**Course Title:** **ART40545** - Basics of Programming: iOS

**Course Description:** This class provides theoretical and practical knowledge to design and build iOS based solutions for iPhone, iPod Touch and iPad. It will teach the students various techniques in iOS development using the Swift and the Objective-C programming language.

**Prerequisites:** Fundamental understanding of programming concepts and basic knowledge of C/C++, C#, Java or one of the comparable programming languages.

**Instructor:** Kristian Secor (kdsecor@gmail.com) Emails will be responded to within 24 hours.

**Tutoring:** I will also create individualized screencasts based on requests.

**Classroom Location:** UC San Diego Extension, University City Center

6256 Greenwich Dr., San Diego, CA 92122

**Session:** Winter 2015

**Class Hours:** Wednesday 5:30 pm to 9:30 pm

**Course Length**: 11 Weeks, 44 Hours, 4 Credits

**Textbook**: Optional: [IOS 8 Programming Fundamentals](http://shop.oreilly.com/product/0636920034261.do?intcmp=il-prog-books-videos-lp-intsrch_iphone_ct)

Optional: [The Swift Programming Language](https://itunes.apple.com/us/book/swift-programming-language/id881256329?mt=11&ign-mpt=uo%3D8)

**Course Materials**

**And web site:** <http://mm214.com/ios.html>

**Course Competencies:** Upon successful completion of this course, the students should be able to:

* Understand iOS platform for mobile application development
* Understand iOS SDK, software stack and basic framework
* Use Mac development tools, iOS APIs, core libraries
* Understand iOS application life cycle, MVC, Cocoa fundamentals
* Understand and handle user interactions and touch events
* Develop applications for iPhone, iPod Touch and iPad
* Create elegant user interfaces using interface builder, views and core-animation
* Create and use SQLite databases in the client side
* Create and use maps and location-aware apps and services
* Sign and distribute the applications in the Apple’s App Store

**Weekly Course Outline**

**Week 1: Lecture:** Overview of the programming concepts, iOS platform and development tools. Learning how to learn. Beginning Swift and Objective C
**Lab / In Class Activity:** Download and install iOS SDK. Get familiar with Interface Builder, Xcode IDE. Write “Hello World” app for iOS.

**Homework:** Assignment 1

**Week 2: Lecture:** Cocoa and Cocoa Touch frameworks. MVC design pattern, composition, delegation. Development tools. User interface elements. Views and view controllers. iPhone OS app structure Memory management
**Lab / In Class Activity:** Basic Controls, User Interaction

**Homework:** Assignment 2

**Week 3: Lecture:** Cocoa/Model-View-Controller paradigm, Cocoa collections. Data persistence using property lists and archiving. MVC review and study, Modal view controllers, Debugging introduction, Differences between iphone and ipad
**Lab / In Class Activity:** Delegates, Data Sources (table and collection views)

**Homework:** Assignment 3

**Week 4: Lecture:** Views and embedding WebKit browser in your apps. Tab bar application style. Navigation-based application style introduction. Table view introduction. Navigation-based application style with table view. Apple iPhone OS Human Interface Guidelines

 **Lab / In Class Activity:** Creating and using views, embedding web browser, explicitly starting new activities, Tab bars, Persistence

**Homework**: Assignment 4

**Week 5: Lecture:** Files, saving state and preferences. Core Data technology introduction

 Navigation-based application that uses Core Data
**Lab / In Class Activity:** Saving application data. Creating and saving app preferences, nav style, read only
**Homework:** Assignment 5

**Week 6: Lecture:** Introduction to the databases (SQLite for iOS). Core Graphics introduction to 2D graphics. iOS device features…Accelerometer, Location, Camera, Address Book etc.
**Lab / In Class Activity:** Creating and using SQLite databases in the client side. Nav, Core Data, read/write

**Homework:** Assignment

**Week 7: Lecture:** Maps, geocoding, and location-based services, Blocks

 **Lab / In Class Activity:** Creating and using location aware applications using GPS and maps.

**Homework:** Project Stuff

**Week 8: Lecture:** Audio, video, camera, telephony and SMS.
**Lab / In Class Activity:** Using audio and video playback in apps, recording audio and video, taking pictures with camera, replacing native phone dialer.

**Homework:** Take Home Quiz

**Week 9: Lecture:** Debugging, Breakpoints…Flex Day (This day is expendable and based on course progress). It is expected that some overflow may roll into this day as there is a lot to cover!

 **Lab / In Class Activity: TBD**

 **Homework:** Work on project

**Week 10: Lecture:** Social Media,Using phone-gap. App signing and submission.
**Lab / In Class Activity:** Social Media/Twitter/Facebook apps

 **Homework:** Complete your projects and sign your apps.

**Week 11: Lecture:** Deploying to market. Tips for better sales. Recap of course. How to continue your growth,
**Lab / In Class Activity:** Project testing

**Grading Scale:** Grades on individual assignments and for the course will be calculated as follows:

|  |  |  |
| --- | --- | --- |
|  | A 93 -100 % | A- 90 - 92 % |
| B+ 87 - 89 % | B 83 - 86 % |  B- 80 - 82 % |
| C+ 77 - 79 % |  C 73 - 76 % | C- 80 - 72 % |
| D+ 67 - 69 % | 65 - 66 % D- 63 - 66 % | F 0 - 62 % |

**Project Grading Rubric:**

|  |  |
| --- | --- |
|  A  | Student performs in an outstanding way. Student exhibits excellent achievement and craftsmanship in all work. Student exceeds the design criteria and challenges him/herself to seek fresh solutions to design problems. Student exhibits commitment to expanding ideas, vocabulary and performance. |
|  B  | Student performs beyond the requirement of the assignments. Student exhibits above average progress and craftsmanship. Student meets and exceeds the design criteria. Student exhibits above average interest in expanding ideas, vocabulary and performance. |
|  C  | Criteria of assignment are met, and all requirements are fulfilled. Student exhibits average progress and improvement. Student spends the minimum time and effort on the assignments. Student exhibits moderate interest in expanding ideas, vocabulary and performance. |
|  D  | Student performance is uneven, and requirements are partially fulfilled. Student exhibits minimal output and improvement in work. Student does not meet the design criteria in all assignments. Student exhibits minimal interest in expanding ideas, vocabulary and performance. Student's attendance, participation and class involvement is less than adequate. |
|  F  | Student fails to meet a minimum of performance levels. Student does not exhibit achievement, progress or adequate levels of craftsmanship in any assignment. Student work is consistently incomplete or unsuccessful. Student's attendance, participation and class involvement is inadequate |

**Rules & Common Sense:** You’re encouraged to explore creative options for your projects, but YOU MUST COMPLY WITH ANY AND ALL LAWS AND ORDINANCES. Be creative but use common sense.

**Academic Honesty Statement:** DAC/CGD considers academic honesty to be one of its highest values. Students are expected to maintain the highest standards of academic honesty while pursuing their studies. Academic dishonesty includes but is not limited to: plagiarism and cheating; misuse of academic resources or facilities; and misuse of computer software, data, equipment or networks. Please be prepared to show your work product on any project upon request.

**Late work Policy:** No late work will be accepted without prior approval

**Attendance:** Students are expected to attend all classes on time as scheduled throughout the quarter.

**General Student Conduct:** We expect students to conduct themselves in a professional manner at all times. An integral part of a student’s career and professional development is the expectation that he/she will conduct themselves during the educational processes in the same manner as will be expected in an employment situation.