

40 HORAS

## INTRODUCTION

This course provides students with the technical skills required to write basic Transact-SQL queries for Microsoft SQL Server 2014. This course is the foundation for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. The main purpose of the course is to prepare people for the exam "70-461: Writing Queries Using Microsoft® SQL Server® 2014 Transact-SQL." This exam will be the underlying exam for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. As such, the primary target audience for this course is: Database Administrators, Database Developers and BI professionals.

## AUDIENCE

This course is intended for Database Administrators, Database Developers, and Business Intelligence professionals. The course will very likely be well attended by SQL power users who aren't necessarily database-focused or plan on taking the exam; namely, report writers, business analysts and client application developers.

## AT COURSE COMPLETION

After completing this course, students will be able to:

- Describe the basic architecture and concepts of Microsoft SQL Server 2014.
- Understand the similarities and differences between Transact-SQL and other computer languages.
- Write SELECT queries
- Query multiple tables
- Sort and filter data
- Describe the use of data types in SQL Server
- Modify data using Transact-SQL
- Use built-in functions
- Group and aggregate data
- Use subqueries
- Use table expressions
- Use set operators
- Use window ranking, offset and aggregate functions
- Implement pivoting and grouping sets
- Execute stored procedures
- Program with T-SQL
- Implement error handling
- Implement transactions

## PREREQUISITES

- Working knowledge of relational databases.
- Basic knowledge of the Microsoft Windows operating system and its core functionality

## COURSE OUTLINE

### Module 1: Introduction to Microsoft SQL Server 2014

- The Basic Architecture of SQL Server
- SQL Server Editions and Versions
- Getting Started with SQL Server Management Studio

### Module 2: Introduction to T-SQL Querying

- Introducing T-SQL
- Understanding Sets
- Understanding Predicate Logic
- Understanding the Logical Order of Operations in SELECT statements

### Module 3: Writing SELECT Queries

- Writing Simple SELECT Statements
- Eliminate Duplicates with DISTINCT
- Using Column and Table Aliases
- Write Simple CASE Expressions

### Module 4: Querying Multiple Tables

- Understanding Joins
- Querying with Inner Joins
- Querying with Outer Joins
- Querying with Cross Joins and Self Joins

### Module 5: Sorting and Filtering Data

- Sorting Data
- Filtering Data with Predicates
- Filtering with the TOP and OFFSET-FETCH
- Working with Unknown Values

### Module 6: Working with SQL Server 2014 Data Types

- Introducing SQL Server 2014 Data Types
- Working with Character Data
- Working with Date and Time Data

### Module 7: Using DML to Modify Data

- Inserting Data
- Modifying and Deleting Data

### **Module 8: Using Built-In Functions**

- Writing Queries with Built-In Functions
- Using Conversion Functions
- Using Logical Functions
- Using Functions to Work with NULL

### **Module 9: Grouping and Aggregating Data**

- Using Aggregate Functions
- Using the GROUP BY Clause
- Filtering Groups with HAVING

### **Module 10: Using Subqueries**

- Writing Self-Contained Subqueries
- Writing Correlated Subqueries
- Using the EXISTS Predicate with Subqueries

### **Module 11: Using Table Expressions**

- Using Views
- Using Inline Table-Valued Functions
- Using Derived Tables
- Using Common Table Expressions

### **Module 12: Using Set Operators**

- Writing Queries with the UNION Operator
- Using EXCEPT and INTERSECT
- Using APPLY

### **Module 13: Using Window Ranking, Offset, and Aggregate Functions**

- Creating Windows with OVER
- Exploring Window Functions

### **Module 14: Pivoting and Grouping Sets**

- Writing Queries with PIVOT and UNPIVOT
- Working with Grouping Sets

### **Module 15: Querying data with Stored Procedures**

- Writing Queries with PIVOT and UNPIVOT
- Passing Parameters to Stored Procedures
- Creating Simple Stored Procedures
- Working with Dynamic SQL

### **Module 16: Programming with T-SQL**

- T-SQL Programming Elements
- Controlling Program Flow

### **Module 17: Implementing Error Handling**

- Using TRY / CATCH Blocks
- Working with Error Information

### **Module 18: Implementing Transactions**

- Transactions and the Database Engine
- Controlling Transactions

### **Module 19: Appendix 1: Improving Query Performance**

- Factors in Query Performance
- Displaying Query Performance Data

### **Module 20: Appendix 2: Querying SQL Server Metadata**

- Querying System Catalog Views and Functions
- Executing System Stored Procedures
- Querying Dynamic Management Objects