

C++ Programming Course Catalog – 30 Days

Day	Module	Topics Covered
1	Introduction to C++	Overview of C++, Setting up the Development Environment, Writing the First C++ Program
2	Basic Syntax and Structure	C++ Syntax, Main Function, Headers, Namespace, Comments
3-4	Data Types & Variables	Primitive Data Types, Constants, Declaring Variables, Type Conversion
5-6	Operators	Arithmetic, Relational, Logical, Bitwise Operators, Operator Precedence
7	Control Structures	if, else, switch-case statements, Nested Conditionals
8-9	Loops	for, while, do-while loops, break, continue, Nested Loops
10-11	Functions	Function Declaration, Definition, Calling Functions, Pass by Value/Reference, Function Overloading
12-13	Arrays	One-Dimensional Arrays, Multi-Dimensional Arrays, Array Operations
14-15	Strings	String Handling, Functions (strlen, strcpy, strcat, strcmp), C++ String Class
16-17	Pointers & References	Introduction to Pointers, Pointer Arithmetic, Pointers with Arrays, References
18	Dynamic Memory Allocation	new, delete, malloc, free, Memory Management
19-20	Object-Oriented Programming (OOP) Basics	Classes and Objects, Constructors & Destructors, Access Modifiers (public, private, protected)
21-22	Inheritance	Base & Derived Classes, Constructor Initialization, Overriding Methods, Virtual Functions
23-24	Polymorphism	Function Overloading, Operator Overloading, Runtime Polymorphism
25	Encapsulation & Abstraction	Getter/Setter Methods, Abstract Classes, Interfaces, Data Hiding
26-27	Exception Handling	try, catch, throw, Handling Multiple Exceptions, Custom Exceptions
28	File Handling	Reading/Writing to Files, fstream, ifstream, ofstream, File Operations
29	STL (Standard Template Library)	Introduction to STL, Vectors, Lists, Maps, Iterators
30	Project Work & Final Review	Hands-on Mini Project (e.g., Student Management System, Banking System), Review of Key Concepts, Final Exam & Certification

