



# Complete Computing, Inc.

SERVING OUR CUSTOMERS SINCE 1982

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## 20764: Administering SQL Database Infrastructure

*Course length: 5 day(s)*

### Course Description

This five-day 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.

### Prerequisites

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 (considered a co-requisite).
- Working knowledge of relational databases.
- Some experience with database design.

Students who attend this training can meet the prerequisites by attending the following courses, or obtaining equivalent knowledge and skills: 20761 Querying Data with Transact-SQL.

### Performance-Based Objectives

Upon successful completion of 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

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- 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 Content

### Module 1: Authenticating and Authorizing Users

- Authenticating connections to SQL Server
- Authorizing logins to access databases
- Authorization across servers
- Partially contained databases

### Module 2: Assigning Server and Database Roles

- Describe server roles
- Describe fixed database roles
- Describe user-defined database roles

### Module 3: Working with Databases and Storage

- Introduction to Data Storage with SQL Server
- Managing Storage for System Databases
- Managing Storage for User Databases
- Moving Database Files
- Configuring the Buffer Pool Extension

### Module 4: Planning and Implementing a Backup Strategy

- Understanding SQL Server Recovery Models
- Planning a Backup Strategy
- Backing up Databases and Transaction Logs
- Using Backup Options
- Ensuring Backup Reliability

### Module 5: Restoring SQL Server 2014 Databases

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

### Module 6: Importing and Exporting Data

- Introduction to Transferring Data
- Importing and Exporting Table Data
- Copying or Moving a Database

### Module 7: Monitoring SQL Server 2014

- Introduction to Monitoring SQL Server
- Dynamic Management Views and Functions
- Performance Monitor



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## Module 8: Tracing SQL Server Activity

- Capturing a Trace in SQL Server Profiler
- Generating Database Tuning Recommendations
- Using SQL Trace



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## **Module 9: Managing SQL Server Security**

- Introduction to SQL Server Security
- Managing Server-Level Security
- Managing Database-Level Principals
- Managing Database Permissions

## **Module 10: Auditing Data Access and Encrypting Data**

- Auditing Data Access in SQL Server
- Implementing SQL Server Audit
- Encrypting Databases

## **Module 11: Performing Ongoing Database Maintenance**

- Ensuring Database Integrity
- Maintaining Indexes
- Automating Routine Database Maintenance

## **Module 12: Automating SQL Server 2014 Management**

- Automating SQL Server Management
- Implementing SQL Server Agent Jobs
- Managing SQL Server Agent Jobs
- Managing Job Step Security Contexts
- Managing Jobs on Multiple Servers

## **Module 13: Monitoring SQL Server 2014 by Using Alerts and Notifications**

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