

Microsoft SQL 2016 Database Administration

**Bootcamp Title – MCSA: SQL 2016 Database Administration (1 Cert)**
Number of Days – 6
Number of Exams – 2
Number of Certifications – 1
Cost - $4,995.00

Certifications:

MCSA: SQL 2016 Database Administration

Exams:

**20764:** Administering a SQL Database Infrastructure

**20765:** Provisions SQL Databases

Course Description:

The MCSA SQL 2016 Database Administration certification boot camp is a 6-day comprehensive deep dive into the SQL Server covering topics such as planning, monitoring, and configuring. This instructor led face to face training camp will teach you the skills needed to support a SQL Server environment.

|  |
| --- |
| **Course Outline****Module 1: Authenticating and Authorizing Users**This module covers SQL Server security models, logins, and users.**Lessons*** Authenticating connections to SQL Server
* Authorizing logins to access databases
* Authorization across servers
* Partially contained databases

**Lab : Authenticating Users**After completing this module, you will be able to:* Describe server level security
* Describe database level security
* Describe multi-server authentication
* Describe partially contained databases

**Module 2: Assigning Server and Database Roles**This module covers fixed server roles, user-defined server roles, fixed database roles, and user-defined database roles.**Lessons*** Working with server roles
* Working with Fixed database roles
* Creating user-defined database roles

**Lab : Assigning server and database roles**After completing this module, you will be able to:* Describe server roles
* Describe fixed database roles
* Describe user-defined database roles

**Module 3: Authorizing Users to Access Resources**This module covers permissions and the assignment of permissions.**Lessons*** Authorizing user access to objects
* Authorizing users to execute code
* Configuring permissions at the schema level

**Lab : Authorizing users to access resources**After completing this module, you will be able to:* Describe how to authorize user access to objects
* Describe how to authorize users to execute code
* Describe how to configure permissions at the schema level

**Module 4: Protecting Data with Encryption and Auditing**This module covers SQL Server Audit.**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**After completing this module, you will be able to:* Describe options for auditing data access.
* Implement SQL Server Audit.
* Manage SQL Server Audit.
* Describe how to use custom audit events.
* Implement encryption

**Module 5: SQL Server Recovery Models**This module describes the concept of the transaction log and SQL Server recovery models. It also introduces the different backup strategies available with SQL Server.**Lessons*** Backup strategies
* Understanding SQL Server transaction login
* Planning a SQL Server backup strategy

**Lab : Understanding SQL Server recovery models**After completing this module, you will be able to:* Describe the various backup strategies.
* Describe how database transaction logs function.
* Plan a SQL Server backup strategy.

**Module 6: Backup of SQL Server Databases**This module describes SQL Server Backup and the backup types**Lessons*** Backing up databases and transaction logs
* Managing database backups
* Working with backup options

**Lab : Backing up SQL Server databases**After completing this module, you will be able to:* Perform backups of SQL Server databases and transaction logs.
* Manage database backups.
* Describe the advanced backup options.
* Describe how to backup to the Azure Windows Blob Store.

**Module 7: Restoring SQL Server Databases**This module describes the restoration of databases.**Lessons*** Understanding the restore process
* Restoring databases
* Working with point-in-time recovery
* Restoring system databases and individual files

**Lab : Restoring SQL Server User Databases**After completing this module, you will be able to:* Explain the database restore process.
* Describe the concept of point in time recovery.
* Describe the advanced concepts of restoring.

**Module 8: Automating SQL Server Management**This module describes how to use SQL Server Agent for automation. It also explains the benefits of using master and target servers to centralize the administration of automation.**Lessons*** Automating SQL Server management
* Working with SQL Server agent
* Managing SQL Server agent jobs
* Multi-server management

**Lab : Automating SQL Server Management**After completing this module, you will be able to:* Describe methods for automating SQL Server Management.
* Configure jobs, job step types, and schedules.
* Manage SQL Server Agent jobs.
* Configure master and target servers.

**Module 9: Configuring Security for SQL Server Agent**This module describes the considerations for SQL Server Agent security, including proxy accounts and credentials.**Lessons*** Understanding SQL Server Agent Security
* Configuring credentials
* Configuring proxy accounts

**Lab : Configuring Security for SQL Server Agent**After completing this module, you will be able to:* Describe the security context for SQL Server Agent jobs.
* Configure credentials.
* Configure proxy accounts.

**Module 10: Monitoring SQL Server with Alerts and Notifications**This module covers the configuration of database mail, alerts and notifications.**Lessons*** Configuration of database mail
* Monitoring SQL Server errors
* Configuring operators, alerts, and notifications
* Alerts in Azure SQL database

**Lab : Monitoring SQL Server with Alerts and Notifications**After completing this module, you will be able to:* Configure database mail.
* Monitor SQL Server errors.
* Configure operators, alerts and notifications.

**Module 11: Introduction to Managing SQL Server by using PowerShell**This module introduces PowerShell for SQL Server.**Lessons*** Configure SQL Server using PowerShell
* Administer SQL Server using PowerShell
* Maintain the SQL Server environment using PowerShell
* Managing Azure SQL Server databases using PowerShell

**Lab : Administering SQL Server using PowerShell**After completing this module, you will be able to:* Configure SQL Server using PowerShell
* Manage day-to-day SQL Server Administration with PowerShell
* Maintain the SQL Server environment using PowerShell.

