ADMINISTERING A SQL DATABASE (55316)

Course Code: 821565

This five-day instructor-led course provides students who manage SQL Server and Azure SQL databases with the knowledge and skills needed to administer a SQL server database infrastructure.

This five-day instructor-led course provides students who manage SQL Server and Azure SQL databases with the knowledge and skills needed to administer a SQL server database infrastructure. The material will also be useful to individuals who develop applications that deliver content from SQL Server databases. This material updates and replaces course 20764C.

What You'll Learn

- Authenticate and authorize users
- Assign server and database roles
- Authorize users to access resources
- Use encryption and auditing features to protect data
- Describe recovery models and backup strategies
- Backup and Restore SQL Server databases
- Automate database management
- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

Who Needs to Attend

The primary audience for this course is individuals who administer and maintain SQL Server databases. These individuals perform database administration and maintenance as their primary area of responsibility, or work in environments where databases play a key role in their primary job.

The secondary audiences for this course are individuals who develop applications that deliver content from SQL Server databases.

Prerequisites

- Experience using applications on Windows Servers
- Experience working with SQL Server or another RDMS

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CLASSROOM LIVE	$2,995 USD	5 Day

Classroom Live Outline

Module 1: SQL Server Security

This module describes SQL Server security models, logins, users, partially contained databases, and cross-server authorization.

Lessons

- Authenticating Connections to SQL Server
- Authorizing Logins to Connect to databases
- Authorization Across Servers
- Partially Contained Databases

Module 2: Assigning Server and Database Roles

This module explains how to use roles at the server and database level to manage user permissions.

Lessons

- Lesson 1: Working with Server Roles
- Lesson 2: Working with Fixed Database Roles
- Lesson 3: User-Defined Database Roles

Module 3: Authorizing Users to Access Resources

This module explains how to authorize users to access server and database roles. It also describes how to manage permissions at different levels in a SQL Server instance.

Lessons

- Authorizing User Access to Objects
- Authorizing Users to Execute Code

- Configuring Permissions at the Schema Level

Module 4: Protecting Data with Encryption and Auditing

This module describes the available options for auditing and how to manage audit features. It also describes how to configure and implement data encryption.

Lessons

- Options for auditing data access in SQL Server
- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data with Encryption

Module 5: Recovery Models and Backup Strategies

In this module, you will learn how to use the available backup features for databases and transaction logs to create backup strategies.

Lessons

- Understanding Backup Strategies
- SQL Server Transaction Logs
- Planning Backup Strategies

Module 6: Backing Up SQL Server Databases

In this module, you will learn how to apply various backup strategies.

Lessons

- Backing Up Databases and Transaction Logs
- Managing Database Backups
- Advanced Database Options

Module 7: Restoring SQL Server Databases

In this module, you will see how to restore user and system databases and how to implement point-in-time recovery.

Lessons

- Understanding the Restore Process
- Restoring Databases
- Advanced Restore Scenarios
- Point-in-Time Recovery

Module 8: Automating SQL Server Management

This module describes how to use SQL Server Agent to automate jobs, how to configure security contexts for jobs, and how to implement multi-server jobs.

Lessons

- Automating SQL Server management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs
- Multi-server Management

Module 9: Configuring Security for SQL Server Agent

This module explains how to configure SQL Server Agent to use a minimal privilege security environment and how to use credentials and proxy accounts to run jobs securely.

Lessons

- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Accounts

Module 10: Monitoring SQL Server with Alerts and Notifications

This module covers the configuration of Database Mail, alerts, and notifications for a SQL Server instance, and the configuration of alerts for Microsoft Azure SQL Database.

Lessons

- Monitoring SQL Server Errors
- Configuring Database Mail
- Operators, Alerts, and Notifications
- Alerts in Azure SQL Database

Module 11: Introduction to Managing SQL Server by using PowerShell

This module explains how to use Windows PowerShell with Microsoft SQL Server and Azure SQL Database. It also describes how to improve efficiency and reliability by scripting tasks and jobs.

