



## **Updating Your SQL Server Skills to Microsoft SQL Server 2014**

Course 10977B    5 Days    Instructor-led, Hands-on

### **Course Description**

This five-day instructor-led course teaches students how to use the enhancements and new features that have been added to SQL Server and the Microsoft data platform since the release of SQL Server 2008. The course focuses on teaching individuals how to use SQL Server 2014 product features and other Microsoft data platform components

The primary audience for this course is database and business intelligence (BI) professionals who are familiar with SQL Server 2008 and want to update their skills to SQL Server 2014, and become familiar with related Microsoft data technologies.

### **Course Objectives**

Upon successful completion of this course, students will be able to:

- Describe key features and capabilities of SQL Server 2014.
- Leverage new and enhanced features to develop database in SQL Server 2014.
- Use in-memory database capabilities in SQL Server 2014.
- Manage SQL Server 2014 by using dynamic management views and PowerShell.
- Implement security in SQL Server 2014.
- Implement high-availability and data recovery techniques in SQL Server 2014.
- Use SQL Server 2014 Integration Services.
- Use SQL Server 2014 Data Quality Services.
- Use SQL Server 2014 Master Data Services.
- Manage SQL Server 2012 Agent and Jobs.
- Implement a tabular data model in SQL Server 2014 Analysis Services.
- Implement a Self-Service BI solution with Microsoft Excel 2013.
- Describe key elements of cloud solutions for data.
- Implement a database in Windows Azure SQL Database.
- Implement a SQL Server database in a Windows Azure virtual machine.
- Implement a Big Data solution with Windows Azure HDInsight and the Windows Azure Marketplace.

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## Prerequisites

To ensure success in this course, students should have attended the following courses, or have equivalent experience:

- Experience of building and managing database, data warehouse, and business intelligence (BI) solutions with SQL Server 2008.
- Familiarity with the Windows Server 2012 operating system and networking.
- Familiarity with Microsoft Excel and Microsoft SharePoint Server 2013.

## Course Materials

The student kit includes a comprehensive workbook and other required materials for this class.

## Course Content

### Module 1: Introduction to SQL Server 2014

This module introduces key features of SQL Server 2014.

#### Lessons

- Overview of SQL Server 2014
- SQL Server 2014 Editions and Components
- Installing SQL Server 2014
- Enhancements to SQL Server Management Studio

#### Lab : Exploring SQL Server 2014

- Reviewing Installed Components
- Using SQL Server Management Studio

After completing this module, students will be able to:

- Describe the common workloads for SQL Server 2014.
- Describe the SQL Server 2014 Editions and Components.
- Install SQL Server 2014 Components.
- Use the new features in SQL Server Management Studio.

### Module 2: What's New in SQL Server Database Development

This module describes enhancements to Transact-SQL and other database development features since SQL Server 2008.

#### Lessons

- Transact-SQL Enhancements

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- New and Enhanced Transact-SQL Functions
- Enhancements to Spatial Data Support
- Storing and Querying Documents with SQL Server 2014

#### **Lab : Developing SQL Server 2014 Databases**

- Using Sequence Objects
- Using the THROW statement
- Implementing Paging
- Querying Documents

After completing this module, students will be able to:

- Describe the enhancements to Transact-SQL.
- Describe new and enhanced Transact-SQL functions.
- Describe the enhancements to Spatial Data Support.
- Explain how to store and query documents with SQL Server 2014.

### **Module 3: In-Memory Database Capabilities**

This module describes how SQL server 2014 enables you to leverage in-memory technologies to enhance database performance.

#### **Lessons**

- The Buffer pool Extension
- Columnstore Indexes
- Memory-Optimized Tables

#### **Lab : Using In-Memory Database Capabilities**

- Enabling the Buffer Pool Extension
- Creating Columnstore Indexes
- Working with Memory-Optimized Tables

After completing this module, students will be able to:

- Use the Buffer Pool Extension to improve performance for read-heavy OLTP workloads.
- Use Columnstore Indexes to improve performance in data warehouse query workloads.
- Use memory-optimized tables to improve performance for latch-bound workloads.

### **Module 4: Scripting SQL Server 2014**

This lesson describes how you can use dynamic management views and PowerShell to script administrative tasks in SQL server 2014.

