

# Course Title: Data Analytics with Power BI

Course Description: This course provides participants with a comprehensive understanding of data analytics using Microsoft Power BI. Through hands-on exercises and practical examples, students will learn how to connect to various data sources, transform raw data into meaningful insights, and create interactive visualizations. Topics covered include data importing, data modeling, DAX calculations, dashboard creation, and report publishing.

## Course Outline:

### 1. Introduction to Power BI

- Overview of Power BI and its components
- Understanding the Power BI ecosystem
- Setting up Power BI Desktop

### 2. Connecting to Data Sources

- Importing data from Excel, CSV, SQL Server, and other sources
- DirectQuery vs. Import data connection
- Connecting to cloud-based data sources (Azure, SharePoint, etc.)

### 3. Data Transformation and Data Modeling

- Data cleaning and shaping using Power Query Editor
- Data modeling concepts (tables, relationships, keys)
- Creating calculated columns and measures using DAX (Data Analysis Expressions)

- Hierarchies and custom hierarchies

#### 4. Data Visualization

- Introduction to data visualization principles
- Creating interactive visuals (bar charts, line charts, pie charts, etc.)
- Customizing visuals (colors, formatting, labels)
- Using slicers and filters for interactive analysis

#### 5. Advanced Data Analytics Techniques

- Advanced DAX functions (CALCULATE, FILTER, RELATED, etc.)
- Time intelligence functions (DATESYTD, DATEADD, etc.)
- Statistical functions for analytics (RANKX, PERCENTILEX, etc.)
- Analyzing data with Quick Measures

#### 6. Creating Dashboards and Reports

- Designing interactive dashboards
- Adding tiles, text boxes, and images to dashboards
- Creating drill-down reports for detailed analysis
- Using bookmarks and buttons for navigation

#### 7. Data Sharing and Collaboration

- Publishing reports to Power BI Service

- Sharing reports and dashboards
- Collaborating with colleagues using Power BI apps

#### 8. Case Studies and Real-World Applications

- Analyzing real-world datasets using Power BI
- Solving business problems with data analytics
- Presenting findings and insights

#### 9. Project Work

- Hands-on project to apply learned concepts
- Analyzing a given dataset and creating interactive reports
- Peer review and feedback