COURSE OUTLINE

Course Number  IST 218  
Course Title  iOS Application Development  
Credits  4

Lecture hours  3  
Laboratory hours  2  
Pre-requisite:  COS102 or equivalent  
Implementation  Fall 2017

Catalog description:
Introduces students to the tools and skills needed to create apps for iPhone and iPad. Students learn the Swift programming language and use it with Xcode to create apps on the iOS platform.

Is course New, Revised, or Modified? Revised, Fall 2017

Required texts/other materials:
Reference Division Booklist

Revision date: N/A  
Course coordinator: Meimei Gao, X3483, gaom@mccc.edu

Information resources:
Apple developer web site (https://developer.apple.com/)

Other learning resources: LMS e.g. BLACKBOARD
Course Goals:

The student will be able to:

1. Describe iOS platform. (GE Goal 4, MCCC CS Goals D and E)
2. Install, configure and use iOS development environment. (GE Goal 4, MCCC CS Goals D and E)
3. Design user interface and use event-driven programming technology. (GE Goal 4, MCCC CS Goal B)
4. Develop software solutions using programming skills including user input, variables, control structures, classes/objects, and functions. (GE Goal 4, MCCC CS Goal B)
5. Build iOS application using Swift programming language with Xcode (GE Goal 4, MCCC CS Goal B)

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals
Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

MCCC Core Skills
Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.
Goal D. Information Literacy. Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
Goal E. Computer Literacy. Students will use computers to access, analyze or present information, solve problems, and communicate with others.

Units of study in detail.

Unit I  Introduction to iOS platform and Development Environment

Learning Objectives
The student will be able to…
• Describe iOS platform [CG1]
• Describe the components of iOS development environment [CG2]
• Use iOS development environment [CG2]
• Create and run a simple Swift program in Xcode [CG2]

Unit II  Basics of Swift

Learning Objectives
The student will be able to…
• Work with variables and constants. [CG4]
• Describe data types in Swift. [CG4]
• Use basic operators to create expressions. [CG4]
• Work with strings. [CG4]
• Read user input and output data. [CG3, 4]

Unit III  Control Flow in Swift

Learning Objectives
The student will be able to…
• Use selection structures in Swift. [CG 4]
• Use repetition structures in Swift. [CG4]

Unit IV  Functions in Swift
**Learning Objectives**

*The student will be able to…*
- Define and call functions. [CG 4]
- Use closures. [CG 4]

**Unit V  Object-Oriented Programming Using Swift**

**Learning Objectives**

*The student will be able to…*
- Define classes and structures. [CG 4]
- Create instances from classes and structures. [CG 4]
- Create and use properties, methods. [CG 4]
- Apply inheritance to classes in Swift. [CG 4]

**Unit VI  Working in the iOS Environment**

**Learning Objectives**

*The student will be able to…*
- Use iOS SDK and its components. [CG 2&4]
- Describe the architecture of iOS and the role of Cocoa Touch. [CG 1&2]
- Outline the app life cycle. [CG 1&2]
- Create a simple iOS app. [CG 2, 3, 4&5]

**Unit VII  Creating User Interface**

**Learning Objectives**

*The student will be able to…*
- Use labels, text fields and buttons. [CG 2&3]
- Create interactive apps with user interface. [CG 2, 3, 4&5]
- Add a navigation controller to an app. [CG2, 3, 4&5]
- Pass data between views. [CG2, 3, 4&5]

**Unit VIII  Table Views**

**Learning Objectives**

*The student will be able to…*
- Use table views and their functionalities. [CG 3, 4&5]
- Populate a table with data. [CG 4&5]
- Add new elements to a table view. [CG 4&5]

**Unit IX  Tab Bar View and Picker View Controls**

**Learning Objectives**

*The student will be able to…*
- Implement tab bar controllers. [CG 3, 4&5]
- Implement a picker view controller. [CG 3, 4&5]

**Unit X  Creating Multimedia Apps with Images and Sound**

**Learning Objectives**

*The student will be able to…*
- Add images to an app. [CG 3, 4&5]
- Play sound in an app. [CG 4&5]
- Play videos in an ap. [CG 4&5]

**Unit XI  Data Persistence**

**Learning Objectives**

*The student will be able to…*
- Work with persistent data. [CG 4&5]
- Use archiving to store data in a file system. [CG 4&5]
- Use SQLite to store data in database. [CG 4&5]
**Evaluation of student learning:**
Achievement of the course objectives can be evaluated through the use of the following tools:

- Labs and homework assessing students’ problem solving ability and programming skills. (CG 2, 3, 4 & 5)
- Tests assessing students’ comprehension of programming environments and concepts. (CG 1, 3, 4, & 5)
- A term project to assess the students’ ability to solve relatively complex problems using formal programming language. (CG 2, 3, 4 & 5)

Specific methods for evaluating student progress through the course are up to the discretion of the instructor. Below is an example of grade breakdown:

<table>
<thead>
<tr>
<th>The final grade is based on the following values:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle Term Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Laboratory &amp; Project Assignments</td>
<td>45%</td>
</tr>
<tr>
<td>A Term Project</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Academic Integrity Statement:**

As per the student handbook, “A student will be guilty of violating academic integrity if he/she (a) knowingly represents the work of others as his/her own, (b) uses or obtains unauthorized assistance in the execution of academic work, or (c) gives fraudulent assistance to another student.” Students should read the Academic Integrity policy in the MCCC Rights and Responsibilities Student Handbook. *Academic Dishonesty will result in failure of this course.*