Power BI Training Program

5-Day Intensive Course (40 Hours)

Course Overview

This comprehensive Power BI training program is designed to take participants from beginner to advanced level in business intelligence and data visualization using Microsoft Power BI. The course combines theoretical knowledge with hands-on practical exercises.

Duration: 5 Days (8 hours per day)
Total Hours: 40 hours
Format: Instructor-led with hands-on labs
Prerequisites: Basic understanding of Excel and data concepts

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Day 1: Power BI Fundamentals & Data Connectivity

Session 1 (9:00 AM - 10:30 AM) - Introduction to Power BI

- What is Business Intelligence?
- Power BI ecosystem overview
- Power BI Desktop vs Power BI Service vs Power BI Mobile
- Power BI licensing options
- Installing Power BI Desktop
- Power BI interface walkthrough

Hands-on Lab 1: Power BI Desktop installation and interface exploration

Break (10:30 AM - 10:45 AM)

Session 2 (10:45 AM - 12:15 PM) - Data Sources and Connectivity

- Understanding data sources
- Common data connectors (Excel, CSV, SQL Server, Web)
- Database connections
- Cloud data sources (Azure, SharePoint, OneDrive)

- Data gateway concepts
- Connection security and authentication

Hands-on Lab 2: Connecting to multiple data sources

Lunch Break (12:15 PM - 1:15 PM)

Session 3 (1:15 PM - 2:45 PM) - Power Query Editor Basics

- Introduction to Power Query Editor
- Data preview and profiling
- Basic transformations (rename, remove, sort)
- Data type conversions
- Filtering and sorting data
- Column operations

Hands-on Lab 3: Basic data cleaning and transformation

Break (2:45 PM - 3:00 PM)

Session 4 (3:00 PM - 4:30 PM) - Advanced Power Query Operations

- Merging and appending queries
- Grouping and aggregating data
- Conditional columns
- Custom columns with M language basics
- Working with date and time data
- Error handling in Power Query

Hands-on Lab 4: Advanced data transformation project

Session 5 (4:30 PM - 5:00 PM) - Day 1 Review and Q&A

- Review of key concepts
- Best practices for data connectivity
- Common troubleshooting issues
- Q&A session

Day 2: Data Modeling & Relationships

Session 1 (9:00 AM - 10:30 AM) - Data Modeling Fundamentals

- Star schema vs snowflake schema
- Fact tables vs dimension tables
- Data modeling best practices
- Understanding cardinality
- Active vs inactive relationships
- Bi-directional filtering

Hands-on Lab 5: Creating a basic data model

Break (10:30 AM - 10:45 AM)

Session 2 (10:45 AM - 12:15 PM) - Creating and Managing Relationships

- Auto-detect relationships
- Creating manual relationships
- Relationship properties and settings
- Cross-filter direction
- Managing relationship issues
- Role-playing dimensions

Hands-on Lab 6: Building complex relationships

Lunch Break (12:15 PM - 1:15 PM)

Session 3 (1:15 PM - 2:45 PM) - Calculated Columns and Measures

- Difference between calculated columns and measures
- Creating calculated columns
- Basic DAX syntax introduction
- Common DAX functions (SUM, AVERAGE, COUNT)
- Context in DAX (row context vs filter context)

Hands-on Lab 7: Creating basic calculated columns and measures

Break (2:45 PM - 3:00 PM)

Session 4 (3:00 PM - 4:30 PM) - Introduction to DAX

- DAX syntax and structure
- Mathematical operations
- Text functions
- Date and time functions
- Logical functions (IF, AND, OR)
- CALCULATE function basics

Hands-on Lab 8: Writing basic DAX formulas

Session 5 (4:30 PM - 5:00 PM) - Day 2 Review and Q&A

- Data modeling best practices review
- Common DAX mistakes to avoid
- Q&A session

