

Object Oriented Programming Using C++

Semester IV	Subject Code: BC41601	Lectures: 60
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Objectives:

The syllabus aims in equipping students with,

- Understanding the basic object-oriented concepts
- Implementing object-oriented concepts like Inheritance, Polymorphism
- Learning how to work with files

Unit 1: Basic Programming in C++	06
<ul style="list-style-type: none"> • Basic concepts of OOP, benefits, applications of OOP • Structure of C++ program : Creating a source file, compiling and Linking • Tokens, keywords, Identifiers and constants • Data types - Basic, User defined and Derived • Symbolic constant • Variables - Declaration and Dynamic initialization , Reference variable • Operators in C++ : Scope resolution operator, Member Referencing operators, Type cast operators, Memory management operators • Expression and their types , Special Assignment Expression • Operator precedence • Control structures – if-else, do-while, for , switch 	

Unit 2: OOP's concepts in C++ and Functions	12
<ul style="list-style-type: none"> • Function prototyping, Call by reference , Return by reference • Inline function – Making an outside function Inline • Friend functions • Arguments - default, constant • Math library functions • Creating a class and objects • Defining member functions inside and outside class definition , Nesting of member functions , Private member functions • Arrays within a class • Memory allocation of objects 	

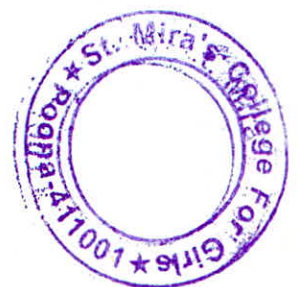


<ul style="list-style-type: none"> • Static data members and static member functions • Array of objects • Objects as function arguments • Returning objects • Constructors , Types of constructor (Default, Copy, Parameterized, Dynamic) • Destructors 	
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Unit 3: Manipulating Strings	04
<ul style="list-style-type: none"> • Introduction • Creating objects(string) • Manipulating string object • Relational operations • String Characteristics • Accessing characters in string • Comparing and Swapping 	

Unit 4: Inheritance and Polymorphism	16
<ul style="list-style-type: none"> • Base class and derived class examples • Types of Inheritance • Virtual base class • Abstract class • Constructors in derived class • Compile Time Polymorphism : Function overloading , Operator overloading • Operator Overloading <ul style="list-style-type: none"> ➤ Overloading unary and binary operator ➤ Overloading using friend function ➤ Overloading insertion and extraction operators ➤ String manipulation using operator overloading • Runtime Polymorphism <ul style="list-style-type: none"> ➤ this Pointer, pointers to objects, pointer to derived classes ➤ Virtual functions and pure virtual functions 	

Unit 5: Managing console I/O operations and Working with Files	10
<ul style="list-style-type: none"> • C++ streams and C++ stream classes • Unformatted I/O operations 	



<ul style="list-style-type: none">• Formatted console I/O operations• Managing output with manipulators• Classes for File Stream operations• File operations - Opening, Closing and updating• Error handling during File operations• Command Line arguments	
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Contact hours – 12 hours

Recommended Text Book:
<ul style="list-style-type: none">✓ 1. <i>Object Oriented Programming Using C++</i>, Prof Manisha Bharambe, Nirali Prakashan Publication 2014✓ 2. <i>Object Oriented Programming Using C++</i>, Prof Alok Pawar, Tech-Max Publication 2014

Reference Books:
<ul style="list-style-type: none">1. E Balaguruswamy <i>Object Oriented Programming with C++</i>, 5th edition; 20062. Schildt, <i>The Complete Reference C++</i>, 5th edition; 2006

