Course: 205: iOS Development using Swift

Course Code	**205**
Course Title	**iOS Development using Swift**
Credit	4
Teaching per Week	4 Hrs.
Minimum weeks/ Semester	15 (Including Class work, examination, preparation, holidays etc.)
Review / Revision	June 2020
Purpose of Course	This course will help the students to understand the fundamental as well as advanced concepts of iOS Programming. The course also provides them the skills necessary to develop an iOS Application from scratch to deploying it on the App Store.
Course Objective	The objective of the course is - 1. To understand the iOS ecosystem and tools for creating iOS applications 2. To explain advanced level concepts in iOS application design and development 3. To impart knowledge of Swift programming language
Course Outcome	CO1: Understand the iOS ecosystem and Xcode IDE. Understand the life cycle of iOS application and how to implement it in MVC. Understand Foundation framework in iOS. CO2: Understand the syntax, and semantics of the Swift programming language. Expose the students to CLI applications with Swift. CO3: Understand the UIKit framework in iOS. Understand the usage and working of UI elements in iOS application. Understanding various types of design and their implementation. CO4: Understand data persistence in mobile application. Understand working with files in iOS. Expose students with implementation and usage of database in an iOS application. CO5: Understand the usage and data extraction of sensors in iPhone. Expose the students with Location and MapKit Framework in iOS to build map-based applications. Expose the students with ad-hoc and App Store application deployment.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Pre-requisite	Knowledge of C, C++ and SQL
Course Content	**Unit 1: Introduction to iOS ecosystem** 1.1. Introduction to Xcode IDE 1.1.1. Environment setup 1.1.2. Editors, Storyboard and Simulator 1.2. Application Life-Cycle 1.3. View Controller Life-Cycle 1.4. Info.plist and App Permissions 1.5. MVC in iOS 1.6. Introduction to iOS App Frameworks 1.6.1. Foundation Framework 1.6.2. UIKit Framework 1.6.3. Swift and SwiftUI **Unit 2: Introduction to Swift Programming Language** 2.1. Simple Values – Constant and Variable 2.2. Control Flow 2.3. Functions and Closures 2.4. Objects and Classes 2.5. Enumerations and Structures

	2.6. Protocols and Extensions 2.7. Error Handling 2.8. Generics **Unit 3: UIKit: View Controllers, Views and Controls** 3.1. Text Views: UILabel, UITextField, UITextView 3.2. Controls: UIButton, UIDatePicker, UIPageControl, UISegmentedControl, UISlider, UIStepper, UISwitch 3.3. Content Views: UIActivityIndicatorView, UIImageView, UIPickerView, UIProgressView 3.4. Bars: UINavigationBar, UISearchBar, UIToolbar, UITabBar 3.5. Images and Video: UIImagePickerController 3.6. Container View Controllers: UINavigationController, UITabBarController 3.7. Container Views: Table Views, Collection Views 3.8. Alerts: UIAlertController 3.9. Gestures: UITapGestureRecognizer, UIPinchGestureRecognizer, UIRotationGestureRecognizer, UISwipeGestureRecognizer, UIPanGestureRecognizer **Unit 4: Data Persistence and Networking** 4.1. UserDefaults 4.2. FileManager 4.3. SQLite Framework 4.4. Core Data Framework 4.5. JSON Parsing 4.6. Working with URL and URL classes **Unit 5: App Services and App Deployment** 5.1. Core Motion – Accelerometer, Gyroscope, Pedometer, Magnetometer, Altitude 5.2. Core Location – CLLocationManager, CLLocation, Authorization 5.3. MapKit – Map Fundamentals, Map Coordinates, Annotations and Overlays 5.4. How to deploy an Ad-Hoc app – (diawi) 5.5. Publishing an app to the AppStore
Reference Books	1. Apple Documentation [developer.apple.com/documentation] 2. The Swift Programming Language by Apple Inc. [swift.org/documentation] 3. Hacking with Swift by Paul Hudson [hackingwithswift.com] 4. iOS 13 Programming Fundamental with Swift by Matt Neuberg, O'Reilly 5. Programming iOS 13 by Matt Neuberg, O'Reilly 6. Mastering Swift 5: Deep dive into the latest edition of the Swift programming language, 5th Edition, Packt Publishing Limited 7. Swiftui Essentials - IOS Edition: Learn to Develop IOS Apps Using Swiftui, Swift 5 and Xcode 11 by Neil Smyth, Payload Media, Inc. 8. Beginning iOS 13 & Swift App Development: Develop iOS Apps with Xcode 11, Swift 5, Core ML, ARKit and more by Greg Lim 9. Pro iPhone Development with Swift 5: Design and Manage Top Quality Apps by Wallace Wang, Apress
Teaching Methodology	Class work, Discussion, Self-study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 70% assessment is based on semester end University External examination