

**Price:** R5,900.00 excl. VAT  
**Duration:** 3 days  
**Code:** SQLFN

## SQL Fundamentals

### Description

This course covers the fundamentals of the Structured Query Language (SQL). Contents include table creation, inserts, updates and deletes, basic and advanced data queries and joins. Delegates are introduced to the fundamental concepts of relational databases, and are made aware of some of the differences between popular databases.

### Objectives

Delegates who complete this course will be able to:

- Understand the principles of the relational database model, in particular entity and referential integrity.
- Create tables and fields using SQL.
- Insert, update and delete data from a database using SQL.
- Selectively extract and sort data from a database.
- Use aggregate functions to summarise data.
- Create SQL queries across multiple tables.
- Understand the use of the command line and text editors in executing SQL instructions.

### Intended Audience

Anyone who needs to use SQL to update or query databases, either on its own or within another development environment.

### Prerequisites

A basic understanding of relational databases will be an advantage.

### Course Contents

**Database Fundamentals** • Introduction to databases and SQL. • Tables, fields, and records. • Relationships. • Primary and foreign keys. • Entity and referential integrity. • Normalisation.

**Data Definition Commands** • Creating the database structure. • Creating table structures. • Defining fields and field types. • Creating primary keys. • Creating foreign keys.

**Data Management Commands** • Inserting data into tables. • Saving table contents. • Correcting and updating table data. • Deleting data from tables. • Using COMMIT and ROLLBACK.

**Data Query Commands** • The SELECT statement. • Restricting columns. • Using the WHERE clause to restrict rows. • Arithmetic, comparison and logical operators. • Special SQL operators: BETWEEN, IS NULL, LIKE, IN. • Ordering and sorting selected data. • Aggregate functions: SUM, AVERAGE, MAX, MIN and COUNT. • Grouped queries.

**Advanced Data Query Commands** • Creating sub-queries. • Using joins in SELECT queries. • Eliminating duplicates. • Using aliases. • The UNION operator.

**Advanced Data Management Commands** • Modifying existing tables. • Column constraints. • Creating views.