

# MS SQL SERVER



# Microsoft SQL Server 2012 Administration

This class consists of hands-on training that focus on the fundamentals of administering the SQL Server 2012 database engine. Participants in this course will come away with the knowledge and experience required to administer SQL Server 2012. The course focuses on performing common administrative tasks, understanding how SQL Server works under the covers, and optimizing SQL Server performance as well as assuring high data availability. Attendees will learn how to install, configure, manage, secure, automate, monitor, and optimize SQL Server 2012. You will also learn how to create, manage, back up, and restore individual databases, transfer and replicate data, configure for high availability, and plan disaster recovery

## SQL Server 2012 Administration Training Objectives

- Install and configure Microsoft SQL Server 2012
- Understand the new features of Microsoft SQL Server 2012
- Manage and monitor SQL Server and automate administration
- Create databases and tables
- Implement indexes and partitions
- Take database snapshots
- Create and use full-text indexes
- Secure SQL Server and implement policy-based management
- Back up and recover data
- Automate administrative tasks with the SQL Server Agent
- Performance tune and monitor your SQL Server instance
- Use Dynamic Management Views to monitor the database and troubleshoot problems
- Configure SQL Server for high availability using failover clustering, database mirroring, log shipping, and replication

## Course Prerequisites

Familiarity with database concepts, Windows desktop navigation and software installation techniques. Attendance at any [SQL Programming](#) course highly recommended although not required.

## Who Should Attend

IT professionals, who need the fundamental skills to install, maintain, administer and troubleshoot Microsoft SQL Server 2012.

## Course Duration

36 Hours, 12 Classes, 3 Hours per class

# Course Details

## Lesson 01: SQL Server 2012 Architecture

- SQL Server 2012 ecosystem
- New important Features in 2012
- SQL Server architecture
- Editions of SQL Server

## Lesson 02: Installing SQL Server 2012 Best Practices

- Planning the system
- Installing SQL Server
- Installing analysis services
- Installing Power Pivot for Share Point
- Burning the system
- Post-install configuration
- Uninstalling SQL Server
- Troubleshooting a failed install

## Lesson 03: Upgrading SQL Server 2012 Best Practices

- Why upgrade to SQL Server 2012
- Upgrading the SQL Server 2012
- Pre-upgrade steps and tools
- Backward compatibility
- SQL Server component considerations
- Post-upgrade checks

## Lesson 04: Managing and Troubleshooting the Database Engine

- Configuration and administration tools
- Troubleshooting tools
- Management studio
- Monitoring processes in T-SQL
- Multilevel management
- Trace flags
- Getting help from support

## Lesson 05: Automating SQL Server

- Maintenance plans
- Automating SQL Server with SQL Server Agent
- SQL Server Agent security
- Configuring SQL Server Agent
- Database mail
- Multilevel administration

# Course Details

## Lesson 06: Service Broker in SQL Server 2012

- Asynchronous messaging
- Configuring SQL Server service broker
- Using SQL Server service broker

## Lesson 07: SQL Server CLR Integration

- Introduction to the CLR
- Creating CLR assemblies
- Securing CLR
- Performance monitoring

## Lesson 08: Securing the Database Instance

- Authentication types
- Authorizing securable
- Row level security

## Lesson 09: Change Management

- Creating solutions and projects
- Policy-based management
- DDL trigger syntax
- Trigger views
- Scripting overview
- Creating change scripts
- Data-tier applications

## Lesson 10: Configuring the Server for Optimal Performance

- What every DBA needs to know about performance
- What the developer DBA needs to know about performance
- What the production DBA needs to know about performance
- CPU
- Memory
- I/O

## Lesson 11: Optimizing SQL Server 2012

- Application optimization
- The silent killer: I/O problems
- Data compression
- CPU considerations
- Memory considerations and enhancements
- Resource governor

# Course Details

## Lesson 12: Monitoring Your SQL Server

- The goal of monitoring
- Choosing the appropriate monitoring tools
- Performance monitor
- Monitoring events
- Monitoring with dynamic management views and functions
- Monitoring logs
- Management data warehouse
- SQL Server standard reports
- System center management pack
- SQL Server best practice analyzer
- System center advisor

## Lesson 13: Performance Tuning T-SQL

- Physical query processing part 1: compilation and recompilation
- Physical query processing part 2: execution

## Lesson 14: Indexing Your Database

- Noteworthy index-related features in SQL Server
- Partitioned tables and indexes
- Index maintenance
- Improving query performance with indexes
- Database tuning advisor
- Too many indexes?

## Lesson 15: Replication

- Replication overview
- Replication models
- Implementing replication
- Peer-to-peer replication
- Scripting replication
- Monitoring replication

## Lesson 16: Clustering SQL Server 2012

- Clustering and your organization
- Clustering: the big picture
- Upgrading SQL Server clustering
- Getting prepared for clustering
- Clustering Windows Server 2008
- Clustering Microsoft distributed transaction coordinator
- Clustering SQL Server 2012
- Managing and monitoring the cluster
- Troubleshooting cluster problems

## Lesson 17: Backup and Recovery

- Types of failure
- Making plans
- Overview of backup and restore
- Preparing for recovery
- Developing and executing a backup plan
- Managing backups
- Backup and restore performance
- Performing recovery
- Archiving data

## Lesson 18: SQL Server 2012 Log Shipping

- Log shipping deployment deployment scenarios
- Log shipping architecture
- Log shipping process
- System requirements
- Deploying log shipping
- Monitoring and troubleshooting
- Managing changing roles
- Database backup plan
- Integrating log shipping with other high-availability solutions
- Removing log shipping
- Log shipping performance
- Upgrading to SQL Server 2012 log shipping

## Lesson 19: Database Mirroring

- Overview of database mirroring
- Operating modes of database mirroring
- Database mirroring in action
- Database mirroring and SQL Server 2012 editions
- Database mirroring catalogue views
- Database mirroring role change
- Database availability scenarios
- Monitoring database mirroring
- Troubleshooting database mirroring
- Preparing the mirror server for failover
- Mirroring multiple databases
- Database Mirroring and other high-availability solutions
- Mirroring event listener setup
- Database snapshots

