

#10987: PERFORMANCE TUNING AND OPTIMIZING SQL DATABASES

Available Dates: **Call for Dates**

Class Length: **5 day**

Cost: **\$2,795**

[Email Computer Visions about this class](#)

Class Outline:

Description:

This four-day instructor-led course provides students who manage and maintain SQL Server databases with the knowledge and skills to performance tune and optimize their databases.

Course Outline:

Module 1: SQL Server Architecture, Scheduling, and Waits

This module covers high level architectural overview of SQL Server and its various components. It dives deep into SQL Server execution model, waits and queues.

Lessons

- SQL Server Components and SQL OS
- Windows Scheduling vs SQL Scheduling
- Waits and Queues

Module 2: SQL Server I/O

This module covers core I/O concepts, Storage Area Networks and performance testing. It focuses on SQL Server I/O operations and how to test storage performance.

Lessons

- Core Concepts
- Storage Solutions
- I/O Setup and Testing

Module 3: Database Structures

This module covers Database Structures, Data File and TempDB Internals. It focuses on architectural concepts and best practices related to data files for user databases and TempDB.

Lessons

- Database Structure Internals
- Data File Internals
- TempDB Internals

Module 4: SQL Server Memory

This module covers Windows and SQL Server Memory internals. It focuses on architectural concepts and best practices related to SQL Server Memory Configuration.

Lessons

- Windows Memory
- SQL Server Memory
- In-Memory OLTP

Module 5: Concurrency and Transactions

This module covers Transactions and Locking Internals. It focuses on architectural concepts and best practices related to Concurrency, Transactions, Isolation Levels and Locking.

Lessons

- Concurrency and Transactions
- Locking Internals

Module 6: Statistics and Index Internals

This module covers Statistics and Index Internals. It focuses on architectural concepts and best practices related to Statistics and Indexes.

Lessons

- Statistics Internals and Cardinality Estimation
- Index Internals
- Columnstore Indexes

Module 7: Query Execution and Query Plan Analysis

This module covers Query Execution and Query Plan Analysis. It focuses on architectural concepts of the Optimizer and how to identify and fix query plan issues.

Lessons

- Query execution and optimizer internals
- Analyzing query plans

Module 8: Plan Caching and Recompilation

This module covers Plan Caching and Recompilation. It focuses on architectural concepts, troubleshooting scenarios and best practices related to Plan Cache.

Lessons

- Plan cache internals
- Troubleshooting plan cache issues
- Query store

Module 9: Extended Events

This module covers Extended Events. It focuses on architectural concepts, troubleshooting strategy and usage scenarios for Extended Events.

Lessons

- Extended events core concepts
- Implementing extended events

Module 10: Monitoring, Tracing, and Baselineing

This module covers tools and techniques to monitor, trace and baseline SQL Server performance data. It focuses on data collection strategy and techniques to analyze collected data.

Lessons

- Monitoring and tracing
- Baselineing and benchmarking

Module 11: Troubleshooting Common Performance Issues

This module covers common performance bottlenecks related to CPU, Memory, IO, TempDB and Concurrency. It focuses on techniques to identify and diagnose bottlenecks to improve overall performance.

Lessons

- Troubleshoot CPU performance
- Troubleshoot memory performance
- Troubleshoot I/O performance
- Troubleshoot Concurrency performance
- Troubleshoot TempDB performance