



# SQL Server to Power BI Data Analytics

**Course Duration : 40 hrs**

## Course Description

This comprehensive course is designed to equip professionals with the skills required to prepare, model, and analyze data using a combination of **SQL Server and Power BI**. The program follows a structured, real-world approach where participants first learn how to design and prepare a robust database in SQL Server and then leverage Power BI to transform that data into meaningful insights.

By the end of this course, participants will be able to:

- design and prepare structured data in SQL Server for reporting,
- load that data into Power BI,
- transform and model it correctly,
- create DAX calculations,
- build interactive reports and dashboards, • manage refresh, security, and deployment.

## Course outline

### Day 1: SQL Server data preparation foundation for Power BI

#### Module 1: Understanding the reporting architecture

This section sets the context for how SQL Server and Power BI work together.

- Role of a data analyst and reporting workflow
- Different types of analysis
- How Power BI services and applications work
- Flow of Power BI

- Building blocks of Power BI
- Why database design matters before reporting
- SQL Server as a structured source for Power BI

## **Module 2: Designing a reporting-ready SQL Server database**

- Creating a database, schemas, and tables
- Choosing fact and dimension style tables
- Normalized vs reporting-friendly structures
- Primary keys and foreign keys
- Preparing lookup/master tables
- Handling transactional data for reporting
- Loading related tables
- Creating relationships at database level
- Sorting and data organization during load

## **Module 3: Loading data into SQL Server from different sources**

- SQL as a source
- Excel as a source
- Flat files as a source
- SharePoint as a source
- Data credentials and access
- Importing and loading data into a reporting database
- Reviewing and validating loaded data

## **Day 2: Connect SQL Server to Power BI and build the semantic model**

### **Module 5: Getting data from SQL Server into Power BI**

- Identify and connect to SQL Server as a data source
- Import mode vs DirectQuery
- Select storage mode
- Resolve import errors
- Fix performance issues during connection

- Best practice: table import vs SQL views

## **Module 6: Clean, transform, and load in Power Query**

- Apply data shape transformations
- Rename columns and tables for business use
- Remove unnecessary columns
- Split, merge, and format columns
- Data profiling and validation
- Decide what should be done in SQL vs in Power Query

## **Module 7: Model data in Power BI**

- Data table types
- Star schema
- Create and edit relationships
- Create hierarchies
- Importing related tables
- Designing a semantic model from SQL Server tables
- Avoiding many-to-many design issues

## **Module 8: DAX fundamentals and calculations**

- DAX concepts and syntax
- Measures, calculated columns, and calculated tables
- DAX operators and values
- Evaluation context
- Filter context
- CALCULATE function
- Date calculations and time intelligence
- Custom date table creation

## **Day 3: Advanced Calculations using DAX**

### **Module 9: Advanced DAX and model optimization**

- Manipulate filter context

- Semi-additive measures
- Variables in DAX
- Performance analyzer
- Model performance optimization

## **Module 10: Visual calculations and advanced analytics**

- Create visual calculations
- Use parameters in visual calculations
- Analyze feature
- Group, bin, and cluster data
- Identify patterns and trends

## **Day 4: Reporting, analytics, security, and deployment**

### **Module 11: Build reports and user experience**

- Understand report structure and report objects
- Choose effective visuals
- Format and configure visuals
- Interactive features
- Report navigation and filtering
- Bookmarks
- Drillthrough
- When to use paginated reports
- KPIs and perspectives for business consumption

### **Module 12: Dashboards, sharing, and deployment**

- Create dashboards
- Pin live report pages
- Add dashboard themes
- Mobile view
- Create and manage workspaces
- Manage permissions
- Share and distribute reports
- Promote semantic models

## **Module 13: Refresh, gateway, and security**

- Use gateway for on-premises SQL Server
- Configure scheduled refresh
- Configure incremental refresh
- Static row-level security
- Dynamic row-level security
- Data sensitivity and secure distribution

## **Day 5: End-to-End Data practice workflow**

### **Module 14: Understand your data model**

- Understand data type and source
- Brainstorm the data structure
- Perform ETL on the data
- Create a data model
- DAX expressions

### **Module 15: Design personalized Power BI report and Dashboard**

- Create visualizations
- Create filters and navigation
- Publishing your data model
- Design a Dashboard
- Integrate the workflow