Day 3: Advanced DAX & Time Intelligence

Session 1 (9:00 AM - 10:30 AM) - Advanced DAX Functions

- SUMX, AVERAGEX, and other iterator functions
- RELATED and RELATEDTABLE functions
- FILTER function
- ALL, ALLEXCEPT, and ALLSELECTED
- Context modification functions
- Error handling in DAX

Hands-on Lab 9: Advanced DAX calculations

Break (10:30 AM - 10:45 AM)

Session 2 (10:45 AM - 12:15 PM) - Time Intelligence in DAX

- Date tables and requirements
- Year-to-date (YTD) calculations
- Previous period comparisons
- Moving averages
- Custom date functions
- Fiscal year considerations

Hands-on Lab 10: Building time intelligence measures

Lunch Break (12:15 PM - 1:15 PM)

Session 3 (1:15 PM - 2:45 PM) - Variables and Advanced Patterns

- VAR keyword and variable declaration
- Performance optimization with variables
- Complex nested calculations
- Dynamic measures
- What-if parameters
- Advanced filtering patterns

Hands-on Lab 11: Complex DAX scenarios

Break (2:45 PM - 3:00 PM)

Session 4 (3:00 PM - 4:30 PM) - Data Analysis Expressions (DAX) Best Practices

- Writing efficient DAX code
- Performance considerations
- Debugging DAX formulas
- Common DAX patterns and solutions
- Documentation and naming conventions

Hands-on Lab 12: DAX optimization exercise

Session 5 (4:30 PM - 5:00 PM) - Day 3 Review and Q&A

- Advanced DAX concepts review

- Time intelligence best practices
- Q&A session

Day 4: Visualizations & Report Design

Session 1 (9:00 AM - 10:30 AM) - Visualization Fundamentals

- Choosing the right visualization
- Standard Power BI visuals overview
- Chart types and when to use them
- Visual properties and formatting
- Color theory and accessibility
- Visual hierarchy principles

Hands-on Lab 13: Creating basic visualizations

Break (10:30 AM - 10:45 AM)

Session 2 (10:45 AM - 12:15 PM) - Advanced Visualizations

- Custom visuals from AppSource
- Matrix and table visuals
- Map visualizations
- Waterfall and funnel charts
- Decomposition tree
- Key influencer visual

Hands-on Lab 14: Advanced visualization techniques

Lunch Break (12:15 PM - 1:15 PM)

Session 3 (1:15 PM - 2:45 PM) - Interactive Features

- Slicers and filters
- Cross-filtering between visuals
- Drill-down and drill-through

- Bookmarks and buttons
- Conditional formatting
- Tooltips and hover effects

Hands-on Lab 15: Building interactive reports

Break (2:45 PM - 3:00 PM)

Session 4 (3:00 PM - 4:30 PM) - Report Design Best Practices

- Layout and design principles
- Mobile-responsive design
- Accessibility considerations
- Performance optimization for visuals
- Report themes and templates
- Storytelling with data

Hands-on Lab 16: Complete report design project

Session 5 (4:30 PM - 5:00 PM) - Day 4 Review and Q&A

- Visualization best practices review
- Design principle summary
- Q&A session

Day 5: Power BI Service, Sharing & Advanced Features

Session 1 (9:00 AM - 10:30 AM) - Power BI Service Overview

- Power BI Service interface
- Workspaces and collaboration
- Publishing reports from Desktop
- Datasets vs reports vs dashboards
- Refresh schedules and data gateways
- Content management

Hands-on Lab 17: Publishing and managing content in Power BI Service

Break (10:30 AM - 10:45 AM)

Session 2 (10:45 AM - 12:15 PM) - Sharing and Security

- Sharing reports and dashboards
- Row-level security (RLS)
- App creation and distribution
- External sharing options
- Embedding Power BI content
- Security best practices

Hands-on Lab 18: Implementing security and sharing

Lunch Break (12:15 PM - 1:15 PM)

Session 3 (1:15 PM - 2:45 PM) - Power BI Dataflows and Datasets

- Introduction to dataflows
- Creating and managing dataflows
- Shared datasets
- Composite models
- DirectQuery vs Import modes
- Performance optimization strategies

