



Information Technology

Developing SQL Databases

Course Introduction

This training course is designed to provide students with the knowledge and skills to develop a Microsoft SQL Server 2016 database. This MOC-OD will focus on using SQL Server 2016 product features and tools related to developing a database.

Target Audience

This training course is designed for IT Professionals seeking to advance their skills on SQL Server 2016 product features and technologies for implementing a database.

Learning Objectives

- Design and Implement Tables.
- Describe advanced table designs
- Ensure Data Integrity through Constraints.
- Describe indexes, including Optimized and Columnstore indexes
- Design and Implement Views.
- Design and Implement Stored Procedures.
- Design and Implement User Defined Functions.
- Respond to data manipulation using triggers.
- Design and Implement In-Memory Tables.
- Implement Managed Code in SQL Server.
- Store and Query XML Data.
- Work with Spatial Data.
- Store and Query Blobs and Text Documents.

Course Outline

• Day 01

Module 1: Introduction to Database Development

- Introduction to the SQL Server Platform
- SQL Server Database Development Tasks
- Lab : SQL Server Database Development Tasks

Module 2: Designing and Implementing Tables

- Designing Tables
- Data Types
- Working with Schemas
- Creating and Altering Tables
- Lab : Designing and Implementing Tables

Module 3: Advanced Table Designs

- Partitioning data
- Compressing Data
- Temporal Tables
- Lab : Using Advanced Table Designs

• Day 02

Module 4: Ensuring Data Integrity through Constraints

- Enforcing data Integrity
- Implementing Domain Integrity
- Implementing Entity and Referential Integrity
- Lab : Ensuring Data Integrity through Constraints

Module 5: Introduction to Indexes

- Core Indexing Concepts
- Data Types and Indexes
- Single Column and Composite Indexes
- Lab : Implementing Indexes

Module 6: Designing Optimized Index Strategies

- Covering Indexes
- Managing Indexes
- Execution Plans
- Using the DTE
- Lab : Designing Optimized Index Strategies

• Day 03

Module 7: Columnstore Indexes

- Introduction to Columnstore indexes
- Creating Columnstore indexes
- Working Columnstore indexes
- Lab : Using Columnstore indexes

Module 8: Designing and Implementing Views

- Introduction to views
- Creating and managing views
- Performance considerations for views
- Lab : Designing and Implementing Views

Module 9: Designing and Implementing Stored Procedures

- Introduction to Stored Procedures
- Working with Stored Procedures
- Implementing Parameterized Stored Procedures
- Controlling Execution Context
- Lab : Designing and Implementing Stored Procedures

• Day 04

Module 10: Designing and Implementing User-Defined Functions

- Overview of Functions
- Designing and Implementing Scalar Functions
- Designing and Implementing Table-Valued Functions
- Implementation Considerations for Functions
- Alternatives to Functions
- Lab: Designing and Implementing User-defined Functions

Module 11: Responding to Data Manipulation via Triggers

- Designing DML TriggersImplementing DML Triggers
- Advanced Trigger Concepts
- Lab: Responding to Data Manipulation via Triggers

Module 12: Using In-Memory Tables

- In-Memory tables
- Native Stored Procedures
- Lab: In Memory OLTP

Module 13: Implementing Managed Code in SQL Server

- Introduction to SQL CLR Integration
- Importing and Configuring Assemblies
- Implementing SQL CLR Integration
- Lab: Implementing Managed Code in SQL Server

• Day 05

Module 14: Storing and Querying XML Data in SQL Server

- Introduction to XML and XML Schemas
- Storing XML Data and Schemas in SQL Server
- Implementing the XML Data Type
- Using the T-SQL FOR XML Statement
- Getting Started with xQuery
- Lab : Storing and Querying XML Data in SQL Server

Module 15: Working with SQL Server Spatial Data

- Introduction to Spatial Data
- Working with SQL Server Spatial Data Types
- Using Spatial Data in Applications
- Lab : Working with SQL Server Spatial Data

Module 16: Storing and Querying Blobs and Text Documents in SQL Server

- Considerations for BLOB Data
- Working with FileStream
- Using Full-Text Search
- Lab : Storing and Querying Blobs and Text Documents in SQL Server

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 26, 2025	May 30, 2025	5 days	4250.00 \$	UAE - Dubai
Aug. 4, 2025	Aug. 8, 2025	5 days	4950.00 \$	England - London
Dec. 22, 2025	Dec. 26, 2025	5 days	2150.00 \$	Virtual - Online