

Introduction to Programming and C++ Basics for Non-Developers

Kickstart Your Software Development Skills with this Introduction to Coding Basics, Object Oriented Development and C++

Course Snapshot

- **Course:** Introduction to Programming and C++ Basics for Non-Developers (TTCP2000 / TTCODE101-CP)
- **Duration:** 5 days
- **Audience & Skill-Level:** This is a **basic-level** course geared for students new to programming.
- **Hands-on Learning:** This course is approximately 50% hands-on lab to lecture ratio, combining engaging expert lessons, demos and group discussions with real-world, skills-focused machine-based labs and exercises. Student machines are required.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **blended learning format**. Please also ask about our **Self-Paced / Video / QuickSkills** or **Mini-Camp / Short Course** flexible delivery options.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Overview

Introduction to Programming and C++ Basics for Non-Developer is a five-day, basic-level training course geared for IT candidates who have little or no prior experience in computer programming. Throughout this gentle introduction to programming and C++, students will learn to create applications and libraries using C++ using best practices and sound OO development techniques for writing object-oriented programs in C++. Special emphasis is placed on **object-oriented concepts and best practices** throughout the training.

Learning Objectives

This “skills-centric” course is about **50% hands-on lab and 50% lecture**, designed to train attendees in basic coding with C++, coupling the most current, effective techniques with the soundest industry practices. Our engaging instructors and mentors are highly experienced practitioners who bring years of current “on-the-job” experience into every classroom.

Working in a hands-on learning environment, guided by our expert team, attendees will learn:

- Learn about basic computer architecture (memory, CPU, IO)
- Gain basic knowledge of the C++ programming language, features and functions in today’s development initiatives
- Gain hands-on practice using C++ basic syntax and functions to build basic software applications
- Learn about Object Oriented development and best practices
- Learn and apply core development functions such as dynamic memory, inheritance, value type / reference types, exceptions and more
- Get a light introduction to the C++ Standard Library
- Gain skills required to exit the course with a foundation in basic programming skills and C++ knowledge to carry forward to additional study and practice.

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional C++, programming, development, design, testing, services, application security and other related topics that may be blended with this course for a track that best suits your needs. Our team will collaborate with you to understand your needs and will target the course to focus on your specific learning objectives and goals.

Audience & Pre-Requisites

This basic course is intended for anyone who is new to software development and wants, or needs, to gain an understanding of the fundamentals of coding and basics of C++ and object-oriented programming concepts.

Attendees might include:

- Technically-oriented attendees who want or who want to begin the process of becoming an OO application developer

- Technical team members from non-development roles, re-skilling to move into software and application development roles within an organization
- Recent college graduates looking to apply their college experience to programming skills in a professional environment, or perhaps needing to learn the best practices and standards for programming within their new organization
- Technical managers tasked with overseeing programming teams, or development projects, where basic coding knowledge and exposure will be useful in project oversight or communications needs

Pre-Requisites

Before attending this course, students must have:

- Ability to use computers to start programs, open and save files, navigate application menus and interfaces
- Ability to understand logical concepts such as comparisons
- Understand number theory
- Ability to create, understand, and follow structured directions or step-by-step procedures
- Ability to understand and apply abstract concepts to concrete examples

Related Training | C++ Training Series

- TTCP2000 Introduction to Programming and C++ Basics for Non-Programmers
- TTCP2100 Introduction to C++ Programming | C++ Essentials
- TTCP2150 Intermediate C++ Programming | Next-Level C++
- TTCP3103 Advanced C++ Programming
- TTCP1250 Object Oriented Design Patterns and Best Practices in C++
- TTCP1270 SOLID Design in C++

Follow On Courses: Our Skills Academy Developer Tracks include a wide variety of follow-on courses and learning paths for leveraging C++ for next-level development, testing, security and more. Please see our **C++ Developer Training Suite & Learning Paths** list of courses, or inquire for recommendations based on your specific role and goals.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer** offerings, **Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services** and **Extended Learning Support & Post Training** services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

Session: Introduction to Computer Programming

Lesson: Programming Tools

- Explain why we use various tools when programming
- Define the four major types of tools
- Lab: Setup the Development Environment'

Session: Programming Fundamentals

Lesson: Programming Basics

- Explain why different languages have different syntax
- Understand some basic features of any program

- Explain why we would break a program apart
- Using an IDE / Integrated Development Environment

Lesson: Thinking About Objects

- Define what an object is
- Explain the difference between an object and a class
- Design a class using a class diagram
- Understand how to define a basic class
- Explain how to compile and run a C++ application

Lesson: Programming Constructs

- Explain what variables and

constants are and when to use the

- Explain what arrays are and why they are used
- Explain what a method is
- Write if statements
- Write loops
- Modeling an Television Object

C++ Basics

C++ General Language Features

- Basic syntax
- Data types
- Program flow
 - If/else
 - Loops

- Intro Functions

Data Structures

- Structures
- Classes

Intro Object-Oriented Features

- Overview of O-O concepts
- Constructors/Destructors
- Static (class members)
- Constants
- Object Relationships

- Abstract Types

Dynamic Memory

- Object Lifecycle
- new
- delete

Inheritance

- Base Classes
- Derived Classes
- Overriding members
- Abstract members and classes

Value Types vs Reference Types

Exceptions

- Throwing
- Catching
- Defining custom exceptions

Intro C++ Standard Library

- I/O classes
- Collections
- Utility

Student Materials & Lab Environment

All course software (limited versions, for course use only), digital courseware files or course notes, labs / data sets and solutions (as applicable) are provided for you in our “easy access / no install required” high-speed remote lab environment. Our tech team works with every student to ensure everyone is set up with working access and ready to go prior to every course start date, ensuring a smooth delivery and great hands-on experience. Please ask for details.

For More Information

All courses can be presented **onsite** or **online**, or in a **combined / flex / blended learning format**, tailored to target your specific audience, needs and learning goals. We also offer focused, flexible **short courses, self-paced learning options, recorded sessions** and more. We train beginner to advanced skills in all areas we cover, and offer **New Hire / Cohort Training, Boot Camps, Skills Immersion Programs, Reskilling Programs, Skills Migration & Transition Programs**, and more. We collaborate with you to ensure all courses are truly targeted to meet your specific needs and learning skills, maximizing your valuable training time, as well as your important budget.

Please also visit our extensive **Public Training Schedule** for training for smaller groups or individuals. Please contact us for course details, **Corporate Rates** and **Special Discount Offers**.

For more information about our dedicated training services, collaborative coaching services, courseware licensing options, public course schedule, training management services, partner programs, or to see our complete list of course offerings and special offers please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

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