**Power BI in Jupyter notebooks**

**Duration: 5 days (8 hours Per day)**

**Audience profile**

The audience for this course is data professionals and business intelligence professionals who want to learn how to accurately perform data analysis using Power BI. This course is also targeted toward those individuals who develop reports that visualize data from the data platform technologies that exist on both in the cloud and on-premises.

**Module 1: Get Started with Microsoft Data Analytics**

This module explores the different roles in the data space, outlines the important roles and responsibilities of a Data Analysts, and then explores the landscape of the Power BI portfolio.

* Data Analytics and Microsoft
* Getting Started with Power BI

**Module 2: Prepare Data in Power BI**

This module explores identifying and retrieving data from various data sources. You will also learn the options for connectivity and data storage and understand the difference and performance implications of connecting directly to data vs. importing it.

* Get data from various data sources
* Optimize performance
* Resolve data errors
* Lab : Preparing Data in Power BI Desktop

**Module 3: Clean, Transform, and Load Data in Power BI**

This module teaches you the process of profiling and understanding the condition of the data. They will learn how to identify anomalies, look at the size and shape of their data, and perform the proper data cleaning and transforming steps to prepare the data for loading into the model.

* Data shaping
* Enhance the data structure
* Data Profiling
* Lab : Transforming and Loading Data

**Module 4: Design a Data Model in Power BI**

This module teaches the fundamental concepts of designing and developing a data model for proper performance and scalability. This module will also help you understand and tackle many of the common data modelling issues, including relationships, security, and performance.

* Introduction to data modelling
* Working with tables
* Dimensions and Hierarchies
* Lab : Data Modeling in Power BI Desktop
  + Create Model Relationships
  + Configure Tables
  + Review the model interface
  + Create Quick Measures
* Lab : Advanced Data Modeling in Power BI Desktop
  + Configure many-to-many relationships
  + Enforce row-level security

**Module 5: Create Model Calculations using DAX in Power BI**

This module introduces you to the world of DAX and its true power for enhancing a model. You will learn about aggregations and the concepts of Measures, calculated columns and tables, and Time Intelligence functions to solve calculation and data analysis problems.

* Introduction to DAX
* DAX context
* Advanced DAX
* Lab : Introduction to DAX in Power BI Desktop
* Create calculated tables
* Create calculated columns
* Create measures
* Lab : Advanced DAX in Power BI Desktop
  + Use the CALCULATE() function to manipulate filter context
  + use Time Intelligence functions

**Module 6: Optimize Model Performance**

In this module you are introduced to steps, processes, concepts, and data modelling best practices necessary to optimize a data model for enterprise-level performance.

* Optimize the model for performance
* Optimize Direct Query Models
* Create and manage Aggregations

**Module 7: Create Reports**

This module introduces you to the fundamental concepts and principles of designing and building a report, including selecting the correct visuals, designing a page layout, and applying basic but critical functionality. The important topic of designing for accessibility is also covered.

* Design a report
* Enhance the report
* Lab : Designing a report in Power BI
* Create a live connection in Power BI Desktop
* Design a report
* Configure visual fields and format properties
* Lab : Enhancing Power BI reports with interaction and formatting
  + Create and configure Sync Slicers
  + Create a drill through page
  + Apply conditional formatting
  + Create and use Bookmarks

**Module 8: Create Dashboards**

In this module you will learn how to tell a compelling story through the use of dashboards and the different navigation tools available to provide navigation. You will be introduced to features and functionality and how to enhance dashboards for usability and insights.

* Create a Dashboard
* Real-time Dashboards
* Enhance a Dashboard
* Lab : Designing a report in Power BI Desktop - Part 1
  + Create a Dashboard
  + Pin visuals to a Dashboard
  + Configure a Dashboard tile alert
  + Use Q&A to create a dashboard tile

**Module 9: Create Paginated Reports in Power BI**

This module will teach you about paginated reports, including what they are how they fit into Power BI. You will then learn how to build and publish a report.

* Paginated report overview
* Create Paginated reports
* Lab : Creating a Paginated report
  + Use Power BI Report Builder
  + Design a multi-page report layout
  + Define a data source
  + Define a dataset
  + Create a report parameter
  + Export a report to PDF

**Module 10: Perform Advanced Analytics**

This module helps you apply additional features to enhance the report for analytical insights in the data, equipping you with the steps to use the report for actual data analysis. You will also perform advanced analytics using AI visuals on the report for even deeper and meaningful data insights.

* Advanced Analytics
* Data Insights through AI visuals
* Lab : Data Analysis in Power BI Desktop
  + Create animated scatter charts
  + Use the visual to forecast values
  + Work with Decomposition Tree visual
  + Work with the Key Influencers visual

**Module 11: Create and Manage Workspaces**

This module will introduce you to Workspaces, including how to create and manage them. You will also learn how to share content, including reports and dashboards, and then learn how to distribute an App.

* Creating Workspaces
* Sharing and Managing Assets
* Lab : Publishing and Sharing Power BI Content
  + Map security principals to dataset roles
  + Share a dashboard
  + Publish an App

**Module 12: Manage Datasets in Power BI**

In this module you will learn the concepts of managing Power BI assets, including datasets and workspaces. You will also publish datasets to the Power BI service, then refresh and secure them.

* Parameters
* Datasets

**Module 13: Row-level security**

This module teaches you the steps for implementing and configuring security in Power BI to secure Power BI assets.

* Security in Power BI

**Module 14: Jupyter notebooks**

* Introduction
* What are notebooks?
* Notebook benefits
* What is Jupyter notebooks?
* Ways to use Jupyter notebooks
* Introduction on Python
* Setup Jupyter notebooks in pip
  + Hands-on Lab

**Module 15: Power BI integration with Jupyter Notebook**

* Introduction
* Set up Power BI Client for Jupyter pip
* Authenticate against Power BI using Azure AD
* Device flow authentication
* Interactive authentication
* Create Embed token
* Embed Power BI Embedded analysis report in Jupyter notebooks
* Manage the report using python
* Use Cases to analysis Jupyter notebook
* Interact with the report
  + Hands-on Lab