Data Analytics/Data Analysis using PowerBI

(Basic level training-without coding)

Duration: 72 Hours, 3 Days per week, 2 Hours per day

Module	Major Categories	Duration
Module 01	Introduction to Data Analytics and PowerBI	8 Hours
Module 02	Data Preparation and Transformation	14 Hours
Module 03	Data Visualization	16 Hours
Module 04	Advanced Reporting	12 Hours
Module 05	Data Sharing and Collaboration	8 Hours
Module 06	Real-World Projects and Case Studies	12 Hours
Module 07	Final Assessment and Certification	2 Hours

Class No	Module Details	Duration
	Module 1: Introduction to Data Analytics and PowerBI	
01	Session 1: Understanding Data Analytics (2 hours) 1.1 Introduction to Data Analytics: • Definition and importance of data analytics. • Real-world examples of data-driven decision-making. • Data analytics lifecycle: from data collection to insights. 1.2 Types of Data Analytics: • Descriptive, diagnostic, predictive, and prescriptive analytics. • How different types of analytics are used in business. Session 2: Introduction to PowerBI (2 hours) 2.1 What is PowerBI: • Overview of PowerBI as a business intelligence tool. • Key features and benefits of PowerBI. 2.2 PowerBI Ecosystem: • Different components of the PowerBI ecosystem (PowerBI Desktop, PowerBI Service, PowerBI Mobile). • Understanding the roles of each component in the analytics workflow. Session 3: Installing and Setting Up PowerBI (2 hours)	8 Hours 4 Days

		3.1 Installing PowerBI Desktop:	
		• Step-by-step installation guide for PowerBI Desktop.	
		• System requirements and compatibility.	
		3.2 Exploring PowerBI Interface:	
		• Introduction to the PowerBI Desktop user interface.	
		• Navigating the Ribbon, Fields pane, and Data view.	
		Session 4: Overview of PowerBI Interface (2 hours)	
		4.1 Workspace Overview:	
		• Understanding workspaces and files in PowerBI.	
		• Creating and saving a new report.	
		4.2 Connecting to Data Sources:	
		• Connecting to various data sources (Excel, databases, web, etc.).	
		• Configuring data source settings.	

Module 2: Data Preparation and Transformation

02		Session 1: Data Loading and Transformation (2 hours)	14 Hours 7 Days
		2.1 Data Import in PowerBI:	
		• Review of various data sources (Excel, CSV, databases, web services, etc.) that can be connected to in PowerBI.	
		• Step-by-step walkthrough of importing data.	
		2.2 Data Profiling:	
		• Understanding the importance of data profiling in the data preparation process.	
		• Identifying data quality issues and anomalies.	
		Session 2: Cleaning and Formatting Data (2 hours)	
		2.3 Data Cleaning Techniques:	
		• Removing duplicates, handling missing values, and correcting data types.	
		• Applying data transformations for data cleansing.	
		2.4 Data Query Editor:	
		• Introduction to the Power Query Editor in PowerBI.	
		• Using Power Query for advanced data cleaning and shaping.	

	Session 3: Combining Data from Multiple Sources (2 hours)	
	2.5 Data Merging and Combining:	
	• Combining data from different sources using various merge options (join, append, etc.).	
	• Creating relationships between tables.	
	2.6 Data Transformations with DAX:	
	• Introduction to Data Analysis Expressions (DAX) for custom calculations.	
	• Creating calculated columns.	
	Session 4: Data Modeling and Relationships (2 hours)	
	2.7 Data Modeling in PowerBI:	
	• Understanding the concept of data modeling.	
	• Defining relationships between tables (one-to-one, one-to-many, many-to-many).	
	2.8 Creating Hierarchies:	
	• Building hierarchies for easier data exploration and drilling down.	
	Session 5-7: Creating Custom Columns and Measures (4 hours)	
	2.9 Calculated Columns vs. Measures:	
	• Understanding the difference between calculated columns and measures.	
	• When to use each.	
	2.10 Writing DAX Formulas:	
	• Writing simple DAX formulas for creating custom columns and measures.	
	• Using DAX functions for calculations.	

