

**Advanced Business Intelligence using SSIS, SSAS, and Power BI**

**Course Number:** MSBI-140WA  
**Duration:** 1 day

**Overview**

Accelebrate's Advanced Business Intelligence using SSIS, SSAS, and Power BI course teaches learners practical skills for ETL (extracting, transforming, and loading data), data modeling, and data visualization.

**Prerequisites**

All attendees should have taken the [Microsoft Power BI Data Analyst (PL-300)](file:////training/microsoft-power-bi-data-analyst) course or have the equivalent knowledge for the Power BI section. Attendees must also be comfortable writing SQL queries, ideally within SQL Server and/or Azure SQL.

**Materials**

All attendees receive a course workbook that includes detailed instructional content and hands-on labs.

**Software Needed on Each Student PC**

* Microsoft 365, especially Excel
* Power BI Desktop
* Modern web browser such as Chrome or Microsoft Edge (Accelebrate will provide a browser-based connection to a remote desktop environment that includes SQL Server with SSIS and SSRS)
* Optionally, Microsoft Remote Desktop client

**Objectives**

* Create ETL Pipelines using SSIS
* Implement multidimensional and tabular data models using SSAS
* Optimize Power BI performance using different models
* Apply Advanced DAX (Data Analysis Expressions) concepts to produce more complex insights from data
* Build and operate Power BI deployment pipelines
* Compare Datasets, Dataflows, and Datamarts in Power BI

**Outline**

* SSIS Overview
  + Import/Export Wizard
  + Exporting Data with the Wizard
  + Common Import Concerns
  + Quality Checking Imported/Exported Data
* Over of Basic Control Flow
  + Working with Tasks
  + Understanding Precedence Constraints
  + Annotating Packages
  + Grouping Tasks
  + Package and Task Properties
  + Connection Managers
  + Analysis Services Processing
  + Data Profiling Task
  + Execute Package Task
  + Execute Process Task
  + File System Task
  + FTP Task
  + Script Task Introduction
  + Send Mail Task
* Data Flow Sources and Destinations
  + Data Flow Task
  + Data Flow SSIS Toolbox
  + Working with Data Sources
  + SSIS Data Sources
  + Working with Data Destinations
  + SSIS Data Destinations
* Data Flow Transformations
  + Understanding Transformations
  + Working with common Transformations
  + Configuring Transformations
* Understanding Multidimensional Databases
  + Understanding SQL Server Analysis Services (SSAS)
  + Multidimensional Analysis
  + Data Sources and Data Source Views
  + KPIs
  + Cubes
* Introduction to MDX
  + MDX Overview
  + Calculations in Cube
  + Query a Cube using MDX
* Understanding the Tabular Data Model
  + Comparing TDM to Cubes
  + Creating measures
  + Creating relationships
  + Using DAX
  + Creating KPIs
* Create and Manage Power BI Dataflows
  + Define use cases for dataflows
  + Create reusable assets
  + Implement best practices
  + Comparing Dataflows to Datasets and Datamarts
* Advanced DAX in Power BI
  + Using IF and SWITCH
  + Implementing iterations with ALL, ALLEXCEPT, FILTER, SUMX, AVERAGEX, and similar functions.
  + Using Statistical functions, e.g., standard deviation, median, mode, and interquartile range
* Creating Advanced Measures using Calculation Groups
  + Introduction
  + Understand calculation groups
  + Explore calculation groups features and usage
  + Create calculation groups in a model
* Create Paginated Reports
  + Introduction to paginated reports
  + Get data
  + Create a paginated report
  + Work with charts on the report
  + Publish the report
* Optimize Power BI Performance
  + Use Performance analyzer
  + Troubleshoot DAX performance by using DAX Studio
  + Optimize a data model by using Best Practice Analyzer
* Choose a Power BI Model Framework
  + Describe Power BI model fundamentals
  + Determine when to develop an import model
  + Determine when to develop a DirectQuery model
  + Determine when to develop a composite model
  + Choose a model framework
* Create and Manage a Power BI Deployment Pipeline
  + Understand the deployment process
  + Create a deployment pipeline
  + Assign a workspace
  + Deploy content
  + Work with deployment pipelines
* Implementing Data Gateway in Power BI
  + Understanding Data Gateway
  + Configuring Data Gateway in Power BI
  + Configuring a shared folder and SQL Server in Data Gateway