COURSE NAME:	Power BI
TOTAL DURATION:	45 Hrs
MODE OF DELIVERY	PHYSICAL CLASSROOM TRAINING AT RESPECTIVE COLLEGES
TRAINER TO STUDENT RATIO:	1:50
TOTAL MARKS:	75

Table 1	
OVERALL COURSE OBJECTIVE:	1. Evaluate data sources, transformation techniques, and visualization strategies to ensure meaningful and actionable insights. 2. Create comprehensive and interactive dashboards that support data-driven decision-making across varied business scenarios. 3. Design and implement advanced data models, leveraging DAX for dynamic calculations and sophisticated analyses. 4. Assess the effectiveness of BI solutions in solving real-world problems through collaboration, optimization, and reporting. 5. Innovate data storytelling techniques to communicate complex insights effectively to diverse stakeholders.

LEARNING OUTCOME:	1. Critically evaluate data integration, transformation, and visualization processes within Power BI. 2. Design and develop interactive dashboards incorporating advanced BI features for real-world applications. 3. Apply DAX expressions and advanced analytics techniques to create dynamic insights. 4. Justify business decisions using structured analysis and

	visualized data outcomes. 5. Formulate and present comprehensive BI solutions tailored to specific organizational needs.

TABLE 2: MODULE WISE COURSE CONTENT AND OUTCOME				
SL. NO	**MODULE NAME**	**MODULE CONTENT**	**MODULE LEARNING OUTCOME**	**DURATION (HRS)**
1	Introduction to Power BI and Data Integration	- Overview of Power BI (Desktop, Service, and Mobile) - Connecting to data sources (Excel, SQL, APIs, etc.) - Transforming data with Power Query - Managing relationships and data models - Exploring sample datasets	Evaluate data sources and design an integrated data model that ensures seamless data transformation and usability within Power BI.	10
2	Advanced Data Modeling and DAX	- Fundamentals of DAX expressions (calculated columns, measures) - Contexts in DAX (row and filter context) - Time intelligence functions and calculations - Structuring efficient data models for analytics	Develop and implement advanced DAX expressions to generate dynamic calculations and provide actionable insights for business decision-making.	9
3	Interactive Dashboards and Data Visualization	- Choosing impactful visuals for diverse datasets - Designing interactive dashboards (filters, slicers, drill-downs) - Customizing themes,	Create and customize interactive dashboards that adapt dynamically to user inputs, presenting insights effectively for diverse	9

		formatting, and layouts - Developing KPIs and dynamic visual storytelling	audiences.	
4	Publishing, Collaboration, and Performance Optimization	- Publishing reports on Power BI Service - Managing access controls for secure collaboration - Optimizing dashboards for mobile platforms - Collaboration techniques using Power BI shared workspace features - Performance optimization for Power BI reports	Evaluate the performance of dashboards and collaborate effectively to manage, publish, and optimize professional BI solutions.	8
5	Capstone Project and Real-World Applications	- Framing a real-world business problem - Data sourcing, cleaning, and transformation - Conducting exploratory and predictive analysis - Designing a comprehensive BI solution - Presenting actionable recommendations through interactive dashboards	Formulate a comprehensive BI project addressing a real-world business problem, delivering actionable recommendations through storytelling and interactive data-driven solutions.	9

TABLE 3: OVERALL COURSE LEARNING OUTCOME ASSESSMENT CRITERIA AND USE CASES			
LEARNING OUTCOME	**ASSESSMENT CRITERIA**	**Performance Criteria**	**USE CASES**

Evaluate and integrate data sources into Power BI to create reliable data models.	Demonstrate data connection and transformation skills.	Effectively connect and clean data from multiple sources, applying transformation techniques like filtering, merging, and splitting for a structured and clean data model.	Use Power Query to connect and transform raw sales data from Excel, SQL, and APIs into a unified data model for business analysis.
Develop advanced DAX measures for calculations and actionable business insights.	Demonstrate the use of advanced DAX expressions.	Create calculated measures and columns that perform dynamic aggregations, using time intelligence and context to provide accurate insights.	Implement measures like Year-over-Year (YoY) growth, Average Sales, and Customer Retention Rate using DAX for an e-commerce dashboard.
Create interactive dashboards that communicate insights effectively to stakeholders.	Design dashboards with interactive visuals and user-friendly layouts.	Build dashboards with filters, slicers, and drill-down functionality, ensuring effective visual storytelling with accurate and dynamic insights.	Create an interactive KPI dashboard for a retail company, showing metrics like revenue, profit, and regional performance with drill-through options.
Optimize and	Publish and manage	Share reports	Publish a

