

Introduction to C++

Modality: On Demand

Duration: 12 Hours

About the course:

Introduction to C++ is a foundational course designed to provide a comprehensive introduction to the C++ programming language. This course is perfect for beginners and those looking to expand their programming skills. It covers the fundamental concepts of C++, including variables, data types, control structures, and functions

Course Objectives:

- Course Introduction
- Essential Fundamentals
- C++ Introduction
- Development Environment Setup
- C++ Basics
- Functions
- Files
- Debugging and Error Handling
- Fundamental Data Types
- Operators
- Scope and Duration
- Flow Control Conditional Statements
- Flow Control Loops
- Arrays and Pointers
- Enums, Structs, OOP, and Classes
- Project

Audience:

Anyone who is interested its a basic level course

Prerequisite:

None

Course Outline:

- Course Introduction

- Chapter 1: Essential Fundamentals
 - Lesson 1: Electricity
 - Lesson 2: Computers
 - Lesson 3: Electronic Computers
 - Lesson 4: Bits
 - Lesson 5: Computer Elements
 - Lesson 6: To Sum Up
 - Lesson 7: Programming Languages Hardware
 - Lesson 8: Programming Paradigm

- Chapter 2: C++ Introduction
 - Lesson 1: Introduction to C++
 - Lesson 2: Introduction to C++ Development

- Chapter 3: Development Environment Setup
 - Lesson 1: IDEs
 - Lesson 2: VS Code
 - Lesson 3: MSYS2
 - Lesson 4: VS Code
 - Lesson 5: Hello World

- Chapter 4: C++ Basics
 - Lesson 1: C++ Program Structure
 - Lesson 2: Comments
 - Lesson 3: C++ Syntax and Syntax Errors
 - Lesson 4: Introduction to Data Objects and Variables
 - Lesson 5: Naming Identifiers and Basic Formatting
 - Lesson 6: Intro to Operators
 - Lesson 7: Quiz

- Chapter 5: Functions
 - Lesson 1: Introduction to Functions
 - Lesson 2: Parameters and Arguments
 - Lesson 3: Return Value
 - Lesson 4: Introduction to Local Variables
 - Lesson 5: Forward Declarations and Definitions
 - Lesson 6: How to Use Functions Effectively
 - Lesson 7: Quiz

- Chapter 6: Files
 - Lesson 1: Program with Multiple Files
 - Lesson 2: Naming Collisions and Intro to Namespaces

- Lesson 3: Preprocessor Directive
- Lesson 4: Header Files
- Lesson 5: Header Guards
- Lesson 6: Quiz

- Chapter 7: Debugging and Error Handling
 - Lesson 1: Syntax and Semantic Error
 - Lesson 2: The Debugging Process
 - Lesson 3: Using a Debugger Stepping
 - Lesson 4: Using a Debugger Watching Variables
 - Lesson 5: Using a Debugger The Call Stack
 - Lesson 6: Quiz

- Chapter 8: Fundamental Data Types
 - Lesson 1: Introduction to Fundamental Data Types
 - Lesson 2: Void
 - Lesson 3: Object Sizes and Size of Operator
 - Lesson 4: Integers
 - Lesson 5: Floating Point
 - Lesson 6: Char
 - Lesson 7: Bool
 - Lesson 8: Type Conversion
 - Lesson 9: Constants
 - Lesson 10: String
 - Lesson 11: Quiz

- Half of the Course

- Chapter 9: Operators
 - Lesson 1: Operator Precedence and Associativity
 - Lesson 2: Arithmetic Operators
 - Lesson 3: Increase and Decrease Operators
 - Lesson 4: Conditional Operator
 - Lesson 5: Relational Operators
 - Lesson 6: Logical Operators
 - Lesson 7: Quiz

- Chapter 10: Scope and Duration
 - Lesson 1: Compound Statements (Blocks)
 - Lesson 2: User-Defined Namespaces
 - Lesson 3: Using Declarations and Directives
 - Lesson 4: Static Local Variables
 - Lesson 5: Global Variables and Variable Shadowing

- Lesson 6: Quiz
- Chapter 11: Flow Control Conditional Statements
 - Lesson 1: Control Flow Introduction
 - Lesson 2: If Statement
 - Lesson 3: Switch Case Statement
 - Lesson 4: Quiz
- Chapter 12: Flow Control Loops
 - Lesson 1: While Loop
 - Lesson 2: Do While Loop
 - Lesson 3: For Loop
 - Lesson 4: Quiz
- Chapter 13: Arrays and Pointers
 - Lesson 1: Arrays
 - Lesson 2: C-Style Strings
 - Lesson 3: Introduction to Pointers
 - Lesson 4: Pointer Init and Assign
 - Lesson 5: Pointer and Const
 - Lesson 6: Arrays and Pointers
 - Lesson 7: Quiz
- Chapter 14: Enums, Structs, OOP, and Classes
 - Lesson 1: Introduction to Program-Defined Data Types
 - Lesson 2: Enums
 - Lesson 3: Structs
 - Lesson 4: Intro to OOP and Classes
 - Lesson 5: Quiz
- Chapter 15: Project
 - Lesson 1: Starting the Project
 - Lesson 2: Library Management System