Module 3: Data Visualization

03	Session 1: Introduction to Data Visualization (2 hours)	16 Hours 8 days
	3.1 Importance of Data Visualization:	
	• Understanding the role of data visualization in data analysis and storytelling.	
	• Benefits of using visuals to convey insights.	
	3.2 Types of Visualizations:	
	• Overview of common types of visualizations (bar charts, line charts, pie charts, etc.).	

- Choosing the right visualization for different data scenarios.

Session 2: Building Basic Visualizations (2 hours)

3.3 Creating Charts and Graphs:

- Step-by-step guide to creating basic charts (bar charts, line charts, scatter plots, etc.) in PowerBI.
- Data fields, values, and categories.

3.4 Customizing Visualizations:

- Formatting options for visuals (color, fonts, labels, etc.).
- Adding titles, legends, and data labels.

Session 3: Enhancing Visualizations with Filters and Slicers (2 hours)

3.5 Using Filters:

- Applying filters to limit data displayed in visuals.
- Utilizing filter types (visual-level, page-level, report-level).

3.6 Slicers and Drill through:

- Creating slicers to allow user interaction.
- Implementing drill through for deeper analysis.

Session 4: Creating Interactive Dashboards (2 hours)

3.7 Building Dashboards:

- Understanding the concept of dashboards in PowerBI.
- Adding visuals to dashboards and arranging them.

3.8 Interactivity and Navigation:

- Making visuals interactive through cross-filtering and highlighting.
- Creating navigation paths within dashboards.

Session 5: Drill-through and Drill-down Features (2 hours)

3.9 Drill-through Pages:

- Creating drill-through pages for in-depth exploration.
- Setting up drill-through actions.

3.10 Drill-down Hierarchies:

- Using hierarchies for drill-down analysis.
- Creating and managing hierarchies.

	Session 6&7: Advanced Visualization Techniques (6 hours)	
	3.11 Advanced Chart Types:	
	• Exploring advanced chart types such as tree maps, gauges, and KPIs.	
	• Use cases for each chart type.	
	3.12 Data Storytelling:	
	• Principles of effective data storytelling.	
	• Combining visuals and narratives for impactful presentations.	

<p align="center">Module 4: Advanced Reporting</p>

	Session 1: Advanced Chart Types (2 hours)	
	4.1 Gauges and KPIs:	
	• Introduction to gauges and Key Performance Indicators (KPIs).	
	• Creating and customizing gauge visuals.	
	4.2 Treemaps and Hierarchical Data:	
	• Understanding treemaps for hierarchical data visualization.	
	• Building treemap visuals and using hierarchies.	
	Session 2: Using Hierarchies and Groups (2 hours)	
	4.3 Hierarchy-Based Reporting:	
	• Leveraging hierarchies for drill-down and exploration.	
04	• Creating hierarchy slicers and visuals.	12 Hours 6 Days
	4.4 Grouping Data:	
	• Grouping data for summarization and aggregation.	
	• Applying grouping to visuals.	
	Session 3: Time Intelligence Functions (2 hours)	
	4.5 Date and Time Functions:	
	• Introduction to date and time functions in PowerBI.	
	• Calculating year-to-date, month-to-date, etc.	
	4.6 Time-Based Visualizations:	
	• Creating time-based visuals like time lines and calendars.	
	• Analyzing trends and patterns over time.	