publish Power BI reports for collaborative usage.	access to Power BI reports.	securely via Power BI Service with role-based access control, optimizing performance for mobile and web platforms.	marketing performance report to Power BI Service, ensuring it is accessible for the management team with appropriate permissions.
Formulate a real-world BI project showcasing end-to-end Power BI implementation.	Present a comprehensive BI project addressing a business problem.	Deliver an interactive dashboard and comprehensive report summarizing actionable recommendations based on data exploration and predictive analytics.	Develop a BI project for a healthcare organization, using patient data to identify trends in hospital admissions and resource optimization, supported by interactive visuals.

TABLE 4: LIST OF FINAL PROJECTS (PROJECTS THAT COMPREHENSIVELY COVER ALL THE LEARNING OUTCOME)

SL.NO	FINAL PROJECT
1	**Sales Performance Dashboard** Create a dashboard showcasing sales metrics like total revenue, profit margins, and regional performance, enabling actionable insights for sales strategies.
2	**Customer Segmentation Analysis** Use Power BI to group customers based on purchasing behavior and demographic information, providing insights for targeted marketing

	campaigns.
3	**HR Analytics Report** Design a report that visualizes employee performance, attrition rates, and recruitment metrics to improve HR decision-making.
4	**Financial Analysis Dashboard** Build a financial analysis dashboard displaying key indicators like cash flow, income statements, and expense breakdowns for better financial planning.
5	**Supply Chain Optimization Report** Create an interactive dashboard to track supply chain metrics such as inventory turnover, lead times, and order fulfillment rates.
6	**IoT Data Visualization** Use Power BI to visualize IoT sensor data, highlighting patterns and trends in environmental factors like temperature and humidity.
7	**Education Dashboard** Build a dashboard for educational institutions to monitor student attendance, academic performance, and resource allocation.
8	**Retail Market Analysis** Develop a market analysis report for a retail business, showcasing sales trends, customer preferences, and inventory performance.
9	**Healthcare Insights Dashboard** Visualize patient data to identify patterns in hospital admissions, treatment success rates, and resource utilization.
10	**Energy Consumption Report** Create a report tracking energy consumption patterns, comparing renewable and non-renewable sources, and identifying cost-saving opportunities.

TABLE 5: COURSE ASSESSMENT RUBRICS (TOTAL MARKS: 75)					
ASSESSMENT	**Learning Outcome**	**Fair (1–5)**	**Good (6–10)**	**Excellent (11–15)**	**TOTAL**

CRITERIA					**MARKS**
Data Integration and Transformation	Evaluate and integrate data sources into Power BI to create reliable data models.	Demonstrates basic ability to connect and clean data from limited sources with minimal transformations.	Connects and transforms multiple data sources with moderate accuracy and efficiency.	Integrates and transforms diverse data sources seamlessly, applying advanced cleaning techniques.	15
Advanced DAX Implementation	Develop advanced DAX measures for calculations and actionable business insights.	Writes basic DAX measures with limited complexity and accuracy.	Creates functional DAX measures using time intelligence and intermediate expressions.	Designs advanced DAX expressions for dynamic and optimized calculations across various scenarios.	15
Dashboard Creation and Visualization	Create interactive dashboards that communicate insights effectively to stakeholders.	Builds basic dashboards with minimal interactivity and design consistency.	Designs visually appealing dashboards with effective use of slicers, filters, and drill-downs.	Creates highly interactive, dynamic dashboards tailored to user needs with advanced storytelling.	15
Publishing and Optimization	Optimize and publish Power BI reports for collaborative usage.	Publishes reports with limited role-based access and minor optimization	Shares optimized reports with appropriate permissions and minor	Publishes fully optimized, secure reports with	15

		issues.	performance improvements.	seamless access across platforms and devices.	
Capstone Project Execution	Formulate a real-world BI project showcasing end-to-end Power BI implementation.	Completes a basic project with limited scope and insights.	Delivers a comprehensive project addressing a real-world problem with moderate recommendations.	Presents an innovative project with actionable insights, advanced analysis, and stakeholder-ready visuals.	15