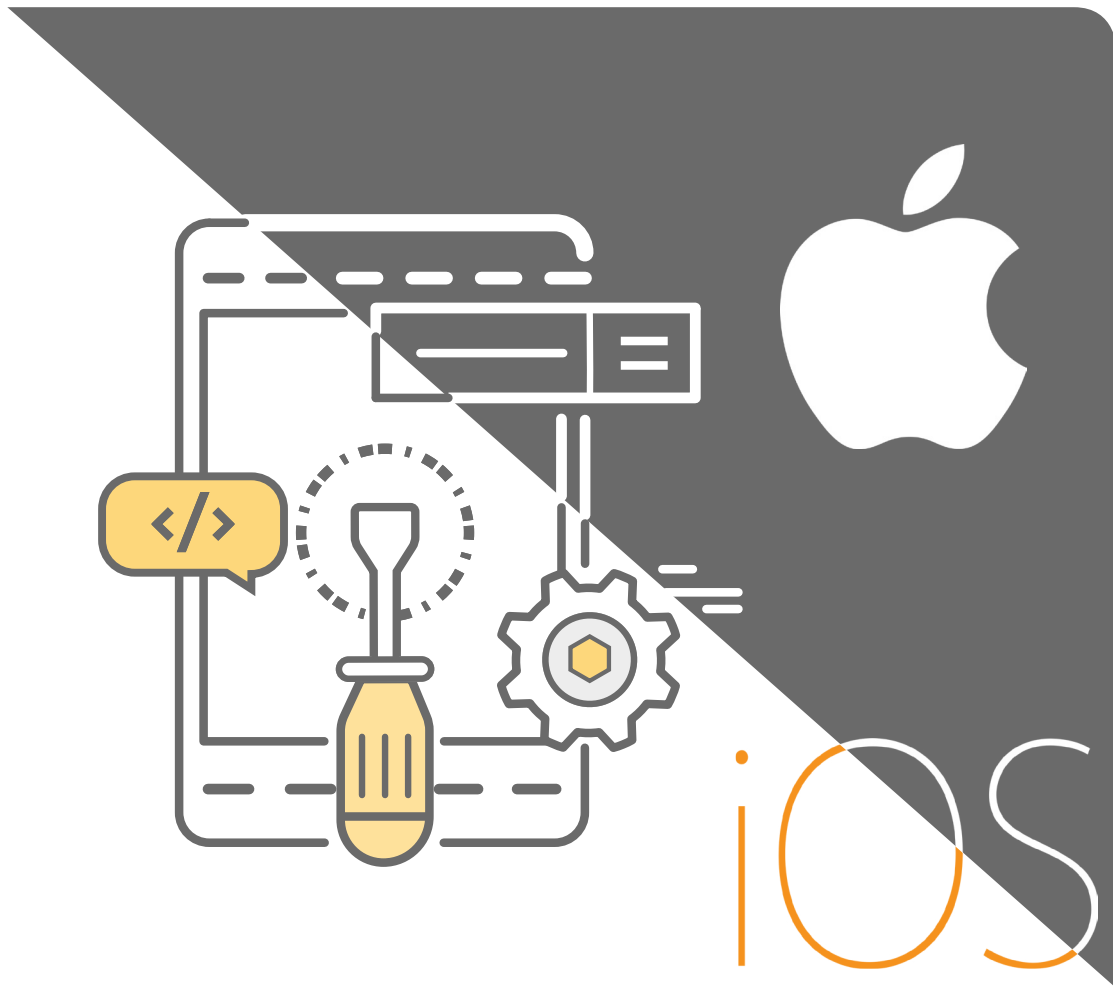


# CURRICULUM



## SCHEDULE

Full-time Immersive  
10AM to 6:30PM



## LOCATION

TurnToTech  
40 Rector Street, 10th Floor  
New York, NY 10006



## CONTACT US

[nyc@turntotech.io](mailto:nyc@turntotech.io)  
+1-212-924-8324



## WEEKS 1 & 2: FUNDAMENTAL PROGRAMMING SKILLS

### WHAT YOU WILL LEARN:

Start by understanding the ins and outs of procedural programming and solve over 50 challenging problems in C using first principles. You will learn:

C-Programming:

- Variables and Data types
- Arrays
- Pointers
- Memory management
- Loops
- Functions

*For reference, we use the timeless classic by Kernighan & Ritchie.*

Move onto Object-Oriented Programming:

- Understand why Object Oriented languages were created
- Solve another 100 problems using Objective-C, which is a super-set of C

*Our reference is the Apple documentation and the Big-Nerd Ranch book on Objective-C.*

### SUMMARY OF WEEKS 1 & 2:

In these two weeks you will also become familiar with Xcode (the clang compiler and the linker). You will start to grasp how to effectively debug your code using sophisticated tools such as the debugger.



