COT 5930 Mobile System Development-iOS

Credits: 3 credits

Text book, title, author, and year: There is no required textbook for this course. Instead, we will extensively use the documentation available at Apple's iOS Dev Center. Once you have installed the SDK you will have the documentation available locally in Xcode. You can also view it online at http://developer.apple.com.

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Specific course information:

Catalog description: This course is an introduction to software development for the iOS platform. Students will become familiar with the native object-oriented programming language used for development, Objective-C, as well as the design patterns necessary to carry out development of apps for iPhone, iTouch, and iPad. This includes proper Objective-C syntax, defining classes, and proper object-oriented techniques such as abstraction and inheritance. Common design patterns, such as the Model-View-Controller and Delegate patterns, will be discussed as a foundation needed to comprehend and take full advantage of the core objects used in the iOS Software Development Kit. Finally, we will dive into the vast library that makes up the SDK, and become familiar with many of the most commonly used APIs that are necessary for great iPhone applications. Throughout the term, we will discuss the theory of what makes a "great" iPhone application, such as proper design considerations, usability, and acceptable performance characteristics. Most of these guidelines are outlined by Apple, and many are required in order to meet the standards necessary to publish to the App Store, and as such, are just as important to an application as the code that drives it.

Prerequisites: Basic knowledge of programming (C-C++) and familiarity with the concepts of object-oriented programming.

Specific goals for the course: To provide a solid conceptual understanding of the main technologies associated with iPhone, iTouch and iPad development. To teach how to write object-oriented applications for iPhone, iTouch and iPad, using the Objective-C programming language and the Cocoa Touch framework on Mac OS X.

Brief list of topics to be covered:

- Introduction to mobile system development. Introduction to Mac OS X framework stack, Cocoa Touch, Obj C, Tools
- Objective-C classes, properties, methods, memory management
- Objective-C loose coupling with delegates and notifications. Memory & performance
- Views, Model-View-Controller and View Controllers

- XCode, Interface Builder, Storyboard, outlets, and actions. Advanced view controllers (Tab Controller, Navigation, etc.).Selection of student projects
- Table View basics. Advanced table views and cells
- Table views for hierarchical navigation. Modal views and notifications
- User input controls. Manipulating and storing data
- SQLite & Core Data (continuation of data storage)
- Multithreading .Performance tuning (techniques and tools). XML, JSON, and Web Services
- Quartz 2D. Multi-touch, accelerometer, location awareness
- iPad
- In-app purchases, push notifications, iAds
- Common coding standards, best practices, common patterns