**Module 12: Tracing Access to SQL Server**This module describes how to use SQL Profiler and SQL Trace stored procedures to capture information about SQL Server. The module also describes how to use Distributed Replay to capture trace information from multiple servers, and how to monitor locking.**Lessons*** Capturing activity using SQL Server profiler
* Improving performance with the database engine tuning advisor
* Working with tracing options
* Distributed replay
* Monitoring locks

**Lab : Tracing Access to SQL Server**After completing this module, you will be able to:* Configure SQL Profiler traces and review captured traces.
* Use the Database Engine Tuning Advisor.
* Understand SQL Server advanced tracing concepts.
* Use Distributed Replay.
* Monitor Locking.

**Module 13: Monitoring SQL Server**This module explains how to use Distributed Management Views to monitor SQL Server. It also describes configuration of data collection and the SQL Server Utility.**Lessons*** Monitoring activity
* Capturing and managing performance data
* Analyzing collected performance data
* SQL Server utility

**Lab : Monitoring SQL Server**After completing this module, you will be able to:* Monitor activity within SQL Server
* Configure data collection.
* View reports from data collection.
* Configure a SQL Server Utility (UCP)

**Module 14: Troubleshooting SQL Server**This module explains the SQL Server troubleshooting methodology and discusses the most common issues that can arise when working with SQL Server systems.**Lessons*** SQL Server troubleshooting methodology
* Resolving service related issues
* Resolving login and connectivity issues
* Troubleshooting common issues

**Lab : Troubleshooting Common Issues**After completing this module, you will be able to:* Explain the SQL Server troubleshooting methodology.
* Resolve service-related issues.
* Resolve login and connectivity issues

**Module 15: Importing and Exporting Data**This module covers the use of the import/export wizards and explains how they relate to SSIS. The module also introduces BCP and BULK INSERT.**Lessons*** Transferring data to/from SQL Server
* Importing and exporting table data
* Using BCP and BULK INSERT to import data
* Deploying and upgrading data-tier applications

**Lab : Importing and Exporting Data**After completing this module, you will be able to:* Transfer data.
* Import and export table data.
* Use BCP and BULK INSERT to import data.
* Use DACs to import and export database applications
 |

|  |
| --- |
| **Course Outline****Module 1: SQL Server 2016 Components**Describe the SQL Server platform, SQL Server services, and SQL Server configuration options.**Lessons*** Introduction to the SQL Server Platform
* Overview of SQL Server Architecture
* SQL Server Services and Configuration Options

**Lab : SQL Server Versions ( Discussion session)**After completing this module, you will be able to:* Describe the SQL Server platform and architecture
* Describe the SQL Server services and configuration..

**Module 2: Installing SQL Server 2016**This modules describes the process to install SQL Server 2016.**Lessons*** Considerations for installing SQL Server
* TempDB Files
* Installing SQL Server 2016
* Automating Installation

**Lab : Installing SQL Server**After completing this module, you will be able to:* Describe the considerations when installing SQL Server 2016
* Be able to install SQL Server
* Be able to automate the installation

**Module 3: Upgrading SQL Server to SQL Server 2016**This module describes how you go about upgrading your current SQL Server installation to SQL Server 2016.**Lessons*** Upgrade Requirements
* Upgrade SQL Server Services
* Migrating SQL Server Data and Applications

**Lab : Upgrading SQL Server**After completing this module, you will be able to:* Describe the requirements for upgrading to SQL Server 2016
* Describe how to upgrade SQL Server services
* Be able to migrate SQL Server Data and Applications

**Module 4: Deploying SQL Server on Microsoft Azure**This module describes the options available to run SQL Server on Azure.**Lessons*** SQL Server Virtual Machines in Azure
* Deploying an Azure SQL Database
* Migrating an On-Premise Database to an Azure SQL Database

**Lab : Migrating SQL Server with Azure**After completing this module, you will be able to:* Describe how SQL Server Virtual Machines work in Azure
* Describe how to deploy and Azure SQL database
* Describe how to migrate and on-premise database to Azure

**Module 5: Working with Databases**This module describes the preinstalled system databases, the physical structure of databases and the most common configuration options related to them.**Lessons*** Overview of SQL Server Databases
* Creating Databases
* Database Files and Filegroups
* Moving Database Files
* Buffer Pool Extension

**Lab : Managing Database Storage**After completing this module, you will be able to:* Be able to create SQL Server databases
* Describe database files and filegroups
* Be able to move database files
* Describe the buffer pool extension

**Module 6: Database Storage Options**At the end of this module you will be able to describe the database storage options.**Lessons*** SQL Server storage Performance
* SMB Fileshare
* SQL Server Storage in Azure
* Stretch Databases

**Lab : Implementing Stretch Database**After completing this module, you will be able to:* Explain the elements impacting storage performance
* Describe SMB fileshare
* Describe SQL Server storage in Azure
* Describe Stretch Databases

**Module 7: Performing Database Maintenance**This module covers database maintenance.**Lessons*** Ensuring Database Integrity
* Maintaining Indexes
* Automating Routine Database Maintenance

**Lab : Performing Ongoing Database Maintenance**After completing this module, you will be able to:* Describe how to ensure database integrity
* Be able to maintain indexes
* Be able to automate routine database maintenance
 |
| **Additional Reading**After completing this course, students will be able to:* Provision a Database Server
* Upgrade SQL Server
* Configure SQL Server
* Manage Databases and Files (shared)
 |