

Implementing a Microsoft SQL Server 2005 Database

Course 2779: Five days; Instructor-Led

Introduction

Elements of this syllabus are subject to change.

This five-day instructor-led course provides students with the knowledge and skills to implement a Microsoft SQL Server 2005 database. The course focuses on teaching individuals how to use SQL Server 2005 product features and tools related to implementing a database.

Audience

This course is intended for IT Professionals who want to become skilled on SQL Server 2005 product features and technologies for implementing a database.

At Course Completion

After completing this course, students will be able to:

- Create databases and database files.
- Create data types and tables.
- Use XML-related features in Microsoft SQL Server 2005.
- Plan, create, and optimize indexes.
- Implement data integrity in Microsoft SQL Server 2005 databases by using constraints.
- Implement data integrity in Microsoft SQL Server 2005 by using triggers.
- Implement views.
- Implement stored procedures.
- Implement functions.
- Implement managed code in the database.
- Manage transactions and locks.
- Use Service Broker to build a messaging-based solution.
- Use Notification Services to generate and send notifications.

Prerequisites

Before attending this course, students must have:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.

- Working knowledge of Transact-SQL.
- Working knowledge of relational databases.
- Some experience with database design.

In addition, it is recommended, but not required, that students have completed:

- Course 2778: Writing Queries Using Microsoft SQL Server 2005 Transact-SQL.
- Course 2780: Maintaining a Microsoft SQL Server 2005 Database.

Course Outline

Module 1: Creating Databases and Database Files

This module explains how to create databases, filegroups, schemas, and database snapshots.

Lessons

- Creating Databases
- Creating Filegroups
- Creating Schemas
- Creating Database Snapshots

Lab 1: Creating Databases and Database Files

- Creating a Database
- Creating Schemas
- Creating a Database Snapshot

After completing this module, students will be able to:

- Create databases.
- Create filegroups.
- Create schemas.
- Create database snapshots.

Module 2: Creating Data Types and Tables

This module explains how to create data types and tables. It also describes how to create partitioned tables.

Lessons

- Creating Data Types
- Creating Tables
- Creating Partitioned Tables

Lab 2: Creating Data Types and Tables

- Creating Data Types
- Creating Tables
- Creating Partitioned Tables

After completing this module, students will be able to:

- Create new data types.
- Create new tables.
- Create partitioned tables.

Module 3: Using XML

This module explains how to use the FOR XML clause and the OPENXML function. It also describes how to use the xml data type and its methods.

Lessons

- Retrieving XML by Using FOR XML
- Shredding XML by Using OPENXML
- Introducing XQuery
- Using the xml Data Type

Lab 3: Using XML

- Mapping Relational Data and XML
- Storing XML Natively in the Database
- Using XQuery with xml Methods

After completing this module, students will be able to:

- Retrieve XML by using the FOR XML clause.
- Shred XML by using the OPENXML function.
- Use XQuery expressions.
- Use the xml data type.

Module 4: Creating and Tuning Indexes

This module explains how to plan, create, and optimize indexes. It also describes how to create XML indexes.

Lessons

- Planning Indexes
- Creating Indexes
- Optimizing Indexes
- Creating XML Indexes

Lab 4: Creating and Tuning Indexes

- Creating Indexes
- Tuning Indexes
- Creating XML Indexes

After completing this module, students will be able to:

- Plan indexes.
- Create indexes.
- Optimize indexes.
- Create XML indexes.

Module 5: Implementing Data Integrity by Using Constraints

This module explains how to implement constraints and provides an overview of data integrity.

Lessons

- Data Integrity Overview
- Implementing Constraints

Lab 5: Implementing Data Integrity by Using Constraints

- Creating Constraints
- Disabling Constraints

After completing this module, students will be able to:

- Describe the options for enforcing data integrity in SQL Server 2005.
- Implement data integrity in SQL Server 2005 databases by using constraints.

Module 6: Implementing Data Integrity by Using Triggers and XML Schemas

This module explains how to implement triggers and XML schemas.

Lessons

- Implementing Triggers
- Implementing XML Schemas

Lab 6: Implementing Data Integrity by Using Triggers and XML Schemas

- Creating Triggers
- Implementing XML Schemas

After completing this module, students will be able to:

- Implement data integrity in SQL Server 2005 databases by using triggers.
- Implement data integrity in SQL Server 2005 databases by using XML schemas.

Module 7: Implementing Views

This module explains how to create views.

Lessons

- Introduction to Views
- Creating and Managing Views
- Optimizing Performance by Using Views

Lab 7: Implementing Views

- Creating Views
- Creating Indexed Views
- Creating Partitioned Views

After completing this module, students will be able to:

- Describe the purpose of views.
- Create and manage views.
- Explain how to optimize query performance by using views.

Module 8: Implementing Stored Procedures

This module explains how to create stored procedures and functions. It also describes execution plans, plan caching, and query compilation.

Lessons

- Implementing Stored Procedures
- Creating Parameterized Stored Procedures
- Working With Execution Plans
- Handling Errors

Lab 8: Implementing Stored Procedures

- Creating Stored Procedures
- Working With Execution Plans

After completing this module, students will be able to:

- Implement stored procedures.
- Create parameterized stored procedures.
- Work with execution plans.
- Handle errors in stored procedures.

Module 9: Implementing Functions

This module explains how to create functions. It also describes how to control the execution context.

Lessons

- Creating and Using Functions
- Working with Functions
- Controlling Execution Context

Lab 9: Implementing Functions

- Creating Functions
- Controlling Execution Context

After completing this module, students will be able to:

- Create and use functions.
- Work with functions.
- Control execution context.

Module 10: Implementing Managed Code in the Database

This module explains how to implement managed database objects.

Lessons

- Introduction to the SQL Server Common Language Runtime
- Importing and Configuring Assemblies
- Creating Managed Database Objects

Lab 10: Implementing Managed Code in the Database

- Importing an Assembly
- Creating Managed Database Objects

After completing this module, students will be able to:

- Identify appropriate scenarios for managed code in the database.
- Import and configure assemblies.
- Create managed database objects.

Module 11: Managing Transactions and Locks

This module explains how to use transactions and the SQL Server locking mechanisms to meet the performance and data integrity requirements of your applications.

Lessons

- Overview of Transactions and Locks
- Managing Transactions
- Understanding SQL Server Locking Architecture
- Managing Locks

Lab 11: Managing Transactions and Locks

- Using Transactions
- Managing Locks

After completing this module, students will be able to:

- Describe how SQL Server 2005 transactions use locks.
- Execute and cancel a transaction.
- Describe concurrency issues and SQL Server 2005 locking mechanisms.
- Manage locks.

Module 12: Using Service Broker

This module explains how to build a messaging-based solution with Service Broker.

Lessons

- Service Broker Overview
- Creating Service Broker Objects
- Sending and Receiving Messages

Lab 12: Using Service Broker (Optional)

- Creating Service Broker Objects
- Implementing the Initiating Service
- Implementing the Target Service

After completing this module, students will be able to:

- Describe Service Broker functionality and architecture.
- Create Service Broker objects.
- Send and receive Service Broker messages.

Module 13: Using Notification Services (Optional)

This module explains how to develop applications that generate and send timely messages to subscribers.

Lessons

- Introduction to Notification Services
- Developing Notification Services Solutions

After completing this module, students will be able to:

- Describe how Notification Services operates.

- Develop a Notification Services application.