BT-2710: MICROSOFT POWER BI FOR DATA ANALYSIS

Cuyahoga Community College

Viewing: BT-2710 : Microsoft Power BI for Data Analysis

Board of Trustees:
November 2024

Academic Term:
Fall 2025

Subject Code
BT - Business Technology

Course Number:
2710

Title:
Microsoft Power BI for Data Analysis

Catalog Description:
Overview and hands-on implementation of Microsoft's Power Business Intelligence (BI) features for business analysis and decision-making goals. Learn how to connect to various data sources, cleanse/transform data with Power Query, create a variety of visualizations, dashboards and reports, and publish to a server.

Credit Hour(s):
3

Lecture Hour(s):
2
Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
BT-1700 Business Spreadsheets (Excel) and BT-2700 Advanced Business Spreadsheets.

Outcomes

Course Outcome(s):
Launch and identify the components of the Power BI Desktop.

Objective(s):
1. Download the Power BI Desktop app.
2. Identify the components of the app window: ribbon, view buttons, filters, visualization buttons, field selector, and canvas.

Course Outcome(s):
Describe the capabilities and purpose of Power BI.

Objective(s):
1. Identify the needs of business in analyzing and manipulating big data.
2. Identify the purpose of a business analysis app.
3. Identify the three components Microsoft Power BI.

Course Outcome(s):
Create connections to data.

Objective(s):

1. Upload Excel data.
2. Connect to Excel sample data from Microsoft.
3. Import Power View and Power Pivot.
4. Connect to an Access database.
5. Connect to a CSV file.
6. Connect to other data sources.

Course Outcome(s):

Use the Query Editor to cleanse and transform data.

Objective(s):

1. Identify the four components of Power Query Editor.
2. Remove unneeded rows and columns.
3. Change data types in columns.
4. Combine data from multiple sources.
5. Manipulate inconsistencies in date data.
6. Extract date or time data from Date columns.
7. Split tables into fact tables with the Reference and Remove Duplicates commands.
8. Pivot and unpivot data.
9. Add a "conditional" column.

Course Outcome(s):

Create data models.

Objective(s):

1. Create relationships between tables.
2. Identify an appropriate cardinality option.
3. Identify an appropriate cross filter direction.

Course Outcome(s):

Explain the role of DAX in manipulating data.

Essential Learning Outcome Mapping:

Quantitative Reasoning: Analyze problems, including real-world scenarios, through the application of mathematical and numerical concepts and skills, including the interpretation of data, tables, charts, or graphs.

Objective(s):

1. Create formulas with expressions to add a calculated table.
2. Create formulas with expressions to add a calculated column.
3. Create formulas with expressions to add a measure of an aggregate or total to a table.

Course Outcome(s):

Create visualizations.

Essential Learning Outcome Mapping:

Information Literacy: Demonstrate contextual awareness of the research process through the reflective discovery of the production and value of information, the use of information in the creation of new knowledge and ethical participation in the use of information in communities of learning.

Objective(s):

1. Utilize visualization button options to create various types of visuals: charts (line, pie, bar), tables, interactive maps, KPIs, and gauges.
2. Download custom visualizations from MicrosoftAppSource.

Course Outcome(s):

Create dashboards.

Objective(s):

1. Pin a report to a dashboard.
2. Pin a visualization to a dashboard.

Course Outcome(s):

Utilize the Power BI service.

Objective(s):

1. Publish desktop reports.
2. Share dashboards.
3. Create workspaces.
4. Manually refresh data.
5. Publish to the www.

Methods of Evaluation:

1. Hands-on tasks and assignments.
2. Comprehensive case studies and projects.
3. Task-based examinations.
4. Discussion board forums.

Course Content Outline:

1. Introduction to Microsoft Power BI
    a. Understanding the big data analytical needs by businesses
    b. Downloading and accessing the Power BI desktop
    c. Main features of Power BI
    d. Identifying the components of the Power BI Desktop Interface
2. Working with BI tools in Excel
    a. Power Pivot
    b. Power Query
3. Establishing Connections to Data
    a. Working with Microsoft sample Excel data
    b. Download Excel data
    c. Download an Access database
    d. Connect to a variety of other data sources from the drop-down menu
4. Transforming data in the Query Editor
    a. Identify the Query Editor components
    b. Cleanse data
        i. Remove rows or columns
        ii. Irregularities in formatting within data
        iii. Change data types in columns
        iv. Combine data from multiple sources
        v. Resolve date data inconsistencies
        vi. Extract date or time data
5. Creating data models

   a. Create relationships between tables
   b. Identify cardinality type
   c. Identify cross filter direction
6. DAX Orientation
   a. Types of calculations
   b. Expressions
   c. Functions
7. Create Visualizations
   a. Shapes and text-boxes
   b. Images
   c. Chart Types
   d. KPIs
   e. Tables
   f. Custom Visualizations from MicrsoftAppSource
8. Power BI services
   a. Power BI reports
   b. Create and share dashboards
   c. Workspaces
   d. Publishing options including html

Resources

Devin Knight, Erin Ostrowsky, Mitchell Pearson. *Microsoft Power BI Quick Start Guide*. 3rd. Birmingham, UK: Pocket Publishing, 2022.

Deckler, Greg. *Learn Power BI*. 2nd. Birmingham: Packt Publishing, 2022.

Arnold, Jeremy. *Learning Microsoft Power BI: Transforming Data into Insights*. Sebastapol: O'Reilly, 2022.

Resources Other

www.powerbi.microsoft.com/

Top of page

Key: 5063