SQL Server 2016 Business Intelligence: Integration Services and Analysis Services

**Duration:** 5 Days

**Price:** $2795 *California residents and government employees call for pricing.*

**Discounts:** We offer multiple discount options. Click here for more info.

**Delivery Options:** Attend face-to-face in the classroom, remote-live or on-demand training.

### Students Will Learn

- Structure and function of a data warehouse or data mart
- Data warehouse design to support enterprise reporting
- The role of SSIS within the business intelligence framework
- Developing SSIS Extract Transform Load (ETL) processes to populate data warehouses
- Functionality of all SSIS Control Flow tasks
- Deploying SSIS projects to SSIS Catalogs
- Configuring SSIS environments, runtime variables and parameters
- BI Semantic Model
- Multidimensional Expressions (MDX) syntax
- Developing SSAS Multidimensional models
- Data Analysis Expressions (DAX)
- Developing SSAS Tabular models
- Deploying and securing Multidimensional and Tabular models
- Implementing SSAS Data Mining models for predictive analysis
- Consuming the BI Semantic Model in reports and dashboards

### Course Description

SQL Server 2016 provides a rich environment for business intelligence development. The focus of this five day course is to familiarize developers with the use of SQL Server Engine, SQL Server Integration Services (SSIS) and SQL Server Analysis Services (SSAS) to create and populate data warehouses through ETL processing and build Multidimensional and Tabular models to use and reporting data sources.

Students will learn how to design and build data warehouses and marts using SQL Server Management Studio. In a series of exercises, students develop SSIS packages designed to
maintain a data warehouse using the Data Flow control flow task. Also demonstrated are other control flow tasks that can interact with an NTFS file system, FTP server, execute Win32 processes, send emails, and run .NET scripts.

Based on the populated data warehouse they have created, students will then learn how to develop both Multidimensional and Tabular SSAS models using the languages Multidimensional Expressions (MDX) and Data Analysis Expressions (DAX). Cubes will be customized to include Key Performance Indicators (KPIs), Calculated Members, Named Sets, Navigational Hierarchies, and Perspectives.

Course Prerequisites

Familiarity with database concepts, Windows desktop navigation and software installation techniques. Attendance at HOTT’s SQL Programming course or Microsoft Transact-SQL Programming course is highly recommended although not required.

Course Overview

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**Creating and Populating Data Warehouses**

- Creating Data Warehouses (OLAP Databases)
- Adding Fact Tables
- Adding Dimension Tables and Joining Them to Fact Tables
- Loading Data into Fact and Dimension Tables
- Validation Techniques for Data Loads

**Multidimensional (MDX) Essentials**

- Using MDX Queries to Pull Data from Cubes
- Understanding Tuples and Sets
- MDX Expressions vs. Queries
- Grouping Attribute Values into Named Sets
- Adding Custom Calculations for Cubes Using MDX

**Customizing Cubes**

- Adding Key Performance Indicators (KPIs)
- Customizing Dimensions and Attributes
- Adding Translations to Support Multiple Languages
- Adding Custom Calculations
- Subdividing Cubes Using Perspectives

**Creating and Customizing Tabular Models**

- Creating Tabular Modules in SSDT
- Introducing DAX
- Customizing Tabular Models
- Refreshing Data in Tabular Models

**Cube Deployment and Administration**

- Cube Storage Calculations
- Configuring Desired Aggregation
- Configuring Caching
- Deploying and Processing Cubes
- Connecting to Cubes from Excel and Other Clients
- Partitioning and Processing Cubes
- Backing Up and Restoring Options
- Securing Cubes

**Understanding the Data Mining Process**

- Types of Business Analysis Supported by Data Mining
- Data Mining Process Explained
- Understanding the Key Components of Data Mining
- Using Built-In Data Mining Algorithms
- Matching Mining Algorithms to Business Needs

**Working with Data Mining Structures**

- Using the Semantic Models in the
Adding Data Mining Structures
Mining for Hidden Information
Discovering Patterns in Data
Creating Predictive Models
Using the Data Mining Wizard
Modifying Mining Structures with the Data Mining Designer

Using SSAS Data Sources in Excel and Power View
Using SSAS Data Sources in SSRS
Using SSAS Data Sources in Power BI
Using SSAS Data Sources in SharePoint Performance Point Services