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Microsoft GOLD CERTIFIED Partner

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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.