COURSE OUTLINE

MS-DP600T00: MICROSOFT FABRIC ANALYTICS ENGINEER

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
4 Days	Advanced	Azure Data & AI	Instructor-led	NA

INTRODUCTION

This course covers methods and practices for implementing and managing enterprise-scale data analytics solutions using Microsoft Fabric. Students will build on existing analytics experience and will learn how to use Microsoft Fabric components, including lakehouses, data warehouses, notebooks, dataflows, data pipelines, and semantic models, to create and deploy analytics assets.

AUDIENCE PROFILE

The primary audience for this course is data professionals with experience in data modeling, extraction, and analytics. DP-600 is designed for professionals who want to use Microsoft Fabric to create and deploy enterprise-scale data analytics solutions.

PREREQUISITES

This course is best suited for those who have the PL-300 certification or similar expertise in using Power BI for data transformation, modeling, visualization, and sharing. Also, learners should have prior experience in building and deploying data analytics solutions at the enterprise level.

COURSE OBJECTIVES

After completion of this course, you'll be able to:

- Plan, Implement, and Manage a Solution for Data Analytics: Develop the ability to create comprehensive data analytics solutions using Microsoft.
- Prepare and Serve Data: Learn to ingest, transform, and serve data efficiently, ensuring it is ready for analysis.
- Implement and Manage Semantic Models: Gain expertise in creating and managing semantic models to support data analysis and reporting.
- Explore and Analyse Data: Enhance your skills in exploring and analysing data to derive meaningful insights.

COURSE CONTENT

Module 1: Introduction to end-to-end analytics using Microsoft Fabric

Discover how Microsoft Fabric can meet your enterprise's analytics needs in one platform. Learn about Microsoft Fabric, and how it works, and identify how you can use it for your analytics needs.

Lessons

- Introduction
- Explore end-to-end analytics with Microsoft Fabric
- Data teams and Microsoft Fabric
- Enable and use Microsoft Fabric
- Knowledge Check
- Summary

In this module, you'll learn how to:

- Describe end-to-end analytics in Microsoft Fabric

Module 2: Get started with lakehouses in Microsoft Fabric

Lakehouses merge data lake storage flexibility with data warehouse analytics. Microsoft Fabric offers a lakehouse solution for comprehensive analytics on a single SaaS platform.

Lessons

- Introduction.
- Explore the Microsoft Fabric Lakehouse.
- Work with Microsoft Fabric Lakehouses.
- Explore and transform data in a lakehouse.
- Exercise - Create and ingest data with a Microsoft Fabric Lakehouse.
- Knowledge check.
- Summary.

In this module, you'll learn how to:

- Describe core features and capabilities of lakehouses in Microsoft Fabric.
- Create a lakehouse.
- Ingest data into files and tables in a lakehouse.
- Query lakehouse tables with SQL.

Module 3: Use Apache Spark in Microsoft Fabric

Apache Spark is a core technology for large-scale data analytics. Microsoft Fabric supports Spark clusters, enabling you to analyse and process data in a Lakehouse at scale.

Lessons

- Introduction.
- Prepare to use Apache Spark.
- Run Spark code.
- Work with data in a Spark dataframe.
- Work with data using Spark SQL.
- Visualize data in a Spark notebook.
- Exercise - Analyse data with Apache Spark.
- Knowledge check.
- Summary.

In this module, you'll learn how to:

- Configure Spark in a Microsoft Fabric workspace.
- Identify suitable scenarios for Spark notebooks and Spark jobs.
- Use Spark dataframes to analyze and transform data.

- Use Spark SQL to query data in tables and views.
- Visualize data in a Spark notebook

Module 4: Work with Delta Lake tables in Microsoft Fabric
Tables in a Microsoft Fabric lakehouse are based on the Delta Lake storage format commonly used in Apache Spark. By using the enhanced capabilities of delta tables, you can create advanced analytics solutions.
Lessons
- Introduction.
- Prepare to use Apache Spark.
- Run Spark code.
- Work with data in a Spark dataframe.
- Work with data using Spark SQL.
- Visualize data in a Spark notebook.
- Exercise - Analyse data with Apache Spark.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Understand Delta Lake and delta tables in Microsoft Fabric.
- Create and manage delta tables using Spark.
- Use Spark to query and transform data in delta tables.
- Use delta tables with Spark structured streaming.

