

C++ Beginner

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Learn one of the most popular and widely-used languages in the world. Learn Object-Orientation and if you are interested in the international exam, our syllabus covers it.

Prerequisites

You should not be a complete beginner for this course. If you cannot [pass this test](#), you must do [Intro To Programming](#) first.

Alignment

C++ Certified Associate Programmer (CAP) from the C++ Institute

Further Training

[C++ Advanced](#)

Course Material

Included

Course Contents

DAY 1:

Setting Out to C++

- C++ Initiation
- C++ Statements
- More C++ Statements
- Functions
- Summary
- Chapter Review
- Programming Exercises

Dealing with Data

- Simple Variables
- The const Qualifier
- Floating-Point Numbers
- C++ Arithmetic Operators

Compound Types

- Introducing Arrays
- Strings
- Introducing the string Class
- Introducing Structures
- Unions
- Enumerations
- Pointers and the Free Store
- Pointers, Arrays, and Pointer Arithmetic
- Combinations of Types
- Array Alternatives

Loops and Relational Expressions

- Introducing for Loops
- The while Loop
- The do while Loop
- The Range-Based for Loop (C++11)
- Loops and Text Input
- Nested Loops and Two-Dimensional Arrays
- Summary
- Chapter Review
- Programming Exercises

DAY 2:

Branching Statements and Logical Operators

- The if Statement
- Logical Expressions
- The ctype Library of Character Functions

- The ?: Operator
- The switch Statement
- The break and continue Statements
- Number-Reading Loops
- Simple File Input/Output

Functions: C++'s Programming Modules

- Function Review
- Function Arguments and Passing by Value
- Functions and Arrays
- Functions and Two-Dimensional Arrays
- Functions and C-Style Strings
- Functions and Structures
- Functions and string Class Objects
- Functions and array Objects
- Recursion
- Pointers to Functions

Adventures in Functions

- C++ Inline Functions
- Reference Variables
- Default Arguments
- Function Overloading
- Function Templates

Memory Models and Namespaces

- Separate Compilation
- Storage Duration, Scope, and Linkage
- Namespaces

DAY 3:

Objects and Classes

- Procedural and Object-Oriented Programming
- Abstraction and Classes

- Class Constructors and Destructors
- Knowing Your Objects: The this Pointer
- An Array of Object
- Class Scope
- Abstract Data Types

Working with Classes

- Operator Overloading
- Time on Our Hands: Developing an Operator
- Overloading Example
- Introducing Friends
- Overloaded Operators: Member Versus Nonmember
- Functions
- More Overloading: A Vector Class
- Automatic Conversions and Type Casts for Classes

Classes and Dynamic Memory Allocation

- Dynamic Memory and Classes
- The New, Improved String Class
- Things to Remember When Using new
- in Constructors
- Observations About Returning Objects
- Using Pointers to Objects
- Reviewing Techniques
- A Queue Simulation

Class Inheritance

- Beginning with a Simple Base Class
- Inheritance: An Is-a Relationship
- Polymorphic Public Inheritance
- Static and Dynamic Binding
- Access Control: protected
- Abstract Base Classes
- Inheritance and Dynamic Memory Allocation
- Class Design Review

DAY 4:

Reusing Code in C++

- Classes with Object Members
- Private Inheritance
- Multiple Inheritance
- Class Templates

Friends, Exceptions, and More

- Friends
- Nested Classes
- Exceptions
- Runtime Type Identification
- Type Cast Operators

The string Class and the Standard

- Template Library
- The string Class
- Smart Pointer Template Classes
- The Standard Template Library
- Generic Programming
- Function Objects (a.k.a. Functors)
- Algorithms
- Other Libraries

Input, Output, and Files

- An Overview of C++ Input and Output
- Output with cout
- Input with cin
- File Input and Output
- Incore Formatting

DAY 5:

Visiting with the New C++ Standard

- C++11 Features Revisited
- Move Semantics and the Rvalue Reference
- New Class Features
- Lambda Functions
- Wrappers
- Variadic Templates
- More C++11 Features
- Language Change

PROJECT

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Duration and pricing

In [Price Group A](#)

Certificate

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Bookings

You can download the course registration form on our home page or by clicking [here](#)

Brochure

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Questions

Please [email us](#)

Schedule

On the calendar below. If your browser doesn't display the

calendar below, please click on [this link](#) or try using [Google Chrome](#), alternatively please enquire via our [Contact Us](#) page.