

FS-2010A SQL Server Administration (Duration 5Days)



What will you learn?

This class will give you a wealth of practical administration techniques that you can put into production as soon as you return to work and we ensure you understand **why** and **how** a technique works rather than just what the technique is. This course helps you prepare for the **Exam 70-764, 70-765, 70-462 and 70-465.**

Who is the Audience?

Intended for SQL Server administrators who are responsible for the administrating of their database servers and installation of SQL Server.

Primary responsibilities will include:

- Providing database administration tasks.
- Monitoring SQL Server instance and database performance, security and availability.
- Maintain database integrity and perform database backup policy.

What are the Prerequisites?

- Experience with SQL Server.
- Understanding of Database concept.
- Experience with SQL Server administration.
- Experience with Transact-SQL Programming.

What are the Course Objectives?

After completing this course, students will be able to:

- Identify the System Performance Bottlenecks and Top Performance Killers in SQL Server.
- Analyze the SQL Server Performance metrics such as WaitStats, LatchStats and etc.
- Use the SQL Server trace tools such as SQLTrace, Extended Events, SQL Profiler and Performance Monitor Data Collector Set.
- Analyze, Design and Deploy Indexes in order to support multiple queries within the database workload.
- Analyze and resolve Bookmark Lookup and Statistics related issues in Execution Plans.
- Understand the Performance Tuning exceptions and tricks within SQL Server environment.
- Analyze and resolve fragmentation, transaction blocking and deadlocks.
- Configure Database and Instance for the optimum performance.

What are the Course Outlines?

Module 1: Installing SQL Server

This module introduces the performance tuning process, baseline creation and the focus points.

Lessons:

- Installation Considerations
- TempDB Files.
- Installing SQL Server.

Labs:

- Hardware Test, Measurement and Configuration.
- Installing SQL Server.

Module 2: SQL Server Data Storage Configuration

This module describes how to manage storage for system and user databases along with Buffer Pool Extension configuration.

Lessons:

- Introduction to Data Storage.
- Managing Storage for Databases.
- Configuring the Buffer Pool Extension.

Labs:

- Configure TempDB Storage.
- Configure Model Database.
- Configure Buffer Pool Extension.

Module 3: Security in SQL Server

This module describes SQL Server Authentication, Authorization and data audit methods.

Lessons:

- Authentication Methods in SQL Server.
- Authorization in SQL Server.
- Cross Server Authorization.
- Working with Server and Database Roles.
- User Access Authorization to Objects.
- Implement and Manage SQL Server Audit.

Labs:

- Assign Server and Database Roles.
- Assign Permissions on Objects and Schemas.
- Configure SQL Server Audit.
- Retrieve SQL Server Audit Information.

Module 4: Database Recovery Models

This module describes the index object, benefits and drawbacks of each different type of indexes along with general recommendation for each index type.

Lessons:

- SQL Server Transaction Logs.
- Recovery Model and High Availability Solutions.
- Recovery Model effect on RPO and RTO.

Labs:

- Configure Database Recovery Models.
- Review Recovery Model and Business Needs.

Module 5: Database Backup

This module describes how to take database different types of backups with/out advanced options.

Lessons:

- Database and Transaction Log Backup.
- Backup Management.
- Advanced Backup Options.

Labs:

- Backup Database in Full.
- Backup Database in Full, Differential and Transaction Log
- Take Partial Backup from Read-Write Filegroups.

Module 6: Database Restore

This module describes how to restore database from database backups either full, differential or transaction log.

Lessons:

- Restore Database Considerations.
- Basic Database Restore.
- Advanced Database Restore Scenarios.
- Point-In-Time Recovery Scenarios.

Labs:

- Restore a Database Backup.
- Restore a Database Backup before Specific Batch.
- Perform a Piecemeal Database Restore.

Module 7: SQL Server Automation and Notification

This module describes how to automate routine tasks and configure the automation to send an notification in case of failure.

