Course Details

Course Code: 55317A

Duration: 3 days

Notes:

- This course syllabus should be used to determine whether the course is appropriate for the students, based on their current skills and technical training needs.
- Course content, prices, and availability are subject to change without notice.
- Terms and Conditions apply

Elements of this syllabus are subject to change.

About this course

55317A is the updated version of the retired legacy MOC course 20461. This three-day course teaches students how to use basic Transact-SQL statements and other languages to query modern editions of Microsoft SQL Server and Azure SQL Server. This course is the foundation for all SQL Server-related disciplines; namely, Database Administration, Database Development and Business Intelligence. By using demonstrations and hands-on labs, attendees will learn to perform these tasks using SQL Server, Azure Data Studio, and other database tools.

Audience Profile

This course is intended for Database Administrators, Database Developers, and Business Intelligence professionals. Report writers, business analysts, application developers and SQL users who want to familiarize themselves with SQL Server will also benefit from this material.

At Course Completion

After completing this course, students will be able to:

- Query, sort and filter data in database tables
- Query external data sources
- Query SQL Server and Azure SQL Server programmatically
- Optimize query performance
- Modify data using Transact-SQL
- Work with XML and JSON formatted data
- Use stored procedures and functions
- Use SQL Server tools like SSMS and Azure Data Studio
- Use Linked Servers
- Use PolyBase

Prerequisites
- Experience working on Windows computers

Module 1: Querying data with SQL Server Management Studio

This module explains how to use SQL Server Management Studio (SSMS) to query SQL Server databases.

Lessons
- Lesson 1: Introduction to SSMS
- Lesson 2: SSMS querying options
- Lesson 3: Managing SSMS queries

Lab 1: Querying data with SQL Server Management Studio
- Exercise 1: Introduction to SSMS
- Exercise 2: SSMS querying options
- Exercise 3: Managing SSMS queries

After completing this module, students will be able to:

- Use SSMS
- Run T-SQL scripts in SSMS
- Manage scripts in SSMS

Module 2: Querying data with Azure Data Studio

This module explains how to use Azure Data Studio to query SQL Server databases.

Lessons
- Lesson 1: Introduction to Azure Data Studio
- Lesson 2: Azure Data Studio querying options
- Lesson 3: Managing Azure Data Studio queries

Lab 1: Querying data with Azure Data Studio
- Exercise 1: Introduction to Azure Data Studio
- Exercise 2: Azure Data Studio querying options
- Exercise 3: Managing Azure Data Studio queries

After completing this module, students will be able to:

- Use Azure Data Studio tool
- Run scripts in Azure Data Studio
- Manage scripts in Azure Data Studio

Module 3: Basic Transact-SQL Queries

This module explains how to write basic SELECT queries.

Lessons
- Lesson 1: Using the SELECT statement
- Lesson 2: Working with table columns
- Lesson 3: Working with table rows

Lab 1: Basic Transact-SQL Queries
- Exercise 1: Using the SELECT statement
- Exercise 2: Working with table columns
- Exercise 3: Working with table rows

After completing this module, students will be able to:

- Write SELECT statements
- Filter table columns
- Filter and sort table rows

Module 4: Advanced Transact-SQL Queries

This module explains how to write more complex SELECT statements and query multiple tables.

Lessons
- Lesson 1: Using Unions and Joins
- Lesson 2: Using Subqueries
- Lesson 3: Using Common Table Expressions (CTEs)
- Lesson 4: Grouping data

Lab 1: Advanced Transact-SQL Queries
- Exercise 1: Using Unions and Joins
- Exercise 2: Using Subqueries
- Exercise 3: Using Common Table Expressions (CTEs)
- Exercise 4: Grouping data

After completing this module, students will be able to:

- Join data from different tables
- Use subqueries
- Use CTEs
- Aggregate data from one or more columns

Module 5: Optimizing Query Performance

This module explains how to improve the performance of database queries.

Lessons
- Lesson 1: Identifying performance issues
- Lesson 2: Altering tables and queries
- Lesson 3: Using Indexes

Lab 1: Optimizing Query Performance
- Exercise 1: Identifying performance issues
- Exercise 2: Altering tables and queries
- Exercise 3: Using Indexes

After completing this module, students will be able to:

- Identify query performance problems
- Modify tables and queries to improve query performance
- Use indexes to improve query performance

Module 6: Modifying data with INSERT, UPDATE, and DELETE
This module explains how to use Data Modification Language (DML) statements to add, change or delete data.

Lessons
- Lesson 1: Using INSERT
- Lesson 2: Using UPDATE
- Lesson 3: Using DELETE

Lab 1: Modifying data with INSERT, UPDATE, and DELETE
- Exercise 1: Using INSERT
- Exercise 2: Using UPDATE
- Exercise 3: Using DELETE

After completing this module, students will be able to:

- Use INSERT statements
- Use UPDATE statements
- Use DELETE statements

Module 7: Working with XML and JSON data
This module explains how to use XML and JSON data in a SQL Server database.

Lessons
- Lesson 1: Storing XML and JSON records
- Lesson 2: Querying XML and JSON records
- Lesson 3: Converting records to XML and JSON formats

Lab 1: Working with XML and JSON data
- Exercise 1: Storing XML and JSON records
- Exercise 2: Querying XML and JSON records

- Exercise 3: Converting records to XML and JSON formats

After completing this module, students will be able to:

- Store XML and JSON data in SQL Server
- Query XML and JSON data
- Convert database records to XML or JSON formats

Module 8: Using Stored Procedures and Functions
This module explains how to create and use built-in and user created T-SQL programming objects in SQL Server.

Lessons
- Lesson 1: Using Built-in Procedures and Functions
- Lesson 2: Creating Stored Procedures
- Lesson 3: Creating Functions

Lab 1: Using Stored Procedures and Functions
- Exercise 1: Using Built-in Procedures and Functions
- Exercise 2: Creating Stored Procedures
- Exercise 3: Creating Functions

After completing this module, students will be able to:

- Use Built-in Procedures and Functions
- Create stored procedures
- Create functions

Module 9: Query SQL Server programmatically
This module explains how to query SQL Server using non-SQL languages.

Lessons
- Lesson 1: Query SQL Server using sqlcmd
- Lesson 2: Query SQL Server using PowerShell
- Lesson 3: Query SQL Server using Python

Lab 1: Query SQL Server programmatically
- Exercise 1: Query SQL Server using sqlcmd
- Exercise 2: Query SQL Server using PowerShell
- Exercise 3: Query SQL Server using Python

After completing this module, students will be able to:

- Query SQL Server using sqlcmd
- Query SQL Server using PowerShell
- Query SQL Server using Python

Module 10: Managing External Data Sources

This module explains how to use different methods to create permanent connections to external data sources.

Lessons
- Lesson 1: Using Linked Servers
- Lesson 2: Using PolyBase

Lab 1: Managing External Data Sources
- Exercise 1: Using Linked Servers
- Exercise 2: Using PolyBase

Lab 2: Capstone Lab (Optional)
- Exercise 1: Querying SQL Server database records

After completing this module, students will be able to:

- Use Linked Servers
- Use PolyBase