

Object-Oriented Programming through C++

MCS-502

BLOCK - 1

UNIT 1: Principles of object oriented programming

Object oriented programming paradigm, Comparison with procedural programming, Basic concepts of object oriented programming, benefits of OOP, object oriented Languages, advantage of C++.

UNIT 2: Object Orient Programming System

Class, inheritance, abstraction, encapsulation and information hiding, polymorphism, overloading.

UNIT 3: Advanced concept

Dynamism (Dynamic typing., dynamic binding, late binding, dynamic loading). Structuring programs, reusability, organizing object oriented project,

BLOCK - 2

UNIT 5: Overview of C++

Tokens, keywords, identifiers and constants basic data types, user-defined and derived Data types, type compatibility, reference, variables type Casting, operator precedence, control structures, structure, function.

UNIT 6: Classes and objects

Class specification, class objects, accessing class members, scope resolution operator, data hiding, empty classes, Pointers within a class, passing objects as arguments, returning objects from functions, friend Functions and friend classes, constant parameters and member functions, structures and Classes, static members.

UNIT 7: Object initialization and cleanup

Constructors destructor, constructor overloading. order of construction and destruction, Constructors with default arguments, nameless objects, dynamic initialization through Constructors, constructors with dynamic operations, constant objects and constructor, static Data members with constructors and destructors, nested classes.

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UNIT 8: Operator overloading and type conversion

Defining operator overloading, overloading unary operators, overloading binary operators, overloading binary operators using friends, manipulation of strings using Operators, rules for overloading operators. type conversions.

UNIT 9: Inheritance: extending classes

Deriving derived classes, single multilevel, multiple, hierarchical, hybrid inheritance, Constructors & destructors in derived classes, constructors invocation and data members Initialization, virtual base classes, abstract classes, delegation.

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UNIT 10: Pointers, virtual functions and polymorphism

Pointers to objects, this pointer. pointers to derived classes, virtual functions, Implementation of run-time polymorphism, pure virtual functions.

UNIT 11: Working with files

Classes for file stream operations. opening and closing a file, file pointers and their Manipulations, sequential input and output operations, error handling during file Operations, command line arguments.

UNIT 12: Object Oriented Modeling

Need of object oriented Modeling, Simulation of real life problems using OOP concept:

Example, Representation of problem using object and class diagrams at design level.