

Common Course Outline

CINS 111

Logic and OO Design

3 Semester Hours

The Community College of Baltimore County

Description

CINS111 – 3 Credits - Logic and OO Design introduces logical methods and object-oriented (OO) design concepts used in the development of software applications and the organization of data. Students develop solutions to real-world problems by creating algorithms using various software development techniques including functional decomposition, flow charting, pseudocode, and object-oriented development concepts.

Prerequisites: ENGL 051 or ESOL 042 and RDNG 051 or ESOL 044 and MATH 082

Overall Course Objectives

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

1. define the software development life cycle;
2. identify the various data organization formats;
3. compare the various data organization techniques;
4. distinguish between data structures and processing commands;
5. apply the sequence, selection and repetition structures to program design;
6. apply the basic structures of software engineering to software application development;
7. break down (decompose) a simple problem into functions;
8. apply data flow techniques, simple object-oriented techniques, and object-based techniques to a simple problem domain;
9. identify the strengths and weaknesses of the various development methods;
10. identify examples of the various development methods;
11. analyze the effect of the global nature of business and teamwork required in software development; and
12. assess websites when researching topics such as outsourcing and Unified Modeling Language (UML).

Major Topics

- I. Overview of computers and logic
 - A. Introduction to programs
 - B. Flowcharting and pseudocode
- II. Comparison of programming languages
- III. Number systems/ASCII code
- IV. Program structure
- V. Modules, hierarchy charts, and documentation
- VI. Writing a complete program
- VII. Making decisions
- VIII. Looping
- IX. Arrays/vectors
- X. Sorting and indexing
- XI. Validating input
- XII. Modularization techniques
- XIII. Object-oriented programming techniques
- XIV. Programming graphical user interfaces
- XV. Unified Modeling Language (UML)

Course Requirements

Grading: Grading procedures will be determined by the faculty member but will include the following:

1. Minimum of 6 logic projects*
2. Minimum of 2 tests
3. Comprehensive final exam

*These projects will include collaborative work, written portions and oral presentations as assigned by the faculty member.

Other Course Information

This course is required in the Information Technology degree.
This course is taught in a computerized environment.