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## **Microsoft SQL Server level 1 beginner course outline (3-day)**

### **Part 1: Getting Started with Microsoft SQL Server 2008**

Overview of Microsoft SQL Server

Installing and Configuring SQL Server 2008

Using the Tools in SQL Server 2008

### **Part 2: Designing Databases**

Creating Databases

Designing Tables

Indexes

Partitioning

### **Part 3: Retrieving and Manipulating Data**

Data Retrieval

Advanced Data Retrieval

Data Manipulation

### **Part 4: Designing Advanced Database Objects**

Views

Stored Procedures

Functions

Triggers

Database Snapshots

Service Broker

Full-Text Indexing

## **Part 5: Database Management**

Security

Policy-Based Management

Data Recovery

SQL Server Agent

Dynamic Management Views

## **Part 6: High Availability Overview**

High Availability

# **Microsoft SQL Server level 2 advanced course outline (3-day)**

## **1. Introducing 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

## **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

**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

**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

**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

**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

**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

**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

**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

**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

**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

**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

**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

**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

**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

**16. Performing Ongoing Database Maintenance**

This module covers database maintenance plans.

**Lessons:**

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

**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

## **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

## **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

## **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

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