

Course Description**COP2664 | iPhone Application Development 1 | 4.00 credits**

This is an introduction to iOS programming course using the Objective C computer language, recommended for Computer Science and Computer Information Systems majors. Students will learn to code, compile, and execute mobile iOS applications while learning advanced programming concepts and object-oriented programming design concepts and principles. Prerequisite: COP1332 or COP1334.

Course Competencies:

Competency 1: The student will demonstrate an understanding of the professional software development process by:

1. Designing and documenting solutions at the method level by writing pseudo code or developing flow charts for development before writing the code
2. Designing and documenting solutions at the project level by using an object-oriented design technology such as UML or CRC cards
3. Coding software solutions following professional coding style guidelines
4. Incorporating adequate and meaningful comments into the source code
5. Testing and designing tests of software solutions
6. Debugging program code

Competency 2: The student will demonstrate an understanding of fundamental programming constructs and concepts by:

1. Using appropriate data types for programming assignments
2. Using Boolean, comparison, arithmetic and object (instance of) operators in their programs
3. Explaining the properties of a variable such as its name, value, scope, persistence, and size
4. Distinguishing between expressions and statements
5. Identifying and using the three control structures (sequence, selection and repetition)

Competency 3: The student will demonstrate an understanding of the following advanced programming techniques by:

1. Parsing a string and using other string manipulation techniques
2. Using arrays to process aggregate data
3. Using object composition (object references) to build more complex objects

Competency 4: The student will demonstrate an understanding of the object-oriented programming concepts of Class and Object by:

1. Identifying and using instance variables and instance methods
2. Using programming, and identifying constructors
3. Explaining the process of object instantiation
4. Using programming and identifying accessor and mutator methods
5. Using programming and identifying class (static) variables and class (static) methods
6. Using programming and identifying overloaded methods and constructors

Competency 5: The student will demonstrate an understanding of inheritance by:

1. Explaining the benefits of inheritance
2. Creating a class that extends a parent class
3. Explaining the restrictions imposed when using inheritance
4. Overriding and overloading parent class functions within a child class
5. Distinguishing between inheritance of implementation (extends) and inheritance of design (implements)
6. Creating a class that implements an interface
7. Creating a class that extends an abstract class

Competency 6: The student will demonstrate an understanding of object-oriented design concepts by:

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1. Using visibility modifiers (public, private, protected) to implement appropriate abstraction and encapsulation
2. Explaining coupling and how to achieve loose coupling
3. Explaining cohesion and how to achieve high cohesion
4. Writing a program that demonstrates polymorphism

Competency 7: The student will demonstrate an understanding of Java input and output (I/O) by:

1. Describing I/O
2. Creating programs that use console I/O
3. Creating programs that use file I/O

Competency 8: The student will demonstrate an understanding of exception programming techniques by:

1. Describing exceptions
2. Encapsulating exceptions
3. Throwing and catching exceptions

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Use computer and emerging technologies effectively