#### **Lessons**

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- New and Enhanced Dynamic Management Views
- Using PowerShell to Manage SQL Server

#### **Lab : Managing SQL Server with Scripts**

- Using Dynamic Management Views
- Using PowerShell

After completing this module, students will be able to:

- Describe new and enhanced dynamic management views.
- Describe how to use PowerShell to Manage SQL Server

### **Module 5: Implementing Security in Microsoft SQL Server 2014**

This module describes the enhancements to security features since SQL Server 2008.

#### **Lessons**

- Security Management Enhancements
- Contained Databases

#### **Lab : Implementing Security**

- Implementing User-Defines Server Roles
- Implementing Contained Databases

After completing this module, students will be able to:

- Describe the security enhancements in SQL Server 2014.
- Explain how to use contained databases.

### **Module 6: High Availability and Data Recovery Enhancements**

This module describes enhancements to SQL Server availability and data recovery features since SQL Server 2008.

#### **Lessons**

- AlwaysOn High Availability
- Enhancements to Data Recovery

#### **Lab : Using AlwaysOn Availability Groups**

- Creating an AlwaysOn Availability Group
- Using an AlwaysOn Availability Group
- Observing Availability Group Failover Behavior

After completing this module, students will be able to:

- Describe high availability features in SQL Server 2014.

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- Describe data recovery enhancements in SQL Server 2014.

## **Module 7: New and Enhanced Features in SQL Server Integration Services**

This module describes enhancements to SQL Server Integration Services since SQL Server 2008.

### **Lessons**

- Using the CDC Control Task for Incremental Data Loads
- Deploying and Operating SSIS Packages

### **Lab : Using SQL Server Integration Services**

- Extracting Modified Data
- Deploying and Operating an SSIS Project

After completing this module, students will be able to:

- Use the CDC Control task to perform incremental data extractions in an ETL solution.
- Deploy and operate an SSIS project.

## **Module 8: Data Quality Services**

This module explains how to use the SQL Server 2014 Data Quality Services (DQS) to provide a computer assisted process for cleansing data values and identifying and removing duplicate data entities.

### **Lessons**

- Introduction to Data Quality
- Using Data Quality Services to Cleanse Data
- Using Data Quality Services to Match Data

### **Lab : Cleansing Data**

- Creating a DQS Knowledge Base
- Using a DQS Project to Cleanse Data
- Using DQS in an SSIS Package

### **Lab: Deduplicating Data**

- Creating a Matching Policy
- Using a DQS Project to Match Data

After completing this module, students will be able to:

- Describe how Data Quality Services can help you manage data quality.

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- Use Data Quality Services to cleanse your data.
- Use Data Quality Services to match data

## **Module 9: Master Data Services**

This module introduces Master Data Services and describes its key configuration options and how to import and export data.

### **Lessons**

- Introduction to Master Data Services
- Implementing a Master Data Services Model
- Using the Master Data Services Add-in for Excel

Lab: Implementing Master Data Services

- Creating a Basic Model
- Editing a Model by Using the Master Data Services Add-in for Excel
- Loading Data into a Model
- Enforcing Business Rules
- Consuming Master Data Services Data

After completing this module, students will be able to:

- Describe key Master Data Services concepts.
- Implement a Master Data Services model.
- Use Master Data Services tools to manage master data.
- Use Master Data Services tools to create a master data hub.

## **Module 10: SQL Server 2014 Reporting Services**

This module describes new and enhanced features in SQL Server Reporting Services.

### **Lessons**

- Reporting Services Overview
- Reporting Services and Microsoft SharePoint Server
- Introduction to Data Alerts

**Lab : Using SQL Server 2014 Reporting Services**

- Viewing SharePoint Mode Configuration
- Authoring, Publishing, and Viewing a Report
- Creating and Managing Data Alerts

After completing this module, students will be able to:

- Describe the key capabilities of Reporting Services.
- Install and configure Reporting Services in SharePoint Mode.
- Use data alerts to notify users of changes to report data.

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## **Module 11: Implementing an Analysis Services Tabular Data Model**

This module describes Analysis Services tabular data models and explains how to develop a tabular data model by using the SQL Server Data Tools for BI add-in for Visual Studio.

