

**Course Details****Course Code:** 55369A**Duration:** 5 days**Notes:**

- This course syllabus should be used to determine whether the course is appropriate for the students, based on their current skills and technical training needs.
- Course content, prices, and availability are subject to change without notice.
- Terms and Conditions apply

*Elements of this syllabus are subject to change.*

**About this course**

This five-day instructor-led course is intended for IT professionals who are interested in expanding their knowledge base and technical skills about SQL Server. In this course, students learn how to provision SQL Server databases both on-premises and in Azure. The course covers new installations and migrations from existing installations.

**Audience Profile**

This course is intended for novice database developers, database administrators, Business Intelligence developers, report creators, and application developers who have an understanding of relational database concepts and have basic Windows navigation skills.

**At Course Completion**

After completing this course, students will be able to:

- Describe the components of SQL Server
- Provision a database server that runs SQL Server
- Upgrade a database server
- Configure a new database on SQL Server
- Maintain a database hosted on SQL Server
- Configure storage for a database
- Plan to deploy SQL Server on Microsoft Azure
- Move a database from SQL Server on premises to Microsoft Azure
- Provision SQL Server on an Azure virtual machine
- Manage databases and data files for SQL Server in the cloud

**Prerequisites**

- Basic understanding of relational databases
- Basic Windows knowledge

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### Module 1: Understand the components of SQL Server

This module explains how SQL Server products and editions are designed to address business data storage needs. It also gives the students an understanding of the SQL Server architecture and explains how to configure the Windows services that host SQL Server processes. Students also learn how to configure SQL Server accounts and networking.

#### Lessons

- Overview of the SQL Server platform
- Understand the architecture of SQL Server
- Configure services, accounts, and networking

After completing this module, students will be able to:

- Choose the right SQL Server components, editions, and versions for a business requirement.
- Understand the architecture of SQL Server
- Set up SQL Server services and networking

### Module 2: Install a SQL Server system

This module explains how to plan and install SQL Server on one or more on-premises servers in your organization. Students also learn how to set up the tempdb database and its files to perform well and how to automate an installation.

#### Lessons

- Plan your SQL Server installation
- Plan the temporary database
- Install SQL Server manually
- Install SQL Server automatically

#### Lab 1: Install SQL Server

- Prepare for the installation
- Install the database server
- Check your installation
- Perform an unattended installation

After completing this module, students will be able to:

- Design your installation of SQL Server.
- Set up the tempdb database to perform optimally.

- Perform an installation of SQL Server.
- Automate an installation of SQL Server.

### Module 3: Upgrade your SQL Server

This module explains how to plan and execute an upgrade from an earlier version of SQL Server. Students learn about the various upgrade strategies so they can choose the best method to upgrade their SQL Server instances smoothly and with the least impact on user productivity.

#### Lessons

- Satisfy the requirements for a SQL Server upgrade
- Plan to upgrade the SQL Server services you have installed
- Perform a side-by-side upgrade

#### Lab 1: Perform a SQL Server upgrade

- Set up database users
- Restore the database and transaction logs
- Complete post-upgrade tasks

After completing this module, students will be able to:

- Choose the best way to upgrade a SQL Server installation.
- List the advantages and disadvantages of each SQL Server migration strategy.
- Upgrade a SQL Server instance.

### Module 4: Configure your databases and data files

This module explains how SQL server uses hard disks to store database files, transaction logs, and other important files. Students will learn how to design disk storage to support a high-performance database and how to move databases from one storage location to another.

#### Lessons

- Overview of SQL Server data storage
- Configure system database storage
- Configure user database storage
- Move databases
- Set up the buffer pool extension

#### Lab 1: Configure database storage

- Configure the temporary database
- Configure new databases
- Attach a database

After completing this module, students will be able to:

- Design storage files for a database.
- Create databases.
- Set up database storage files and filegroups.
- Move a database from one storage location to another.
- Use the buffer pool extension.

### Module 5: Maintain your databases

This module explains how to ensure that your databases continue to perform well in the long term by using CHECKDB and rebuilding indexes. The students also learn how to automate database maintenance tasks by using Database Maintenance Plans.

