KOENIG step forward

Microsoft Solutions Partner
Microsoft Cloud Training Services

KOENIG SOLUTIONS · COURSE OUTLINE

Administering Microsoft SQL Server 2012 Databases

Learn to install, configure, secure and maintain SQL Server 2012 databases, from backup and restore to monitoring and troubleshooting.

20	124	91
MODULES	TOPICS	HANDS-ON LABS

COURSE OVERVIEW

This course covers the SQL Server 2012 platform and toolset, including preparing systems, and installing and configuring SQL Server. It addresses working with databases, recovery models, and backing up and restoring databases, along with importing and exporting data. It covers authenticating and authorizing users, assigning server and database roles, authorizing access to resources, and auditing SQL Server environments. It also covers automating management with SQL Server Agent, securing that agent, monitoring with alerts and notifications, performing ongoing maintenance, tracing access, monitoring performance, managing multiple servers, and troubleshooting common administrative issues.

WHO THIS COURSE IS FOR

Database Administrators **Database Developers** **System Administrators** **IT Professionals** **Data Analysts**

LEARNING OBJECTIVES

- Describe the SQL Server platform and its toolset
- Plan server resource requirements and pre-installation testing
- Install and configure SQL Server, including upgrades
- Work with databases, files and filegroups
- Plan a backup strategy and back up databases
- Restore databases, including point-in-time recovery
- Authenticate connections and authorize users to databases
- Automate SQL Server management with SQL Server Agent

COURSE SYLLABUS

20 Modules, 124 Topics

01

6 Labs

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.

TOPICS

Introduction to the SQL Server Platform · Working with SQL Server Tools · Configuring SQL Server Services · Describe the SQL Server Platform · Work with SQL Server Tools · Configure SQL Server Services

02

4 Labs

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.

TOPICS

- Overview of SQL Server Architecture
- Planning Server Resource Requirements
- Pre-installation Testing for SQL Server
- Describe the SQL Server architecture
- Plan for server resource requirements
- Conduct pre-installation stress testing for SQL Server

03

5 Labs

Installing and Configuring SQL Server 2012

This module details installing and configuring SQL Server.

TOPICS

- Preparing to Install SQL Server
- Installing SQL Server
- Upgrading and Automating Installation
- Prepare to install SQL Server
- Install SQL Server
- Upgrade and automate the installation of SQL Server

04

5 Labs

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.

TOPICS

- Overview of SQL Server Databases
- Working with Files and Filegroups
- Moving Database Files
- Describe the role and structure of SQL Server databases
- Work with files and filegroups
- Move database files within servers and between servers

05

4 Labs

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.

TOPICS

- Backup Strategies
- Understanding SQL Server Transaction Logging
- Planning a SQL Server Backup Strategy
- Describe the critical concepts surrounding backup strategies
- Explain the transaction logging capabilities within the SQL Server database engine
- Plan a SQL Server backup strategy

06

6 Labs

Backup of SQL Server 2012 Databases

This module describes SQL Server Backup and the backup types.

TOPICS

Backing up Databases and Transaction Logs · Managing Database Backups · Working with Backup Options · Back up databases and transaction logs · Manage database backups · Work with more advanced backup options

07

4 Labs

Restoring SQL Server 2012 Databases

This module describes the restoration of databases.

TOPICS

- Understanding the Restore Process
- Restoring Databases
- Working with Point-in-time recovery
- Restoring System Databases and Individual Files
- Understand the restore process
- Restore databases
- Work with Point-in-time Recovery
- Restore system databases and individual files

08

5 Labs

Importing and Exporting Data

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

TOPICS

- Transferring Data To/From SQL Server
- Importing and Exporting Table Data
- Inserting Data in Bulk
- Transfer data to and from SQL Server
- Import and export table data
- Insert data in bulk and optimize the bulk insert process

09

5 Labs

Authenticating and Authorizing Users

This module covers SQL Server security models, logins and users.

TOPICS

- Authenticating Connections to SQL Server
- Authorizing Logins to Access Databases
- Authorization Across Servers
- Describe how SQL Server authenticates connections
- Describe how logins are authorized to access databases
- Explain the requirements for authorization across servers

10

5 Labs

Assigning Server and Database Roles

This module covers fixed server roles, user-defined server roles, fixed database roles and user-defined database roles.

TOPICS

Working with Server Roles · Working with Fixed Database Roles · Creating User-defined Database Roles · Work with server roles · Work with fixed database roles · Create user-defined database roles

11

4 Labs

Authorizing Users to Access Resources

This module covers permissions and the assignment of permissions.

TOPICS

- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level
- Authorize user access to objects
- Authorize users to execute code
- Configure permissions at the schema level

12

5 Labs

Auditing SQL Server Environments

This module covers SQL Server Audit.

TOPICS

- Options for Auditing Data Access in SQL
- Implementing SQL Server Audit
- Managing SQL Server Audit
- Describe the options for auditing data access in SQL Server
- Implement SQL Server Audit
- Manage SQL Server Audit

13

4 Labs

Automating SQL Server 2012 Management

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

TOPICS

Automating SQL Server Management · Working with SQL Server Agent · Managing SQL Server Agent Jobs · Automate SQL Server Management · Work with SQL Server Agent · Manage SQL Server Agent jobs

14

4 Labs

Configuring Security for SQL Server Agent

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

TOPICS

Understanding SQL Server Agent Security · Configuring Credentials · Configuring Proxy Accounts · Explain SQL Server Agent security · Configure credentials · Configure Proxy accounts

15

4 Labs

Monitoring SQL Server 2012 with Alerts and Notifications

This module covers the configuration of database mail, alerts and notifications.