### **Lessons**

- Introduction to Analysis Services Tabular Data Model Projects
- Creating a Tabular Model
- Using an Analysis Services Tabular Data Model in the Enterprise

### **Lab: Working with an Analysis Services Tabular Data Model**

- Configuring Columns and Relationships
- Using Custom DAX Expressions
- Deploying an Analysis Services Tabular Data Model
- After completing this module, students will be able to:
- Describe Analysis Services tabular data model projects.
- Implement an Analysis Services tabular data model.
- Use an Analysis Services tabular data model.
- Creating an Analysis Services Tabular Data Model Project

After completing this module, you will be able to:

- Describe Analysis Services tabular data model projects.
- Implement an Analysis Services tabular data model.
- Use an Analysis Services tabular data model.

## **Module 12: Self-Service BI with Microsoft Excel**

This module introduces the self-service BI capabilities that can be delivered through Microsoft Excel 2013 and related technologies.

### **Lessons**

- PowerPivot for Excel
- PowerPivot for SharePoint Server
- Power Query
- Power View
- Power Map
- Power BI for Office 365

### **Lab : Self-Service BI with Excel**

- Creating a Data Model with PowerPivot
- Importing Data with Power Query
- Visualizing Data with Power View
- Visualizing
- Visualizing Geographic Data with Power Map

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After completing this module, students will be able to:

- Use PowerPivot to create tabular data models in Excel.
- Share a PowerPivot workbooks in SharePoint Server.
- Use Power Query to discover and import data from multiple data sources into Excel.
- Use Power View to create interactive data visualizations in Excel and SharePoint Server.
- Use Power Map to create visualizations of geographic data.
- Use Power BI for Office 365 to create a cloud-based collaborative solution for self-service BI.

### **Module 13: Introduction to Cloud Data Solutions**

This module introduces some of the key Microsoft technologies that you can use to implement a cloud solution for data.

#### **Lessons**

- Overview of Cloud Computing
- Windows Azure Services for Data

#### **Lab : Using Windows Azure**

- Creating a Windows Azure Storage Account
- Backing up a database In Windows Azure

After completing this module, students will be able to:

- Describe key features and benefits of cloud computing.
- Describe Windows Azure service for data.

### **Module 14: Windows Azure SQL Database**

This module introduces Windows Azure SQL Database, a Platform-as-a-Service (PaaS) solution for cloud-based relational database storage.

#### **Lessons**

- Introduction to Windows Azure SQL Database
- Windows Azure SQL Database Security
- Implementing and Managing Databases
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#### **Lab : Using Windows Azure SQL Database**

- Provisioning Windows Azure SQL Database
- Configuring Windows Azure SQL Database Security
- Migrating a SQL Server Database to Windows Azure SQL Database

After completing this module, students will be able to:

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- Describe key features and benefits of Windows Azure SQL Database
- Implement security for Windows Azure SQL Database
- Implement and manage databases in Windows Azure SQL Database

## **Module 15: SQL Server in Windows Azure Virtual Machines**

This module explains how you can use Windows Azure virtual machines in which SQL Server is installed to create a cloud-based solution for data.

### **Lessons**

- Introduction to Windows Azure Virtual Machines
- Windows Azure Virtual Machine Connectivity and Security
- Creating Databases in a Windows Azure Virtual Machine

### **Lab: Using Windows Azure Virtual Machines**

- Creating a Windows Azure Virtual Machine
- Configuring Virtual Machine Security and Connectivity
- Creating Databases on a Virtual Machine

After completing this module, students will be able to:

- Describe considerations for using Virtual machines in Windows Azure
- Create and configure Windows Azure virtual machines
- Create databases in Windows Azure virtual machines

## **Module 16: Implementing Big Data Solutions**

This module describes the main features of big data and the Microsoft technologies that you can use to build big data analytical solutions. In particular, the module focuses on Windows Azure HDInsight and the Windows Azure Marketplace as core elements of the Microsoft solution for big data

### **Lessons**

- Introduction to Big Data
- Windows Azure HDInsight
- Consuming HDInsight Results in Excel
- Obtaining Data from the Windows Azure Marketplace

### **Lab: Creating a Big Data Solution**

- Provisioning an HDInsight Cluster
- Processing Data with HDInsight
- Analyzing Big Data in Excel
- Obtaining Data from the Windows Azure Marketplace

After completing this module, students will be able to:

- Describe key features of big data

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- Process big data with Windows Azure HDInsight
- Consume big data processing results from Windows Azure HDInsight in Microsoft Excel

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