Lessons

- Getting Started with Windows PowerShell
- Configure SQL Server using PowerShell
- Administer and Maintain SQL Server with PowerShell
- Managing Azure SQL Databases using PowerShell

Module 12: Tracing Access to SQL Server with Extended Events

This module explains how to monitor performance metrics for SQL Server and Azure SQL Database. It also describes troubleshooting strategies and usage scenarios for working with Extended Events.

Lessons

- Extended Events Core Concepts
- Working with Extended Events

Module 13: Monitoring SQL Server

This module explains how to monitor databases with the goal of proactively dealing with potential issues. It also describes how to use the built-in tools provided to analyze instance and server activity.

Lessons

- Monitoring activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data

Module 14: Monitoring SQL Server

- After completing this module, students will be able to:
- Monitor current activity.
- Capture and manage performance data.
- Analyze collected performance data.
- Configure SQL Server Utility.

Module 15: Troubleshooting SQL Server

This module explains how to resolve common issues that may arise when working with SQL Server systems. It also describes a methodology for resolving general database server issues.

Lessons

- Applying a Troubleshooting Methodology
- Resolving Service-Related Issues
- Resolving Connectivity and Login issues

Module 16: Importing and Exporting Data

This module explains how to use SQL Server native tools to import and export data to and from SQL Server and Azure SQL Databases.

Lessons

- Transferring Data to and from SQL Server
- Importing and Exporting Table Data
- Using bcp and BULK INSERT to Import Data
- Deploying Data-Tier Applications

Classroom Live Labs

Lab: SQL Server Security

- Authenticating Connections to SQL Server
- Authorizing Connections to databases
- Authorization across server instances
- Authorizing Connections to databases

Lab: Assigning Server and Database Roles

- Using Server Roles
- Using Database Roles
- Using User-defined Database Roles & Application Roles

Lab: Authorizing Users to Access Resources

- Assigning Fixed and User-Defined Server Roles
- Managing Database Roles and Users

- Configure Permissions at the Schema Level

Lab: Using Auditing and Encryption

- Auditing with Temporal Tables
- Using SQL Server Audit
- View Audit Output
- Using Dynamic Data Masking

Lab: Understanding SQL Server Recovery Models

- Backup Databases
- Transaction Log Backups
- Shrinking a database

Lab: Backing Up Databases

- Backing Up Databases
- Verifying Backups
- Using Advanced Backup Features

Lab: Restoring SQL Server Databases

- Determining the order of restores
- Restoring databases
- Restore encrypted backup
- Point-in-Time restore

Lab: Automating SQL Server Management

- Using SQL Server Agent
- Scripting SQL Server Agent jobs
- Viewing job history
- Multimaster management

Lab: Configuring SQL Server Agent

- Assigning a security context to job steps
- Create credentials
- Create a proxy account

Lab: Monitoring SQL Server with Alerts and Notifications

- Working with Database Engine Error Logs
- Configuring Database Mail
- Configure Operators and Alerts
- Configuring Alerts in Azure SQL Database (Optional)

Lab: Using PowerShell to Manage SQL Server

- Exploring SQL Server Management Objects (SMOs)
- Configure database and Instance features with PowerShell
- Manage logins and backups with PowerShell
- Create an Azure SQL Database with PowerShell

Lab: Using SQL Server Extended Events

- Create Extended Events sessions
- Working with Extended Events sessions

- After completing this module, students will be able to:

Lab: Monitoring SQL Server

- Using Performance Monitor
- Configuring Data Collection
- Viewing the Reports

Lab: Troubleshooting SQL Server

- Troubleshooting errors
- Troubleshooting services
- Troubleshooting logins

Lab: Importing and Exporting data

- Disabling and Enabling Constraints
- Using the Import and Export Wizard
- Import with bcp and BULK INSERT
- Working with DACPACs and BACPACs

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Dec 15 - 19, 2025 | 9:00 AM - 5:00 PM EST

Feb 9 - 13, 2026 | 9:00 AM - 5:00 PM EST

Apr 20 - 24, 2026 | 9:00 AM - 5:00 PM EDT

Jun 22 - 26, 2026 | 9:00 AM - 5:00 PM EDT

Aug 10 - 14, 2026 | 9:00 AM - 5:00 PM EDT

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PRIVATE GROUP TRAINING	5 Day

Visit us at www.globalknowledge.com or call us at 1-866-716-6688.