

Course Outline



6231- Maintaining a Microsoft SQL Server 2008 Database

Duration: 5 days (30 hours)

Target Audience:

This course provides students with the knowledge and skills to maintain a Microsoft SQL Server 2008 database. The course focuses on teaching individuals how to use SQL Server 2008 product features and tools related to maintaining a database.

Prerequisites:

Before attending this course, students must have:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of Transact-SQL.
- Working knowledge of relational databases.
- Some experience with database design.

Topics Covered:

- Module 1: Installing and Configuring SQL Server
 - Lesson 1: Preparing to Install SQL Server
 - Lesson 2: Installing SQL Server
 - Lesson 3: Configuring a SQL Server Installation
 - Lab: Installing and Configuring SQL Server
 - Exercise 1: (Level 200) Installing SQL Server
 - Exercise 2: (Level 200) Configuring SQL Server

After completing this module, students will be able to:

- Explain how to prepare the hardware and other resources necessary to install SQL Server.
 - Install SQL Server.
 - Manage and configure SQL Server.
- Module 2: Managing Databases and Files
 - Lesson 1: Planning Databases
 - Lesson 2: Creating Databases
 - Lesson 3: Using Policy-Based Management
 - Lab: Managing Databases and Files
 - Exercise 1: (Level 200): Creating a Database
 - Exercise 2: (Level 200): Monitoring and Managing Filegroup Usage
 - Exercise 3: (Level 200) Creating a Policy

After completing this module, students will be able to:

- Plan a database implementation that meets an organization's requirements.
- Create a SQL Server database.
- Manage a SQL Server database.

➤ Module 3: Disaster Recovery

- Lesson 1: Planning a Backup Strategy
- Lesson 2: Backing Up User Databases
- Lesson 3: Restoring User Databases
- Lesson 4: Performing Online Restore Operations
- Lesson 5: Recovering Data from Database Snapshots
- Lesson 6: System Databases and Disaster Recovery
 - Lab: Disaster Recovery
 - Exercise 1: (Level 200) Designing a Backup Strategy
 - Exercise 2: (Level 200) Implementing a Backup Strategy
 - Exercise 3: (Level 200) Restoring and Recovering a Database
 - Exercise 4: (Level 300) Performing Piecemeal Backup and Restore Operations
 - Exercise 5: (Level 200) Restoring the master Database

After completing this module, students will be able to:

- Plan a backup strategy for a database.
- Back up user databases.
- Restore user databases from backups.
- Restore data in a user database while it is online.
- Recover data for a user database from a database snapshot.
- Restore and recover system databases.

➤ Module 4: Managing Security

- Lesson 1: Overview of SQL Server Security
- Lesson 2: Protecting the Server Scope
- Lesson 3: Protecting the Database Scope
- Lesson 4: Protecting the Server Scope
- Lesson 5: Auditing Security
 - Lab: Managing Security
 - Exercise 1: (Level 200) Creating Logins and Assigning Server-Scope Permissions
 - Exercise 2: (Level 200) Creating and Managing Users
 - Exercise 3: (Level 300) Using a Certificate to Protect Data
 - Exercise 4: (Level 200) Implementing SQL Server Audit

After completing this module, students will be able to:

- Describe how SQL Server manages security.
- Protect SQL Server at the server level.
- Protect SQL Server databases.
- Use keys and certificates to protect SQL Server objects.
- Audit SQL Server security.

➤ Module 5: Transferring Data

- Lesson 1: Overview of Data Transfer
- Lesson 2: Introduction to SQL Server Integration Services
 - Lab: Transferring Data
 - Exercise 1: (Level 200) Using the Import/Export Wizard
 - Exercise 2: (Level 200) Performing a Bulk Load

- Exercise 3: (Level 200) Creating an SSIS Solution

After completing this module, students will be able to:

- Use UI and command-line tools to import and export data.
- Describe the features of SQL Server Integration Services.

