BLACKBIRD FOR TRAINING

Advanced Power BI Data Analysis



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Introduction

The Advanced Power BI Data Analysis course is designed to develop participants' ability to build robust data models, transform complex datasets, and create interactive dashboards that support operational and executive decision-making. As organizations increasingly depend on databases, enterprise reports, performance indicators, and advanced analytics, there is a growing need for stronger skills in data modeling, data transformation, performance optimization, and metrics design.

This course focuses on advanced Power BI practices, including advanced data modeling, complex DAX calculations, advanced Power Query techniques, data transformation and cleansing, SQL and database integration, performance optimization, time intelligence functions, advanced KPI and metrics design, predictive and trend analysis, AI features in Power BI, advanced interactive dashboards, and enterprise reporting solutions.

The course follows a structured sequence that begins with advanced data modeling, then moves into advanced data preparation and database integration. It then focuses on complex DAX calculations, time intelligence, advanced KPI design, dashboard development, performance optimization, predictive analysis, AI-supported insights, enterprise reporting, and real business analytics case studies. The content is aligned with the provided topic: Advanced Power BI Data Analysis.

Course Objectives

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

- Build advanced data models that support enterprise reporting and multi-dimensional analysis.
- Apply advanced Power Query techniques for data transformation and cleansing.
- Handle missing values, duplicates, data errors, and inconsistent formats in complex datasets.
- Integrate Power BI with SQL databases and enterprise data sources.
- Use SQL and database connections to improve data extraction and reporting workflows.
- Create complex DAX calculations that support advanced analysis and performance measurement.
- Apply time intelligence functions to compare performance across different periods.
- Design advanced KPIs and metrics aligned with business objectives.
- Optimize Power BI models and reports to improve loading speed and user experience.
- Build advanced interactive dashboards for executive and operational users.
- Use AI features in Power BI to identify patterns, insights, and key influencers.
- Apply predictive and trend analysis to support planning and decision-making.
- Develop enterprise reporting solutions that can be shared, published, and monitored.
- Apply all learned skills through real business analytics case studies.



Course Outlines

Day 1: Advanced Data Modeling and Analytical Structure Design

- Reviewing data modeling concepts and their role in accurate reporting.
- Building advanced data models using fact tables and dimension tables.
- Designing relationships between tables to support enterprise analysis.
- Managing complex relationships, multiple tables, and connection challenges.
- Structuring the model to make reporting and dashboard development easier.
- Practical application on building an advanced data model for a multi-source business case.

Day 2: Advanced Data Transformation, Cleansing, and Database Integration

- Using advanced Power Query techniques for data cleansing and transformation.
- Handling missing values, duplicates, errors, and inconsistent data formats.
- Merging tables, splitting fields, and standardizing multiple data sources.
- Connecting Power BI with SQL databases and enterprise data sources.
- Using SQL queries to extract required data and improve loading efficiency.
- Practical application on preparing complex enterprise data and connecting it to an analytical model.

Day 3: Complex DAX Calculations and Time Intelligence Functions

- Building advanced measures using DAX to support performance analysis.
- Creating complex calculations for growth, variance, ratios, margins, and deviations.
- Applying time intelligence functions to compare performance across periods.
- Analyzing year-to-date, month-to-date, rolling periods, and cumulative results.
- Designing dynamic measures that respond to user selections in reports.
- Practical application on building advanced analytical KPIs using DAX.

Day 4: Advanced KPIs, Interactive Dashboards, and Performance Optimization

- Designing advanced KPIs and metrics linked to business objectives.
- Building interactive dashboards for different management and operational levels.
- Using advanced visualization techniques to highlight trends, gaps, and performance drivers.
- Improving user experience through filters, navigation, drill-through, and detailed analysis.
- Optimizing report performance, loading speed, responsiveness, and refresh efficiency.
- Practical application on creating an advanced executive dashboard for business performance monitoring.



Day 5: Predictive Analysis, AI Features, and Enterprise Reporting Solutions

- Applying predictive and trend analysis to understand future performance direction.
- Using AI features in Power BI to detect patterns, key influencers, and hidden insights.
- Preparing enterprise reports that can be shared and published across teams and management.
- Reviewing analytical solution quality in terms of accuracy, performance, security, and usability.
- Building a monitoring framework for published reports and enterprise KPIs.
- Real business analytics case study covering modeling, transformation, calculations, dashboards, predictive analysis, and publishing.

Why Attend this Course: Wins & Losses!

- Develop advanced skills in building strong Power BI data models.
- Improve the ability to transform, cleanse, and prepare complex data for analysis.
- Integrate databases and data sources more efficiently and consistently.
- Create advanced DAX calculations that support accurate reports and analytical metrics.
- Use time intelligence functions to monitor performance across different periods.
- Design advanced KPIs that reflect business objectives and actual performance results.
- Build advanced interactive dashboards for management and operational teams.
- Optimize report performance and reduce loading or responsiveness issues.
- Use AI features and predictive analysis to generate deeper insights.
- Prepare enterprise reporting solutions that can be published and shared across the organization.
- Connect technical Power BI skills with real business analytics scenarios.
- Support decision-making through accurate, flexible, and refreshable reports.

Conclusion

The Advanced Power BI Data Analysis and Enterprise Reporting Solutions course provides a practical framework for moving beyond traditional reporting into advanced analytical solutions that serve modern organizational needs. The course covers advanced data modeling, data transformation, database integration, complex DAX calculations, time intelligence, KPI design, interactive dashboards, performance optimization, AI-supported analysis, predictive insights, and enterprise reporting.

The program follows a clear structure. It begins with building a strong data model, then moves into data preparation, cleansing, and integration with multiple sources. It then focuses on advanced calculations and time-based measures before moving into interactive dashboard design, KPI reporting, and report optimization. The final day addresses predictive analysis, AI features, enterprise reporting solutions, and real business analytics case studies.

By the end of the course, participants will have a practical understanding of how to build advanced Power BI solutions, from raw data to published enterprise reports that support management and decision-makers. The course helps improve analysis quality, reporting efficiency, data accuracy, and the organization's ability to use data for planning, monitoring, and decision-making.

