Intermediate C++ 20 Programming / Effective C++ (TTCP2150)

Category: Software Development & Programming | **Vendor:** Trivera Tech

Duration: 32.00 hours (4 days) **26.0 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

Intermediate C++ 20 / Effective C++ 20 is a four day, hands-on program that dives covers a broad spectrum of topics ®® from the quick review of C++ essentials to modern C++ features, memory management, unit testing, and more. Our expert instructors will walk you through a comprehensive journey, investigating cutting-edge concepts such as RAII, copy and move semantics, namespaces, templates, and C++ 20 Concepts & auto Templates. You'll learn to leverage the power of modern C++ and unravel the intricacies of memory management, including the handle/body pattern, smart pointers, and move constructors. By the end of this course, you'll have an in-depth understanding of C++ memory, pointers, and complexity.

About This Course

C++ is a powerful, high-performance programming language that offers an ideal blend of low-level memory manipulation and high-level abstraction capabilities. Learning C++ is a valuable investment for developers, as it opens the door to creating efficient, versatile, and complex applications that run on a variety of platforms. Modern companies across diverse industries ®® including finance, gaming, automotive, and telecommunications ®® rely on C++ for developing performance-critical applications, system software, and embedded systems. Renowned organizations like Google, Facebook, and Microsoft continue to leverage the power of C++ in their development practices, solidifying its status as a crucial skill for developers seeking lucrative and challenging career opportunities.

Geared for experienced C++ developers, Intermediate C++ 20 / Effective C++ 20 is a four day, hands-on program that dives covers a broad spectrum of topics ®® from the quick review of C++ essentials to modern C++ features, memory management, unit testing, and more. Our expert instructors will walk you through a comprehensive journey, investigating cutting-edge concepts such as RAII, copy and move semantics, namespaces, templates, and C++ 20 Concepts & auto Templates. You'll learn to leverage the power of modern C++ and unravel the intricacies of memory management, including the handle/body pattern, smart pointers, and move constructors. By the end of this course, you'll have an in-depth understanding of C++ memory, pointers, and complexity.

Working in a hands-on environment, explore the art of functional programming and discover how the IoC pattern,

dependency injection, functors, and lambda expressions can bring about significant enhancements to your code. With a

strong emphasis on SOLID principles, inheritance, polymorphism, exceptions, and operator overloading, this course will help you design robust, maintainable, and scalable modern applications. You'll also expand your C++ toolset by exploring the rich offerings of the Standard Library, mastering the essentials of containers, algorithms, numerics, dates, and times. Gain a solid introduction to multitasking with threads, tasks, and async. As a bonus, you'll also learn how to implement effective unit testing in C++ using GTest, ensuring your code is reliable and bug-free.

Join our immersive training experience and become an adept C++ developer with unparalleled skills in the latest C++ 20

programming techniques. This fast-paced, lab-intensive course is designed to equip you with the knowledge and confidence to tackle the most challenging C++ development projects.

Who Should Attend

This is an intermediate level development course designed for developers with prior C++ programming experience

Prerequisites & Entry Requirements

General Prerequisites:

Students without prior C++ programming background should take the pre-requisite training.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

Working in a hands-on learning environment, guided by our expert team you'll learn to:
- Master intermediate to advanced C++ 20 programming techniques, enabling the development of efficient and
maintainable applications using the latest features and best practices.- Acquire in-depth knowledge of memory management in C++, including the handle/body pattern, smart pointers, and
move constructors, to optimize performance and minimize memory-related issues.
- Develop proficiency in functional programming with C++, incorporating concepts such as dependency injection, functors,
and lambda expressions to enhance code flexibility and modularity.
- Gain expertise in utilizing the C++ Standard Library for generic programming, mastering the use of containers, algorithms,
numerics, and other features to create powerful, reusable code components.
- Learn to implement effective unit testing in C++ using GTest, ensuring the reliability and robustness of your applications
through rigorous testing methodologies.
- Understand the basics of multitasking in C++, exploring threads, tasks, and async for concurrent programming,
empowering developers to create scalable and high-performance applications.

