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Course 2780 — Maintaining a Microsoft SQL Server 2005 Database
5 days — Instructor-led

Introduction

"Elements of this syllabus are subject to change"

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.

At Course Completion

At the end of the 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.

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.

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.

Training provided by Microsoft GOLD CERTIFIED Partner | Learning Solutions

Course Outline

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.

- 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.

- 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 organization'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.

- 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.

- 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.

- 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 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.

- 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.

- 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.

- 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.

- 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.