## WEEK 3: PROJECT: DIGITAL LEASH

### BUILD A COMPLETE MOBILE APP WITH A CLOUD BACKEND.

### WHAT YOU WILL LEARN:

Get an early birds eye view of iOS app development. Build a complex app that involves JSON, HTTP calls and GPS. Here you will apply your programming skills to build a comprehensive app known as “Digital Leash”.

**Project:** Your goal will be to allow a parent to set up a geo-fencing monitor for their child. The parent sets a point (lat, long) and a radius (in miles) within which the child is supposed to be. If the child moves out of that radius, the parent is notified.

There are two apps, parent and child. The parent app lets you do three things:

- Create a parent user ID
- Set preferences for the parent
- Get status

*The child app does only one thing – once activated with the parent’s user ID, it constantly sends its location to a server. The backend is written in Rails and you will be provided with details on making REST calls.*

### SUMMARY OF WEEK 3:

In this week you will learn about major iOS classes for app development, using the device GPS, the delegate pattern in iOS, making network calls using HTTP and JSON for devicecloud communication and end-to-end debugging techniques (iOS, Network, Backend, Memory). You will also support different device screens using AutoLayout.



## WEEK 4: PROJECT: CALCULATOR

BUILD A CALCULATOR FROM FIRST PRINCIPLES USING ONLY THE MOST FUNDAMENTAL API'S

### WHAT YOU WILL LEARN:

Learn from first principles. You will build an app using only the fundamental API's to ensure a solid understanding of iOS.

**Project:** You will be using UIViews without view controllers and learn about:

- Drawing views
- Handling touch events
- Performing calculations and displaying results
- Support different device screens using AutoLayout

### SUMMARY OF WEEK 4:

At the end of this project, you should have a very good grasp of the UIView class and how events are handled in iOS.

A small digital clock display with a black background and blue LED-style digits showing the time 01:26:34.

## **WEEK 5:** PROJECT: DIGITAL CLOCK

### LEARN THE TOOLS AND BUILD A DIGITAL CLOCK

### **WHAT YOU WILL LEARN:**

You will now create a digital clock with the traditional LCD face.

**Project:** For this project, you will learn:

- How to use the Data/Time APIs
- Understand InterfaceBuilder in-depth
- Use AutoLayout to make your app work nicely in any orientation and on different devices such as iPhone 4, 5 and 6
- Add persistence and save the user's preferences for time-zone and display colors

### **SUMMARY OF WEEK 5:**

At the end of this project, you will apply the tools to build the digital clock and get deep with InterfaceBuilder and AutoLayout.



## WEEK 6: 2 PROJECTS: INFO ORGANIZER V1

### BUILD AN APP WITH A SOPHISTICATED USER INTERFACE

#### WHAT YOU WILL LEARN:

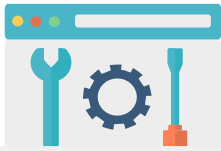
You will build a complex app with a 3-screen hierarchy and learn how to organize data in a single column table.

**Project 1:** The UI developed for the first project, Digital Leash, does not involve navigating between different screens. Here you will learn how sophisticated apps with multiple screens and hierarchies are built.

**Project 2:** Build a complex 3-level hierarchy based app to show various mobile companies, the products they make and an informational web page for each product. This app forms the basis of several other concepts you will be learning. Here you will use the Navigation Controller class in iOS and make extensive use of xib files, UITableView events, networking using NSURLConnection and NSURLSession and UIWebView for displaying web based information.

#### SUMMARY OF WEEK 6:

By the end of this week, you will build your first complex app that supports a hierarchical user interface.



## WEEKS 7,8,9: 3 PROJECTS: INFO ORGANIZER V2

### ADD DATA PERSISTENCE AND CACHING TO YOUR APP USING CORE DATA AND SQLITE

#### WHAT YOU WILL LEARN:

You will learn about the MVC design pattern in depth. The projects will give you first hand insight into how MVC works in practice and the benefits of MVC vs. not using MVC. You will specifically learn how you can easily switch out the M (model layer) with a different persistence technology or a different set of services.

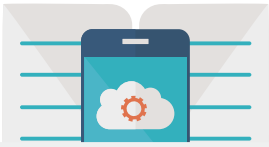
**Project 3:** You will be introduced to data persistence. We go in-depth with SQLite and CoreData. Beyond persistence, we also cover other aspects of CoreData useful for building any type of model layer.

**Project 4:** Next, you will learn about code refactoring as you go through the process of switching out the View or the Model API's in your apps. You will switch out a UITableView with UICollectionView on the view layer and Object archiving with SQLite, and finally with CoreData on the model layer.