Hands-on Lab 19: Working with dataflows and shared datasets

Break (2:45 PM - 3:00 PM)

Session 4 (3:00 PM - 4:30 PM) - Advanced Features

- Power BI REST APIs
- Power Automate integration
- Custom connectors
- Power BI Embedded
- Paginated reports overview

- AI features in Power BI

Hands-on Lab 20: Exploring advanced features

Session 5 (4:30 PM - 5:00 PM) - Course Wrap-up

- Final project presentation
- Certification guidance
- Continued learning resources
- Best practices summary
- Course evaluation and feedback

Assessment and Certification

Daily Assessments

- Day 1: Data connectivity quiz (20 questions)
- Day 2: Data modeling practical exercise
- Day 3: DAX formula challenges
- Day 4: Visualization design project
- Day 5: Comprehensive final project

Final Project Requirements

Participants will create a complete Power BI solution including:

- Data connection and transformation
- Proper data modeling
- Advanced DAX calculations
- Interactive dashboard with multiple visualizations
- Documentation and presentation

Learning Resources

Required Materials

- Power BI Desktop (free download)
- Sample datasets (provided)
- Access to Power BI Service (trial account)
- Course workbook and exercises

Recommended Reading

- "The Definitive Guide to DAX" by Marco Russo and Alberto Ferrari
- "Power BI Dashboard in an Hour" by Michele Hart
- Microsoft Power BI documentation

Online Resources

- Microsoft Learn Power BI learning path
- Power BI Community forums
- Guy in a Cube YouTube channel
- SQLBI.com for advanced DAX resources

Hardware Requirements

Minimum System Requirements

- Windows 10 (64-bit) or later
- 4 GB RAM (8 GB recommended)
- 2 GB available disk space
- Internet connection for Power BI Service
- Screen resolution 1366 x 768 or higher

Recommended Setup

- Windows 11 (64-bit)
- 16 GB RAM
- SSD storage
- Dual monitor setup

- Stable high-speed internet connection

Instructor Qualifications

- Microsoft Certified: Power BI Data Analyst Associate
- Minimum 3 years of hands-on Power BI experience
- Experience in business intelligence and data analytics
- Strong presentation and training skills
- Industry experience in data visualization

Class Logistics

Schedule

- **Daily Hours:** 9:00 AM - 5:00 PM
- **Break Schedule:**
    - Morning: 10:30-10:45 AM
    - Lunch: 12:15-1:15 PM
    - Afternoon: 2:45-3:00 PM

Class Size

- Maximum 16 participants
- Minimum 6 participants
- 1 instructor + 1 assistant for hands-on support

Materials Provided

- Course workbook (digital and printed)
- Sample datasets and exercises
- Certificate of completion
- 30-day follow-up support access

Learning Outcomes

Upon completion of this course, participants will be able to:

1. **Connect and Transform Data**
    - Connect to various data sources
    - Clean and transform data using Power Query
    - Implement data refresh strategies
2. **Create Data Models**
    - Design efficient data models
    - Create and manage relationships
    - Implement proper data modeling practices
3. **Develop Advanced Calculations**
    - Write complex DAX formulas
    - Implement time intelligence
    - Create dynamic measures and calculated columns
4. **Build Interactive Reports**
    - Create compelling visualizations
    - Design user-friendly dashboards
    - Implement interactive features
5. **Deploy and Share Solutions**
    - Publish reports to Power BI Service
    - Implement security and sharing
    - Manage Power BI content effectively

Post-Training Support

30-Day Follow-up Program

- Weekly Q&A sessions (1 hour each)

- Email support for technical questions
- Access to additional practice exercises
- Guidance on real-world implementation

Certification Path

- Preparation guidance for Microsoft PL-300 exam
- Practice exam questions and study materials
- Recommended study schedule
- Exam registration assistance

This training program is designed to provide comprehensive Power BI knowledge and practical skills for business intelligence professionals. The curriculum is regularly updated to reflect the latest Power BI features and best practices.