C++ For C Programmers	***Duration 4 days***

Course Aims:

This course is designed to provide programmers who already have a good knowledge of the C programming language with the knowledge necessary to allow them to become competent in developing object oriented ANSI-compliant C++ console programs.

Course Outline:

A Review of C++ Programs

The Microsoft Visual C++ IDE - Review

C++ Storage Classes

- Static Variables
- Register Variables
- Auto Variables

Embedded C++ Programming

- Limitations
- Unions
- Bit Manipulation

The Principles of Object Oriented Programming

- Encapsulation
- Inheritance
- Polymorphism

Classes & Objects

- Class Implementation
- Constructors & Destructors
- Using objects

Static Class Members

- Static Class Data Members
- Static Class Member Functions

Dynamic Memory

- Memory Leakage
- new() & delete()
- Overloading the new() & delete() operators
- Dynamic Memory Error Handlers

The C++ Const Modifier

- Const Variables, Pointers & References
- Constants & Functions
- Const Class Member Functions

Class Hierarchies & Inheritance

- Deriving Classes
- Public, Private & Protected Inheritance
- Base Class Initialisation

Polymorphism

- Virtual Functions
- Virtual Destructors
- Pure Virtual Functions
- Abstract Base Classes – Interface Classes

Advanced Casting

- static_cast, dynamic_cast, const_cast & reinterpret_cast
- Mutable

Overloaded Constructors & Operators

- Copy Constructors
- Conversion Constructors
- Operator =
- Operator +
- Operator ++
- The << & >> Operators & Friend Functions
- Subscript Operator

File I/O in C++

- Text Files
- Binary Files
- Serialising Objects

Exceptions & Debugging

- Try, Throw, Catch
- Debugging overview
- The MS Visual Studio Debugger

The Standard Template Library

- String
- Vector
- Queue
- Stack
- List
- Map
- Iterators

Target Audience:

Systems and applications programmers who will be developing systems in C++. Anyone who wants a practical understanding of C++ will benefit from this course. It is suitable for hardware and software engineers who want to expand their knowledge in a powerful all-purpose language, technical managers who want to manage C++ programming projects.

Assumed Knowledge:

Participants should have a good knowledge of programming techniques and experience of programming in C.