**Project 5:** Finally, you will use Xcode instruments to identify memory leaks. In this process, you will also learn about Object Oriented Design and how to design and organize your classes effectively.

#### SUMMARY OF WEEKS 7, 8 & 9:

You will make use of design patterns and learn about data persistence using Object Archiving, SQLite and CoreData. For views, you will get in-depth with UITableViews and UICollectionViews.



## WEEK 10: 5 PROJECTS: ADVANCED PROJECTS

### WHAT YOU WILL LEARN:

We will pick up the pace and you'll be going through fairly advanced projects in a very short time. Your next five projects include the following:

**Project 6:** Creating UI programmatically. Understanding UIView geometry, bounds, frame and handling app rotation.

**Project 7:** Building hybrid apps using UIWebView.

**Project 8:** Restaurant browser: This app will use Google Places API to show restaurants near it's current location. You will learn both Apple maps and Google maps.

**Project 9:** Animation essentials using UIKitDynamics and the built-in Physics engine. Build your own Paddle Ball game.

**Project 10:** Integrating your apps with Facebook and Twitter. We teach both the built-in API's as well as direct API's

### SUMMARY OF WEEK 10:

During Week 10, your proficient programming skills will enable you to add maps and Facebook to your apps, build a Paddle Ball game and learn to build hybrid apps.





## WEEK 11: PROJECT: CLOUD CAMERA

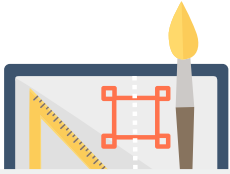
### WHAT YOU WILL LEARN:

You'll get in-depth with the Media API's in iOS and the Firebase APIs for interacting with the cloud.

**Project:** Now you will build a fairly sophisticated app that lets you take pictures and store all pictures in the cloud using Firebase's Cloud services.

### SUMMARY OF WEEK 11:

During Week 11, you will enable your app to integrate with Cloud technologies.



## WEEK 12: PROJECT: SKETCH FILES TO APP

### WHAT YOU WILL LEARN:

Get a taste of professional app development and bring graphic design into your app.

**Project:** You will start with pixel-perfect Sketch files provided by a designer and you'll create an app that matches the designs.

### SUMMARY OF WEEK 12:

During Week 12, you will learn to bring creative design and branding to an app.



## WEEK 13: PROJECT: SLO-MO VIDEO APP

### WHAT YOU WILL LEARN:

You'll build an app that takes videos at high frame-rates. This is an advanced app that requires you to have a deep understanding of AVFoundation classes.

**Project:** You will be saving videos in your app. You will also prepare a presentation that explains how you built the app, explain the API's you used and what the underlying architecture of your app consists of.

### SUMMARY OF WEEK 13:

Learning the ins and outs of AVFoundation and build a sophisticated slow motion video camera app.



## WEEKS 14, 15 & 16: INSTRUCTOR-SUPERVISED PRACTICAL TRAINING

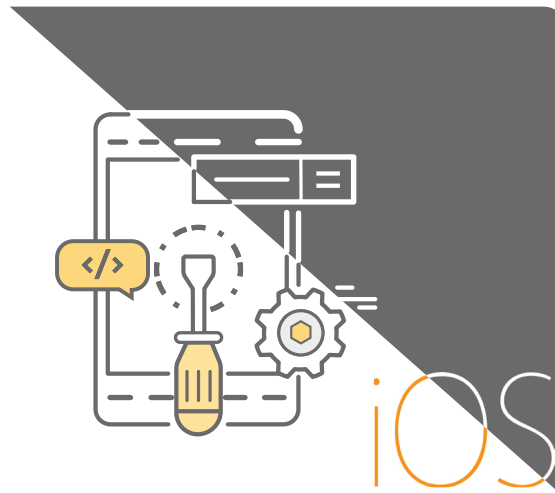
*Note: If you complete your coursework sooner, you can spend more time on the instructor-supervised practical training project.*

### WHAT YOU WILL LEARN:

You will now work on a professional project which is live or going live shortly on the app store. The code base will be much larger than anything encountered so far. It will have code written by several developers and you will be given specific assignments such as adding push notifications, fixing the animation behavior, etc. You'll be working closely with our experienced developers and others in your cohort.

### SUMMARY OF WEEKS 14, 15 & 16:

You'll work on one of our live apps and solve real-world problems. (Some of our current projects include an instant messaging app, an anonymous messaging app and a parking app.)



At the end of the course, you will be able to program fluently in Objective-C and/or Swift. You will use the iOS tools with confidence and build fully functional iOS apps of virtually any complexity.



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