Administering Microsoft SQL Server Training

Duration: **5 Day**

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Overview

The **Administering Microsoft SQL Server** course is a five-day, instructor-led programme designed for professionals who need to administer, maintain, and support SQL Server database environments.

Throughout the course, participants develop the knowledge and practical skills required to manage a SQL Server database infrastructure, from initial installation and database configuration through backup, recovery, security, and day-to-day administration.

The programme is particularly relevant to database administrators, but it can also benefit developers and other technical professionals who build applications that retrieve or deliver content from SQL Server databases.

Participants explore SQL Server instance design and installation, database administration, recovery models, backup and restore strategies, authentication, authorisation, role management, database object security, encryption, auditing, and the automation of routine SQL Server administration.

Prerequisites

Participants should already have the following technical knowledge before attending the course.

Essential Knowledge

- Basic understanding of the Microsoft Windows operating system and its core functionality
- Working knowledge of Transact-SQL
- Familiarity with basic querying and data manipulation

Useful Additional Experience

The following knowledge is not mandatory but will help participants gain more value from the programme:

- Working knowledge of relational databases
- Some database design experience
- Previous exposure to SQL Server environments

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Who Should Attend

The primary audience for this course is professionals who administer and maintain SQL Server databases as part of their main responsibilities.

The programme is particularly suitable for:

- Database Administrators
- SQL Server Administrators
- System administrators
- Database support professionals
- Technical teams responsible for SQL Server infrastructure
- Developers working with applications that depend on SQL Server databases
- Professionals responsible for database security, backup, recovery, and operational support

What You Will Learn

By the end of the course, participants will be able to:

- Design and implement SQL Server instances
- Work effectively with SQL Server databases
- Explain recovery models and backup strategies
- Back up SQL Server databases
- Restore SQL Server databases
- Authenticate and authorise users
- Assign server-level and database-level roles
- Control user access to SQL Server resources
- Protect data using encryption and auditing
- Automate database administration
- Configure security for SQL Server Agent
- Manage alerts and notifications

Outline

SQL Server Overview

This module introduces the main terminology and concepts used in SQL Server administration.

Topics include:

- SQL Server architecture
- SQL Server instances
- Core database administration concepts
- Instance-level and database-level administration
- SQL Server services
- Administration tools
- Fundamental characteristics of a SQL Server environment

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This section establishes the foundation for the administrative topics covered throughout the rest of the course.

SQL Server Installation

This module focuses on planning and installing SQL Server instances.

Participants examine:

- Default instances
- Named instances
- Selecting required SQL Server services
- Installation considerations
- Installation options
- Configuring the tempdb database
- Default file locations
- Component placement

The module also covers:

- GUI-based installation
- Unattended installation from the command line
- Automated installation options
- Upgrading existing SQL Server instances

The aim is to help learners understand both how to install SQL Server and how to make appropriate configuration decisions before and during deployment.

Working with SQL Databases

This module examines how SQL Server stores data and how databases are created and maintained.

Topics include:

- SQL Server data storage
- Creating databases
- Configuring databases
- Database management
- Database files
- Data integrity
- Introduction to indexing concepts
- Routine database administration

Participants develop a clearer understanding of the structures and management processes behind SQL Server databases.

Backup and Restore SQL Databases

This module covers the backup and recovery processes required to maintain database availability and protect organisational data.

Topics include:

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- Recovery models
- Designing backup strategies
- Database backups
- Backup types
- Restore operations
- Database recovery
- Restoring databases in different recovery scenarios
- Matching backup and restore approaches to operational requirements

Participants learn how to select and apply an appropriate recovery strategy based on business and technical needs.

SQL Server Authentication

This module focuses on managing access to SQL Server.

Topics include:

- Authentication concepts
- SQL Server logins
- Database users
- Instance-level access
- Database-level access
- Relationships between logins and users
- Creating and maintaining user accounts
- Linked Server authentication

Participants examine the complete access process, from authenticating a connection to authorising access to database resources.

Server and Database Roles

This module covers role-based security within SQL Server.

Topics include:

- Server-level roles
- Database-level roles
- Fixed server roles
- Database roles
- Role membership
- Role-based permission management
- Creating roles
- Maintaining roles

Participants learn how roles can be used to create more manageable and consistent security models.

Database Object Security

This module examines access control for database-level objects.

Objects covered include:

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- Tables
- Views
- Stored Procedures
- Functions

Topics include:

- Object-level permissions
- Restricting access to database objects
- Granting permissions
- Revoking permissions
- Defining appropriate access levels
- Applying database object security

Data Security

This module explores additional methods for protecting SQL Server data.

Topics include:

- Row-level security
- Column-level security
- Dynamic Data Masking
- Auditing
- Encryption
- Protecting sensitive information
- Monitoring data access
- Supporting security and compliance requirements

Participants learn how data protection can extend beyond user access control to include how data is exposed, monitored, and encrypted.

Automating SQL Server Management

This module focuses on automating recurring SQL Server administration activities.

Topics include:

- Administration automation
- SQL Server Agent
- Automated jobs
- Job scheduling
- Automating routine maintenance tasks
- SQL Server Agent security
- Alert management
- Notifications
- Responding automatically to operational events
- Improving consistency in administrative processes

Participants learn how SQL Server automation features can reduce repetitive manual effort and improve operational reliability.