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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. ofWeeks | Contact Hours |
| Chapter 1 Introduction to computers and basic programming concepts and constructs writing simple C programsmain parts of C programsmain function variablesbuilt-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.