Detailed Course Outline

Quick Review of C++

Implementing a basic O-O design

Implementing Classes

Visibility & friends

File organization

C++ types €œ structs, classes, interfaces, enums

Modern C++

New features in C++ 11,14,17,20

RAII - Modern memory management in C++ - overview

Copy vs Move semantics

Namespaces

Strings

Input & Output

Implementing a linked-list €œ a demonstration of class, memory, pointers and complexity

Templates

General Purpose Functions

Function Templates

Template Parameters

Template Parameter Conversion

Function Template Problem

Generic Programming

General Purpose Classes

Class Templates

Class Template Instantiation

Non-Type Parameter

C++ Containers overview

C++ 20 concepts & auto Templates

Memory Management

The handle/body (Bridge) pattern

Using strings effectively

Smart Pointers

Move constructor in depth

Other features

Unit Testing in C++

Unit testing €œ Quick Overview

Unit testing in C++

Using GTest

Inheritance and Polymorphism

Inheritance Concept

Inheritance in C++

Virtual Function Specification

Invoking Virtual Functions

VTable

Virtual Destructors

Abstract Class Using Pure Virtual Function

Design for Polymorphism

Interfaces

Design for Interface

A SOLID introduction

Exceptions

Review of the basics: try, catch, throw

The throws declaration in modern C++

Using noexcept

Overriding terminate

Operator Overloading & Conversion

Basics

Essential Operators

Conversion Operators

Constructor as conversion

Explicit vs Implicit conversion

Functional Programming

The IoC pattern

Dependency Injection

Functions as objects

IoC via interface

Functors

IoC with Functors

Implementing Functors

Function Pointers

IoC with Function Pointers

Lambda Expressions

Lambda Syntax

IoC with Lambdas

Standard Library

Perspective

History and Evolution

New Features

Generic Programming

Containers

Algorithms

Numerics

Dates & Times

Initializer List

Introduction to Multitasking

Threads

Tasks

Async

Additional Course Details

Nexus Humans Intermediate C++ 20 Programming / Effective C++ (TTCP2150) training program is a workshop that presents an invigorating mix of sessions, lessons, and masterclasses meticulously crafted to propel your learning expedition forward.

This immersive bootcamp-style experience boasts interactive lectures, hands-on labs, and collaborative hackathons, all strategically designed to fortify fundamental concepts.

Guided by seasoned coaches, each session offers priceless insights and practical skills crucial for honing your expertise. Whether you're stepping into the realm of professional skills or a seasoned professional, this comprehensive course ensures you're equipped with the knowledge and prowess necessary for success.

While we feel this is the best course for the Intermediate C++ 20 Programming / Effective C++ (TTCP2150) course and one of our Top 10 we encourage you to read the course outline to make sure it is the right content for you.

Additionally, private sessions, closed classes or dedicated events are available both live online and at our training centres in Dublin and London, as well as at your offices anywhere in the UK, Ireland or across EMEA.

Frequently Asked Questions

Q: What delivery options are available for Intermediate C++ 20 Programming / Effective C++ (TTCP2150)?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 4-day Intermediate C++ 20 Programming / Effective C++ (TTCP2150) course provides up to 26.0 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Intermediate C++ 20 Programming / Effective C++ (TTCP2150) training?

The training takes place over 4 day(s), with each day lasting approximately 32.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Intermediate C++ 20 Programming / Effective C++ (TTCP2150)?

Yes, we provide corporate training, dedicated training, and closed classes for Intermediate C++ 20 Programming / Effective C++ (TTCP2150). Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: C++

Q: Why choose Nexus Human for Intermediate C++ 20 Programming / Effective C++ (TTCP2150)?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Intermediate C++ 20 Programming / Effective C++ (TTCP2150) training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

Nexus Human

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