Implementing a Microsoft SQL Server 2005 Database

- **Course Number:** 2779
- **Length:** 5 Day(s)

Certification Exam

This course will help you prepare for the following Microsoft Certified Professional exams:

- **Exam 70–431:** Microsoft SQL Server 2005 - Implementation and Maintenance

Course Overview

This five-day 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.

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.

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.

Course Outline

- **Course Introduction**
- Course Introduction
- **Creating Databases and Database Files**
- Lesson 1: Databases
- Considerations
- Transaction Logging
- Options

- Finding Information about Databases
- Demo: Creating a Database
- Lesson 2: Filegroups
- What Are Filegroups?
- Why Create Filegroups?
- Demo: Creating a Filegroup
- Lesson 3: Schemas
- What is a Schema?
- Object Name Resolution
- Demo: Creating a Schema
- Lesson 4: Database Snapshots
- What is a Database Snapshot?
- How does a Database Snapshot Work?
- Demo: Creating a Database Snapshot
- Module 1 Review
- **Creating Data Types and Tables**
- Lesson 1: Data Types
- System-Supplied Data Types
- Alias Data Types
- Demo: Creating a Data Type
- Lesson 2: Tables
- Data Organization in Rows
- Large Data Value Organization
- Considerations
- Demo: Creating a Table
- Lesson 3: Partitioning a Table
- What is a Partitioned Table?
- What is a Partition Function?
- What is a Partition Scheme?
- Demo: Creating a Partitioned Table
- What can you do with Partitioned Data?
- Module 2 Review
- **Using XML**
- Lesson 1: Using FOR XML
- Introduction
- RAW Mode Queries
- AUTO Mode Queries
- EXPLICIT Mode Queries
- PATH Mode Queries
- Retrieving Nested XML
- Demo: Using FOR XML
- Lesson 2: Using OPENXML
- Overview
- Managing In-Memory Node Trees
- OPENXML Syntax
- XML Namespaces

- Demo: Shredding XML
- Lesson 3: xml Data Type
- Introduction to the xml Data Type
- Xquery
- Query, Value, and Exist Methods
- Modify Method
- The nodes Method
- Demo: The xml Data Type
- Module 3 Review
- **Creating and Tuning Indexes**
- Lesson 1: Planning
- SQL Server Data Access
- Clustered Indexes
- Heaps
- Nonclustered Indexes
- Lesson 2: Creating
- Introduction
- Unique Indexes
- Creating Indexes with Multiple Columns
- Indexes on Computed Columns
- Partitioned Indexes
- Incorporating Free Space in Indexes
- Obtaining Index Information
- Demo: Creating Indexes
- Lesson 3: Optimizing
- Database Tuning Advisor
- Demo: Database Tuning Advisor
- Index Fragmentation
- Defragmenting Indexes
- Demo: Defragmenting Indexes
- Lesson 4: XML Indexes
- Kinds of XML Indexes
- Module 4 Review
- **Implementing Data Integrity**
- Lesson 1: Overview
- Types of Data Integrity
- Enforcing Data Integrity
- Lesson 2: Constraints
- Introduction
- PRIMARY KEY
- DEFAULT
- CHECK
- UNIQUE
- FOREIGN KEY
- Cascading Referential Integrity
- Considerations

- Demo: Creating Constraints
- Lesson 3: Triggers
- Introduction
- INSERT Triggers
- DELETE Triggers
- UPDATE Triggers
- How an INSTEAD OF Trigger Works
- Nested Triggers
- Recursive Triggers
- Demo: Creating Triggers
- Lesson 4: XML Schemas
- Introduction
- XML Schema Collections
- Typed XML
- Demo: Typed XML
- Module 5 Review
- **Implementing Views**
- Lesson 1: Introduction
- What are Views?
- Kinds of Views
- Advantages
- Lesson 2: Managing Views
- Creating Views
- Demo: Creating a View
- Altering and Dropping Views
- How Ownership Chains Affect Views
- How To Get Information About Views
- Encryption
- Considerations for Modifying Data
- Lesson 3: Optimizing Performance
- Considerations
- Indexed Views
- Partitioned Views
- Module 6 Review
- **Implementing Stored Procedures and Functions**
- Lesson 1: Introduction
- Stored Procedures
- Creating Stored Procedures
- Guidelines
- Altering & Dropping Stored Procedures
- Lesson 2: Parameterized SP's
- Using Input Parameters
- Using Output Parameters/Return Values
- Demo: Creating a Parameterized SP
- Lesson 3: Functions
- Types of Functions

- Scalar Functions
- Inline Table-Valued Functions
- Multi-Statement Table-Valued Functions
- Demo: Creating Functions
- Lesson 4: Error Handling
- Structured Exception Handling
- Guidelines
- Demo: Handling Errors
- Lesson 5: Execution Context
- Execution Context
- EXECUTE AS
- Extending Impersonation Context
- Demo: Controlling Execution Context
- Module 7 Review
- **Implementing Managed Code in the Database**
- Lesson 1: Introduction
- Advantages
- SQL Server CLR Integration
- When to use Managed Code
- Lesson 2: Importing Assemblies
- What are Assemblies
- Importing an Assembly
- Assembly Trust Levels
- Demo: Import & Configure an Assembly
- Lesson 3: Creating Database Objects
- Overview
- Stored Procedures, Triggers, Functions
- Aggregates and User-Defined Types
- Demo: Managed Database Objects
- Module 8 Review
- **Using Service Broker**
- Lesson 1: Overview
- Introduction
- System Architecture
- Conversation Architecture
- Conversation Process
- Security Architecture
- Lesson 2: Service Broker Objects
- Creating Message Types
- Creating Contracts
- Creating Queues
- Creating Services
- Demo: Creating Service Broker Objects
- Lesson 3: Messages
- Sending Messages
- Receiving Messages

- Demo: Sending and Receiving Messages
- Module 9 Review
- Course Closure