Module 5: Use Data Factory pipelines in Microsoft Fabric
Microsoft Fabric includes Data Factory capabilities, including the ability to create pipelines that orchestrate data ingestion and transformation tasks.
Lessons
- Introduction.
- Understand pipelines.
- Use the Copy Data activity.
- Use pipeline templates.
- Run and monitor pipelines.
- Exercise - Ingest data with a pipeline.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Describe pipeline capabilities in Microsoft Fabric.
- Use the Copy Data activity in a pipeline.
- Create pipelines based on predefined templates.
- Run and monitor pipelines.

Module 6: Ingest Data with Dataflows Gen2 in Microsoft Fabric
Data ingestion is crucial in analytics. Microsoft Fabric's Data Factory offers Dataflows for visually creating multi-step data ingestion and transformation using Power Query Online.
Lessons
- Introduction.
- Understand Dataflows Gen2 in Microsoft Fabric.
- Explore Dataflows Gen2 in Microsoft Fabric.
- Integrate Dataflows Gen2 and Pipelines in Microsoft Fabric.
- Exercise - Create and use a Dataflow Gen2 in Microsoft Fabric.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Describe Dataflow capabilities in Microsoft Fabric
- Create Dataflow solutions to ingest and transform data
- Include a Dataflow in a pipeline

Module 7: Get started with data warehouses in Microsoft Fabric
Data warehouses are analytical stores built on a relational schema to support SQL queries. Microsoft Fabric enables you to create a relational data warehouse in your workspace and integrate it easily with other elements of your end-to-end analytics solution.
Lessons
- Introduction.
- Understand data warehouse fundamentals.
- Understand data warehouses in Fabric.
- Query and transform data.
- Prepare data for analysis and reporting.
- Secure and monitor your data warehouse.
- Exercise - Analyze data in a data warehouse.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Describe data warehouses in Fabric.
- Understand a data warehouse vs a data Lakehouse.
- Work with data warehouses in Fabric.
- Create and manage fact tables and dimensions within a data warehouse.

Module 8: Get started with Real-Time Intelligence in Microsoft Fabric
Analysis of real-time data streams is a critical capability for any modern data analytics solution. You can use the Real-Time Intelligence capabilities of Microsoft Fabric to ingest, query, and process streams of data.
Lessons
- Introduction
- Describe Microsoft Fabric Real-Time Intelligence
- Understand KQL database and tables
- Describe Microsoft Fabric Real-Time hub
- Write queries with KQL
- Exercise: Explore Real-Time Intelligence in Fabric
- Knowledge check
- Summary

In this module, you'll learn how to:
- Describe Real-Time Intelligence in Microsoft Fabric.
- Create eventhouse databases and tables using KQL database.
- Describe Real-Time hub in Microsoft Fabric.
- Use KQL to query tables and create querysets

Module 9: Get started with data science in Microsoft Fabric
In Microsoft Fabric, data scientists can manage data, notebooks, experiments, and models while easily accessing data from across the organization and collaborating with their fellow data professionals.
Lessons
- Introduction
- Understand the data science process
- Explore and process data with Microsoft Fabric
- Train and score models with Microsoft Fabric
- Exercise - Explore data science in Microsoft Fabric
- Knowledge check
- Summary

In this module, you'll learn how to:
- Understand the data science process
- Train models with notebooks in Microsoft Fabric
- Track model training metrics with MLflow and experiments

Module 10: Get started with Data Activator in Microsoft Fabric
Use Data Activator in Microsoft Fabric to easily monitor and take action on your data.
Lessons
- Introduction
- Understand Data Activator
- Get started with Data Activator
- Understand triggers, conditions and actions in Data Activator
- Get data from Power BI Reports and EventStreams with Data Activator
- Assign data in Data Activator
- Create triggers in Data Activator

- Exercise - Use Data Activator in Fabric
- Knowledge check
- Summary

In this module, you'll learn how to:
- Understand Data Activator.
- Understand triggers, conditions, and actions in Data Activator.
- Get data from Power BI Reports and EventStreams with Data Activator.
- Assign data and create triggers in Data Activator.
- Interact with Real-Time Intelligence.

