

**LESSON PLAN**

**Academic Year** : 2023 – 2024  
**Year & Semester /section** : II B.Tech I SEMESTER / SECTION – S2  
**Branch** : COMPUTER SCIENCE & ENGINEERING  
**Subject Code & Name** : 20CS3302 & OOP Through C++  
**Name of Faculty** : Mr L V Krishna rao

**CO1. Understand** the principles of OOP and the key features of C++. (L2)

**CO2. Apply** object oriented concepts to develop solution for the given problem. (L3)

**CO3. Apply** functions as per the problem requirement. (L3)

**CO4. Analyze** the given scenario and use appropriate generic programming aspects/exception handling mechanisms to solve the problem.(L4)

Unit No.	Topic of syllabus to be covered	Learning out comes	Hours Required		Teaching Mode BB/ LCD/ OHP	Total no. of Hours (Cumulative )	Expected date of completion	Actual date of completion	Review/ Remarks (By HOD)
			Lecture	Tutorial					
I	Introduction:Difference between C and C++, Evolution of C++	Understand the Difference between C and C++, Evolution of C++ ( <b>CO1 – L2</b> )	1		BB/PPT	1	07/08/2023		
I	Programming Paradigms	Understand Programming Paradigms like POP, OOP etc. ( <b>CO1 – L2</b> )	1		BB/PPT	2	08/08/2023		
I	Principles of OOP and its advantages	Understand Key concepts of OOP( <b>CO1 – L2</b> )	1		BB/PPT	3	10/08/2023		
I	I/O in C++: Pre-defined streams, stream	Understand Pre-defined streams, stream classes and apply Streams	1		BB/PPT	4	14/08/2023		

	classes	concepts to simple programs <b>(CO1 – L2) (CO3 – L3)</b>							
I	Scope access operator, Name space, memory management operators	Understand the concepts of Scope access operator, Name space, memory management operators and apply to some programming examples. <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	5	16/08/2023		
I	Functions: Introduction, Parts of a function and parameter passing: pass-by -value and pass -by-reference	Understand the concepts of Introduction to functions, Parts of a function and Apply to example programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	6	17/08/2023		
I	Returning more values by reference, Default arguments, const arguments	Understand the concepts of Returning more values by reference, Default arguments, const arguments and apply to some programming examples <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	7	21/08/2023		
I	Inline functions & function overloading	Understand the concepts of inline functions and function overloading and apply inline function concepts to example programs like arithmetic operations <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	8	23/08/2023		
II	Classes and Objects : classes in C++ ,Declaring objects, Access specifiers and their scope	Understand the concepts of classes in C++, and apply class concept to simple programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	9	24/08/2023		
II	Defining Member Functions, Characteristics of member function	Understand the concepts of Declaring objects, Access specifiers and their scope and apply to some programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	10	28/08/2023		
II	Outside member function as inline, rules	Understand the concepts of Defining Member Functions, Characteristics of	1		BB/PPT	11	30/08/2023		

	for Inline functions	member function and apply for some programming examples <b>(CO1 – L2) (CO3 – L3)</b>							
II	static member variables, static member functions, static objects	Understand the concepts of static member variables, static member functions, static objects and apply to suitable problem statements <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	12	31/08/2023		
II	object as function arguments, Friend Function	Understand the concepts of object as function arguments, Friend Function and apply to suitable problem statements <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	13	04/09/2023		
II	Constructors and Destructors: characteristics of constructors and destructors	Understand the concepts of Constructors, characteristics of constructors and destructors and apply on already implemented programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	14	07/09/2023		
II	Applications with constructors, Parameterized constructors and copy constructors	Understand the concepts of Applications with constructors, Parameterized constructors and apply to suitable problems <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT/ <b>FLIP CLASS</b>	15	11/09/2023		
II	Operator Overloading: The keyword operator, Overloading Unary Operators	Understand the concepts of Operator Overloading: The keyword operator, Overloading Unary Operators and apply to example programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	16	13/09/2023		
II	Overloading binary operators	Understand the concepts of Overloading binary operators and apply to suitable problems <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	17	14/09/2023		
II	Rules for Overloading operators, Overloading	Understand the concepts of Rules for Overloading operators, Overloading	1		BB/PPT	18	19/09/2023		

