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| **Computer Programming -1** | **Module Title:** |
| **CSC 112** | **Module ID:** |
| **None** | **Prerequisite:** |
| **1** | **Level:** |
| **3 (2+2+1)** | **Credit Hours:** |

Module Description:

Data types, variables, assignment, general structure of a program; Input/Output; Arithmetic expression; Introduction to Classes and Objects; Relational operators; Boolean expression, logical operators; conditional Statements: If. Else, Switch; Loop: for, while, do .. while; Methods: Constructor, getter/setter, Method overloading; Array; Exception handling.

Module Aims:

* Construct error-free C++ programs.
* Divide a problem into its logical components.
* Understand the basic structured programming concepts.
* Design and code small to medium sized problems from the start using C/C++ constructs, such as input/output statements, if-then-else statements, while and for loops, functions
* Employ some of the available data structures in C++ such as built-in data types, arrays and pointers to solve programming problems.
* Use the required developments tools to write, compile, trace and debug C++ programs.

Learning Outcomes:

* Identify the basic components of a computer system.
* Design an algorithm to solve a given problem using the top-down design approach.
* Know the difference between call-by-value and call-by-reference parameters.
* Understand the notion of procedural abstraction.
* Understand and use the three basic programming structures: sequence, selection, repetition.
* Use arrays, strings and pointers to manipulate data.

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| List of Topics | No. of  Weeks | Contact Hours |
| Chapter 1  Introduction to computers and basic programming concepts and constructs  writing simple C programs  main parts of C programs  main function  variables  built-in data type | 2 | 6 |
| Chapter 2  [Using](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video2_1/video2_1.html) cout and cin  [Variable Definitions](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video2_2/video2_2.html) | 2 | 6 |
| Chapter 3  [The if Statement](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video4_1/video4_1.html)  [The if/else Statement](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video4_2/video4_2.html)  [The if/else if Statement](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video4_3/video4_3.html)  switch Statement | 2 | 6 |
| Chapter 4  [The while Loop](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video5_1/video5_1.html)  The do while Loop  [The for Loop](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video5_2/video5_2.html) | 3 | 9 |
| Chapter 5  [Functions and Arguments](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video6_1/video6_1.html)  [Value-Returning Functions](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video6_2/video6_2.html) | 2 | 6 |
| Chapter 6  [Accessing Array Elements with a Loop](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video7_2/video7_2.html)  Passing an Array to a Function | 2 | 6 |
| Chapter 7  [The Binary Search](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video8_1/video8_1.html)  [The Selection Sort](http://media.pearsoncmg.com/aw/aw_gaddis_sowcso_6/videos/VIDEOS/video8_2/video8_2.html) | 2 | 6 |

Textbook:

C++: How To Program, Deitel and Deitel, 5th edition, Prentice Hall, 2005.