Lessons:

- Working with SQL Server Agent.
- Configuring SQL Server Agent Service.
- Configure Credentials and Agent Proxy Accounts.
- Implement Multi-Server Management.
- Configure the Database Mail.
- Configure Operators, Alerts and Notifications.

Labs:

- Create a SQL Server Agent Job.
- Configure the Database Mail.
- Schedule and Set Notification for a Job.
- Create a Database Backup Copy Job.
- Configure Master and Target Servers.

Module 8: Extended Events and SQL Trace

This module describes how to use Extended Event and SQL Trace features in a time that activity tracing requires.

Lessons:

- Extended Events Concepts.
- Working with Extended Events.
- Working with SQLProfiler and SQLTrace.

Labs:

- Track Database File Growth with Extended Event.
- Capture SQL Statements via Extended Event and SQLTrace.

Module 9: SQL Server Instance Monitoring

This module describes how to monitor the entire activities within the SQL Server instance.

Lessons:

- Monitor SQL Server Instance Activity.
- Capture and Monitor Performance Data via Performance Monitor.
- Monitor Performance Data via DMVs & DMFs.

Labs:

- Capture Performance Data via Performance Monitor.
- Monitor SQL Server Requests via DMVs and DMFs.

Module 10: Common Troubleshooting

This module describes how to troubleshoot the common issues such as connectivity and service related.

Lessons:

- Troubleshooting Steps.
- Service-Related Troubleshooting.
- User Connectivity and Login Related Troubleshooting.

Labs:

- Troubleshoot and Resolve a SQL Login Issue.
- Troubleshoot and Resolve a Service Issue.
- Troubleshoot and Resolve an Agent Job Issue.
- Troubleshoot and Resolve a Performance Issue.

Module 11: Import and Export Data

This module describes how to Import and Export Data via built-in features and tools of SQL Server.

Lessons:

- Import and Export Table Data.
- Perform Bulk Operation with BCP tool and BULK INSERT command.
- Perform Data Migration via Data-Tier Applications.
- Capture Data Table Differences via TableDiff tool.

Labs:

- Import Excel Data Using Import Wizard.
- Import CSV Data Using BCP tool.
- Import CSV data using BULK INSERT command.
- Migrate Data via Data-Tier Application.
- Capture the Data Differences between two Tables.

Module 12: Introduction to Enterprise Data Architecture

This module describes the fundamental of Enterprise Data Architecture and how data should be placed within organization.

Lessons:

- Enterprise Data Considerations.
- Assessing an Existing Infrastructure.
- Policy-Based Management.
- Central Management Servers.
- to avoid blocking.
- Techniques to automate blocking detection and information collection processes.

Labs:

- Implement Policy-Based Management.
- Testing Policy Compliance on Target Servers.

Module 13: Resource Management

This module describes how to monitor instance resource utilization and manage the hardware resources.

Lessons:

- Configure Data Collector.
- Managing Server Resources.

Labs:

- Using the Data Collector.
- Using Resource Governor.
- Managing Resources for Multiple Instances.

Module 14: Introduction to High Availability

This module describes fundamental of High Availability option in SQL Server.

Lessons:

- High Availability Concepts and Options in SQL Server.
- Database Mirroring.
- Log Shipping.
- Replication.

Labs:

- Implement Log Shipping.
- Implement Replication.

About Trainer:



Hamid is SQL Server Data BI Platform Expert with more than 10 years' of professional experience, He is holding Microsoft Certified Master: SQL Server 2008, Microsoft Certified Solutions Master: Charter-Data Platform, Microsoft Data Platform MVP Award and CIW Database Design Specialist Certifications. Being a consultant allows him to work directly with customers to help solve questions regarding database issues for SQL Server and PowerBI. He had trained more than 200 students from Banking, Manufacturing, Insurance and Technology industries in well-known training centers in Malaysia.

