

40 HORAS

## INTRODUCTION

This course is designed to introduce students to Transact-SQL. It is designed in such a way that the first three days can be taught as a course to students requiring the knowledge for other courses in the SQL Server curriculum. Days 4 & 5 teach the remaining skills required to take exam 70-761.

## AUDIENCIA

The main purpose of the course is to give students a good understanding of the Transact-SQL language which is used by 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.

## AT COURSE COMPLETION

After completing this course, students will be able to:

- Describe key capabilities and components of SQL Server.
- Describe T-SQL, sets, and predicate logic.
- Write a single table SELECT statement.
- Write a multi-table SELECT statement.
- Write SELECT statements with filtering and sorting.
- Describe how SQL Server uses data types.
- Write DML statements.
- Write queries that use built-in functions.
- Write queries that aggregate data.
- Write subqueries.
- Create and implement views and table-valued functions.
- Use set operators to combine query results.
- Write queries that use window ranking, offset, and aggregate functions.
- Transform data by implementing pivot, unpivot, rollup and cube.
- Create and implement stored procedures.
- Add programming constructs such as variables, conditions, and loops to T-SQL code.

## PREREQUISITES

Before attending this course, students must have:

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

## COURSE OUTLINE

### Module 1: Introduction to Microsoft SQL Server 2016

- 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
- Eliminating Duplicates with DISTINCT
- Using Column and Table Aliases
- Writing 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 Data Types

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

### Module 7: Using DML to Modify Data

- Adding Data to Tables
- Modifying and Removing Data
- Generating automatic column values

### 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 Windows 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: Executing Stored Procedures

- Querying Data with Stored Procedures
- 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

- Implementing T-SQL error handling
- Implementing structured exception handling

### Module 18: Implementing Transactions

- Transactions and the database engines
- Controlling transactions