55353: Administering a SQL Database Infrastructure

Duration: 5 Days
Method: Instructor-Led Training (ILT) | Live Online Training

Course Description

This course provides participants with the knowledge and skills to administer a SQL Server® database infrastructure.

NOTE: *55353AC is the Community Courseware equivalent of retired MOC 20764CC: Administering a SQL Database Infrastructure.*

Target Audience

This course is intended for 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.
- Develop applications that deliver content from SQL Server databases.

Prerequisites

To attend this course, candidates must have professional experience as well as 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.
- Experience with database design.

Tel: 876-978-1107 / 876-978-1486
WhatsApp: 876-978-9353
E-Mail: training@RWTTS.com | **Website:** www.RWTTS.com

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Course Objectives

Upon successful completion of this course, attendees 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.

Course Topics

Module 1: SQL Server Security

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

Module 2: Assigning Server and Database Roles

- Working with Server Roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles

Module 3: Authorizing Users to Access Resources

- Describe and Use Server Roles to Manage Server-Level Security
- Describe and Use Fixed Database Roles
- Use Custom Database Roles and Application Roles to Manage Database-Level Security

Course Topics *Continued*

Module 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

Module 5: Recovery Models and Backup Strategies
- Understanding Backup Strategies
- SQL Server Transaction Logs
- Planning Backup Strategies

Module 6: Backing Up SQL Server Databases
- Backing Up Databases and Transaction Logs
- Managing Database Backups
- Advanced Database Options

Module 7: Restoring SQL Server Databases
- Understanding the Restore Process
- Restoring Databases
- Advanced Restore Scenarios
- Point-In-Time Recovery

Module 8: Automating SQL Server Management
- Automating SQL Server Management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs
- Multi-Server Management

Module 9: Configuring Security for SQL Server Agent
- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Accounts

Module 10: Monitoring SQL Server with Alerts and Notifications
- Monitoring SQL Server Errors
- Configuring Database Mail
- Operators, Alerts, and Notifications
- Alerts in Azure SQL Database

Course Topics *Continued*

Module 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

Module 12: Tracing Access to SQL Server with Extended Events
- Extended Events Core Concepts
- Working with Extended Events

Module 13: Monitoring SQL Server
- Monitoring Activity
- Capturing and Managing Performance Data
- Analysing Collected Performance Data
- SQL Server Utility

Module 14: Troubleshooting SQL Server
- Troubleshooting Methodology for SQL Server
- Resolving Service-Related Issues
- Resolving Connectivity and Log-In issues

Module 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

LABS INCLUDED