AMSW02 PROGRAMMING USING C AND C++

UNIT-1 DATA TYPES AND INPUT- OUTPUT

1.1 Introduction to the C Language- The C Language and its Advantages- The Structure of a C Program -Data Types, Variables, Constants-

1.2 Operands, Operators, and Arithmetic Expressions- Input/ Output Management- The getchar() and putchar() Functions.

1.3 Single-character I/O- string I/O- Formatted Input and output Function.

UNIT-2 CONTROL STRUCTURES & FUNCTIONS

2.1 Introduction- goto statement- If-else statement- nested if-else statement- switch statement - for loop - nested for loop- while loop- do-while loop- break statement- continue statement- exit() function.

2.2 Functions: Introduction- Call by Value and Call by Reference- return values- recursion- Arrays- Introduction to Arrays- Initialization of Array

2.3 Multi-dimensional Arrays- passing arrays to functions-Strings- Arrays of Strings - Standard Library String Functions.

UNIT-3 POINTERS, STRUCTURES & FILES

3.1 Pointers – Introduction-definition - address operator-pointer variables-pointers to pointers- pointers and arrays- -pointers and functions

3.2 Files-Introduction- File Structure- File handling functions- File Types- Error Handling- Structure – Introduction-declaring- initialization- Operations on Structures

3.3 Array of Structures- Pointers to Structures- Unions- Differences between Unions and Structures- Operations on Unions- Scope of a Unions.

UNIT-4 INTRODUCTION TO OOP, CLASS & OBJECT

4.1 Object Oriented Programming Paradigm- Basic Concepts of OOP- Benefits of OOP- Object Oriented Languages- Features of OOP-

4.2 How OOP Differ from Procedure Oriented Programming-applications of OOP-a Simple C++ Program- structure of C++ Program-basic Data Types in C++- Operators in C++ -

4.3 Scope Resolution Operator- Member Dereferencing Operators- memory management operators- Introduction of Classes-Inline member functions-Objects

4.4 Arrays of Objects- Objects as Function Arguments- Static data member and static member functions – Constructors- Parameterized Constructors

4.5 Default Argument constructors - Copy Constructors- Destructors – Friend functions.

UNIT-5 POLYMORPHISM, TEMPLATES & EXCEPTION HANDLING

5.1 Introduction to Operator overloading- Rules for Operator overloading- overloading of binary and unary operators-Introduction to inheritance

5.2 Types of inheritance- Abstract Classes- new Operator and delete Operator- Pointers to Objects- this Pointer- Virtual Functions- Pure Virtual Functions

5.3 Introduction to Class Templates- Function Templates-Member Function Templates

5.4 Basics of Exception Handling- Types of exceptions- Exception Handling Mechanism
5.5 Throwing and Catching Mechanism- Rethrowing an Exception- Specifying Exceptions.

Reference Books:

1. Kashi Nath Dey, "C Programming Essentials 1/e", Pearson Education, 2011.
2. Madhusudan Moth , "C ++ Programming : A practical Approach, 1/e", 2012.
3. Venugopal K.R, "Mastering C", Tata McGraw- Hill, 2010.
4. Venugopal K.R, "Mastering C++", Tata McGraw- Hill, 2010.