



Price: Call
Length: 35 Hours (5 days)

Introduction: This five-day instructor-led course provides students with the knowledge and skills to develop a Microsoft SQL Server database. The course focuses on teaching individuals how to use SQL Server product features and tools related to developing a database.

Target Student: The primary audience for this course is IT Professionals who want to become skilled on SQL Server product features and technologies for implementing a database.
The secondary audiences for this course are individuals who are developers from other product platforms looking to become skilled in the implementation of a SQL Server database.

Prerequisites: This course requires that you meet the following prerequisites:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of Transact-SQL.
- Working knowledge of relational databases.

Objectives: After completing this course, students will be able to:

- Design and Implement Tables.
- Describe advanced table designs
- Ensure Data Integrity through Constraints.
- Describe indexes, including Optimized and Columnstore indexes
- Design and Implement Views.
- Design and Implement Stored Procedures.
- Design and Implement User Defined Functions.
- Respond to data manipulation using triggers.
- Design and Implement In-Memory Tables.
- Implement Managed Code in SQL Server.
- Store and Query XML Data.
- Work with Spatial Data.
- Store and Query Blobs and Text Documents.

Course Outline

<p>I. Introduction to Database Development</p> <ul style="list-style-type: none"> A. Introduction to the SQL Server Platform B. SQL Server Database Development Tasks <p>II. Designing and Implementing Tables</p> <ul style="list-style-type: none"> A. Designing Tables B. Data Types C. Working with Schemas D. Creating and Altering Tables <p>III. Advanced Tables Designs</p> <ul style="list-style-type: none"> A. Partitioning Data B. Compressing Data C. Temporal Tables <p>IV. Ensuring Data Integrity through Constraints</p> <ul style="list-style-type: none"> A. Enforcing Data Integrity B. Implementing Data Domain Integrity C. Implementing Entity and Referential Integrity <p>V. Introduction to Indexes</p> <ul style="list-style-type: none"> A. Core Indexing Concepts B. Data Types and Indexes C. Heaps, Clustered, and Nonclustered Indexes D. Single Column and Composite Indexes <p>VI. Designing Optimized Index Strategies</p> <ul style="list-style-type: none"> A. Index Strategies B. Managing Indexes C. Execution Plans D. The Database Engine Tuning Advisor E. Query Store <p>VII. Columnstore Indexes</p> <ul style="list-style-type: none"> A. Introduction to Columnstore Indexes B. Creating Columnstore Indexes C. Working with Columnstore Indexes 	<p>VIII. Designing and Implementing Views</p> <ul style="list-style-type: none"> A. Introduction to Views B. Creating and Managing Views C. Performance Considerations for Views <p>IX. Designing and Implementing Stored Procedures</p> <ul style="list-style-type: none"> A. Introduction to Stored Procedures B. Working with Stored Procedures C. Implementing Parameterized Stored Procedures D. Controlling Execution Context <p>X. Designing and Implementing User-Defined Functions</p> <ul style="list-style-type: none"> A. Overview of Functions B. Designing and Implementing Scalar Functions C. Designing and Implementing Table-Valued Functions D. Considerations for Implementing Functions E. Alternatives to Functions <p>XI. Responding to Data Manipulation via Triggers</p> <ul style="list-style-type: none"> A. Designing DML Triggers B. Implementing DML Triggers C. Advanced Trigger Concepts <p>XII. Using in-Memory Tables</p> <ul style="list-style-type: none"> A. Memory-Optimized Tables B. Natively Compiled Stored Procedures <p>XIII. Implementing Managed Code in SQL Server</p> <ul style="list-style-type: none"> A. Introduction to CLR Integration in SQL Server B. Implementing and Publishing CLR Assemblies <p>XIV. Storing and Querying XML Data in SQL Server</p> <ul style="list-style-type: none"> A. Introduction to XML and XML Schemas B. Storing XML Data and Schemas in SQL Server C. Implementing the XML Data Type D. Using the Transact-SQL FOR XML Statement E. Getting Started with XQuery F. Shredding XML
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Course Outline

XV. Storing and Querying Spatial Data in SQL Server

- A. Introduction to Spatial Data
- B. Working with SQL Server Spatial Data Types
- C. Using Spatial Data in Applications

XVI. Storing and Querying BLOBs and Text Documents in SQL Server

- A. Considerations for BLOB Data
- B. Working with FILESTREAM
- C. Using Full-Text Search

XVII. SQL Server Concurrency

- A. Concurrency and Transactions
- B. Locking Internals

XVIII. Performance and Monitoring

- A. Extended Events
- B. Working with extended Events
- C. Live Query Statistics
- D. Optimize Database File Configuration
- E. Metrics