



TRAINING OVERVIEW

Duration: 3 Days
Dates: To Be Advised
Price per delegate: R11,999.00

Have you ever wished you knew how to code, but had no idea where to start from? This course will teach you how to code from scratch; an easy to use [Java](#) programming language.

More importantly, it will introduce you to the fundamental principles of computing and [enable you to think like a software engineer](#).

The course assumes no programming background and provides an overview of the software development process in addition to introducing important programming constructs and methodologies. Participants will learn the fundamental and high-level concepts and terminologies of software application development and [develop skills in designing and writing simple and complex computer codes](#).



WHO SHOULD ATTEND?

This course is intended for anyone who is new to software development and wants, or needs, to gain an understanding of programming fundamentals and object-oriented programming concepts.

COMPETENCY OUTCOMES

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By the end of the training, course participants should be able to:

- Demonstrate an understanding of fundamental programming principles
- Demonstrate an understanding of high-level programming language concepts
- Apply fundamental principles of problem analysis
- Demonstrate an understanding of different data representations used in computer programs

COURSE OUTLINE

MODULE 1: INTRODUCTION TO PROGRAMMING CONCEPTS

- Computer Data Storage and Processing
- Application Lifecycle
- Application Types
- Code Compilation

MODULE 2: OPERATE COMPUTER PROGRAMMING DEVELOPMENT TOOLS

- The operation demonstrates the use of the editor of the development tools to produce program source code: Applying chosen editor to programming
- The operation includes the use of the syntax checker of the tools to check for syntax errors.
- The operation uses the tool to compile the program source code produced: User written code, standard functions, library functions.

MODULE 3: DEMONSTRATE AN UNDERSTANDING OF DIFFERENT DATA REPRESENTATIONS USED IN COMPUTER PROGRAMS.

- The demonstration applies different number conversion techniques between data types (at least 2): Binary, Decimal, Hexadecimal, Octal.
- The demonstration compares different logical data types (at least 3) in a language of choice (incl. pseudo code): Numeric, Alphabetic, Alpha numeric, Boolean.
- The demonstration differentiate between different internal representations of data types (in ASCII): Signed numbers, Floating point numbers.
- The demonstration distinguishes between different logical operators (at least 2): And, Or, Not .

MODULE 4: DEMONSTRATE AN UNDERSTANDING OF FUNDAMENTAL PROGRAMMING PRINCIPLES.

- The demonstration illustrates the differences between the various algorithmic structures of languages, using a language of choice (incl. Pseudo code): Sequential, Selection, Loops.
- The demonstration compares good & bad program documentation principles (at least 3), using a language of choice (incl. Pseudo code) where needed: General readability, Meaningful variable names, indentation, program comments.
- The demonstration illustrates good programming quality assurance principles: Syntax check, Test data & Test plan.

MODULE 5: DEMONSTRATE AN UNDERSTANDING OF HIGH LEVEL PROGRAMMING LANGUAGE CONCEPTS.

- The demonstration explains what is understood by constants and variables: Constants maintain fixed values; Variables have changing values.
- The demonstration illustrates the concepts of operators and expressions: Arithmetic operators (+ - * /), Logical operators (= <>), execution sequence.
- The demonstration illustrates different modular programming features and variable passing: Standard functions, Procedures without variables, Global and Local variables.
- The demonstration applies different debugging techniques: Trace tables, Appropriate test data, Structured walk-through's.

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