

Common Course Outline
CINS 225
Introduction to C/C++ Programming
4 Semester Hours
The Community College of Baltimore County

Description

Introduction to C/C++ Programming

Discusses procedural techniques and includes coverage of data types and program structures, basic I/O functions, and arithmetic operators; emphasizes applications using arrays, pointers, functions, structures, and files.

3 credits: 2 lecture hours, 2 laboratory hours.

Prerequisite: CINS 101 or consent of the Program Director.

Overall Course Objectives

Upon completion of this course the student will be able to:

1. Identify the steps in the software design process.
 - Design algorithms and translate them into working solutions using a procedural language.
 - Implement modular structures using user-defined functions.
2. Identify the data types and variable naming conventions.
3. Demonstrate how to do calculations.
4. Demonstrate inputting and outputting of data.
5. Identify techniques for formatting data.
6. Construct programs using the 3 control structures: sequence, selection, and repetition.
7. Write programs using arrays and pointers.
8. Write programs using character strings.
9. Use bitwise manipulators.
10. Identify, explain, and discuss data organization.
 - Demonstrate sequential file processing.
 - Demonstrate text file processing.
 - Define structures.
11. Demonstrate the importance of testing and validating the solution.

Major Topics

- I. Role of different programming languages
 - A. Procedural
 - B. Event-driven
 - C. Object-oriented
- II. Program development cycle
 - A. Design the solution
 - B. Code
 - C. Test
 - D. Document

III. Identifiers

- A. Variables
- B. Constants
- IV. Input and output
 - A. Accepting data from the keyboard
 - B. Formatting output
- V. Calculations
- VI. Selection
 - A. Simple If
 - B. Nested If
 - C. Switch
- VII. Repetition
 - A. while structure
 - B. do structure
 - C. for structure
- VIII. Functions
 - A. User-defined
 - B. Local/global variables
 - C. Storage classes
- IX. Arrays
 - A. One and two dimensional arrays
 - B. Passing to functions
- X. Pointers
- XI. Character strings
 - A. Processing strings
 - B. String functions
- XII. Bitwise manipulators
- XIII. Data files
 - A. Data vocabulary
 - B. Sequential files
 - C. text files
- XIV. Structures

Course Requirements

Grading: Grading procedures will be determined by the faculty member, will be provided the first week of class, and will include:

1. Minimum of 5 programming projects
2. Minimum of 2 tests
3. Comprehensive final or programming project

Other Course Information

This course is meets the programming language requirement in CIS: Programming and is a CIS elective.

This course is taught in a computerized environment.

This course is the first course in a two-course sequence.