

Data Analytics with Power BI Course Outline

Duration: 35 Hours

Level: Intermediate to Advanced

Delivery Mode: Online/Offline

Tools Used: Microsoft Power BI, Excel, SQL Server

Module 1: Introduction to Power BI and Data Analytics

- Overview of Power BI
 - What is Data Analytics and How Power BI Fits In
 - Power BI vs Excel: Strengths and Use Cases
 - Key Features and Components of Power BI
 - Power BI Desktop
 - Power BI Service
 - Power BI Mobile
 - Installing Power BI and Initial Setup
 - Introduction to Power BI Interface
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Module 2: Getting Started with Power BI

- Connecting to Data Sources
 - Importing Data from Excel, CSV, SQL Server, and Other Sources
 - Working with Databases and APIs
 - Understanding Power Query and Data Transformation
 - Data Types and Their Importance
 - Basic Data Transformations Using Power Query
 - Removing Duplicates, Handling Missing Data, and Data Cleaning
 - Filtering and Sorting Data in Power Query
 - Combining Data from Multiple Sources
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Module 3: Data Modeling in Power BI

- Introduction to Data Modeling in Power BI
- Creating and Managing Relationships Between Tables
 - One-to-One, One-to-Many, and Many-to-Many Relationships
- Working with Data Models: Star and Snowflake Schema
- Building Calculated Columns and Measures Using DAX

- Introduction to DAX (Data Analysis Expressions)
 - Basic DAX Functions: SUM, COUNT, AVERAGE, MIN, MAX
 - Logical Functions: IF, SWITCH, AND, OR
 - Aggregating Data Using DAX
 - Creating and Managing Hierarchies
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Module 4: Data Analysis with DAX (Advanced)

- Time Intelligence Functions in DAX
 - DATEADD, YTD, QTD, MONTH
 - Advanced DAX Functions
 - Calculated Tables and Columns
 - Complex Conditional Logic and Nested Functions
 - Using Variables in DAX
 - Filter Functions: ALL, FILTER, CALCULATE
 - Managing Data Aggregations and Granularity
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Module 5: Data Visualization Techniques in Power BI

- Introduction to Power BI Visuals and Chart Types
 - Basic Visuals: Bar Charts, Line Charts, Pie Charts
 - Table and Matrix Visuals
 - KPI and Card Visuals
 - Waterfall, Funnel, and Tree Maps
 - Customizing Visuals: Titles, Labels, Tooltips, and Colors
 - Working with Interactive Visuals:
 - Slicers and Filters
 - Drill-Through and Drill-Down
 - Hierarchies in Visualizations
 - Conditional Formatting in Visuals
 - Using Bookmarks and Selections for Custom Views
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Module 6: Building Advanced Dashboards in Power BI

- Building Comprehensive Dashboards with Multiple Visuals
- Using Multiple Pages and Tabs for Large Reports
- Designing Dashboards with Interactive Elements
 - Creating and Managing Slicers
 - Implementing Dynamic Filters and Tooltips

- Using What-If Parameters for Predictive Analysis
 - Formatting and Customizing Dashboards for Professional Presentation
 - Introduction to Report Themes for Consistency
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Module 7: Advanced Power BI Features

- Working with R and Python Scripts in Power BI
 - Creating Custom Visuals Using R/Python in Power BI
 - Using Power BI with Excel for Complex Analysis
 - Advanced Data Modeling Techniques: Relationships, Tables, and DAX
 - Optimizing Data Models for Large Data Sets
 - Reducing Data Granularity
 - Performance Optimization Tips
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Module 8: Power BI Service and Cloud Integration

- Introduction to Power BI Service: Overview and Key Features
 - Uploading Reports and Dashboards to Power BI Service
 - Understanding Power BI Workspaces and Collaboration Features
 - Sharing Reports and Dashboards with Stakeholders
 - Using Publish to Web vs. Sharing Securely
 - Managing Permissions and Access Control
 - Setting Up Scheduled Data Refresh for Reports and Dashboards
 - Using Power BI Mobile to View Reports on the Go
 - Integrating Power BI with Other Microsoft Services (Teams, SharePoint, etc.)
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Module 9: Power BI Security and Performance Optimization

- Implementing Row-Level Security (RLS) in Power BI
 - Managing Permissions and Access in Power BI Service
 - Performance Tuning and Best Practices for Large Data Models
 - Using DirectQuery and Import Modes
 - Query Reduction Techniques
 - Optimizing Report Load Time
 - Diagnosing and Troubleshooting Performance Issues
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Module 10: Power BI and Advanced Analytics

- Predictive Analytics with Power BI
 - Using Power BI for Advanced Data Analysis: Clustering, Forecasting, and Trend Analysis
 - Connecting Power BI to Machine Learning Models
 - Using Power BI for Financial and Business Analysis (e.g., Forecasting, Budgeting)
 - Integrating with Azure ML and Other Analytics Platforms
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Module 11: Creating Interactive Reports for Business Insights

- Creating Custom Dashboards for Specific Business Needs (e.g., Sales, Marketing, Operations)
 - Key Metrics and KPIs for Effective Reporting
 - Analyzing and Presenting Business Insights Using Power BI
 - Developing Data-Driven Decision-Making Dashboards
 - Storytelling with Data: How to Present Reports Effectively to Stakeholders
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Module 12: Final Project and Assessment

- Capstone Project: Build a Comprehensive Power BI Report/Dashboard
 - Data Preparation, Analysis, and Visualization
 - DAX Calculations, Advanced Visuals, and Interactivity
 - Create and Share the Report Using Power BI Service
- Code Review, Debugging, and Optimization
- Final Exam and Assessment
- Certification from BACT IT Institute of Bangladesh