CPA: Programming Essentials in C++ Course Resources

Version 1 | Released July 2016

Programming Essentials in C++ Course Overview

CPA: Programming Essentials in C++ teaches the basics of programming in the C++ programming language, as well as the fundamental concepts and techniques used in object-oriented programming. The course begins with the universal basics, without relying on object concepts, then gradually extends to advanced concepts that are encountered using the objective approach.

By the end of the course, students will be able to:

- Describe the universal concepts of computer programming
- Use the syntax, semantics, and basic data types of the C++ language
- Understand the principles of the object-oriented model and its implementation in the C++ language
- Resolve typical implementation problems using standard C++ language libraries

The 70-hour, instructor-led course includes hands-on practice activities and over 100 lab exercises to reinforce learning, 16 quizzes and chapter assessments, and pre-final and final tests to measure understanding.

Requirements

The curriculum is designed for upper secondary schools, technical schools, and colleges or universities.

For Students

- No prerequisites.

For Instructors

- No requirements, however it is recommended that instructors earn a CPA - C++ Certified Associate Programmer Certification prior to teaching the course.

For Institutions

- If offered face-to-face: a dedicated classroom with reliable Internet access

Languages

- English

Certification

The course is aligned to the vendor neutral certification:

CPA - C++ Certified Associate Programmer Certification

Advanced Programming in C++ Course Overview

CPP: Advanced Programming in C++ covers intermediate and advanced C++ programming topics for junior-level and specialist-level IT and software development jobs. The course includes hands-on labs, quizzes and assessments to learn how to utilize the skills and knowledge gained on the course and interact with some real-life programming tasks and situations.

By the end of the course, students will be able to:

- Understand the C++ template mechanism.
- Read and understand definitions of template functions and classes.
- Use property template classes and methods, including third-party templates.
- Create template functions and classes.
- Understand and use the elements of the C++ STL library, including the IO part.
- Solve common programming problems with STL-predefined classes and methods.
- Apply your programming skills using hands-on lab activities and by writing your own C++ programs.

Requirements

The curriculum is designed for upper secondary schools, technical schools, and colleges or universities.

For Students

- Programming Essentials in C++ course, CPA certification or equivalent knowledge

For Instructors

- No requirements, however it is recommended that instructors earn a CPA - C++ Certified Associate Programmer Certification prior to teaching the course.

For Institutions

- If offered face-to-face: a dedicated classroom with reliable Internet access

Languages

- English

Certification

CPP – C++ Certified Professional Programmer Certification

Careers

CPA: Programming Essentials in C++ builds foundational IT skills needed to succeed in jobs related to software development, network engineering, system administration, and the expanding IoT. It can also be used for building higher-level applications with graphics libraries, applications for communication with network devices, computer network simulators, as well as systems of remote device and network management. C++ is one of the most widely used programming languages for interacting with hardware, controllers, and components, fueling growth in the digital economy.
CPP: Advanced Programming in C++ will round out your IT skills to set yourself apart, advance your career, and increase your earning potential.

Career Pathways include: software development, systems administration, network administration, device management, network management, systems operations.