

# Developing iOS apps with Swift

## Overview

Swift was introduced at Apple's 2014 Worldwide Developers Conference (WWDC). It is a general-purpose, multi-paradigm, compiled programming language developed by Apple Inc. for iOS, macOS, watchOS and Linux. It is designed to work with Apple's Cocoa and Cocoa Touch frameworks and the large body of extant Objective-C (ObjC) code written for Apple products. Swift is intended to be more resilient to erroneous code ("safer") than Objective-C, and more concise. It is built with the LLVM compiler framework included in Xcode 6 and later and, on platforms other than Linux, uses the Objective-C runtime library, which allows C, Objective-C, C++ and Swift code to run within one program. It supports the core concepts that made Objective-C flexible, notably dynamic dispatch, widespread late binding, extensible programming and similar features. These features also have well known performance and safety trade-offs; which Swift was designed to address. For safety, Swift introduced a system that helps address common programming errors like null pointers, and introduced syntactic sugar to avoid the pyramid of doom that can result. For performance issues, Apple has invested considerable effort in aggressive optimization that can flatten out method calls and accessors to eliminate this overhead. More fundamentally, Swift has added the concept of protocol extensibility, an extensibility system that can be applied to types, structs and classes.

Upon completion of this course, participants will be able to specify, design and build a significant iOS application for iPhone or iPad. In addition to working on a number of simple in class applications during the course, participants will also be able to implement a real-world app.

The primary objectives of the course are as follows:

- To expose participants towards developing Xcode IDE, putting code under revision control, signing and releasing apps
- To explore Objective C
- To understand App development life cycle: inception, test, release to maintenance
- To improve the understanding of objective-oriented paradigm, UIs, persistence, and networking concepts

<b>Dates</b>	<b>Course duration: Dec 11 – 15, 2017, Last date of Registration: Dec 7, 2017 (along with fees)</b> <b>On line registration and application submission: <a href="https://goo.gl/forms/GOIDJOP7nVoulGAZ2">https://goo.gl/forms/GOIDJOP7nVoulGAZ2</a></b>
<b>Course Topics</b>	<p><b>Module 1 (11 December 2017):</b> Course Overview and O-O review, Model-View-Controller Paradigm, Introduction to Xcode and Swift</p> <p><b>Module 2 (12 December 2017):</b> Views, Interface Builder, Gestures, and Multiple MVCs, Segues, and View Controller Lifecycle</p> <p><b>Module 3 (13 December 2017):</b> Scroll View and Table View, Closures, Extensions, Protocols, Delegation, Multithreading and Text Field</p> <p><b>Module 4 (14 December 2017):</b> Core Data, NSTimer, Animation and Core Motion, Application Lifecycle, Alerts, CloudKit</p> <p><b>Module 5 (15 December 2017):</b> Notifications and CloudKit, Segues, Core Location, and MapKit, Persistence</p> <p><b><i>Number of participants for the course will be limited to thirty. All modules are compulsory to attend</i></b></p>
<b>You Should Attend If you are...</b>	<ul style="list-style-type: none"> <li>▪ Executives, engineers and researchers from industries and government organizations including R&amp;D laboratories</li> <li>▪ Students at all levels (B.Tech/MSc/M.Tech/PhD) and faculty from reputed academic institutions and technical institutions</li> </ul>
<b>Fees</b>	<p>GIAN portal registration mandatory for all participants (one time fees: Rs. 500/-). The participation fees for taking the course is as follows:  <b>Participants from abroad: US \$200</b>  <b>Industry/ Research Organizations: Rs. 5000/-</b>  <b>Other Academic Institutions: Rs. 3000/- (Faculty) &amp; Rs. 1,500/-(Student) //for SC/ST – 50%</b>  <b>VJTI Mumbai: Rs. 1000/- (Faculty) &amp; Rs. 500/- (Student)</b>            Pay through DD on the name of “Director VJTI” payable at Mumbai</p> <p>The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage and Internet facility. (Accommodation is not available at VJTI campus).</p>

## The Faculty



**Prof. Ramki Thurimella** is currently working as Professor in the department of Computer Science at the University of Denver, USA. He has a PhD degree (1989) in computer science from the University of Texas at Austin, M.Tech degree (1983) in computer science from IIT Madras. He holds Director position at Colorado Research Institute for Security & Privacy. He has obtained following academic appointments: Director of Cyber security, University of Denver (DU)- Aug 2016 – Present, Professor & Chair, Computer Science, DU- Sep 2011–Aug 2016, Associate Professor, Computer Science, DU- Sep 1996 - Aug 2010, Assistant Professor, Computer Science, DU- Sep 1991 - Aug 1996, Research Associate, Institute for Advanced Computer Studies, University of Maryland at College Park- Aug 1989 - May 1991.

Prof. Ramki's research interest areas include Algorithms & Data Structures, Security & Privacy, IoT, Medical Informatics, Secure Multiparty Computation, Location based Privacy and Machine Learning . He has numerous publications in reputed journals and conferences. He has following experience of Industries: iOS Apps (RageLife, VoCABit, SoberWays, HomePulz)- Sep 2013 – Present, Software Architect, Fuser (Web email aggregator)- May 2004 - Aug 2004, Software Project Manager, Symphony Media- Sep 2003–May 2004 and Director of Engineering, Petroleum Place- Aug 1999 – Aug 2001.

Prof. Ramki's synergistic activities include Curriculum development for "Computer Security", offered DU over 10 times; "iOS Programming", offered at DU 4 times. Recently revised to cover Swift, the new language from Apple. He has organized workshop in Information Security and Privacy at the DU in 2011, 2012 and 2013. He has collaborated with University of Colorado, Denver to develop a privacy-preserving regional health data sharing platform. He has Local Arrangements for ACM Computer Communications Security Conference, 2015. He has designed and developed curriculum for the MS Cyber security degree and for the 4+1, BS+MS degree in Computer Science at DU.



**Prof. Dhiren Patel** is currently working as Director of VJTI Mumbai. Prior to joining VJTI, he worked as a Professor of Computer Engineering at NIT Surat, Gujarat. Prof. Dhiren Patel's research interests include Cloud computing and Virtualization security, Internet of Things: Security and Privacy, Green ICT, and Large Scale Identity Management Systems. He has authored a book on Information Security (published by Prentice Hall in 2008) and numerous research papers. Prof. Dhiren has been a General chair for ISEA Asia Security & Privacy conference (IEEE ISEASP 2017, India) and for IFIP Trust Management Conference (Springer IFIPTM 2012, India), and Program chair of IoTSec workshop (ACM Mobiquitous 2016, Japan). He is alumnus of IIT Kanpur – CSE department.

## Location:



**Veermata Jijabai Technological Institute**  
Mumbai, Maharashtra 400031, India

## Course Duration:

One Week: December 11-15, 2017

## Course Coordinator

**Prof. Dhiren R. Patel (Director, VJTI Mumbai)**  
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GIAN portal one time Registration Link:

<http://www.gian.iitkgp.ac.in/GREGN>