# 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.

## 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