

2780 – Maintaining a Microsoft SQL Server 2005 Database

Vendor Course Code: 2780

Course Length: 5 days

Overview: This five-day instructor-led course provides students with the knowledge and skills to maintain a Microsoft SQL Server 2005 database. The course focuses on teaching individuals how to use SQL Server 2005 product features and tools related to maintaining a database.

Skills Gained: After completing this course, students will be able to:

- Install and configure SQL Server 2005.
- Manage database files.
- Backup and restore databases.
- Manage security.
- Monitor SQL Server.
- Transfer data into and out of SQL Server.
- Automate administrative tasks.
- Replicate data between SQL Server instances.
- Maintain high availability.

Key Topics:

Module 1: Installing and Configuring SQL Server 2005

This module explains how to plan for and install SQL Server 2005, how to manage a SQL Server 2005 installation, and how to use the SQL Server 2005 administrative tools.

Lessons

Preparing to Install SQL Server
Installing SQL Server 2005
Managing a SQL Server 2005 Installation

Lab 1: Installing and Configuring SQL Server 2005

Performing an Installation
Managing 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 2005.
- Install SQL Server 2005.
- Manage and configure a SQL Server 2005 installation.

Module 2: Managing Databases and Files

This module explains how to manage databases and files.

Lessons

Planning Databases
Creating Databases
Managing Databases

Lab 2: Managing Databases and Files

Creating a Database
Monitoring and Managing Filegroup Usage
Viewing Database Metadata

After completing this module, students will be able to:

- Plan how to implement a database that meets an organisation's requirements.
- Create a SQL Server database.

- Manage a SQL Server database.

Module 3: Disaster Recovery

This module explains how to plan and implement a backup and restore strategy.

Lessons

Planning a Backup Strategy
Backing Up User Databases
Restoring User Databases
Performing Online Restore Operations
Recovering Data from Database Snapshots
System Database and Disaster Recovery

Lab 3: Disaster Recovery

Implementing a Backup Strategy
Restoring and Recovering a Database
Performing Piecemeal Backup and Restore Operations
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 systems databases.

Module 4: Managing Security

This module explains how to manage principals, securables, and permissions, and how to implement cryptography in a SQL Server database.

Lessons

Overview of SQL Server Security
Protecting the Server Scope
Protecting the Database Scope
Managing Keys and Certificates in SQL Server

Lab 4: Managing Security

Creating Logins and Assigning Server-Scope Permissions
Creating and Managing Users
Using a Certificate to Protect Data

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.

Module 5: Monitoring SQL Server

This module explains how to monitor SQL Server performance and activity.

Lessons

Viewing Current Activity
Using System Monitor
Using SQL Server Profiler
Using DDL Triggers
Using Event Notifications

Lab 5: Monitoring SQL Server
Monitoring SQL Server Performance
Tracing SQL Server Activity
Implementing DDL Triggers

After completing this module, students will be able to:

- Examine the current activity in a Microsoft SQL Server instance.
- Use System Monitor to obtain performance data about your computer and the instances of SQL Server running on your computer.
- Use SQL Server Profiler to trace server and database activity.
- Implement DDL triggers that enable you to audit changes to the structure of database objects.
- Use event notifications to capture and monitor significant events for a SQL Server instance.

Module 6: Transferring Data

This module explains how to transfer and transform data.

Lessons

Overview of Data Transfer
Introduction to SQL Server Integration Services
Using SQL Server Integration Services
Features of SQL Server Integration Services

Lab 6: Transferring Data

Creating an SSIS Package
Deploying an SSIS Package
Using SSIS to Extract Data, Perform Lookups, Sort, and Split Data

After completing this module, students will be able to:

- Describe the problems surrounding data transfer and the tools that SQL Server 2005 provides to perform data transfer.
- Describe the purpose of SQL Server Integration Services.
- Use SQL Server Integration Services to transfer data into a SQL Server database.
- Describe the features of SQL Server Integration Services.

Module 7: Automating Administrative Tasks

This module explains how to use the SQL Server Agent to automate administrative tasks.

Lessons

Automating Administrative Tasks in SQL Server 2005
Configuring the SQL Server Agent
Creating Jobs and Operators
Creating Alerts
Managing Multiple Servers
Managing SQL Server Agent Security

Lab 7: Automating Administrative Tasks

Configuring SQL Server Agent
Creating Operators and Jobs
Creating Alerts

After completing this module, students will be able to:

- Define SQL Server 2005 administrative tasks and schedule these 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 these 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 8: Implementing Replication

This module explains the purpose of replication, introduces the concepts underpinning replication, and describes how to implement replication in several common scenarios.

Lessons

Overview of Replication

Implementing Replication
Configuring Replication in Some Common Scenarios

Lab 8: Implementing Replication

Creating a Publication
Creating a Subscription
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 9: Maintaining High Availability

This module explains how to implement high availability technologies with SQL Server 2005.

Lessons

Introduction to High Availability
Implementing Server Clustering
Implementing Database Mirroring
Implementing Log Shipping
Implementing Peer-to-Peer Replication

Lab 9:

Configuring Database Mirroring to Support Failover
Implementing Distributed High Availability

After completing this module, students will be able to:

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

Target Audience:

This course is intended for IT Professionals who want to become skilled on SQL Server 2005 product features and technologies for 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.

In addition, it is recommended, but not required, that students have completed:

- Course 2778: Writing Queries Using Microsoft SQL Server 2005 Transact-SQL.
- Course 2779: Implementing a Microsoft SQL Server 2005 Database.