

**Module Title : DP-500T00 - Designing and Implementing Enterprise-Scale Analytics Solutions
Using Microsoft Azure and Microsoft Power BI**

Duration : 4 days

Introduction

This course covers methods and practices for performing advanced data analytics at scale. Students will build on existing analytics experience and will learn to implement and manage a data analytics environment, query and transform data, implement and manage data models, and explore and visualize data. In this course, students will use Microsoft Purview, Azure Synapse Analytics, and Power BI to build analytics solutions.

Audience profile

Candidates for this course should have subject matter expertise in designing, creating, and deploying enterprise-scale data analytics solutions. Specifically, candidates should have advanced Power BI skills, including managing data repositories and data processing in the cloud and on-premises, along with using Power Query and Data Analysis Expressions (DAX). They should also be proficient in consuming data from Azure Synapse Analytics and should have experience querying relational databases, analyzing data by using Transact-SQL (T-SQL), and visualizing data.

Skills gained

- Implement and manage a data analytics environment
- Query and transform data
- Implement and manage data models
- Explore and visualize data

Prerequisites

Before attending this course, it is recommended that students have:

- A foundational knowledge of core data concepts and how they're implemented using Azure data services. For more information see Azure Data Fundamentals.
- Experience designing and building scalable data models, cleaning and transforming data, and enabling advanced analytic capabilities that provide meaningful business value using Microsoft Power BI. For more information see Power BI Data Analyst.

Course outline

Module 1: Introduction to data analytics on Azure

This module explores key concepts of data analytics, including types of analytics, data, and storage. Students will explore the analytics process and tools used to discover insights and learn about the responsibilities of an enterprise data analyst and what tools are available to build scalable solutions.

Lessons

- Explore Azure data services for modern analytics
- Understand concepts of data analytics
- Explore data analytics at scale

After completing this module, students will be able to:

- Describe types of data analytics
- Understand the data analytics process
- Define data job roles in analytics
- Understand tools for scaling analytics solutions

Module 2: Govern data across an enterprise

This module explores the role of an enterprise data analyst in organizational data governance. Students will explore the use of Microsoft Purview to register and catalog data assets, to discover trusted assets for reporting, and to scan a Power BI environment.

Lessons

- Introduction to Microsoft Purview
- Discover trusted data using Microsoft Purview
- Catalog data artifacts by using Microsoft Purview
- Manage Power BI artifacts by using Microsoft Purview

After completing this module, students will be able to:

- Browse, search, and manage data catalog assets.
- Use data catalog assets with Power BI.
- Use Microsoft Purview in Azure Synapse Studio.
- Register and scan a Power BI environment using Microsoft Purview.

Module 3: Model, query, and explore data in Azure Synapse

This module explores the use of Azure Synapse Analytics for exploratory data analysis. Students will explore the capabilities of Azure Synapse Analytics including the basics of data warehouse design, querying data using T-SQL, and exploring data using Spark notebooks.

Lessons

- Introduction to Azure Synapse Analytics
- Use Azure Synapse serverless SQL pool to query files in a data lake
- Analyze data with Apache Spark in Azure Synapse Analytics
- Analyze data in a relational data warehouse

Lab : Query data in Azure

Lab : Create a star schema model

Lab : Explore data in Spark notebooks

After completing this module, students will be able to:

- Understand when to use Azure Synapse Analytics in reporting solutions.
- Query data with SQL.
- Query data with Spark.

Module 4: Prepare data for tabular models in Power BI

This module explores the fundamental elements of preparing data for scalable analytics solutions using Power BI. Students will explore model frameworks, considerations for building data models that will scale, Power Query optimization techniques, and the implementation of Power BI dataflows.

Lessons

- Choose a Power BI model framework
- Understand scalability in Power BI
- Optimize Power Query for scalable solutions
- Create and manage scalable Power BI dataflows

Lab : Create a dataflow

After completing this module, students will be able to:

- Choose an appropriate Power BI model framework.
- Optimize Power Query.
- Create and manage scalable Power BI dataflows.

Module 5: Design and build scalable tabular models

This module explores the critical underlying aspects of tabular modeling for building Power BI models that can scale. Students will learn about model relationships and model security, working with direct query, and using calculation groups.

Lessons

- Create Power BI model relationships
- Enforce model security
- Implement DirectQuery
- Create calculation groups
- Use tools to optimize Power BI performance

Lab : Create model relationships

Lab : Design and build tabular models

Lab : Create calculation groups

Lab : Use tools to optimize Power BI performance

Lab : Enforce model security

After completing this module, students will be able to:

- Understand and create Power BI model relationships.
- Design and enforce Power BI model security.
- Design and build scalable tabular models.
- Create calculation groups.

Module 6: Implement advanced data visualization techniques by using Power BI

This module explores data visualization concepts including accessibility, customization of core data models, real-time data visualization, and paginated reporting.

Lessons

- Understand advanced data visualization concepts
- Customize core data models
- Monitor data in real-time with Power BI
- Create and distribute paginated reports in Power BI report builder

Lab : Create and distribute paginated reports in Power BI Report Builder

Lab : Monitor data in real-time with Power BI

After completing this module, students will be able to:

- Understand and apply advanced data visualization concepts including accessibility.
- Troubleshoot report performance issues.
- Use real-time visuals in Power BI.
- Create and distribute paginated reports.

Module 7: Implement and manage an analytics environment

This module explores key considerations for implementing and managing Power BI. Students will understand key recommendations for administration and monitoring of Power BI, including configuration and management of Power BI capacity.

Lessons

- Provide governance in a Power BI environment
- Facilitate collaboration and sharing in Power BI
- Monitor and audit usage
- Provision Premium capacity in Power BI
- Establish a data access infrastructure in Power BI
- Broaden the reach of Power BI
- Automate Power BI administration
- Build reports using Power BI within Azure Synapse Analytics

After completing this module, students will be able to:

- Recommend Power BI administration settings.
- Recommend a monitoring and auditing solution for a data analytics environment.
- Configure and manage Power BI capacity.

Module 8: Manage the analytics development lifecycle

This module explores considerations for deployment, source control, and application lifecycle management of analytics solutions. Students will understand what to recommend and will be able to deploy and manage automated and reusable Power BI assets.

Lessons

- Design a Power BI application lifecycle management strategy
- Create and manage a Power BI deployment pipeline
- Create and manage Power BI assets

Lab : Create reusable Power BI assets

After completing this module, students will be able to:

- Recommend strategies for Power BI deployment and source control.
- Recommend automation solutions for the analytics development lifecycle.

Module 9: Integrate an analytics platform into an existing IT infrastructure

This module explores the integration of a Power BI analytics solution into existing Azure infrastructure. Students will understand Power BI tenant and workspace configurations, along with considerations for Power BI deployment in an organization.

Lessons

- Recommend and configure a Power BI tenant or workspace
- Identify requirements for a solution, including features, performance, and licensing strategy
- Integrate an existing Power BI workspace into Azure Synapse Analytics

After completing this module, students will be able to:

- Recommend and configure a Power BI tenant or workspace.
- Identify requirements for a solution, including features, performance, and licensing strategy.
- Integrate an existing Power BI workspace into Azure Synapse Analytics.