

**Price:** R8,600.00 excl. VAT  
**Duration:** 5 days  
**Code:** SANSC

# Standard C Programming

## Description

The Standard C Programming course is a high content course that provides a complete overview of the C language, based on the ANSI standard. The focus is on programming standard C in a structured and portable manner, and reliance is not placed on any specific compiler or platform.

## Objectives

Delegates who complete the Standard C Programming course will be able to:

- Understand the C compiler and the pre-processor.
- Use pre-processor directives.
- Develop portable, standards compliant code using C language constructs.
- Read, debug and maintain C code.
- Understand the importance of portable code and standards compliance.

## Intended Audience

The Standard C Programming is intended for any programmer or engineer who needs to develop or maintain systems written in C. Developers who have had limited exposure to C, or are self-taught, will benefit from this course.

## Prerequisites

Delegates who want to attend the Standard C Programming course must have previous programming experience.

## Course Contents

*The lecturer reserves the right to modify the contents of the course to suit the needs of the delegates.*

**Introduction** • Overview of the C language. • Portability. • Terminology. • Programming fundamentals. • Structured programming principles.

**The C Compiler** • Compiler operation in general. • The preprocessor. • Output results of the compilation phases. • Object files and libraries. • Installing a C compiler. • Creating program files. • Compiler code generation, the linking process and executing programs. • The C startup module and the main function. • Separate compilation.

**C Language Fundamentals** • Keywords. • Program structure and conventions. • The standard library. • Header files. • Functions and I/O functions. • Character set. • Literal values. • Comments. • Preprocessor directives. • Fundamental types, derived types, structured types, enumerated types, user defined types. • Storage classes.

**Expressions and Operators** • Expressions and expression results. • Operators in expressions. • Type requirements of operators. • Implicit and inherent type conversions. • Types of operands and the resulting types. • Bitwise, relational, logical, compound assignment and other operators.

**Functions and Statements** • Function definitions, declarations and prototypes. • Passing parameters. • Recursive functions. • Function returns. • The function call operator. • Local variables. • Function pointers and the pointers-to-function data type. • Types of statements.

**Pointers, Arrays and Structs** • Pointer types and operators. • Pointer arithmetic. • Array subscripts. • Indirection. • Multi-dimensional arrays. • Pointer-to-array and pointer-to-function types. • Structs and unions. • Member selection, indirect member selection.