

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

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For more information, see your professor's syllabus.

- 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.

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