C++ Language Syllabus :

- By GharSeCode (GSC)

Course Title: Programming in C++

Course By : GSC (Ghar Se Code)

Duration: 3 Hrs

Code Spirit : Write With Control, Compile With Confidence.

Topics	Detailed Overview
Introduction to C++ Programming	What is C++? History and Features of C++ Structure of a C++ Program Compiling and Executing C++ Code Header Files and Namespaces Input/Output using cin and cout
Variables, Constants, and Data Types	Keywords and Identifiers Data Types (Built-in, User-defined, Derived) Type Conversion and Typecasting Variables, Constants, and Scope
Operators and Expressions	Arithmetic, Relational, Logical, Assignment Operators Increment/Decrement Operators Conditional (Ternary) Operator Bitwise Operators Operator Precedence and Associativity
Control Structures	if, if-else, nested if-else switch-case Loops: for, while, do-while break, continue, goto
Functions in C++	Function Declaration and Definition Function Overloading Default Arguments Inline Functions Recursion Scope Rules
Object-Oriented Programming (OOP)	Basic Concepts: Class, Object, Abstraction, Encapsulation, Inheritance, Polymorphism Defining and Creating Classes and Objects Access Specifiers (public, private, protected)

	Constructors and Destructors Inheritance Types Function Overriding and Virtual Functions Abstract Classes and Interfaces
Arrays and Strings	One and Multi-Dimensional Arrays Array Operations Strings and String Functions C-Style Strings vs std::string
Pointers and Dynamic Memory	Pointer Basics and Arithmetic Pointers to Functions new and delete Operators Dangling and Null Pointers Smart Pointers (Basic Intro)
File Handling	File Streams (ifstream, ofstream, fstream) Reading/Writing Text and Binary Files File Modes and Operations File Handling Functions
Miscellaneous Concepts	Reference Variables Inline Functions Friend Functions and Classes Templates (Function & Class Templates) Exception Handling (try, catch, throw) Standard Template Library (Intro to vector, map, etc.)