Module 11: Administer a Microsoft Fabric environment
Microsoft Fabric is a SaaS solution for end-to-end data analytics. As an administrator, you can configure features and manage access to suit your organization's needs.
Lessons
- Introduction
- Understand the Fabric Architecture
- Understand the Fabric administrator role
- Manage Fabric security
- Govern data in Fabric
- Knowledge check
- Summary

In this module, you'll learn how to:
- Describe Fabric admin tasks
- Navigate the admin center
- Manage user access
- Govern data in Fabric

Module 12: Organize a Fabric lakehouse using medallion architecture design
Explore the potential of the medallion architecture design in Microsoft Fabric. Organize and transform your data across bronze, silver, and gold layers of a lakehouse for optimized analytics.
Lessons
- Introduction.
- Describe medallion architecture.
- Implement a medallion architecture in Fabric.
- Query and report on data in your Fabric lakehouse.
- Considerations for managing your lakehouse.
- Exercise - Organize your Fabric lakehouse using a medallion architecture.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Describe Dataflow (Gen2) capabilities in Microsoft Fabric.
- Create Dataflow (Gen2) solutions to ingest and transform data.
- Include a Dataflow (Gen2) in a pipeline.

Module 13: Ingest data with Spark and Microsoft Fabric notebooks
Discover how to use Apache Spark and Python for data ingestion into a Microsoft Fabric lakehouse. Fabric notebooks provide a scalable and systematic solution.
Lessons
- Introduction.
- Connect to data with Spark.
- Write data into a lakehouse.
- Consider uses for ingested data.
- Exercise - Ingest data with Spark and Microsoft Fabric notebooks.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Ingest external data to Fabric lakehouses using Spark.
- Configure external source authentication and optimization.
- Load data into lakehouse as files or as Delta tables.

Module 14: Load data into a Microsoft Fabric data warehouse
Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.
Lessons
- Introduction.
- Explore data load strategies.
- Use data pipelines to load a warehouse.
- Load data using T-SQL.
- Load and transform data with Dataflow Gen.
- Exercise: Load data into a warehouse in Microsoft Fabric.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Learn different strategies to load data into a data warehouse in Microsoft Fabric.
- Learn how to build a data pipeline to load a warehouse in Microsoft Fabric.
- Learn how to load data in a warehouse using T-SQL.
- Learn how to load and transform data with dataflow (Gen 2).

Module 15: Query a data warehouse in Microsoft Fabric
Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.
Lessons
- Introduction.
- Use the SQL query editor.
- Explore the visual query editor.
- Use client tools to query a warehouse.
- Exercise: Query a data warehouse in Microsoft Fabric.
- Knowledge check.
- Summary.

In this module, you'll learn how to:
- Use SQL query editor to query a data warehouse.
- Explore how visual query editor works.
- Learn how to connect and query a data warehouse using SQL Server Management Studio.

Module 16: Monitor a Microsoft Fabric data warehouse
A data warehouse is a vital component of an enterprise analytics solution. It's important to learn how to monitor a data warehouse so you can better understand the activity that occurs in it.
Lessons
- Introduction.
- Monitor capacity metrics.
- Monitor current activity.
- Monitor queries.
- Exercise - Monitor a data warehouse in Microsoft Fabric.
- Knowledge check.
- Summary

In this module, you'll learn how to:
- Monitor capacity unit usage with the Microsoft Fabric Capacity Metrics app.
- Monitor current activity in the data warehouse with dynamic management views.
- Monitor querying trends with query insights views.

Module 17: Secure a Microsoft Fabric data warehouse
Data warehouse in Microsoft Fabric is a comprehensive platform for data and analytics, featuring advanced query processing and full transactional T-SQL capabilities for easy data management and analysis.
Lessons
- Introduction
- Explore dynamic data masking
- Implement row-level security
- Implement column-level security

- Configure SQL granular permissions using T-SQL
- Exercise: Secure a warehouse in Microsoft Fabric
- Knowledge check
- Summary

In this module, you'll:

- Learn the concepts of securing a data warehouse in Microsoft Fabric.
- Learn how to implement dynamic data masking to obscure sensitive information.
- Learn how to configure row-level security to provide granular control.
- Learn how to implement column-level security to protect sensitive data.
- Learn how to configure granular permissions using T-SQL.

ASSOCIATED CERTIFICATIONS & EXAM

This course will prepare delegates to write the Microsoft DP-600: Implementing Analytics Solutions Using Microsoft Fabric exam.