	Session 4: Implementing Conditional Formatting (2 hours)	
	4.7 Conditional Formatting Rules:	
	• Using conditional formatting to highlight data points.	
	• Applying color scales, data bars, and icon sets.	
	4.8 Dynamic Formatting with DAX:	
	• Using DAX expressions for conditional formatting.	
	• Creating custom conditional formatting rules.	
	Session 5: Creating Custom Themes (2 hours)	
	4.9 Custom Themes in PowerBI:	
	• Understanding the concept of custom themes.	
	• Creating and applying custom themes to reports.	
	4.10 Exporting and Sharing Themes:	
	• Exporting themes for use in other reports.	
	• Sharing themes with team members.	
	Session 6: Advanced Analytics (2 hours)	
	4.11 Statistical Analysis with PowerBI:	
	• Introduction to basic statistical functions in PowerBI.	
	• Conducting statistical analysis within reports.	
	4.12 Python/R Integration:	
	• Overview of Python/R integration in PowerBI for advanced analytics.	
Module 5: Data Sharing and Collaboration	
05	Session 1: Publishing Reports to the Power BI Service (2 hours)	8 Hours 4 Days
	5.1 Introduction to Power BI Service:	
	• Overview of Power BI Service and its role in sharing and collaboration.	
	• Creating a Power BI Service account.	
	5.2 Publishing Reports from Power BI Desktop:	
	• Step-by-step guide to publish reports from Power BI Desktop to Power BI Service.	
	• Managing datasets and data sources.	
	Session 2: Configuring Security and Sharing Options (2 hours)	
	5.3 Data Security in Power BI:	

	• Understanding role-based security in Power BI.	
	• Configuring security roles and permissions.	
	5.4 Sharing and Collaboration:	
	• Sharing reports and dashboards with colleagues and stakeholders.	
	• Collaborative editing and commenting.	
	Session 3: Creating and Managing Dashboards (2 hours)	
	5.5 Building Dashboards in Power BI Service:	
	• Creating dashboards using visuals from published reports.	
	• Customizing dashboard layouts.	
	5.6 Real-time Dashboards:	
	• Setting up real-time data streaming for live dashboards.	
	Session 4: Exporting and Printing Reports (1 hour)	
	5.7 Exporting Reports:	
	• Exporting reports in various formats (PDF, PowerPoint, Excel).	
	• Customizing export settings.	
	Session 5: Power BI Mobile App (1 hour)	
	5.8 Power BI Mobile App:	
	• Introduction to the Power BI mobile app.	
	• Accessing and interacting with reports and dashboards on mobile devices.	
Module 6: Real-World Projects and Case Studies		
06	Session 1: Working on Real Data Analytics Projects (2 hours)	12 Hours 6 days
	6.1 Project Introduction:	
	• Overview of the real-world data analytics projects assigned for this module.	
	• Explanation of project goals and objectives.	
	6.2 Data Exploration and Preparation:	
	• Reviewing the provided datasets and understanding data requirements.	
	• Cleaning and preparing data for analysis.	
	Session 2: Solving Data Analysis Challenges (2 hours)	
	6.3 Data Analysis Techniques:	

	• Applying data analysis techniques to the project datasets.
	• Identifying patterns, trends, and insights.
	6.4 Troubleshooting and Problem-Solving:
	• Addressing challenges and issues encountered during data analysis.
	• Debugging and refining analysis processes.
	Session 3: Presenting Findings and Insights (2 hours)
	6.5 Creating Comprehensive Reports:
	• Building reports and dashboards based on project findings.
	• Visualizing insights effectively.
	6.6 Data Storytelling and Communication:
	• Developing a narrative around the analysis results.
	• Preparing for project presentations.
	Session 4: Peer Review and Feedback (2 hours)
	6.7 Peer Review Process:
	• Peer review of each other's project reports and dashboards.
	• Providing constructive feedback and suggestions for improvement.
	6.8 Iteration and Refinement:
	• Making improvements based on peer feedback.
	• Revising project reports and presentations.
	Session 5&6: Final Presentation and Conclusion (4 hours)
	6.9 Final Project Presentation:
	• Participants present their project findings, insights, and visualizations to the class.
	• Q&A session and discussions.
	6.10 Course Conclusion:
	• Review of key takeaways and lessons learned throughout the course.
	• Distribution of course completion certificates.

Module Name: Final Assessment and Certification		
07	• Final Assessment Exam	2 Hours 1 day