Below is a comprehensive syllabus for a Microsoft Power BI course:

Course Title: Microsoft Power BI

Course Description: This course provides an in-depth understanding of Microsoft Power BI for data visualization and business intelligence. Students will learn how to connect to various data sources, transform and clean data, create interactive visualizations, and share insights with reports and dashboards. The course covers both basic and advanced features of Power BI to enable students to become proficient in data analysis and reporting.

Prerequisites: Basic understanding of data analysis concepts. Familiarity with Microsoft Excel is helpful but not required.

Course Objectives:

1. Understand the fundamentals of Microsoft Power BI and its applications in data analysis and visualization.
2. Learn how to connect to different data sources and transform data for analysis.
3. Develop skills in creating interactive visualizations, reports, and dashboards.
4. Gain proficiency in advanced features of Power BI, including DAX calculations and custom visuals.
5. Explore best practices for data modeling, optimization, and sharing insights with stakeholders.

Course Outline:

Module 1: Introduction to Microsoft Power BI

- Overview of Power BI and its features
- Installing and setting up Power BI Desktop
- Getting familiar with Power BI interface and navigation

Module 2: Data Sources and Data Loading

- Connecting to different data sources (Excel, CSV, databases, web sources)
- Data loading and data transformation techniques
- Cleaning and shaping data using Power Query Editor

Module 3: Data Modeling

- Understanding relationships between tables

- Creating calculated columns and measures using Data Analysis Expressions (DAX)
- Implementing hierarchies and slicers for data analysis

Module 4: Creating Visualizations

- Overview of Power BI visualizations (charts, graphs, maps, etc.)
- Designing interactive reports and dashboards
- Formatting visuals and applying themes

Module 5: Advanced Visualizations and Customization

- Creating custom visuals using Power BI marketplace
- Implementing advanced visuals like custom visuals, custom tooltips, etc.
- Using bookmarks and buttons for interactivity

Module 6: Data Analysis with DAX

- Introduction to Data Analysis Expressions (DAX)
- Writing DAX formulas for calculated columns and measures
- Using DAX functions for advanced calculations and analysis

Module 7: Power BI Service and Sharing

- Publishing reports and dashboards to Power BI Service
- Configuring data refresh schedules and data gateways
- Sharing reports and dashboards with colleagues and stakeholders

Module 8: Data Security and Administration

- Implementing row-level security (RLS) in Power BI
- Administering Power BI workspaces and permissions
- Best practices for data security and governance

Module 9: Power BI Mobile App

- Overview of Power BI mobile app features
- Accessing and interacting with reports and dashboards on mobile devices
- Designing reports and dashboards for mobile consumption

Module 10: Power BI Integration with Other Tools

- Integrating Power BI with Microsoft Excel

- Using Power BI with Microsoft Teams for collaboration
- Leveraging Power BI APIs for custom integration

Module 11: Power BI Best Practices and Optimization

- Best practices for data modeling and optimization
- Performance tuning techniques for large datasets
- Tips for creating efficient and visually appealing reports

Module 12: Real-world Projects and Case Studies

- Working on real-world datasets and scenarios
- Designing and implementing end-to-end Power BI solutions
- Presenting findings and insights from Power BI projects

Assessment:

- Weekly assignments to reinforce learning concepts.
- Midterm project: Creating an interactive report/dashboard using Power BI.
- Final project: Designing and implementing a comprehensive Power BI solution for a given business scenario.

Textbook: "Power BI for Dummies" by Ken Withee and Michael Alexander

Additional Resources:

- Online tutorials and documentation (Microsoft Power BI documentation, Power BI community forums, etc.).
- Supplemental readings and materials provided by the instructor.

Grading:

- Assignments: 30%
- Midterm Project: 20%
- Final Project: 40%
- Participation and Attendance: 10%

Attendance Policy: Regular attendance is expected. Students are allowed a maximum of three unexcused absences. Excessive absences may result in a reduction of the final grade.

Office Hours: Instructor office hours will be held twice a week for additional help and clarification.