Common Course Outline

EBUS 106

Fundamentals of Program Design

1 Semester Hour

The Community College of Baltimore County

Description

Fundamentals of Program Design is designed to introduce the basic theory of programming. Students will learn the steps in the programming process and the three basic logic structures. This course builds a foundation in programming logic that may be applied to any programming problem and/or language.

Co-requisites: EBUS 101 and EBUS 102 or permission of program coordinator

Overall Course Objectives

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

1. describe the steps in the programming process;
2. identify methods of analyzing a problem and developing a solution;
3. divide a problem into sub-tasks utilizing modular structures;
4. identify the three basic programming/logic structures;
5. draw a flowchart;
6. write pseudocode; and
7. distinguish between structured programs and event-driven programs.

Major Topics

I. Basic Object-Oriented Concepts
   - A. Class versus Object
   - B. Class Attributes
   - C. Methods
   - D. Encapsulation
   - E. Inheritance and Polymorphism

II. Models and UML Notation
   - A. System Development and Models
   - B. Use Cases, Scenarios, and the Use Case Diagram
   - C. The Class Diagram
   - D. Time-Dependant Behavior Models
   - E. Object Interaction Models

III. Object-Oriented Requirements Models
   A. A Single Class System
   B. System with Two Classes and a Message
   C. Comparing the Class Diagram with a Data Flow Diagram
   D. Generalization/Specialization Hierarchies and Use Inheritance
   E. Whole-Part Hierarchies
IV. Object-Oriented System Development Life Cycles
   A. System Development Life Cycles: An Overview
   B. An Overview of Object-Oriented System Development Methodologies

Course Requirements (List only those requirements that will be common to all sections of the course.)

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

- Minimum of 3 mini-cases studies and/or minimum of 1 test.
- Comprehensive final or project

Writing: The individual faculty member will determine specific writing assignments.

Other Course Information

- This course is a required course for the Technology Track of the E-Business Program and a prerequisite for other programming courses in the program.
- This course is taught online.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

Date Revised: 12/01/02