**I.** **COURSE TITLE:** Computer Programming Logic

 **COURSE NUMBER:** 2255 **CATALOG PREFIX:** CSCI

**II.** **PREREQUISITES:** CSCI 1120

**III.** **CREDIT HOURS:** 3 **LECTURE HOURS:** 2

 **LAB HOURS:** 1 (2 contact hours) **OBSERVATION HOURS:**

**IV.** **COURSE DESCRIPTION:**

This course is designed to introduce basic programming and logical thinking skills. Students will learn problem definition, how to develop logical problem solving steps and then flowchart and diagram them. This course gives hands-on experience.

 **V.** **ADOPTED TEXT(S):**

*An Object-Oriented Approach to Programming Logic and Design, 4th Edition*

Author: Joyce Farrell © 2013

ISBN-10: 1133188222, ISBN-13: 9781133188223

1. **COURSE OBJECTIVES:**

Includes introductions to:

* Pseudocode and Flowcharts
* Literals, Variables and Named Constants
* Arithmetic Operations
* Comparison Operators
* Making Decisions
* Looping
* Arrays
* Methods
* Overloading Methods
* Principles of Object-Oriented Programming
* Inheritance
* Event-driven Programming with GUIs
* Sorting Data

**VII**. **COURSE METHODOLOGY:**

May include but not limited to: lecture, independent and group programming projects, in-class and at-home assignments, tests and quizzes

**VIII. GRADING**:

 Grading will follow policy in catalog.

100 – 90 = A

 89 – 80 = B

 79 – 70 = C

 69 – 60 = D

 59 – 00 = F

**IX. COURSE OUTLINE/SAMPLE COURSE CALENDER:**

 Chapter 1 An Overview of Computer Programming – Week 1

* Simple programming logic
* History of programming techniques
* Pseudocode and flowcharts

 Chapter 2 Applications and Data – Week 2

* Main() method
* Literals, variables, and constants
* Arithmetic operations

 Chapter 3 Making Decisions – Week 3

* Relational operators
* AND and OR logic
* Making selections

 Chapter 4 Looping – Week 4

* Loop basics
* While loops
* For loops
* Common loop mistakes

 Chapter 5 Arrays – Week 5

* Manipulating arrays
* Searching arrays
* Parallel arrays

 Chapter 6 Methods – Week 6 and Week 7

* Local and global variables
* Passing arguments
* Returning a value
* Overloading Methods

Chapter 7 Object-Oriented Programming Concepts – Week 8 and 9

* Classes and class diagrams
* Public and private access
* Instance methods
* Class methods
* Using objects

 Chapter 8 More Object Concepts – Week 10 and 11

* Constructors and Destructors
* Inheritance
* Overriding base class methods

 Chapter 9 Event-Driven Programming/Graphical User Interfaces – Week 12

* Event-driven programming
* Designing graphical user interfaces
* Multithreading

 Chapter 10 Exceptions Handling – Week 13 and 14

* Exceptions
* Throwing and catching exceptions
* Advantages to exception handling
* Creating your own exceptions

Chapter 12 Manipulating Large Quantities of Data – Week 15

* Sorting data
* Swapping values
* Multidimensional arrays

**X.** **OTHER REQUIRED TEXTS, SOFTWARE AND MATERIALS:**

 None

**XI.** **EVALUATION:**

 Instructor will specify which criteria apply to a particular assignment.

 Students will complete multiple exercises.

 Other assignments, projects, and exercises may be assigned and graded at the discretion of the instructor.

1. **SPECIFIC MANAGEMENT REQUIREMENTS:**

None

1. **OTHER INFORMATION:**

**FERPA**: Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes.

 Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

 **DISABILITIES**: Students with disabilities may contact the Disabilities Service Office, Central Campus, at 800-628-7722 or 937-393-3431.