	Friend function.	Friend function and implement programs related to the same concepts <b>(CO1 – L2) (CO3 – L3)</b>							
III	Inheritance: Access specifiers and simple inheritance	Understand the concepts of Access specifiers and simple inheritance and implement a simple program using simple inheritance <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	19	20/09/2023		
III	protected data with private inheritance, Types of Inheritance: Single, Multilevel, Multiple.	Understand the concepts of protected data with private inheritance, Types of Inheritance: Single, Multilevel, Multiple and implement programs related to the concepts mentioned <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT/ <b>Quiz</b>	20	21/09/2023		
III	Hierarchical, Hybrid and Multipath, Virtual Base Classes.	Understand the concepts of Hierarchical, Hybrid and Multipath, Virtual Base Classes and implement simple programs <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	21	22/09/2023		
III	Pointers: void pointer, wild pointer, The this pointer.	Understand the concepts of void pointer, wild pointer, The this pointer and apply to suitable programing examples <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	22	04/10/2023		
III	Binding, Polymorphism, and Virtual Functions: Binding in C++, Pointer to Base and Derived class	Understand the concepts of Binding, Polymorphism, and Virtual Functions: Binding in C++, Pointer to Base and Derived class and apply to suitable problems <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	23	05/10/2023		
III	Virtual Function, Rules for Virtual functions, Pure Virtual Functions	Understand the concepts of Virtual Function, Rules for Virtual functions, Pure Virtual Functions and apply to suitable problems <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	24	09/10/2023		

III	Abstract Class.	Understand the concepts of Abstract Class and implement for any program <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	25	11/10/2023		
IV	Files: Introduction, File stream classes,	Understand the concepts of File stream classes and apply to some programming examples <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	26	12/10/2023		
IV	Steps for file operations, Checking for errors	Understand the concepts of Steps for file operations, Checking for errors <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	27	16/10/2023		
IV	Finding end of file, File opening modes, File pointers and manipulators	Understand the concepts of Finding end of file, File opening modes, File pointers and manipulators and apply to related programming examples <b>(CO1 – L2) (CO3 – L3)</b>	1		BB/PPT	28	18/10/2023		
IV	Exception Handling: Principles of Exception Handling	Understand the concepts of Exception Handling: Principles of Exception Handling <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	29	26/10/2023		
IV	The Keywords try, throw and catch	Understand the concepts of The Keywords try, throw and catch and apply to simple programs <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	30	30/10/2023		
IV	Guidelines for Exception Handling, Multiple catch statements	Understand the concepts of Guidelines for Exception Handling, Multiple catch statements and apply to related problem statements <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	31	01/11/2023		
IV	Catching Multiple Exceptions	Understand the concepts of Catching Multiple Exceptions and implement programs related to the said concept <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	32	02/11/2023		
IV	Re-Throwing Exceptions, Specifying	Understand the concepts of Re-Throwing Exceptions, Specifying	1		BB/PPT	33	06/11/2023		

	Exceptions	Exceptions and implement programs related to the same <b>(CO1 – L2) (CO4 – L3)</b>							
V	Generic Programming with Templates: Need for Templates, Definition of class Templates	Understand the concepts of Generic Programming with Templates, Need for Templates, Definition of class Templates <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	34	08/11/2023		
V	Function Template, Working of Function Templates	Understand the concepts of Function Template, Working of Function Templates and implement program related to it <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	36	09/11/2023		
V	Class Template with more parameters	Understand the concepts of Function Template with more parameters and apply to suitable problems <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	37	13/11/2023		
V	Function Template with more parameters	Understand the concepts of Function Template with more parameters and apply to programs related to the said concept <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	38	15/11/2023		
V	Standard Template Library: Introduction to STL, STL Programming model	Understand the concepts of Standard Template Library: Introduction to STL, STL Programming model <b>(CO1 – L2) (CO4 – L3)</b>	1		BB/PPT	39	16/11/2023		
V	containers, sequence container: vector, list	Understand the concepts of containers, sequence container: vector, list and analyze which one suitable according to the given problem statement <b>(CO1 – L2) (CO4 – L4)</b>	1		BB/PPT	40	20/11/2023		
V	Associative containers: set, map	Understand the concepts of Associative containers: set, map and analyze which one suitable according to the given problem statement <b>(CO1</b>	1		BB/PPT	41	21/11/2023		

		<b>– L2) (CO4 – L4)</b>							
V	Algorithms: sort, search and find	Understand the concepts of Algorithms: sort, search and analyze which one suitable according to the given problem statement <b>(CO1 – L2) (CO4– L4)</b>	1		BB/PPT	42	23/11/2023		
V	Iterators	Understand the concepts of Iterators and analyze which iterator is useful to given problem statement <b>(CO1 – L2) (CO4 – L4)</b>	1		BB/PPT	43	24/11/2023		

**Legend: Teaching Mode - BB: Black Board / LCD: Power Point Presentation / FLIP/ CBL: Context Based Learning/GD: Group Discussion/QUIZ**

**Signature of the Faculty**  
**Date:**

**Signature of the HOD**  
**Date:**