

Course duration

- 4 days

Course Benefits

- Learn to describe the high level architectural overview of SQL Server and its various components.
- Learn to describe the SQL Server execution model, waits and queues.
- Learn to describe core I/O concepts, Storage Area Networks and performance testing.
- Learn to describe architectural concepts and best practices related to data files for user databases and TempDB.
- Learn to describe architectural concepts and best practices related to Concurrency, Transactions, Isolation Levels and Locking.
- Learn to describe architectural concepts of the Optimizer and how to identify and fix query plan issues.
- Learn to describe architectural concepts, troubleshooting scenarios and best practices related to Plan Cache.
- Learn to describe architectural concepts, troubleshooting strategy and usage scenarios for Extended Events.
- Learn to explain data collection strategy and techniques to analyze collected data.
- Learn to understand techniques to identify and diagnose bottlenecks to improve overall performance.

Available Delivery Methods

Public Class

Public expert-led online training from the convenience of your home, office or anywhere with an internet connection. Guaranteed to run .

Private Class

Private classes are delivered for groups at your offices or a location of your choice.

Microsoft Certified Partner

Webucator is a Microsoft Certified Partner for Learning Solutions (CPLS). This class uses official Microsoft courseware and will be delivered by a Microsoft Certified Trainer (MCT).

Course Outline

1. SQL Server Architecture, Scheduling, and Waits
 1. SQL Server Components and SQL OS
 2. Windows Scheduling vs SQL Scheduling
 3. Waits and Queues
 4. Lab: SQL Server Architecture, Scheduling, and Waits
2. SQL Server I/O
 1. Core Concepts
 2. Storage Solutions
 3. I/O Setup and Testing
 4. Lab: Testing Storage Performance
3. Database Structures
 1. Database Structure Internals
 2. Data File Internals
 3. TempDB Internals
 4. Lab: Database Structures
4. SQL Server Memory
 1. Windows Memory
 2. SQL Server Memory
 3. In-Memory OLTP
 4. Lab: SQL Server Memory
5. Concurrency and Transactions
 1. Concurrency and Transactions
 2. Locking Internals
 3. Lab: Concurrency and Transactions
6. Statistics and Index Internals
 1. Statistics Internals and Cardinality Estimation
 2. Index Internals
 3. Columnstore Indexes
 4. Lab: Statistics and index Internals
7. Query Execution and Query Plan Analysis
 1. Query execution and optimizer internals
 2. Analyzing query plans
 3. Lab: Query execution and query plan analysis
8. Plan Caching and Recompilation
 1. Plan cache internals
 2. Troubleshooting plan cache issues
 3. Query store
 4. Lab: Plan caching and recompilation
9. Extended Events
 1. Extended events core concepts
 2. Implementing extended events
 3. Lab: Extended events
10. Monitoring, Tracing, and Baselineing
 1. Monitoring and tracing
 2. Baselineing and benchmarking

3. Lab: Monitoring, Tracing and Baselining

Class Materials

Each student will receive a comprehensive set of materials, including course notes and all the class examples.

Class Prerequisites

Experience in the following *is required* for this SQL Server class:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of database administration and maintenance.
- Working knowledge of Transact-SQL.