

KOENIG SOLUTIONS • COURSE OUTLINE

Administering Microsoft SQL Server 2022

Learn to install, secure, back up and optimise SQL Server 2022 databases, including high availability and Azure cloud connectivity.

5 Days

40 HOURS

16

MODULES

64

TOPICS

COURSE OVERVIEW

The Administering Microsoft SQL Server 2022 course is designed to equip IT professionals and database administrators with the knowledge and skills required to maintain a SQL Server 2022 database. Throughout the course, learners will explore a variety of topics, beginning with an introduction to the capabilities and enhancements of SQL Server 2022. They will delve into the installation and configuration of the server, with an emphasis on new features and best practices. Security is a major focus, with lessons covering authentication, authorization, and auditing of database activity. The course also addresses data protection methods such as Always Encrypted and Dynamic Data Masking. For performance and scalability, participants will learn about the SQL Server 2022 storage engine, backup and recovery strategies, and high availability options like Always On availability groups. Topics also include performance tuning and optimization, as well as the automation of SQL Server management tasks. The course provides insights into monitoring using alerts and notifications, along with data integration techniques. Looking to the future, learners will explore cloud connectivity through Azure and the cloud-connected database features of SQL Server 2022. Additionally, advanced tools for monitoring server performance and troubleshooting common issues are covered, ensuring participants can effectively manage databases and resolve problems. Advanced topics provide deeper technical insights into SQL Server's latest enhancements, helping ensure databases are optimized and ready for the future.

Who Should Attend

This course provides comprehensive training in SQL Server 2022, targeting IT professionals focused on database management and optimization.

Database Administrators

Database Developers

IT Professionals with a focus on SQL Server

Data Analysts interested in database management

System Administrators responsible for database systems

Database Architects designing and implementing SQL Server solutions

IT Managers overseeing database or IT infrastructure

Business Intelligence Professionals needing to understand backend data structures and storage

Security Analysts involved in data protection and compliance

Data Engineers looking to upskill with SQL Server 2022 features

Cloud Specialists working with Azure SQL Managed Instance and other cloud-connected services

Technical Support Engineers responsible for maintaining SQL Server environments

Infrastructure Engineers focusing on high availability and disaster recovery

Software Developers needing to integrate SQL Server databases into their applications

Data Science Professionals requiring knowledge of SQL Server for data extraction and manipulation

LEARNING OBJECTIVES

- Describe SQL Server 2022 architecture, editions and components
- Install and configure SQL Server 2022 instances
- Configure authentication, permissions and database auditing
- Apply data protection methods such as Always Encrypted
- Plan backup, recovery and high availability strategies
- Analyse and tune query and index performance
- Automate management tasks with SQL Server Agent
- Monitor SQL Server using alerts, extended events and performance tools

16 Modules, 64 Topics

01

Introduction to SQL Server 2022

TOPICS

Overview of SQL Server 2022 · SQL Server Components & Architecture · SQL Server Instances, Editions, and Versions

02

Installing and Configuring SQL Server 2022

TOPICS

- Installing SQL Server
- Considerations for Installing SQL Server
- Installation Changes / Feature Selection / New Tab

03

SQL Server Security

TOPICS

- Authentication and Authorization
- Managing Users and Logins
- Controlling Access to Objects with Permissions
- Auditing Database Activity

04

Data Protection with Encryption and Management

TOPICS

Protecting Data with Encryption and Auditing · Always Encrypted with Secure Enclave · Dynamic Data Masking · Database Ledger · Data Classification and Function · Row-Level Security

05

SQL Server 2022 Storage Engine Capabilities

TOPICS

Tempdb Performance Critical for Scalability · Shrink Database with Low Priority · Accelerated Database Recovery Improvements · Current Buffer Pool Scan Operations

06

SQL Server Backup and Recovery

TOPICS

- **Types of Backups:** Full, Differential, and Transaction Log Backups
- Planning Backup and Recovery Strategies
- Performing Backups and Restores
- Monitoring Backup and Recovery Performance
- Improved Backup Metadata

07

SQL Server High Availability and Disaster Recovery

TOPICS

- Introduction to High Availability and Disaster Recovery
- Configuring Database Mirroring
- Configuring Log Shipping
- Configuring Always On Availability Groups

08

SQL Server Performance Tuning and Optimization

TOPICS

Identifying Performance Bottlenecks · Query Tuning Techniques · Index Tuning · Server Configuration and Resource Allocation

09

Automating SQL Server Management

TOPICS

Automating SQL Server Management · Working with SQL Server Agent · Managing SQL Server Agent Jobs · Multi-Server Management

10

Monitoring SQL Server with Alerts and Notifications

TOPICS

Monitoring SQL Server Errors · Configuring Database Mail · Operators, Alerts, and Notifications

11

Working Examples with Data Integration

TOPICS

Transferring Data to and from SQL Server · Importing and Exporting Table Data · Using bcp and BULK INSERT to Import Data

12

SQL Server 2022: The Cloud-Connected Database

TOPICS

- Business Continuity through Azure SQL Managed Instance
- Azure Synapse Link for SQL Server
- Azure Purview Integration
- Extending Cloud-Connected Features

13

Monitoring SQL Server Using Tools

TOPICS

Extended Events Concepts · Working with Extended Events · Working with Windows Performance Counters · Working with Activity Monitor

14

Common Issues and Solutions with Tips and Tricks

TOPICS

Troubleshooting Techniques · Connectivity Issues · Service-Related Issues · Common Errors and Solutions

15

Database Management

TOPICS

- Accelerated Database Recovery (ADR) Improvements
- Max Server Memory Calculations
- Improved Snapshot Backup Support
- Shrink Database with WAIT_AT_LOW_PRIORITY
- Asynchronous Auto Update Statistics Concurrency

16

Advanced SQL Server Topics

TOPICS

System Page Latch Concurrency Enhancements · Ordered Clustered Columnstore Index · Improved Columnstore Segment Elimination · Virtual Log File Growth

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

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