

iPhone Mobile Application Development

Course Duration: 64 Hours

Course code: IOS-MAD

1. Course Overview

This course equips participants with the knowledge and skills to develop, test, and deploy iOS applications for iPhone and iPad. It covers Swift programming, Xcode, UI/UX design, data handling, device integration, and app deployment to the Apple App Store. Participants will gain hands-on experience building real-world iOS applications.

2. What you'll learn?

- Understand iOS architecture and app lifecycle.
- Program in Swift and use Xcode effectively.
- Build responsive and interactive user interfaces.
- Handle local and remote data storage.
- Integrate device features such as camera, GPS, and sensors.
- Test, debug, and optimize iOS applications.
- Deploy apps to the Apple App Store.

3. Target Audience

- Beginners and intermediate developers interested in iOS app development.
- Students and IT professionals exploring mobile app development careers.
- Developers transitioning from Android or other platforms to iOS.
- Product managers and designers seeking technical understanding of iOS apps.

4. Pre-Requisites

- Basic programming knowledge (preferably in Swift, Java, or similar).
- Familiarity with object-oriented programming (OOP) concepts.

- Mac system access for Xcode development.

5. Course content

Module 1: Introduction to iOS Development

- iOS platform overview and ecosystem
- iOS architecture: Cocoa Touch, frameworks, runtime
- Introduction to Xcode and Interface Builder
- Building your first iOS app

Module 2: Swift Programming Fundamentals

- Variables, constants, and data types
- Functions, classes, structs, and enums
- Control flow: loops, conditionals
- Optionals, error handling, and closures

Module 3: iOS App Fundamentals

- View Controllers and Storyboards
- UI components: Labels, Buttons, TextFields, Tables
- Navigation and Tab Bars
- Event handling and user interactions

Module 4: UI/UX Design for iOS Apps

- Human Interface Guidelines (HIG)
- Auto Layout and responsive design
- Themes, styles, and asset management
- Hands-on: Design a login and dashboard screen

Module 5: Data Handling and Storage

- UserDefaults and Keychain
- Core Data and SQLite integration

- Working with JSON and REST APIs
- Cloud data integration (Firebase, CloudKit)
- Hands-on: Build a simple CRUD app

Module 6: Device Features and Sensors

- Accessing GPS and location services
- Camera, microphone, and media handling
- Using device sensors (accelerometer, gyroscope)
- Notifications and background tasks

Module 7: Permissions, Security, and Best Practices

- Handling runtime permissions
- Data encryption and secure storage
- App optimization and best practices
- Error handling and debugging

Module 8: Testing and Debugging

- Xcode debugger and Instruments
- Unit testing and UI testing
- Testing on simulators and physical devices
- Performance monitoring and optimization

Module 9: App Deployment and Publishing

- Preparing apps for release
- Certificates, provisioning profiles, and signing
- Publishing to the Apple App Store
- App Store review guidelines and compliance

Module 10: Capstone Project

- Build a complete iOS application integrating UI, data, and device features
- Test and optimize the app for real-world usage
- Project presentation and code review

