# Programming in C Training

Duration: **4 Day**

BILGINC IT Academy
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## Overview

**C is one of the most widely-used languages for systems software and workstation application programming, largely due to its power and flexibility. This course will provide you a highly effective, structured approach to learning the C language.**

Programming skills will be enhanced as delegates will be able to use the powerful features of C to best effect and avoid errors that lead to faulty code or code that cannot be maintained. QA's programming course is outstanding because of its emphasis on writing style, pitfalls to avoid and techniques to use that make the code clear, concise and maintainable.

In addition to the lecture material there are graded practical sessions that cover each of the major areas of C. There are also optional exercises for further study after the course. Delegates may take away worked solutions, together with some small sample demonstration programmes.

## Prerequisites

- Delegates must have professional programming skills and a good working knowledge of a block-structured language, such as Basic/Visual Basic, Pascal/Modula2, Fortran, Algol or PL/1, and be familiar with a programming environment.

Please note: Before attending this class delegates must have a Microsoft account (signing up one is free). The instructions on how to set up a Microsoft account can be found here.

## What You Will Learn

At the end of this course you will be able to:

- Use the major elements of the C language
- Write programs using the strengths of the C language For example, pointers
- Write and use the data structuring features of the language, which can result in better program design
- Work with the C run-time library: a major source of programmer productivity
- Spot and remedy common programming errors in C
- Write in a good C programming style

## Outline

**An Overview of C**

History and evolution of C; Key characteristics of C

**Writing a Simple Program**

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Program structure; Data and code statements; C software development life cycle

**Data Types**

Scalar types; Variables and constants; Storage considerations; Initialising variables

**Operators and Expressions**

Standard arithmetic operators; Increment, decrement, assignment and relational operators; Automatic and programmer-controlled type conversion

**Program Looping**

Boolean expressions; While, Do and For loops; Looping style considerations

**Decision Making**

If, Else and Switch statements; Other statements affecting flow of control; Decision-making style considerations

**Functions and Program Structure**

Inter-function communication; Function prototypes, calls and definitions; Scope and storage classes

**Structured Data Types**

Arrays, structures and unions; Nested data structures

**Pointers**

The concept of indirection; Pointers and address arithmetic; Pointers and functions

**Pointers and Data Structures**

Pointers and arrays; Pointers and structures; Complex data structures

**Preprocessor**

Tokens and macros; Include files; Conditional compilation

**Input and Output**

Using run-time routines; Character and formatted I/O; File I/O

**Further Data Types**

Bit manipulation; User-defined types

**Working with Larger Programs**

C and modular programming; C's standard library considerations

**The Way Ahead**

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Further C information sources; Support after this course