CSIT 210
Introduction to Programming
4 Credits

Community College of Baltimore County
Common Course Outline

Description

CSIT 210 – Introduction to Programming: provides an introduction to computer science through the development of problem-solving skills using accepted programming practices. An overview of algorithm design, data structures, and fundamental syntax of an object-oriented language is provided. Topics include data types, control structures, file I/O, classes, objects, methods, and arrays.

Co-requisites: CSIT 111 or permission of the program director

Overall Course Objectives

Upon completion of this course, students will be able to:

1. use an object-oriented programming language for problem solving;
2. design algorithms that will be translated into working solutions;
3. demonstrate the importance of testing, debugging, and validating the solution;
4. identify data types and variable naming conventions;
5. develop programs that perform correct calculations to solve problems;
6. demonstrate how to input and output data from the keyboard and files;
7. identify techniques for formatting data;
8. construct programs using control structures;
9. develop algorithms using primitive data types, operators, and expressions;
10. construct programs that use arrays;
11. design classes including properties, methods, and constructors;
12. solve various programming problems using objects; and
13. develop basic GUI (Graphical User Interfaces) using various programming components.

Major Topics

I. Role of different programming languages
    a. Procedural
    b. Event-driven
    c. Object-oriented
II. Introduction to a structured language
    a. Logic diagrams
    b. Use of Integrated Development Environment

III.   Program development cycle
   a. Design the solution
   b. Code
   c. Test
   d. Document
IV.   Data Types
V.   Boolean and Arithmetic Expressions
VI.   Input and output
   a. Accepting data from the keyboard
   b. Formatting output
VII.   Selection
   a. Simple IF
   b. Nested IF
   c. Switch
VIII.   Repetition
   a. While loop
   b. Do loop
   c. For loop
IX.   Methods and Classes
X.   Data Files
   a. Data vocabulary
   b. Sequential files
   c. Text files
XI.   Arrays
XII.   Debugging Techniques
   a. Use of loop invariants
   b. Use of method preconditions and postconditions
   c. Program tracing, testing, documentation, and verification
   d. Exceptions
XIII.   Graphical User Interfaces
   a. Components used in developing a GUI window
   b. Complex GUI using layouts
   c. ActionListeners

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Five comprehensive programming projects
- Two tests
- Comprehensive final exam or capstone programming project

Other Course Information

Many 4-year colleges recommend that students complete both CSIT 210 and CSIT 211 in sequence for transferability.