



## COURSE OUTLINE

# DEEP DIVE INTO POWER BI

Course Duration: 2 Days

## Course Outlines

Deep Dive into Power BI is fast-paced 2-day online training course designed to get business users and financial analysts up to speed on building and deploying custom solutions using Microsoft's rapidly evolving Power BI platform. Students will work through hands-on lab exercises to gain and reinforce skills for using a project-based approach for building custom BI solutions using Power BI Desktop.

Students will learn what can be accomplished with the Power BI service using just a browser as well as which types of project work must be completed using Power BI Desktop. Students will learn how to use the query features in Power BI Desktop to import and transform data as it loads into a project's data model. The course also teaches students how to use the data modeling features of Power BI Desktop and to become proficient writing DAX expression to create calculated columns and measures. Students will learn how to design interactive reports as well as how to publish reports to the Power BI service and to SharePoint Online.



Along the way, students will learn how to import data from a variety of sources including Azure SQL databases, One Drive for Business, SharePoint Online and Dynamics 365. The course also teaches students the various techniques that can be used to integrate Excel workbooks into the Power BI environment.

## Course Prerequisites

Students will require their own computer running either Windows 10, Windows 8.1 or Windows 7. Students should have prior experience with Microsoft Excel and navigating within the Office 365 environment.

## Course Content

Day 1	Day 2
Introducing the Power BI Platform	Modeling Data with Hierarchies and Time Intelligence
Getting Started with Power BI Desktop	Designing Interactive Reports in Power BI Desktop
Mastering the Query Features of Power BI Desktop	Designing and Deploying Dashboards
Designing a Data Model with Power BI Desktop	Integrating Excel Workbooks into Power BI



# Course Module Detailed Outline

## Module 1: Introducing the Power BI Platform

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This module introduces the fundamental concepts and terms associated with the Power BI platform. Students will learn how to create a trial tenant in Office 365 to serve as a multiuser development environment for designing and testing custom Power BI solutions. Students will learn to navigate around in the Power BI service using a browser and to create a simple solution which includes a dataset, a report and a dashboard. The module teaches students about Power BI licensing and the differences between standard Power BI subscriptions and a Power BI Pro subscriptions. The module concludes by discussing how to keep current with the Power BI cloud cadence and the monthly updates that Microsoft consistently applies to the Power BI platform.

### Topics Covered:

- Understanding the Power BI Platform
- Creating a Trial Office 365 Tenant for Development
- Creating Datasets, Reports and Dashboards
- Understanding Power BI Licensing
- Staying in Sync with Monthly Updates

## Module 2: Getting Started with Power BI Desktop

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This module introduces students to Power BI Desktop and provides a high-level overview of managing the lifecycle of a Power BI Desktop project. Students will learn how the contents of a Power BI Desktop project are saved and published using the PBIX project file format. The module demonstrates how to import data from an external source into a Power BI Desktop project to create a dataset. Students will also learn how to get started with data modeling by creating simple calculated columns and measures. Students will also get hands-on experience using the report designer in Power BI Desktop and publishing a PBIX project file to the Power BI service to make a Power BI Desktop report accessible through the browser.



#### Topics Covered:

- Getting Started with Power BI Desktop
- Creating Queries in Power BI Desktop
- Modeling Data in Power BI Desktop
- Designing Reports in Power BI Desktop
- Publishing Power BI Desktop Projects

## Module 3: Mastering the Query Features of Power BI Desktop

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This module provides an in-depth examination of designing and running queries in a Power BI Desktop project. Students will learn to import data from a variety of external datasources including text files, Excel workbooks, web pages, Azure SQL databases, SharePoint Online and Dynamics 365. The module demonstrates how to design queries to clean up and transform data during the import process and students will learn the why and the how of designing queries in a Power BI Desktop project to generate a star schema. Along the way, students will learn advanced query design techniques to merge columns from multiple datasources and to append rows from multiple sources tables into a single output table.