TOPICS

- Configuration of Database Mail
- Monitoring SQL Server Errors
- Configuring Operators, Alerts and Notifications
- Configure database mail
- Monitor SQL Server errors
- Configure operators, alerts and notifications

16

5 Labs

Performing Ongoing Database Maintenance

This module covers database maintenance plans.

TOPICS

Ensuring Database Integrity · Maintaining Indexes · Automating Routine Database Maintenance · Ensure database integrity · Maintain indexes · Automate routine database maintenance

17

4 Labs

Tracing Access to SQL Server 2012

This module covers SQL Profiler and SQL Trace stored procedures.

TOPICS

- Capturing Activity using SQL Server Profiler
- Improving Performance with the Database Engine Tuning Advisor
- Working with Tracing Options
- Capture activity using SQL Server Profiler and Extended Events Profiler
- Improve performance with the Database Engine Tuning Advisor
- Work with tracing options

18

5 Labs

Monitoring SQL Server 2012

This module introduces DMVs and the configuration of data collection.

TOPICS

Monitoring Activity · Capturing and Managing Performance Data · Analyzing Collected Performance Data · Monitor current activity · Capture and manage performance data · Analyze collected performance data

19

5 Labs

Managing Multiple Servers

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

TOPICS

- Working with Multiple Servers
- Virtualizing SQL Server
- Deploying and Upgrading Data-Tier Applications
- Work with multiple servers
- Describe options for virtualizing SQL Server
- Deploy and upgrade Data-Tier Applications

20

2 Labs

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.

TOPICS

- SQL Server Troubleshooting Methodology
- Resolving Service-related Issues
- Resolving Concurrency Issues
- Resolving Login and Connectivity Issues
- Explain SQL Server troubleshooting methodology
- Resolve service-related issues
- Resolve concurrency issues
- Resolve login and connectivity issues

HANDS-ON LABS

Practise What You Learn

#	MODULE	ACTIVITY
01	**Introduction to SQL Server 2012 and Its Toolset**	■ 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
02	**Preparing Systems for SQL Server 2012**	■ Preparing Systems for SQL Server ■ Adjust memory configuration ■ Pre-installation Stress Testing ■ Check Specific I/O Operations
03	**Installing and Configuring SQL Server 2012**	■ Installing and Configuring SQL Server ■ Review installation requirements ■ Install the SQL Server instance ■ Perform Post-installation Setup and Checks ■ Configure Server Memory
04	**Working with Databases**	■ Working with Databases ■ Adjust tempdb configuration ■ Create the RateTracking database ■ Attach the OldProspects database ■ Add multiple files to tempdb
05	**Understanding SQL Server 2012 Recovery Models**	■ Understanding SQL Server Recovery Models ■ Plan a backup strategy ■ Configure Recovery Models ■ Review recovery models and strategy
06	**Backup of SQL Server 2012 Databases**	■ Backup of SQL Server Databases ■ Investigate backup compression ■ Transaction log backup ■ Differential backup ■ Copy-only backup ■ Partial backup
07	**Restoring SQL Server 2012 Databases**	■ Restoring SQL Server 2012 Databases ■ Determine a restore strategy ■ Restore the database ■ Using STANDBY mode

#	MODULE	ACTIVITY
08	**Importing and Exporting Data**	■ Importing and Exporting Data ■ Import the Excel spreadsheet ■ Import the CSV file ■ Create and test an extraction package ■ Compare loading performance
09	**Authenticating and Authorizing Users**	■ Authenticating and Authorizing Users ■ Create Logins ■ Correct an Application Login Issue ■ Create Database Users ■ Correct Access to Restored
10	**Assigning Server and Database Roles**	■ Assigning Server and Database Roles ■ Assign Server Roles ■ Assign Fixed Database Roles ■ Create and Assign User-defined Database Roles ■ Check Role Assignments
11	**Authorizing Users to Access Resources**	■ Authorizing Users to Access Resources ■ Assign Schema-level Permissions ■ Assign Object-level Permissions ■ Test Permissions
12	**Auditing SQL Server Environments**	■ Auditing SQL Server Environments ■ Determine audit configuration and create audit ■ Create server audit specifications ■ Create database audit specifications ■ Test audit functionality
13	**Automating SQL Server 2012 Management**	■ Automating SQL Server Management ■ Create a Data Extraction Job ■ Schedule the Data Extraction Job ■ Troubleshoot a Failing Job
14	**Configuring Security for SQL Server Agent**	■ Configuring Security for SQL Server Agent ■ Troubleshoot job execution failure ■ Resolve the security issue ■ Perform further troubleshooting
15	**Monitoring SQL Server 2012 with Alerts and Notifications**	■ Monitoring SQL Agent Jobs with Alerts and Notifications ■ Configure Database Mail ■ Implement Notifications ■ Implement Alerts

#	MODULE	ACTIVITY
16	**Performing Ongoing Database Maintenance**	■ Performing Ongoing Database Maintenance ■ Check database integrity using DBCC CHECKDB ■ Correct index fragmentation ■ Create a database maintenance plan ■ Investigate table lock performance
17	**Tracing Access to SQL Server 2012**	■ Tracing Access to SQL Server 2012 ■ Capture a trace using SQL Server Profiler ■ Analyze a trace using Database Engine Tuning Advisor ■ Configure SQL Trace
18	**Monitoring SQL Server 2012**	■ Monitoring SQL Server 2012 ■ Investigating DMVs ■ Configure Management Data Warehouse ■ Configure Instances for Data Collection ■ Work with Data Collector Reports
19	**Managing Multiple Servers**	■ 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
20	**Troubleshooting Common SQL Server 2012 Administrative Issues**	■ Troubleshooting Common Issues ■ Troubleshoot and resolve SQL Server administrative issues

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

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