

COURSE OUTLINE

CMSY-121 Structured Logic and Program Design 3 Semester Hours

HOWARD COMMUNITY COLLEGE

Description

Upon completion of this course, students will have acquired the skills needed to design and document structured solutions to various programming applications. A variety of problem solving tools will be introduced, as will data representation, documentation techniques and the use of various editors. Prerequisite: Eligible to enroll in ENGL-121 and MATH-061.

Overall Course Objectives

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

1. Apply the concepts of structured logic to develop structured programs.
2. Identify design and programming techniques/styles which aid in program creation and maintenance.
3. Analyze written problem specifications and divide those specifications into logical groupings or modules.
4. Translate those problem specifications into problem solutions using acceptable logic constructs and principles of structured design.
5. Develop and document the design of a program using flowcharts.
6. Develop and document the design of a program using pseudocode.
7. Develop and document the design of a program using hierarchy charts.
8. Convert the designs into structured programs using high-level languages.
9. Use various editors to enter programs into a micro-computer.
10. Use various editors to enter programs into a main-frame computer.

Major Topics

- I. Planning and Documentation Tools
 - A. Flowcharts
 - B. Pseudocode
 - C. Hierarchy Charts
 - D. Input and Output Record Layouts
 - E. Printer Spacing Charts

- II. Logic Constructs
 - A. Sequence
 - B. Selection
 - C. Looping—Automatic and Controlled (FOR, WHILE, DO-WHILE)

- III. Algorithm Development
 - A. Structured
 - B. Top-Down Approach
 - C. Modular

- IV. Editors
 - A. BASIC Interpreter
 - B. Borland's Editor/IDE
 - C. Hewlett-Packard's TDP

- V. Structured Programming
 - A. Design and Techniques
 - B. Use of High-Level Language(s) in Program Development

- VI. Number Systems and Data Representation
 - A. Bits and Bytes
 - B. Binary Number System
 - C. Hexadecimal and ASCII Number Systems

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member, but will include at least six projects and two tests.

Other Course Information

Meets college definition for an Arts and Science elective and a Business elective.