Discipline: **CSE**	Semester: **3rd**	Name of the Teaching Faculty: **Tanmay Nath Mishra**
Subject: **PROGRAMMING WITH C++**	No. Of Days/per week class allotted: **3**	Semester: From Date: 18-09-2025To Date:15-11-2025 No. Of Weeks: 15
Week	**Class**	**Topics to be covered**
1st	1	Unit I: Introduction & C++ Basics (12 Periods) 1. Introduction to Object-Oriented Programming (OOP)
	2	2. User Defined Data Types – Structures and Unions
	3	3. Polymorphism – Concept and Examples
2nd	1	4. Encapsulation – Concept and Examples
	2	5. Getting Started with C++ (Program Structure)
	3	6. Data Types, Variables, Constants, Keywords
3rd	1	7. Strings and Basic Operations
	2	8. Functions – Syntax and User-Defined Functions
	3	9. Functions with Default Arguments
4th	1	10. Recursion – Concept and Examples
	2	11. Namespaces – Definition and Uses
	3	12. Operators – Arithmetic, Relational, Logical, Assignment
5th	1	13. Flow Control Statements – if, switch, Loops (for, while, do-while)
	2	14. Arrays and Pointers – Basics
	3	Unit II: Classes and Inheritance (11 Periods) 15. Classes and Objects – Definition and Syntax
6th	1	16. Access Specifiers – private, public, protected
	2	17. Member Data and Member Functions
	3	18. Constructors – Types (Default, Parameterized)
7th	1	19. Destructors – Definition and Uses
	2	20. Inline Functions
	3	21. Friend Functions
8th	1	22. Static Members and References
	2	23. Inheritance – Introduction and Class Hierarchy
	3	24. Types of Inheritance – Single and Multiple
9th	1	25. Types of Inheritance – Multilevel and Hybrid
	2	26. Virtual Base Class – Role and Importance
	3	27. Constructor and Destructor Execution Order in Inheritance
10th	1	28. Base Initialization using Derived Class Constructors
	2	Unit III: Polymorphism (9 Periods) 29. Binding – Static Binding and Dynamic Binding
	3	30. Static Polymorphism – Function Overloading
11th	1	31. Ambiguity in Function Overloading and Resolution
	2	32. Dynamic Polymorphism – Introduction

	3	33. Base Class Pointer and Object Slicing
12th	1	34. Late Binding in Dynamic Polymorphism
	2	35. Method Overriding using Virtual Functions
	3	36. Pure Virtual Functions
13th	1	37. Abstract Classes
	2	Unit IV: Operator Overloading (9 Periods) 38. This Pointer – Definition and Applications
	3	39. Operator Functions – Member Operator Functions
14th	1	40. Operator Functions – Non-Member Operator Functions
	2	41. Complex Programs using Operator Overloading
	3	Unit V: Exception Handling (4 Periods) 42. Introduction to Exception Handling – Try, Throw, Catch
15th	1	43. Exceptions and Derived Classes
	2	44. Function Exception Declaration
	3	45. Unexpected Exceptions and Handling