

C-ID Descriptor

Introduction to Programming Concepts and Methodologies

Descriptor Details

- **Descriptor Title:** Introduction to Programming Concepts and Methodologies
- **C-ID Number:** 112
- **Units:** 3.0
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General Description

This course must be taught using an object-oriented programming language. Its purpose is to expose students to the fundamental concepts of programming.

Prerequisites

No information provided

Corequisites

No information provided

Advisories

Basic knowledge of computer usage.

Content

1. Software life-cycle including design, development, styles, documentation, testing and maintenance
2. Procedural versus objected oriented programming
 - a. Survey of current languages

3. Program design tools and programming environments
4. Documentation
5. Coding conventions
6. Data types, variables, expressions, sequential processing
7. Arrays
 - a. Declaring and allocating arrays
 - b. Multiple-subscripted arrays
8. Control structure
 - a. Selective structures: if and switch
 - b. Repetitive structures: loops
9. Algorithms including simple sorting and searching
10. File I/O
 - a. Files and streams
 - b. Sequential access files
11. Error handling
12. Passing parameters by value and by reference
13. Principles of testing and designing test data

Lab Activities

No information provided

Objectives

At the conclusion of this course, the student should be able to:

1. Describe the software development life-cycle.
2. Describe the principles of structured programming and be able to describe, design, implement, and test structured programs using currently accepted methodology.
3. Explain what an algorithm is and its importance in computer programming;

Evaluation Methods

Exams
Quizzes
Programming Projects

Discussions
Class Presentations

Textbooks

Savitch, Walter: Problem Solving with C++ Latest Edition

Deitel, H.M. & Deitel, P.J. (2010). *C++ : How to Program (paper)* (7th ed.). [ISBN: 0136117260]