I.T.S Engineering College, Greater Noida

Department of Computer Science and Engineering & Allied Branches

APPLE iOS LAB, CENTRE OF EXCELLENCE

Empowering Students for a Future in Mobile App Development

OBJECTIVES

The **APPLE iOS Lab, Centre of Excellence** at **I.T.S Engineering College** aims to bridge the gap between academic learning and industry-demanded computing skills.
The Centre provides **students of Department of CSE and Allied Branches** with hands-on experience for developing **user-friendly Mobile Application using Swift and iOS concepts.**

Key objectives include:

- ✓ **Developing skills in designing and building interactive mobile applications for iPhones and iPads**
- ✓ **Understanding the structure of iOS application, including components like views, view controllers, storyboards and navigation**
- ✓ **Provide a platform to integrate User Interface (UI) and User experience (UX) design principles in mobile app development**
- ✓ **Apply programming concepts such as object-oriented programming, event handling and data persistence in mobile app development**
- ✓ **Encouraging creativity and problem-solving**
- ✓ **Promote teamwork and collaboration through group-based app development activities**
- ✓ **Prepare students for real-world mobile app projects and prototype through mini-projects and prototype app creation**

COURSES AND TRAINING OFFERED

In-house training:

- Trained students with- in organisation for developing iOS application using Swift and Xcode

Hands-on programming:

- Step-by -step coding exercise using Swift
- Designing interfaces with Storyboard and SwiftUI
- Implementation of core iOS concepts-navigation, data storage, and APIs

Mini Projects/Major Project & Assignments:

- Develop small-scale apps such as calculators, to-do list
- Focus on code quality, testing and functionality
- End term Project to design and deploy a complete iOS application
- Encourages teamwork and application of full development lifecycles

ELIGIBLITY AND PRE-REQUISTES

Eligibility: Open to all B.Tech (CSE/CSE-DS/CSE-AIML) students

Pre-requisites:

Programming Concepts

- Basics of programming (variables, loops, functions, classes, objects)
- Understanding of Object-Oriented Programming (OOP)
- Basic understanding of algorithms and data structures

Operating System

- **macOS** knowledge is helpful (Xcode runs only on macOS)
- Access to a **MacBook or iMac** for development (minimum macOS Monterey or later recommended)

Tools

- **Xcode IDE** (Apple's development environment for iOS apps)
- **Apple ID** (free account to run and test apps on a simulator; paid developer account for App Store publishing)

English Proficiency

- Good command over English (for understanding documentation, tutorials, and code comments)

COURSE TIMELINES AND ROADMAP

Course Objective

To enable students to design, develop, test, and deploy iOS mobile applications using **Swift** and **Xcode**, following Apple's Human Interface Guidelines and modern app architecture.

Week	Topic / Module	Key Learning Outcomes	Deliverables / Lab Task
Week 1,2	Introduction to iOS & Xcode	Setting up Xcode, understanding the iOS ecosystem, Swift basics	"Hello iOS" app, light app

Week 3-4	Swift Programming Basics	Variables, datatypes, optionals, structures	Console-based Swift exercises
Week 5-6	UI Design in Interface Builder	Storyboards, Auto Layout, outlets/actions	Simple Calculator App
Week 7-8	Navigation & Multiple Screens	Segues, Navigation Controller	Multi-screen Info App

CERTIFICATION OFFERED

Name of Course	**Duration of Course**	**Content of Course**	**Frequency of Course**	**Mode of Course**	**Brief about the applicability about the course with regards to placement opportunities**	**Process to apply for the course**
Introduction to Swift Programming	5 weeks	Introduction and getting started Swift Basics Advance Swift Image processing in Swift Swift vs Objective C	Quarterly	Online	By the end of this Course ,you will be able to demonstrate intermediate application of programming Swift, the powerful new programming	https://www.coursera.org/learn/swift-programming
Ios App Development Basics	5 weeks	Welcome to iOS app Development Basics Further introduction to Xcode	Quarterly	Online	In this course, you expand your programming skills and	https://www.coursera.org/learn/ios-app-development-basics

		UIKit and the Interface Builder App functionality			applies, them to authentic app development projects. The topics covered in this course include Xcode basics, Core Ios and Cocoa Touch Frameworks.	
App Design and Development for iOS	5 weeks	Welcome to Design and Development for Ios User Interactivity Multiple View Controllers &Navigation Persistence & Networking Introduction to developing for watchOS Introduction to developing for tvOS	Quarterly	Online	In this course, you will be developing foundational programming skills to support graphical element presentation and data manipulation from basic functions through to advanced processing.	https://www.coursera.org/learn/ios-app-design-development
Build your own Ios App	3 weeks	Welcome to build your own iOS App	Quarterly	Online	This Course is Project based and structured	https://www.coursera.org/leran/build-app#syllabus

		Facetracker Library Object Animation (Basics) Animation Series (Complex) Final App submission			around you building a high quality app as a capstone	

LAB ACTIVITIES AND GUIDELINES

Here's a **structured guide for iOS Lab Activities and Guidelines** — suitable for students, trainees, or professionals undergoing iOS development training. It covers **practical exercises, objectives, environment setup, and best practices**.

1. Lab Environment Setup

Hardware:

- MacBook or iMac (8 GB RAM minimum; 16 GB recommended)
- 50 GB free storage
- Minimum 13-inch display

Software:

- **macOS** (Monterey or later)
- **Xcode** (latest version)

- **Swift** (built-in with Xcode)
- **iOS Simulator**
- **Git / GitHub** for version control
- Optional: Figma (UI design), Firebase (backend services)

🧩 2. Suggested Lab Activities

Module 1: Swift Basics

- Variables, constants, loops, arrays, dictionaries
- Functions, closures, and enumerations
- Classes, structs, inheritance, protocols

Sample Activity: Create a Swift Playground to perform arithmetic operations and display results.

Module 2: Xcode & Interface Builder

- Creating new projects
- Using Storyboards & SwiftUI for UI design
- Connecting UI elements via @IBOutlet and @IBAction

Sample Activity: Build a "Hello World" app with buttons and labels.

Module 3: UIKit / SwiftUI Layouts

- Auto Layout, stack views, navigation controllers
- TableView and List implementation in SwiftUI
- Handling user input (TextFields, Buttons, Sliders)

Sample Activity: Build a simple login form with validation.

Top Employers: APPLE, Microsoft, Google, **Tata Consultancy Services (TCS)**, **Infosys Technologies**, **Wipro**, **Cognizant**, **Capgemini**, **Accenture**, **IBM**, **Tech Mahindra**, **HCL Technologies**, **DXC Technology**

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