#### Topics Covered:

- Deciding What To Measure
- Working with the Query Editor Window
- Managing Queries, Datasources and Credentials
- Designing Queries in a Project to Generate a Star Schema
- Creating a Query to Merge Columns from Multiple Datasources
- Creating a Single Table by Appending Rows from Multiple Datasources



## Module 4: Designing a Data Model with Power BI Desktop

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This module examines the data modeling features in Power BI Desktop project and teaches students how to extend a data model with table relationships, calculated columns, measures and dimensional hierarchies. The module discusses working with the DAX expression language and reviews guidelines for writing maintainable DAX expressions. Students will learn how to import a lookup table from a secondary data source and how to integrate the lookup table into a data model to assist with data categorization. The module also demonstrates how to configure the metadata for geolocation fields within a data model so they can be used to visually map aggregated data values to geographical locations such as countries, states, cities and zipcodes.

### Topics Covered:

- Modeling Data in Power BI Desktop
- Understanding Table Relationships
- Writing DAX Expressions
- Understanding Calculated Columns versus Measures
- Creating Dimensional Hierarchies
- Adding Geographic Fields to a Data Model

## Module 5: Modeling Data with Hierarchies and Time Intelligence

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This module examines the DAX evaluation context and explains why the evaluation context affects the way you write advanced DAX expressions. Students will learn how write DAX expressions using the CALCULATE function which ignore the current filter context to calculate baseline values. Students will learn when and how to create a calendar table to analyze and drill down on financial data in a variety of different time dimensions. The module introduces students to the Time Intelligence functions in DAX and teaches students how to write measures that calculate product rankings, rolling averages and year-to-year comparisons.

### Topics Covered:

- Understanding the Evaluation Context
- Writing DAX Expressions using CALCULATE
- Extending the Data Model using Calendar Tables
- Writing DAX Expressions with Time Intelligence
- Writing DAX Code with Contextual Awareness



## Module 6: Designing Interactive Reports in Power BI Desktop

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This module demonstrates how to use the report design features of Power BI Desktop to create reports using the standard set of Power BI visuals. Students will learn to design reports with effective interactive behavior by adding slicers, visual highlighting and drill actions. The module introduces students to the Power BI Custom Visuals Gallery and explains how to import custom visuals into a Power BI Desktop project. The module teaches students how to use Phone Layout view to create mobile reports as well as how to publish Power BI reports to the Power BI service. Students will learn how to use the Publish to SharePoint feature and the Publish to Web feature in Power BI to deploy reports to SharePoint Online sites and to public websites on the Internet with anonymous access.

### Topics Covered:

- Designing Interactive Reports
- Importing Custom Visuals
- Designing Mobile Reports using Phone Layout View
- Publishing a PBIX Project File to the Power BI Service
- Publishing Reports in SharePoint with the Power BI Web Part
- Publishing Reports using the Publish to Web Feature

## Module 7: Designing and Deploying Dashboards

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The module examines the role that dashboards play in Power BI and teaches students about the strengths and weakness of dashboards in comparison to Power BI reports. Students will learn about best practices in dashboard design and how to create an effective drilldown scheme from a dashboard into its underlying reports. Students will also learn about Natural Language Q&A and how to pin Q&A query results to create a dashboard tile. The module teaches students how to use Phone Layout view customize the mobile layout of a dashboard and examines using dashboard sharing as a simple mechanism to make dashboards and reports accessible to other users. The module concludes by examining how to configure a dashboard with data alerts to send notifications when a measure behind a dashboard tile reaches a predefined threshold.

### Topics Covered:

- Creating and Configuring Dashboards
- Executing Queries with Natural Language Q&A





- Designing Dashboards for Mobile Devices
- Sharing Dashboards with Other Office 365 Users
- Configuring Data Alerts on Dashboard Tiles

## Module 8: Integrating Excel Workbooks into Power BI

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This module discusses the three primary techniques that can be used to integrate Excel workbooks into the Power BI environment points that exist between the Excel Desktop application, Excel Online and the Power BI platform. First, students will learn how to connect to Excel workbooks from a Power BI workspace. Next, students will learn how to import an Excel workbook into Power BI to create a new Power BI dataset from the data inside the workbook. Finally, the module teaches students how to migrate a data model from inside an Excel workbook into a new Power BI Desktop project. Along the way, students will learn about several other features to assist with Excel to Power BI integration such as the Power BI Publisher Add-in for Excel and the Analyze in Excel feature.

### Topics Covered:

- Data Modeling in Excel versus Power BI Desktop
- Connecting to an Excel Workbook from Power BI
- Importing Excel Workbook Data into Power BI
- Migrating an Excel Data Model into Power BI Desktop
- Using the Power BI Publishing for Excel Add-in
- Connecting from Excel to a Power BI Dataset

