

C++ Programming

Duration: 30 Days

 **Register Here**

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C++ Programming

- Introduction to C++ Programming
 - Introduction to C++ and its features
 - Setting up a C++ development environment (IDEs, compilers)
 - First C++ program: Hello World
 - Basic structure of a C++ program
 - Data types and variables in C++
- Control Flow
 - Conditional statements (if, else if, else)
 - Loops (while, for, do-while)
 - Switch-case statements
 - Break and continue statements
- Functions and Modular Programming
 - Defining and declaring functions
 - Function prototypes and headers
 - Passing arguments to functions
 - Return values and void functions
 - Scope and lifetime of variables in C++
- Object-Oriented Programming (OOP) in C++
 - Classes and objects in C++
 - Constructors and destructors
 - Inheritance and polymorphism
 - Encapsulation and abstraction
 - Operator overloading
- C++ Standard Library
 - Overview of the C++ Standard Library
 - Working with standard functions and containers (vector, map, etc.)
 - Input/output using streams (cin, cout, file streams)
 - String manipulation in C++
- Pointers and Dynamic Memory Management in C++
 - Pointers and pointer arithmetic in C++
 - Dynamic memory allocation (new and delete)
 - Arrays and pointers
 - Smart pointers (unique_ptr, shared_ptr)
- File I/O in C++
 - File handling in C++ (ifstream, ofstream, etc.)
 - Reading and writing data to/from files
 - Error handling with file operations
- C++ Templates and Standard Template Library (STL)
 - Introduction to C++ templates
 - Creating and using function templates and class templates
 - Overview of the STL (containers, algorithms, iterators)



- Exception Handling in C++
 - Exception handling with try-catch blocks
 - Custom exception classes
 - Exception specifications
 - Handling and rethrowing exceptions
- Advanced C++ Concepts
 - Lambda expressions
 - Standard Library algorithms and data structures
 - Multithreading and concurrency (optional)
 - Introduction to C++17/C++20 features (optional)
- Best Practices and Coding Standards
 - Writing clean and maintainable code
 - Code commenting and documentation
 - Debugging techniques and tools
 - Coding standards and style guides
- Practical Applications and Projects
 - Implementing real-world projects to apply C++ programming concepts
 - Building command-line utilities
 - File manipulation and data processing
 - Simple games or simulations



Bonus Content

- Guest Lectures by Industry Professionals
- Mock Interviews and Resume Building Workshops
- Guidance on Building a Professional Portfolio
- Soft Skills Development: Communication, Teamwork, Problem-Solving
- Mid-Course Assessment to Gauge Understanding and Progress
- Job Interview Preparation and Mock Interview Sessions
- Assistance in Job Placement and Internships
- Access to Alumni Network and Industry Events



Sample Mini Projects

- Student Gradebook – Build a program to manage a student gradebook. Users can input student names and their corresponding grades. The program should calculate and display the average grade, highest grade, and lowest grade.
- File Reader and Analyzer – Develop a program that reads text from a file, counts the number of words and characters, and displays the results. Users should be able to specify the file to analyze through command-line arguments.
- To-Do List – Build a to-do list program where users can add, remove, and mark tasks as completed. Tasks should be stored in memory using dynamic memory allocation (malloc and free).



Sample Course Completion Certificate



Sample Internship Completion Letter



Course Details		
1	Duration	30 days
2	Mode of Training	Offline/Online
3	Registration Fees	₹ 999



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