#### Lessons

- Maintain the integrity of your databases
- Optimize performance by using indexes
- Use Database Maintenance Plans

#### Lab 1: Maintain your databases

- Check your data integrity
- Defragment databases by rebuilding indexes
- Manage database using Database Maintenance Plans

After completing this module, students will be able to:

- Use CHECKDB to ensure the integrity of your database.
- Use indexes to optimize database performance.
- Automate database maintenance by using Database Maintenance Plans.

### Module 6: Configure storage to support SQL Server databases

This module explains how to configure file storage for SQL Server to ensure high performance. Students learn how to choose from local storage, file shares, and cloud storage locations. They also learn about SQL Server Stretch Databases and how to implement them.

#### Lessons

- Optimize the performance of SQL Server by configuring storage

- Use a network file share to store files for SQL Server
- Store SQL Server files in the Cloud
- Use SQL Server Stretch Database

#### Lab 1: Set up Stretch Database

- Execute the Stretch Database Advisor
- Set up Stretch Database for a database table

After completing this module, students will be able to:

- Describe how SQL Server performance depends on I/O performance.
- Use an SMB file share to store files for SQL Server.
- Use Microsoft Azure to store files for SQL Server.
- Use a Stretch Database.

### Module 7: Design a cloud-based installation of SQL Server

This module explains how to decide whether you should migrate a database from an on-premises SQL Server to Microsoft Azure. Students learn about services in Azure that can host a database and how to choose the best one for their business needs. They also learn how to execute a migration.

#### Lessons

- IaaS and PaaS database options in Microsoft Azure
- Use Azure Virtual Machines to host databases
- Azure SQL Database security
- Set up database in Azure SQL Database

#### Lab 1: Set up a database in Azure SQL Database

- Design a cloud database deployment
- Set up Azure SQL Database
- Configure firewall rules for a cloud database

After completing this module, students will be able to:

- Describe the ways you can run SQL Server in Microsoft Azure.
- Decide whether an on-premises database is suitable for migration to Azure.
- Move a database to Azure SQL Database.

**Module 8: Move databases into the cloud**

This module explains how to move databases from on-premises SQL Server instances into Azure SQL Database. Students learn how to test their database and choose those that are suitable for a cloud migration. They also learn about, and use, the migration tools.

**Lessons**

- Test your databases before a migration
- Database compatibility with Azure SQL Database
- Migrate a database into the cloud

**Lab 1: Move a database to Azure SQL Database**

- Ensure that the database is compatible with Azure SQL Database
- Move the database into the cloud

After completing this module, students will be able to:

- Choose the best database migration test tool.
- Understand factors that prevent a database from migrating to Azure SQL Database.
- Move a database from on-premises SQL Server to Azure SQL Database.

**Module 9: Use an Azure Virtual Machine to host SQL Server**

This module explains how to migrate a database to a Virtual Machine hosted in Azure. Students also learn how to update, license, and administer databases that run as SQL Server instances on Azure Virtual Machines.

**Lessons**

- Set up an instance of SQL Server on an Azure Virtual Machine
- Move a database to an Azure Virtual Machine

**Lab 1: Set up a SQL Server instance in the cloud**

- Create a Virtual Machine in Azure
- Move a database to the Virtual Machine
- Connect clients to the Virtual Machine

After completing this module, students will be able to:

- Administer an instance of SQL Server that runs on an Azure Virtual Machine.

- Move an on-premises database to an instance of SQL Server on an Azure Virtual Machine

**Module 10: Administer databases hosted in Microsoft Azure**

This module explains how to run databases from day-to-day after you have completed a migration to the cloud. Students learn how to ensure good security, use Azure Storage accounts, and automate database administration tasks.

**Lessons**

- Secure your deployment of Azure SQL Database
- Set up Azure Storage to support databases
- Automate administration tasks

**Lab 1: Administer cloud databases in Azure**

- Use data masks to protect personal data
- Automate an administration task

After completing this module, students will be able to:

- Manage encryption, firewall rules, and data masking for databases in Azure.
- Use Azure Storage to support databases.
- Automate database tasks by using scripts and Azure Automation