

1. Course Number and Name: 012 CSM –Computer Programming-1

2. Credits and Contact Hours: 3 Credits

- a. Lecture – 2 Days per Week at 50 Min for 16 weeks
- b. Laboratory – 1 Dayper Week at 100 Min for 16 weeks

4. Text Book:

- 'Problem Solving with C++'. Walter Savitch 3rd Ed.

3.Course Coordinator or Instructor:

Mr.OmarAlqahtani

5. Specific Course Information:

a. Catalog Description:The course introduces the student to fundamental concepts of programming using structured programming language. Topics covered include basic programming tools, variable names, data types, operators and operands, conditional and iterative structures, program composition of functions and function definitions, parameter passing to functions, library function concepts are introduced.

b. Prerequisites:011CSM Introduction to Computer

c. Status: Required

Learning Outcomes:Define the fundamental concepts of programming using a structured programming language such as C++.

- Describe the procedure to use basic programming tools
- Recognise the applications of C++ programming
- Compare data types using Programming
- Analysis the of data relationship using different programs
- Define the principles underlying array data structures and string manipulation
- Compose Algorithm and flowchart design
- Write program in C++ using Algorithm And flowchart

Course LOs #	Map course LOs with the program LOs.											
	Program Learning Outcomes											
	a1	a2	b1	b2	b3	b4	b5	c1	c2	c3	d1	d2
1	√											
2							√					
3							√					
4			√									
5					√							
6	√		√									
7			√									
8					√							

List of Topics: 012 CSM – Computer Programming-1

List of Topics for theory

- **Programming and Problem-Solving:** Algorithms and Flowchart Program Design, Introduction to C++, Origins of C++ Language
- **C++ Basics:** Variables and Assignments, Variables, Names: Identifiers Variable Declarations, Assignment Statements Data Types and Expressions: The Types int and double, Other Number Types, The type char, The type bool, Type Compatibilities Arithmetic Operators and Expressions and Logical Operators and , Increment and decrement Operators.
- **Input and Output:** Output Using Cout, Include Directives and Namespaces, Escape Sequences, Formatting for Numbers with a Decimal Point, Input Using Cin, Designing Input and Output.
- **Conditional Statements:** if Selection Statement if...else Double selection Statement, Multiple Selection Statements Switch Case.
- **Looping / Control Statements:** For, While and do while Repetition statements.
- **Introduction to Arrays Declaration**
- **Operations over arrays (Searching and Sorting)**
- **Multi-Dimensional Arrays and Operations on Matrices**
- **User Defines Functions, passing values to the functions by value and by reference**
 - File Processing (input/output)
 - Defining Structure
 - Defining Classes and Objects

List of Topics for Lab:

- **Introduction to C++ Software:** Compiling and Executing a C++ program
- **If()** Find the max and min of two numbers. Find the max and min of three numbers. Find the number is odd and even. Find the number is negative or positive. Find the leap year.
- **If else if() else** Calculate a student percentage. Calculate a student grade. Switch case Menu driven programs Case1: case 2: case 3: (addition, subtraction, multiplication, division) etc. Program to find the day of the week using switch case.
- **Loops(while, do-while, for)** Program to display 1 2 3.....30. Program to display 50 49 48.....1. Program to display an even number. Program to display an odd number.
- **Program to display patterns.**
- **Functions**
- **Arrays**
- **Sorting**
- **File Processing**
- **Class and Object**