training code: AA_20764 / ENG DL 5d / EN

Administering a SQL Database Infrastructure 2022/2025

Training recipients

The primary audience for this course is IT Professionals who want to become skilled on SQL Server product features and technologies for implementing a database.
The secondary audiences for this course are individuals who are developers from other product platforms looking to become skilled in the implementation of a SQL Server database.

Benefits

After completing this course, students will be able to:

- Authenticate and authorize users
- Assign server and database roles
- Authorize users to access resources
- Protect data with encryption and auditing
- Describe recovery models and backup strategies
- Backup SQL Server databases
- Restore SQL Server databases
- Automate database management
- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

Training program

1. SQL Server Security
   - Authenticating Connections to SQL Server
   - Authorizing Logins to Connect to databases
   - Authorization Across Servers
   - Partially Contained Databases
2. Assigning Server and Database Roles
   - Working with server roles
   - Working with Fixed Database Roles
   - Assigning User-Defined Database Roles
3. Authorizing Users to Access Resources
   - Authorizing User Access to Objects
   - Authorizing Users to Execute Code
   - Configuring Permissions at the Schema Level
4. Protecting Data with Encryption and Auditing
   - Options for auditing data access in SQL Server
   - Implementing SQL Server Audit
   - Managing SQL Server Audit
   - Protecting Data with Encryption
5. Recovery Models and Backup Strategies
   - Understanding Backup Strategies
   - SQL Server Transaction Logs
   - Planning Backup Strategies
6. Backing Up SQL Server Databases
   - Backing Up Databases and Transaction Logs
   - Managing Database Backups
   - Advanced Database Options
7. Restoring SQL Server 2016 Databases
   - Understanding the Restore Process
   - Restoring Databases
   - Advanced Restore Scenarios
   - Point-in-Time Recovery
8. Automating SQL Server Management
   - Automating SQL Server management
   - Working with SQL Server Agent
   - Managing SQL Server Agent Jobs
   - Multi-server Management
9. Configuring Security for SQL Server Agent
   - Understanding SQL Server Agent Security

- Configuring Credentials
- Configuring Proxy Accounts

10. Monitoring SQL Server with Alerts and Notifications
    - Monitoring SQL Server Errors
    - Configuring Database Mail
    - Operators, Alerts, and Notifications
    - Alerts in Azure SQL Database
11. Introduction to Managing SQL Server by using PowerShell
    - Getting Started with Windows PowerShell
    - Configure SQL Server using PowerShell
    - Administer and Maintain SQL Server with PowerShell
    - Managing Azure SQL Databases using PowerShell
12. Tracing Access to SQL Server with Extended events
    - Extended Events Core Concepts
    - Working with Extended Events
13. Monitoring SQL Server
    - Monitoring activity
    - Capturing and Managing Performance Data
    - Analyzing Collected Performance Data
    - SQL Server Utility
14. Troubleshooting SQL Server
    - A Trouble Shooting Methodology for SQL Server
    - Resolving Service Related Issues
    - Resolving Connectivity and Log-in issues
15. Importing and Exporting Data
    - Transferring Data to and from SQL Server
    - Importing and Exporting Table Data
    - Using bcp and BULK INSERT to Import Data
    - Deploying and Upgrading Data-Tier Application



Expected preparation of the participant

In addition to their professional experience, students who attend this training should already have the following technical knowledge:

- 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.

To increase the comfort of work and training’s effectiveness we suggest using an additional monitor.

The lack of additional monitor does not exclude participation in the training, however, it significantly influences the comfort of work during classes.
You can find information and requirements of participation in Distance Learning trainings at: https://www.altkomakademia.pl/en/how-it-works/about-courses/

Training Includes

- manual in electronic form available on the platform: https://www.altkomakademia.pl/
- access to Altkom Akademia's student portal

Duration

5 days / 35 hours

Language

- **Training**: English
- **Materials**: English