Department Master Syllabus
Camden County College
Blackwood, New Jersey

Course Title: CSC-121 Structured Programming (C ++)

Department/Program Affiliation: Computer Science

Date of Review:

Date of Revision: January 2017
(This Department Master Syllabus has been examined by the program/department faculty members and it is decided a change requiring a revision is necessary at this time.)

Credits: 4

Contact Hours: Lecture 4 Lab 0 Other 0

Prerequisites: None

Co-requisites: None

Course Description:
This course emphasizes top-down structured design and managing program complexity through abstraction. The fundamentals of ANSI C are covered while stressing good software engineering practices. Topics covered include: data types, arithmetic, control structures, functions, recursive functions, ANSI C libraries, scope of identifiers, arrays, pointers, strings, structures, files and simple sorting techniques.

Course Student Learning Outcomes:
Upon completion of this course, the student will be able to:

- Develop and implement algorithms through the process of top-down, stepwise refinement as assessed by graded programming projects
- Design and develop programs that use functions to input data from the standard input stream and output data to the standard output stream as assessed by graded homework assignments and graded programming projects
- Implement programming solutions which use selection, repetition, and sequential control structures where appropriate as assessed by graded homework assignments and graded programming projects
- Demonstrate through program development the use of the various arithmetic, assignment and logical operators as assessed by graded homework assignments, graded programming projects and graded exams
- Construct modular programs using functions that pass arguments both by value and by reference as assessed by graded homework assignments, graded programming projects and graded exams
- Write programs demonstrating the use of one-and two-dimensional arrays and strings as assessed by graded homework assignments, graded programming projects and graded exams

General Education Student Learning Outcomes (if applicable):
N/A

Course Outline:

1. Introduction to Computers and C++ Programming

    - Computer Systems
    - Programming and Problem Solving
    - Introduction to C++
    - Testing and Debugging

2. Basic Program Structure

    - Variables and Assignments
    - Input and Output
    - Data Types and Expressions
    - Simple Flow of Control
    - Program Style

3. More Flow of Control

    - If/else statements
    - C++ loop statements
    - Using Boolean Expressions

4. Procedural Abstraction and Functions that Return a Value

    - Top Down Design
    - Predefined Functions
    - Programmer-Defined Functions
    - Procedural Abstractions
    - Local Variables

5. Functions for all Subtasks

    - Void functions
    - Call by Reference Parameters
    - Using Procedural Abstraction
    - Testing and Debugging Functions

6. Advanced Control Flow

    - Introduction to Arrays
    - Arrays in Functions
    - Programming with Arrays

Course Activities:
The classroom activities will include formal and informal lectures where new material and assigned

problems will be explained. Students will have the opportunity to contribute to the discussion and to ask questions about the material. "Hands-On" work on the computer will be done during class and outside of the regularly scheduled classroom hours.

Assessment of Student Learning Outcomes:
The students will be evaluated on the degree to which student learning outcomes are achieved. A variety of methods may be used as tests, class participation, projects, homework assignments, etc. (There must be some evidence that the learning outcomes have achieved).

Course Materials:
Textbook(s): Problem Solving with C++, latest edition, by Walter Savitch, Pearson Publishers

Supplemental Materials: Announced first day of class as needed.