

Administering a SQL Database Infrastructure

Course: 20764

Course Details

Audience(s): IT Professional(s)

Technology: Microsoft SQL Server 2016

Duration: 40 HRs.

ABOUT THIS COURSE

This forty hours instructor-led course provides students who administer and maintain SQL Server databases with the knowledge and skills to administer a SQL server database infrastructure. Additionally, it will be of use to individuals who develop applications that deliver content from SQL Server databases.

AUDIENCE PROFILE

The primary audience for this course is individuals who administer and maintain SQL Server databases. These individuals perform database administration and maintenance as their primary area of responsibility, or work in environments where databases play a key role in their primary job. The secondary audiences for this course are individuals who develop applications that deliver content from SQL Server databases.

Course Content

Module 1: SQL Server Security

Lessons

- Authenticating Connections to SQL Server
- Authorizing Logins to Connect to databases
- Authorization Across Servers
- Partially Contained Databases

Lab: Authenticating Users

Module 2: Assigning Server and Database Roles

Lessons

- Working with server roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles

Lab: Assigning server and database roles

Module 3: Authorizing Users to Access Resources

Lessons

- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level

Lab: Authorizing users to access resources

Module 4: Protecting Data with Encryption and Auditing

Lessons

- Options for auditing data access in SQL Server
- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data with Encryption

Lab: Using Auditing and Encryption

Module 5: Recovery Models and Backup Strategies

Lessons

- Understanding Backup Strategies
- SQL Server Transaction Logs
- Planning Backup Strategies

Lab: Understanding SQL Server recovery models

Module 6: Backing Up SQL Server Databases

Lessons

- Backing Up Databases and Transaction Logs
- Managing Database Backups
- Advanced Database Options

Lab: Backing Up Databases

Module 7: Restoring SQL Server 2016 Databases

Lessons

- Understanding the Restore Process
- Restoring Databases
- Advanced Restore Scenarios
- Point-in-Time Recovery

Lab: Restoring SQL Server Databases

Module 8: Automating SQL Server Management

Lessons

- Automating SQL Server management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs
- Multi-server Management

Lab: Automating SQL Server Management

Module 9: Configuring Security for SQL Server Agent

Lessons

- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Accounts

Lab: Configuring Security for SQL Server Agent

Module 10: Monitoring SQL Server with Alerts and Notifications

Lessons

- Monitoring SQL Server Errors
- Configuring Database Mail
- Operators, Alerts, and Notifications
- Alerts in Azure SQL Database

Lab: Monitoring SQL Server with Alerts and Notifications

Module 11: Introduction to Managing SQL Server by using PowerShell

Lessons

- Getting Started with Windows PowerShell
- Configure SQL Server using PowerShell
- Administer and Maintain SQL Server with PowerShell
- Managing Azure SQL Databases using PowerShell

Lab: Using PowerShell to Manage SQL Server

Module 12: Tracing Access to SQL Server with Extended events

Lessons

- Extended Events Core Concepts
- Working with Extended Events

Lab: Extended Events

Module 13: Monitoring SQL Server

Lessons

- Monitoring activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data
- SQL Server Utility

Lab: Monitoring SQL Server

Module 14: Troubleshooting SQL Server

Lessons

- A Trouble Shooting Methodology for SQL Server
- Resolving Service Related Issues
- Resolving Connectivity and Log-in issues

Lab: Troubleshooting Common Issues

Module 15: Importing and Exporting Data

Lessons

- 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

Lab: Importing and Exporting Data

At This Course Completion

At completing this course the student 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