

	8	<p><b>Class templates:</b></p> <ul style="list-style-type: none"> <li>Implementing a class template</li> <li>Implementing class template member functions</li> <li>Using a class template</li> <li>Function templates</li> <li>Class template specialization</li> <li>Template parameters, Static members and variables</li> </ul> <p><b>Exception Handling:</b></p> <ul style="list-style-type: none"> <li>try</li> <li>throw and</li> <li>catch constructs</li> <li>rethrowing an exception</li> <li>Catch all Handlers.</li> </ul>	8	16
<b>TOTAL</b>			50	100

**Text Books:**

- E. Balguruswamy, 'Object Oriented Programming with C++', Tata McGraw – Hill Education, 2008
- K.R Venugopal 'Mastering C++', Tata McGraw-Hill Education, 1997

**References:**

- B.Stroustrup 'C++ Programming Language' (3rd Edition). Addison Wesley, 1997
- B.chandraNarosa 'A Treatise On Object Oriented programming using C++'- Publications, 1998
- Herbert Schildt, "The Complete Reference CN", Tata McGraw-Hili, 2001

<b>Branch: B.Sc(IT)</b>	<b>Semester-II</b>
<b>Subject Code: 2201</b>	<b>Lecture: 02</b> <b>Credit: 02</b>
<b>Course Opted</b>	<b>Core Course -4 Practical</b>
<b>Subject Title</b>	<b>PROGRAMMING METHODOLOGY AND C++ LAB</b>

**Course Objectives:**

- Will enable students to
- Identify and practice the object-oriented programming concepts and techniques
- Practice the use of C++ classes and class libraries, arrays, vectors, inheritance and file I/O stream concepts.
- Course Outcomes:**

Students will be able to:

- Create simple programs using classes and objects in C++.
- Implement Object Oriented Programming Concepts in C++.
- Develop applications using stream I/O and file I/O.
- Implement simple graphical user interfaces.
- Implement Object Oriented Programs using templates and exceptional handling

Modules	Sr. No.	Topic and Details	No. of Lectures	Marks Weightage
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			Assigned	%
Unit- I	1	<p><b>Evolution of OOP:</b> Simple Programs on fundamental Data Types and I/O operators, Derived data types, Symbolic constants, variables and Reference variables</p> <p><b>Operators and decision control structures:</b> Programs to implement if statements, Switch statements, Loop statements, Functions in C++: Main function, function proto type, Call by reference, return by reference, Inline functions, Default arguments, Const Arguments, Function overloading,</p>	3	6
	2	<p><b>Advanced Language Constructs:</b> Programs on Arrays, Multi dimensional arrays, pointers and structures.</p>	2	4
Unit- II	3	<p><b>Objects and Classes:</b> Classes and Object, Programs for memory allocation for objects, Arrays of objects, Returning objects, Const Member functions, Pointers to members.</p> <p><b>Functions and Variables:</b> Programs to implement Defining a function, declaration and calling a function, function arguments, Default values for parameters, friend function, Dynamic creation and derived data and use of arrays and strings with functions.</p>	2	6
	4	<p><b>Inheritance :</b> Programs for Inheritance Single, Multiple, Multilevel, Hierarchical inheritance, Hybrid inheritance, Virtual base class, Abstract class, Constructors in derived classes, Nesting of classes.</p> <p><b>Constructors and Destructors :</b> Implementations of Constructors(Parameterized Constructors, Multiple constructors in a class, Constructors with default arguments, Copy constructors, Dynamic constructors)Destructors</p>	4	8
Unit- III	5	<p><b>Polymorphism:</b> Programs for Operator Overloading (Unary, Binary, Using friend functions etc.)</p>	2	5
	6	<p><b>Memory Management :</b> Programs on memory management using new and delete and pointers to objects</p>	2	5

Unit- IV	7	<p><b>Files and Streams :</b>            Programs for Managing Console I/O OPERATIONS and Working with files: C++ Stream and Classes, Unformatted I/O operations, Put(),get(), getline(),write(), Formatted console I/O operations, Ios class functions and flags, Manipulators, User defined output functions.</p> <p><b>File input and output:</b>            Implementation of Opening and closing files, Detecting End of file, File modes, File pointers and their manipulations, Sequential input and output operations, Reading and writing class object, Command line arguments.</p>	5	8
	8	<p><b>Templates:</b>            Implementations of Class template, Class template with multiple parameters, Function template.</p> <p><b>Exception Handling:</b>            Implementations of try, catch and throw statement for handling the exceptions.</p>	5	8
<b>TOTAL</b>			<b>25</b>	<b>50</b>

**Text Books:**

1. E. Balguruswamy, 'Object Oriented Programming with C++', Tata McGraw – Hill Education, 2008
2. K.R Venugopal 'Mastering C++', Tata McGraw-Hill Education, 1997