Course: ICT 203 Elective 1: Smart Device Computing Using iOS

Course Code	203 Elective 1
Course Title	Smart Device Computing Using iOS
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2019
Purpose of Course	The Purpose of course is to help understanding the components and structure of mobile application development using iOS. The course also provides students with the skills necessary to develop an iOS App from scratch to deploying it on the Apple Store.
Course Objective	The objective of the course is to impart knowledge of Swift and Apple iOS application Design and Development.
Pre-requisite	Knowledge of Object Oriented Programming is desirable.
Course Out come	The primary learning outcome for this course is that students will be able to design and create iOS apps. Students will leverage Swift, the iOS SDK, and Apple developer tools. With iOS as the platform, students will learn Object-oriented programming, Design Patterns, Type Systems, Functional Language features, user interface design, best practices in programming, and problem analysis.
Course Content	**Unit 1 : Introduction to iOS with Swift Language** 1.1. Introduction iOS and iOS Architecture 1.1.1. Foundation Framework 1.1.2. Cocoa Framework 1.2. Introduction to Xcode IDE 1.2.1. Setting up Development Environment 1.2.2. Xcode Development Tools – Interface Builder and Simulator 1.2.3. Testing and Debugging 1.3. Introduction to Swift 1.3.1. Datatypes, Variables in Swift 1.3.2. Tuples, Constants, Literals in Swift 1.3.3. Working with Strings in Swift 1.4. Optionals in Swift 1.4.1. Implicit Optionals 1.4.2. Explicit Optionals 1.5. Collections in Swift 1.5.1. Dictionaries, Arrays, and Sets 1.6. Control Flows and Functions in Swift 1.7. Object Oriented Programming in Swift 1.7.1. Custom Class and Instance Creation 1.7.2. Inheritance and Polymorphism 1.8. Properties and it's Attributes 1.9. Initializers in swift 1.9.1. Id 1.9.2. Self 1.9.3. Super 1.10. Enum and Struct 1.11. Protocols and Extensions 1.12. Information Property List File and App Permissions **Unit 2 : iOS Design Patterns** 2.1 Introduction to Storyboard 2.2 Introduction to UIView, UIWindow and UIViewController 2.3 Model View Controller (MVC) Pattern in Interface Design 2.4 Application Life Cycle and View Controller Life Cycle 2.5 Working with Basic UIElements 2.5.1 UILabel, UIButton, UITextFeild, UIImageView etc. 2.6 IBActions and IBOutlets 2.7 Auto Layout Constraints to create Adaptive UI

	2.8 UIAnimation 2.8.1 Animation using Auto Layout Constraints 2.8.2 Animation with UIImageView 2.9 Recognizing and Handling Gestures 2.9.1 Introduction to UIGestureRecognizer 2.9.2 Working with different types of Gestures 2.9.3 Gestures with UIElements **Unit 3 : UIControls in iOS** 3.1 Navigation Controller and its Usage 3.2 Navigation Techniques 3.2.1 Segue 3.2.2 Push and Pop 3.2.3 Present and Dismiss 3.3 Working with TableView 3.3.1 Static TableViewController 3.3.2 Dynamic TableView 3.3.2.1 Plain TableView 3.3.2.2 Grouped TableView 3.4 Working with PickerView 3.4.1 UIPickerView 3.4.2 UIDatePickerView 3.5 Working with Miscellaneous Controls in iOS 3.5.1 UICollectionView 3.5.2 UITabBarController 3.5.3 UIScrollView 3.5.4 UIWebView 3.5.5 ContainerView 3.6 Working with AlertController and its Types **Unit 4 : Data Persistence and Data Manipulation Techniques** 4.1 Working with UserDefaults for data persistence 4.2 Introduction to FileManager 4.3 Frameworks and Library Configurations 4.4 Data Persistence Techniques 4.4.1 SQlite Framework 4.4.2 Core Data Framework 4.5 Working with URL and URL Classes 4.6 Data Manipulation Techniques 4.6.1 JSON Parsing 4.6.2 XML Parsing **Unit 5 : Advance Programming in iOS** 5.1 Location based Services 5.1.1. Core Location Services 5.1.2. CLLocation and CLLocationManager Classes 5.1.3. MapKit, MapView and MKPointAnnotation 5.1.4. Location Based Call-outs 5.2 Introduction to the working of Push Notifications 5.3 Publishing iOS App to Apple Store
Reference Book:	1. Swift Programming: The Big Nerd Ranch Guide (2nd Edition) (Big Nerd Ranch Guides) 2nd Edition by Matthew Mathias (Author), John Gallagher (Author) 2. Swift: A Comprehensive Intermediate Guide to Learn and Master the Concept of Swift Programming Kindle Edition by MG Martin (Author) 3. iOS 12 Programming Fundamentals with Swift: Swift, Xcode, and Cocoa Basics 1st Edition by Matt Neuburg (Author) 4. Classic Computer Science Problems in Swift: Essential Techniques for Practicing Programmers1st Edition by David Kopec
Teaching Methodology:	Lectures, Discussion, Independent Study, Seminars and Assignment
Evaluation Method:	30% Internal assessment 70% External assessment