Introduction

This course provides students with the knowledge and skills required to install, configure, administer, and troubleshoot the client-server database management system of Microsoft® SQL Server™ 2000. Course 2072 is a revision of course 832: System Administration for Microsoft SQL Server 7.0. The course content is being revised to reflect changes in the product.

Course Outline

Module 1: SQL Server Overview

The following topics are covered in this module:

- What Is SQL Server
- SQL Server Integration
- SQL Server Databases
- SQL Server Security
- Working with SQL Server

The following lab is covered in this module:

- SQL Server Overview

At the end of this module, you will be able to:

- Describe SQL Server 2000 and its supported operating system platforms.
- Describe SQL Server architecture.
- Describe SQL Server databases.
- Describe SQL Server security.
- Describe SQL Server querying, implementation, administration, and data warehousing activities, as well as client application design options.

Module 2: Planning to Install SQL Server

The following topics are covered in this module:

- Hardware Installation Considerations
- SQL Server 2000 Editions
- Software Installation Considerations
- Methods of Installing SQL Server
- Verifying the Installation
- Configuring SQL Server Enterprise Manager
- Troubleshooting

The following lab is covered in this module:
• Installing SQL Server

At the end of this module, you will be able to:

• Determine hardware requirements for SQL Server 2000 and the SQL Server management tools.
• Describe the various SQL Server Editions.
• Describe the different types of licensing.
• Determine software installation options that are appropriate for your environment.
• Describe various methods of installing an instance SQL Server and install it by using SQL Server Setup.
• Verify the installation of SQL Server.
• Configure SQL Server Enterprise Manager.
• Troubleshoot the installation.

Module 3: Managing Database Files

The following topics are covered in this module:

• Introduction to Data Structures
• Creating Databases
• Managing Databases
• Placing Database Files and Logs
• Optimizing the Database Using Hardware-based RAID
• Optimizing the Database Using Filegroups
• Optimizing the Database Using Filegroups with Hardware-based RAID
• Capacity Planning
• Performance Considerations

The following lab is covered in this module:

• Managing Database Files

At the end of this module, you will be able to:

• Describe how SQL Server stores data and handles transactions.
• Create a database, including specifying options during and after database creation.
• Grow, shrink, or delete a database.
• Determine the placement of database files and transaction logs for performance and fault tolerance.
• Optimize a database by using hardware-based RAID.
• Determine when and how to use filegroups to optimize a database.
• Optimize a database by using filegroups with hardware-based RAID.
• Estimate the amount of space that a database requires.
Module 4: Managing Security

The following topics are covered in this module:

- Implementing an Authentication Mode
- Assigning Logins to Users and Roles
- Assigning Permissions to Users and Roles
- Managing Security Within SQL Server
- Managing Application Security
- Managing SQL Server Security in the Enterprise

The following labs are covered in this module:

- Managing Security
- Managing Permissions
- Managing Application Security

At the end of this module, you will be able to:

- Implement Windows Authentication Mode and Mixed Authentication Mode.
- Assign login accounts to database user accounts and roles.
- Assign permissions to user accounts and roles.
- Manage security within SQL Server.
- Manage security with views and stored procedures.
- Create and use application roles to manage application security.
- Manage SQL Server security in the enterprise environment.

Module 5: Performing Administrative Tasks

The following topics are covered in this module:

- Configuration Tasks Routine SQL Server Administrative Tasks Automating Routine Maintenance Tasks Creating Alerts Troubleshooting SQL Server Automation Automating Multiserver Jobs

The following labs are covered in this module:

- Configuring SQL Server
- Creating Jobs and Operators
- Creating Alerts

At the end of this module, you will be able to:

- Perform common SQL Server configuration tasks.
• Describe how to upgrade SQL Server version 6.5 and SQL Server 7.0 to SQL Server 2000.
• Describe routine database administration tasks.
• Automate routine maintenance tasks by creating and scheduling jobs.
• Create alerts and operators.
• Troubleshoot automated jobs, alerts, or notifications.
• Automate administrative jobs in a multiserver environment.

Module 6: Backing Up Databases

The following topics are covered in this module:

• Preventing Data Loss
• Setting and Changing a Database Recovery Model
• SQL Server Backup
• When to Back Up Databases
• Performing Backups
• Types of Backup Methods
• Planning a Backup Strategy
• Performance Considerations

The following lab is covered in this module:

• Backing Up Databases

At the end of this module, you will be able to:

• Create backup files and backup sets.
• Back up user and system databases by using Transact-SQL and SQL Server Enterprise Manager.
• Back up databases that are created on multiple files and filegroups.
• Apply the appropriate backup options to each of the different SQL Server 2000 backup methods.
• Use the BACKUP LOG statement to back up and clear transaction logs.
• Design an appropriate backup strategy.

Module 7: Restoring Databases

The following topics are covered in this module:

• SQL Server Recovery Process
• Preparing to Restore a Database
• Restoring Backups
• Restoring Databases from Different Backup Types
• Restoring Damaged System Databases
The following lab is covered in this module:

- Restoring Databases

At the end of this module, you will be able to:

- Describe the SQL Server recovery process.
- Verify backups and perform specific tasks that enable the restore process.
- Use the RESTORE statement to get information about a backup file before you restore a database, file, or transaction log.
- Restore backups from different backup types and use the appropriate options.
- Restore damaged system databases.

**Module 8: Monitoring SQL Server for Performance**

The following topics are covered in this module:

- Why to Monitor SQL Server
- Performance Monitoring and Tuning
- Tools for Monitoring SQL Server
- Common Monitoring and Tuning Tasks

The following lab is covered in this module:

- Monitoring SQL Server

At the end of this module, you will be able to:

- Describe the reasons why monitoring SQL Server 2000 is important.
- Develop a performance monitoring and tuning methodology.
- Describe the tools available for monitoring SQL Server.
- Perform common monitoring and tuning tasks by using counters and appropriate tools.

**Module 9: Transferring Data**

The following topics are covered in this module:

- Introduction to Transferring Data
- Tools for Importing and Exporting Data in SQL Server
- Introduction to DTS
- Transforming Data with DTS

The following lab is covered in this module:
• Transferring Data

At the end of this module, you will be able to:

• Describe the rationale for, and the process of, importing, exporting, and transforming data.
• Describe the tools for importing and exporting data in SQL Server 2000.
• Transform data by using Data Transformation Services (DTS).
• Create and edit a DTS package by using the DTS Import and DTS Export Wizards.

Module 10: Maintaining High Availability

The following topics are covered in this module:

• Introduction to Availability
• Increasing Availability Using Failover Clustering
• Standby Servers and Log Shipping

The following lab is covered in this module:

• Automating the Maintenance of a Standby Server

At the end of this module, you will be able to:

• Determine availability requirements and strategies for a Microsoft .NET Enterprise Server environment.
• Use SQL Server failover clustering.
• Configure a standby server and use log shipping to maintain its integrity.

Module 11: Introducing Replication

The following topics are covered in this module:

• Introduction to Distributed Data
• Introduction to SQL Server Replication
• SQL Server Replication Agents
• SQL Server Replication Types
• Physical Replication Models

The following lab is covered in this module:

• Implementing Replication

At the end of this module, you will be able to:
- Describe the various methods to distribute data in SQL Server 2000.
- Explain the publisher-subscriber metaphor, including articles, publications, and subscriptions.
- Describe SQL Server replication agents.
- Explain the SQL Server replication types.
- Describe the physical replication models.