



Kadi Sarva Vishwavidyalaya
Faculty of Engineering & Technology
Third Year Bachelor of Engineering (CE/IT)
(In Effect From Academic Year 2019-20)

Subject Code: CT604B-N	Subject Title: iOS Programming
Pre-requisite	

Teaching Scheme (Credits and Hours)

Teaching scheme				Total Credit	Evaluation Scheme					
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
03	00	02	05	04	03	70	30	20	30	150

Course Objective:

- To move into iOS development by getting a firm grasp of its fundamentals.
- Including the Xcode IDE, the Cocoa Touch Framework, and Swift 3 – the latest version of Apple’s acclaimed programming language.
- To understand Swift’s object-oriented concepts, understand how to use Apple’s development tools, and discover how Cocoa provides the underlying functionality iOS apps need to have.

Outline of the Course:

Sr. No	Title of the Unit	Minimum Hour
1	Swift architecture	5
2	Functions	6
3	Variables and Simple Types	8
4	Object Types and Flow Control	6
5	Anatomy of an Xcode Project	4
6	Nib and Memory management	4
7	Documentation	8
8	Life Cycle of project	3
9	Cocoa Classes and Events	4

Total hours (Theory):48

Total hours(Lab):32

Total hours:80



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Detailed Syllabus

Sr. No	Topic	Lecture Hours	Weight age (%)
1	Fundamentals: Overview of MAC OS and X-CODE, Introduction of iPhone Architecture, Essential Cocoa Touch Classes, Interface Builder, Nib File, COCOA and MVC Framework, Overview of features of latest iOS.	5	10
2	Swift Basic: Basics of Objective c, Need of transformation from objective c to swift, Functions, Variables, Data types, objective types, constants, operators, Decision making statements, looping, arrays, dictionaries enumeration, structure, classes, and inheritance.	6	13
3	IDE(Integrated Development Environment): Auto Layout, views, Outlets and Actions, Different view controller, Navigation view controller, Managing Application Memory, Application Delegate, Handling Keyboard input.	8	17
4	UI Controllers: Label, Button, Text Field, slider, Switch, Progress view, Page Control, Table View, Collection View, Image View, Text View, Web View, Map View, Date Picker , Picker View, Search Bar, Gestures, push notification, image picker, QR code Scanner, Audio, Video, Accelerometer, Location service, 3D Touch, attribute tracking, Making the app live, overview of watchos.	6	13
5	Database Management: SQLite, Web Services, JSON Parsing, XML parsing, alamofire, Overview of Networking- SC Network	4	8
6	Life Cycle of Project: Device Architecture and conditional code, Version Control, Editing and Navigating code, Running in the simulator, Debugging, Testing, clean, Running on Device, final App preparation, Submission to the app store.	4	8
7	Cocoa Classes and Events: Sub classing, Categories and Extensions, Protocols, Properties, Key-Value Coding, Reason for events, Delegation, Data Sources, Delayed performance.	8	17
8	Memory Management: Principles and Rules ofCocoa Memory management, What ARC and what it Does, Nib Loading and memory management, Debugging Memory Management.	3	6
	Total	48	100

Instructional Method and Pedagogy:

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.



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- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.

Learning Outcome:

On successful completion of this course, the student should be able to:

- Explore Swift's object-oriented concepts: variables and functions, scopes, and namespaces, object types and instances
- Become familiar with built-in Swift types such as numbers, strings, ranges, tuples, Optional arrays, dictionaries and sets
- Learn how to declare, instantiate and customize Swift object types: enums, structs, and classes
- Catch up on Swift 3 innovations: revised APIs, new Foundation bridged types and more
- Tour the lifecycle of an X-code project from inception to App store
- Construct app interfaces with the nib editor, Interface Builder
- Understand Cocoa's event driven model and its major design patterns and features
- Find out how Swift communication with Coco's C and Objective –C APIs

e-Resources:

- <https://nptel.ac.in/courses/106106156/34>

Reference Books:

1. "iOS 10 Programming Fundamentals with Swift, Swift.XCode, and Cocoa Basics",- Matt Neuburg, O'Reilly Media
2. "Building iPhone and iPad Electronic Projects",- MikeWester Field, O'Reilly Media
3. "Head First iPhone and iPad Development",Dan Pilone, Tracey Pilone, O'Reilly Media
4. "Beginning iPhone and iPad Web Apps", ChrisApres, Daniel Paterson Aprss Pub



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List of experiments

No	Name of Experiment
1	Create Simple Calculator in swift.
2	Demonstrate Different UI Controllers
3	An application to demonstrate different UI controllers
4	An application to demonstrate the use of table control & views
5	Develop an iphone application in which user can insert, update and delete the record in database
6	Develop program to generate a sign-up form which contains following fields. Username, Password, Gender, Birthdate, Country, image, Submit Terms and conditions. On successful registration attempt system must generate one alert message. (Label, Round Rectangle button, Segmented control, Text Field, Picker view, Data Picker, Image View, Navigation)
7	An Audio and Video application which can play audio and video files.
8	Develop medium size project using iOS programming with using all controllers, notification, database & views