➤ Module 6: Automating Administrative Tasks

- Lesson 1: Automating Administrative Tasks in SQL Server
- Lesson 2: Using SQL Server Agent
- Lesson 3: Creating Maintenance Plans
- Lesson 4: Implementing Alerts
- Lesson 5: Managing Multiple Servers
- Lesson 6: Managing SQL Server Agent security
 - Lab: Automating Administrative Tasks
 - Exercise 1: (Level 200) Configuring SQL Server Agent
 - Exercise 2: (Level 200) Creating Operators and Jobs
 - Exercise 3: (Level 200) Creating Alerts

After completing this module, students will be able to:

- Define SQL Server administrative tasks and schedule those tasks to run automatically.
- Configure SQL Server Agent to support automatic task scheduling.
- Script tasks by using SQL Server jobs, and define operators for managing those jobs.
- Define alerts to warn operators about events raised by SQL Server.
- Define and manage administrative tasks that span multiple servers.
- Configure SQL Server Agent security.

➤ Module 7: Implementing Replication

- Lesson 1: Overview of Replication
- Lesson 2: Managing Publications and Subscriptions
- Lesson 3: Configuring Replication in Some Common Scenarios
 - Lab: Implementing Replication
 - Exercise 1: (Level 300) Implementing Snapshot Replication
 - Exercise 2: (Level 300) Implementing Peer-to-Peer Transactional Replication
 - Exercise 3: (Level 300) Implementing HTTP Merge Replication

After completing this module, students will be able to:

- Describe replication and its components.
- Configure and implement replication.
- Use replication to meet the requirements of some common scenarios.

➤ Module 8: Maintaining High Availability

- Lesson 1: Introduction to High Availability
- Lesson 2: Implementing Log Shipping
- Lesson 3: Implementing Database Mirroring
- Lesson 4: Implementing Server Clustering
- Lesson 5: Using Distributed High Availability Solutions
 - Lab: Maintaining High Availability
 - Exercise 1: (Level 300) Configuring Log Shipping
 - Exercise 2: (Level 300) Configuring Database Mirroring
 - Exercise 3: (Level 300) Implementing SQL Server Clustering

After completing this module, students will be able to:

- Describe the factors affecting database availability.
- Describe how to implement log shipping to support fast recovery of a standby SQL Server database
- Describe how to use SQL Server mirroring to implement a software solution for fast failover
- Explain how to implement clustering to support fast failover of computers running SQL Server instances.
- Describe how to implement distributed high availability solutions.

➤ Module 9: Monitoring SQL Server

- Lesson 1: Viewing Current Activity
- Lesson 2: Using SQL Server Profiler
- Lesson 3: Monitoring with DDL Triggers
- Lesson 4: Using Event Notifications
 - Lab: Monitoring SQL Server
 - Exercise 1: (Level 200) Monitoring SQL Server Activity
 - Exercise 2: (Level 300) Tracing SQL Server Activity
 - Exercise 3: (Level 200) Using DDL Triggers
 - Exercise 4: (Level 200) Using Event Notifications

After completing this module, students will be able to:

- Examine the current activity in a SQL Server instance.
- Use SQL Server Profiler to trace server and database activity.
- Use DDL triggers to monitor changes to the structure of database objects.
- Use event notifications to capture and monitor significant events for a SQL Server instance.

➤ Module 10: Troubleshooting and Performance Tuning

- Lesson 1: Troubleshooting SQL Server
- Lesson 2: Performance Tuning in SQL Server
- Lesson 3: Using Resource Governor
- Lesson 4: Using Data Collector
 - Lab: Troubleshooting and Performance Tuning
 - Exercise 1: (Level 300) Troubleshooting Connectivity Problems
 - Exercise 2: (Level 300) Troubleshooting Concurrency Problems
 - Exercise 3: (Level 300) Using the Database Engine Tuning Advisor
 - Exercise 4: (Level 300) Implementing Resource Governor
 - Exercise 5: (Level 300) Implementing Data Collector

After completing this module, students will be able to:

- Troubleshoot common SQL Server problems, such as connectivity, concurrency, and job and disk space problems.
- Perform basic performance tuning tasks in SQL Server using the Database Engine Tuning Advisor, index tuning, and query tuning.
- Use Resource Governor to manage SQL Server workloads and resources.
- Use Data Collector to obtain performance data about your computer and the instances of SQL Server running on your computer.