

## **Course 10775A: Administering Microsoft SQL Server 2012 Databases**

**Exam Code: 70-462**

**Duration: 40 Hrs**

### **Course Outline**

#### **Module 1: Introduction to SQL Server 2012 and its Toolset**

This module introduces the entire SQL Server platform and its major tools. It covers editions, versions, basics of network listeners, and concepts of services and service accounts.

##### **Lessons**

- Introduction to the SQL Server Platform
- Working with SQL Server Tools
- Configuring SQL Server Services

##### **Lab : Introduction to SQL Server and its Toolset**

- Verifying SQL Server Component Installation
- Altering Service Accounts for New Instance
- Enabling Named Pipes Protocol for Both Instances
- Creating an Alias for AdvDev
- Ensuring SQL Browser is Disabled and Configure a Fixed TCP/IP Port (Only if time permits)

#### **Module 2: Preparing Systems for SQL Server 2012**

This module covers planning for an installation related to SQL Server I/O requirements, 32 bit vs 64 bit, memory configuration options and I/O subsystem pre-installation checks using SQLIOSim and SQLIO.

##### **Lessons**

- Overview of SQL Server Architecture
- Planning Server Resource Requirements
- Pre-installation Testing for SQL Server

##### **Lab : Preparing Systems for SQL Server**

- Adjust memory configuration
- Pre-installation Stress Testing
- Check Specific I/O Operations

#### **Module 3: Installing and Configuring SQL Server 2012**

This module details installing and configuring SQL Server.

##### **Lessons**

- Preparing to Install SQL Server
- Installing SQL Server
- Upgrading and Automating Installation

##### **Lab : Installing and Configuring SQL Server**

- Review installation requirements
- Install the SQL Server instance
- Perform Post-installation Setup and Checks
- Configure Server Memory

## Module 4: Working with Databases

This module describes how data is stored in databases, how to create databases, and how to move databases either within a server or between servers.

### Lessons

- Overview of SQL Server Databases
- Working with Files and Filegroups
- Moving Database Files

### Lab : Working with Databases

- Adjust tempdb configuration
- Create the RateTracking database
- Attach the OldProspects database
- Add multiple files to tempdb

## Module 5: Understanding SQL Server 2012 Recovery Models

This module describes the concept of the transaction log and SQL Server recovery models. It introduces the different backup strategies available with SQL Server.

### Lessons

- Backup Strategies
- Understanding SQL Server Transaction Logging
- Planning a SQL Server Backup Strategy

### Lab : Understanding SQL Server Recovery Models

- Plan a backup strategy
- Configure Recovery Models
- Review recovery models and strategy

## Module 6: Backup of SQL Server 2012 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 : Backup of SQL Server Databases

- Investigate backup compression
- Transaction log backup
- Differential backup
- Copy-only backup
- Partial backup

## Module 7: Restoring SQL Server 2012 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 2012 Databases

- Determine a restore strategy
- Restore the database
- Using STANDBY mode

## Module 8: Importing and Exporting Data

This module covers the use of the import/export wizards and explains how they relate to SSIS. Also introduces BCP.

### Lessons

- Transferring Data To/From SQL Server
- Importing & Exporting Table Data
- Inserting Data in Bulk

### Lab : Importing and Exporting Data

- Import the Excel spreadsheet
- Import the CSV file
- Create and test an extraction package
- Compare loading performance

## Module 9: 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

### Lab : Authenticating and Authorizing Users

- Create Logins
- Correct an Application Login Issue
- Create Database Users
- Correct Access to Restored

## Module 10: 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**

- Assign Server Roles
- Assign Fixed Database Roles
- Create and Assign User-defined Database Roles
- Check Role Assignments

### **Module 11: 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**

- Assign Schema-level Permissions
- Assign Object-level Permissions
- Test Permissions

### **Module 12: Auditing SQL Server Environments**

This module covers SQL Server Audit.

#### **Lessons**

- Options for Auditing Data Access in SQL
- Implementing SQL Server Audit
- Managing SQL Server Audit

### **Lab : Auditing SQL Server Environments**

- Determine audit configuration and create audit
- Create server audit specifications
- Create database audit specifications
- Test audit functionality

### **Module 13: Automating SQL Server 2012 Management**

This module covers SQL Server Agent, jobs and job history.

#### **Lessons**

- Automating SQL Server Management
- Working with SQL Server Agent
- Managing SQL Server Agent Jobs

### **Lab : Automating SQL Server Management**

- Create a Data Extraction Job
- Schedule the Data Extraction Job
- Troubleshoot a Failing Job

### **Module 14: Configuring Security for SQL Server Agent**

This module covers SQL Server agent security, proxy accounts and credentials.

**Lessons**

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

**Lab : Configuring Security for SQL Server Agent**

- Troubleshoot job execution failure
- Resolve the security issue
- Perform further troubleshooting

**Module 15: Monitoring SQL Server 2012 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

**Lab : Monitoring SQL Agent Jobs with Alerts and Notifications**

- Configure Database Mail
- Implement Notifications
- Implement Alerts

**Module 16: Performing Ongoing Database Maintenance**

This module covers database maintenance plans.

**Lessons**

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

**Lab : Performing Ongoing Database Maintenance**

- Check database integrity using DBCC CHECKDB
- Correct index fragmentation
- Create a database maintenance plan
- Investigate table lock performance

**Module 17: Tracing Access to SQL Server 2012**

This module covers SQL Profiler and SQL Trace stored procedures.

**Lessons**

- Capturing Activity using SQL Server Profiler
- Improving Performance with the Database Engine Tuning Advisor
- Working with Tracing Options

**Lab : Tracing Access to SQL Server 2012**

- Capture a trace using SQL Server Profiler
- Analyze a trace using Database Engine Tuning Advisor
- Configure SQL Trace

## **Module 18: Monitoring SQL Server 2012**

This module introduces DMVs and the configuration of data collection.

### **Lessons**

- Monitoring Activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data

### **Lab : Monitoring SQL Server 2012**

- Investigating DMVs
- Configure Management Data Warehouse
- Configure Instances for Data Collection
- Work with Data Collector Reports

## **Module 19: Managing Multiple Servers**

This module covers Central Management Servers and Multi-Server queries, Virtualization of SQL Server and Data-Tier Applications.

### **Lessons**

- Working with Multiple Servers
- Virtualizing SQL Server
- Deploying and Upgrading Data-Tier Applications

### **Lab : Managing Multiple Servers**

- Configure CMS and execute multi-server queries
- Deploy a data-tier application
- Register and extract a data-tier application
- Upgrade a data-tier application

## **Module 20: Troubleshooting Common SQL Server 2012 Administrative Issues**

This module covers common issues that require troubleshooting and gives guidance on where to start looking for solutions.

### **Lessons**

- SQL Server Troubleshooting Methodology
- Resolving Service-related Issues
- Resolving Concurrency Issues
- Resolving Login and Connectivity Issues

### **Lab: Troubleshooting Common Issues**

- Troubleshoot and resolve SQL Server administrative issues