

# Designing Microsoft SQL Server 2005 Server-Side Solutions

Course 2781: Three days; Instructor-Led

## Introduction

This three-day instructor-led course provides students with the knowledge and skills to design server-side solutions for Microsoft SQL Server 2005. The course focuses on teaching database developers who work in enterprise environments to identify and place database technologies during design to achieve a suitable solution that meets the needs of an organization. Students will also learn to consider the solution from a system-wide view instead of from a single database or server perspective.

## Audience

This course is intended for current professional database developers who have three or more years of on-the-job experience developing SQL Server database solutions in an enterprise environment.

## Objectives

After attending this course, students will be able to:

- Select SQL Server services to support an organization's business needs.
- Design a security strategy for a SQL Server 2005 solution.
- Design a data modeling strategy.
- Design a transaction strategy for a SQL Server solution.
- Design a Notification Services solution.
- Design a Service Broker solution.
- Plan for source control, unit testing, and deployment to meet an organization's needs.
- Evaluate advanced query techniques.
- Evaluate advanced XML techniques.

## Prerequisites

Before attending this course, students must:

- Have experience reading user requirements and business-need documents. For example, development project vision/mission statements or business analysis reports.
- Understand Transact-SQL syntax and programming logic.
- Understand XML. Specifically, they must be familiar with the syntax of XML, what elements and attributes are, and how to distinguish them.
- Understand security requirements. Specifically, must understand how unauthorized users can gain access to sensitive information and be able to plan strategies to prevent access.
- Be able to design a database to 3NF and know the tradeoffs when backing out of the fully normalized design (denormalization) and designing for performance and business requirements in addition to being familiar with design models, such as Star and Snowflake schemas.
- Have basic monitoring and troubleshooting skills.
- Have basic knowledge of the operating system and platform. That is, how the operating system integrates with the database, what the platform or operating system can do, and how interaction between the operating system and the database works.

- Have basic knowledge of application architecture. That is, how applications can be designed in three layers, what applications can do, how interaction between the application and the database works, and how the interaction between the database and the platform or operating system works.
- Have some experience with a reporting tool.
- Be familiar with SQL Server 2005 features, tools, and technologies.
- Have a Microsoft Certified Technology Specialist: Microsoft SQL Server 2005 credential, or equivalent experience.

## **Course Outline**

### **Module 1: Selecting SQL Server Services to Support Business Needs**

This module provides an overview of SQL Server 2005 architecture and the various considerations for choosing SQL Server services to include in a solution. The module also describes considerations for using the database enhancements in SQL Server 2005.

### **Module 2: Designing a Security Strategy**

This module describes the considerations for designing a security strategy for the various components of a SQL Server 2005 solution. This includes considerations for choosing authentication and authorization strategy for a solution, as well as designing security for the solution components such as Notification Services and Service Broker. The module also teaches students the guidelines for designing objects to manage application access. The module provides students with the required knowledge to create an auditing strategy for a database solution. Finally, the module teaches students how to manage security for multiple development teams.

### **Module 3: Designing a Data Modeling Strategy**

In this module, students learn the various considerations and guidelines to define standards for storing XML data in a solution. The module also provides the knowledge required to design a database schema. The module provides information about the considerations for implementing OLTP and OLAP functionality, considerations for determining normalization levels, and considerations for creating indexes. Finally, the module covers the various considerations for designing a scale-out strategy for a solution.

### **Module 4: Designing a Transaction Strategy for a SQL Server 2005 Solution**

This module describes considerations and guidelines for defining a transaction strategy for a solution. It also shows how to define data behavior requirements and specify isolation levels for data stores.

### **Module 5: Designing a Notification Services Solution**

This module describes the guidelines and processes for designing a Notification Services solution as part of an overall SQL Server 2005 solution. It shows how to define event data and how to store this data, how to design a subscription strategy for a Notification Services solution, how to design a notification strategy, and how to design a notification delivery strategy.

### **Module 6: Designing a Service Broker Solution**

This module describes the guidelines and processes for designing a Service Broker solution as part of an overall SQL Server 2005 solution. It covers tasks such as designing the Service Broker solution architecture, designing the Service Broker data flow, and designing Service Broker solution availability.

### **Module 7: Planning for Source Control, Unit Testing, and Deployment**

This module teaches the guidelines and considerations for planning for source control, unit testing, and deployment, during the design of a SQL Server 2005 solution. Design tasks covered include designing a source control strategy, designing a unit testing plan, creating a performance baseline and benchmarking strategy, and designing a deployment strategy.

**Module 8: Evaluating Advanced Query and XML Techniques**

This module teaches students how to evaluate queries using the advanced query and XML techniques, which students might require when designing a SQL Server 2005 solution. Query tasks include evaluating common table expressions, pivot queries, and ranking techniques. XML tasks include defining standards for storing XML data, evaluating the use of XQuery, and creating a strategy for converting data between XML and relational formats.