- Group Discussion: Review popular apps and their UI

5.0 Swift Programming Basics (3 Hours)**Objectives:**

- Understand the foundations of the Swift programming language

Topics Covered:

- Variables, Constants, and Data Types
- Control Flow: if, switch, loops

- Functions and Parameters
- Optionals and Unwrapping
- Basic Error Handling

Activities:

- Quiz: Swift syntax challenge
- Code Lab: Build a temperature converter app
- Simulation: Debugging common Swift errors

6.0 Building User Interfaces with SwiftUI (4 Hours)

Objectives:

- Design user interfaces using SwiftUI's declarative framework

Topics Covered:

- What is SwiftUI and why use it?
- Views, Modifiers, and Layout Basics
- VStack, HStack, ZStack
- Text, Images, Shapes, and Buttons
- State and Binding Concepts

Activities:

- Lab: Create a profile card UI
- Task: Design a custom button with effects

- Group Workshop: Recreate a real app's home screen

7.0 Navigation, Lists, and User Interaction (3 Hours)

Objectives:

- Enable dynamic content and screen transitions in your app

Topics Covered:

- NavigationView and NavigationLink
- List and ForEach for Dynamic Data
- User Input with TextField and Toggle
- Tap Gestures and Interactivity
- Alert and Sheet Modals

Activities:

- Lab: Build a to-do list app
- Group Task: Create a multi-screen walkthrough
- UI Critique: Improve the flow of your app's navigation

8.0 Data Handling and App Logic (3 Hours)

Objectives:

- Store, manage, and process data in your apps

Topics Covered:

- Using State, ObservedObject, and EnvironmentObject
- Data Models and Logic Separation
- Basic Persistence with UserDefaults
- Simple JSON Parsing and API Call Preview
- App Architecture Principles (MVVM Lite)

Activities:

- Lab: Build a settings toggle screen
- Task: Connect a simple API and display live data
- Group Activity: Design app logic for a quiz app

9.0 App Testing, Debugging, and Publishing (2 Hours)**Objectives:**

- Ensure your app works as intended and understand deployment basics

Topics Covered:

- Debugging in Xcode
- Running Tests and Using Breakpoints
- Preparing App Icons and Launch Screens
- App Store Requirements and Submission Process
- Apple Developer Account Overview

Activities:

- Lab: Create a launch screen and app icon
- Demo: Simulate an app store deployment
- Quiz: Publishing workflow steps

10.0 Conclusion and Wrap-Up (1 Hour)

Key Takeaways:

- Recap of development tools, Swift, and SwiftUI
- Portfolio and career development tips
- Next steps for building advanced iOS apps

Final Activities:

- Showcase: Present your capstone app to the group
- Certificate Distribution
- Feedback & Course Reflection