SETC Training Corporate Logo

# C++ Training: Acquainting yourself with Objects (CPPINT, 4 jours)

## Description

The course Acquainting yourself with Objects (C++ Training) covers everything you need to get started with object oriented programming using C++. The training includes basic C++ syntax & data types, memory management together with a complete exploration of class programming with C++. The course covers static data, virtual functions, inheritance & polymorphism, pure virtual functions & more. Come master the fundamentals of object oriented programming with C++.

## Tarifs

- Tarification: $3,750/person
- Rabais de 10% lorsque vous inscrivez 3 personnes.

## Plan de cours

The place of C++ in the extended family of programming languages

Binary compatible, source compatible and interpreted code

Visual Basic, C++, Java and scripting languages

C++ versus C

Strengths and weaknesses of C++

The origins of C++

The code development process: The need for planning

Best Practices of Software Engineering

Characteristics of a good software solution

How good software is built

Iterative development

Requirements management

Use of component-based architectures

Ongoing verification of software quality

Control of software changes

The Software Engineering Process

The Rational Unified Process

The Inception Phase

The Elaboration Phase

The Construction Phase

The Transition Phase

The RUP: Dynamic Structure

Symptoms and Root Causes of Software Development Problems

Use Cases in the Overall Process

Business Process Modeling

Use Cases in the Software Development Process

Use Cases and Requirements

Management of Requirements and Use Cases

Writing Use Cases

Graphical Notation

Use Case Formats

Use Case Sections

The Supplementary Specification

## Design with UML

Functional versus Non-Functional Requirements

Moving from Analysis to Design

Modeling the Database

UML Business Activity Diagrams

UML: Design Class Diagrams

UML: Sequence Diagrams

UML: Statechart Diagrams

Dealing with Large Systems

Implementing a Change Management Process

## Essential preparatory topics

Memory architecture: The heap and the stack

Variables: declaration and instantiation

Variables: the assignment operator

Casting and conversion: Old style C versus specific casting operators

Variables: using objects and constructors

Declaring constants

Using const effectively (What about #define)

## The World of Pointers and Memory Management

The architecture of pointers

Declaring pointers on the heap and on the stack

The new and delete operators

Using const with pointers

Using null and pointers

Operators and pointers

## Functions

Using iostream functions

The signature of a function

Defining the scope of a function

Using friend functions

Passing parameters by reference or by pointer?

Passing parameters by value

Returning values from a function call

Inline functions

## Object oriented concepts and Classes

What is an object oriented programming?

Defining effective and reusable

Object Oriented Design: A general approach using UML

The object in C++: the class

Defining member variables

Encapsulation: The need for private member variables

Creating properties: Defining inspector functions

Creating a simple object

Creating methods

Defining the scope of a member: private, public and protected

The special case of the constructor

Defining constructors

Defining destructors

Pointers and classes