

SCHOOL OF BUSINESS INTELLIGENCE

# **Data Analysis & Visualization with Microsoft Power BI**

Course Syllabus

Skill-up Short Course



**A P I B A**  
Asia Pacific Institute  
of Business Analytics

# Overview

The Data Analysis & Visualization with Microsoft Power BI course is designed to provide participants with a comprehensive understanding of data analysis and visualization techniques using the powerful tool, Microsoft Power BI. Through a combination of theory, practical exercises, and hands-on projects, this course aims to equip learners with the skills to explore, analyze, and present data effectively using Power BI.

## Program information



**Estimated Time:**  
8 Weeks



**Skill Level:**  
Skill-up  
Short Course

### Prerequisite

No need any prior Knowledge or Experience to complete this course.

### Required Hardware/Software

Learners will need access to the internet and a 64-bit computer with Windows operating system.

# Module 1

## Introduction to Preparing & Modeling Data

### Lesson 1

#### Introduction to Preparing & Modeling Data

- Describe the Microsoft Power BI data Pipeline.
- Recognize the range of stakeholders a data modeler should collaborate with.
- Become familiar with the role of Power Query, data modeling, and reporting to meet business needs.

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### Lesson 2

#### Key Concepts in Data Modeling

- Conceptualize data modeling, including fact tables, dimension tables, key columns, and relationships.
- Define the role each component plays in reporting.

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### Lesson 3

#### Getting Your Data & Initial Transformations

- Access a range of data sources using Get Data.
- Leverage Power Query to perform initial transformations to make your queries user friendly.
- Develop a familiarity with data types and their role in Microsoft Power BI.

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### Lesson 4

#### Bigger Transformations & Data Tables

- Correct—and know when to correct—errors and gaps.
  - Make more complex column changes within queries.
  - Morph data across queries to align with reporting needs.
  - Choose and build the right data table for your purposes.
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**Lesson 5**  
**Relationships &**  
**Relationship- Related DAX**

- Select the correct relationships for your data model.
- Create implicit and quick measures.
- Leverage relationships and filters in common DAX functions.

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**Lesson 6**  
**Reports & DAX for**  
**Common Reporting Needs**

- Choose between a measure and calculated column.
- Create basic report visualizations such as Matrixes and Cards.
- Make DAX functions that leverage conditional logic.
- Troubleshoot and organize your Microsoft Power BI file.

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## **Module 2**

### **Creating Visualizations with Microsoft Power BI**

**Lesson 1**  
**Welcome to Creating**  
**Visualizations with**  
**Microsoft Power BI**

- Describe the learning objective of the course.
- Explain why data visualization is important for business intelligence.
- Identify the main stakeholders that BI analysts interact with.
- Identify when data visualization is useful and when it is not.

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**Lesson 2**  
**Building Compelling Data**  
**Visualizations**

- Identify important business metrics and pair them with appropriate data visuals.

- Build common data visuals, including bar charts and line charts.
- Design complementary visuals, including cards, donut charts, and tables.
- Build more complex data visuals, including scatter plots and bubble maps.
- Recognize standard formatting options for Microsoft Power BI visuals and navigate the unique formatting features that vary between visuals.

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**Lesson 3**  
**Designing User-Friendly Reports**

- Customize Microsoft Power BI themes with unique color palettes.
- Insert elements like images, shapes, and buttons to create compelling and versatile layouts for their reports.
- Apply design principles that reduce noise and highlight data stories.
- Maximize accessibility for diverse user groups.

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**Lesson 4**  
**Creating Interactive Reports for Data Exploration**

- Design visuals that interact with one another and help users explore data by filtering and drilling for insights.
- Identify the differences between filters and slicers in a Microsoft Power BI report, including when to use each and differences in functionality.
- Apply filters to data visuals, pages, and reports.
- Customize the filter pane for reporting needs.
- Help users explore the data with different types of slicers.

**Lesson 5**  
**Elevating Reports with  
Advanced Report Features**

- Customize Microsoft Power BI reports in ways that foster interactivity and help users tell compelling data stories.
  - Build custom data stories with Microsoft Power BI bookmarks.
  - Empower users with navigation buttons.
  - Design drill-through pages for deep-dive analysis.
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## **Module 3**

### **Advanced Data Analysis**

**Lesson 1**  
**Welcome to Advanced  
Data Analysis in Microsoft  
Power BI**

- Describe the learning objectives of the course.
  - Explain what data analysis is and why it's important.
  - Identify the main stakeholders that data analysts interact with.
  - Identify when data analysis is useful and when it is not.
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**Lesson 2**  
**Advanced Data Analytics**

- Define, investigate, and analyze data in order to draw conclusions.
  - Use historical analysis to investigate, aggregate, and describe data.
  - Use predictive analysis to understand relationships between data and forecast the probabilities of future outcomes.
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**Lesson 3**  
**Power Query**  
**Transformations**

- Compare and contrast Power Query and DAX.
- Use M in Power Query to manually edit table columns.
- Write custom formulas using the advanced editor in order to effectively clean and format imported data.

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**Lesson 4**  
**DAX Functions**

- Write custom DAX formulas to perform calculations or format data.
- Use DAX to create calculated tables.
- Troubleshoot common DAX errors and fix the underlying issues with them.

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**Lesson 5**  
**Advanced Visualizations**

- Use advanced visualizations in order to analyze data and draw conclusions.
- Distinguish between advanced and standard visualizations.
- Customize advanced visualizations with filters, formatting, and trend analysis.

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## **Module 4**

### **Final Project**

Applying the acquired knowledge and skills to solve a real-world problem.

## Meet your lecturer.



### **Udara Alagalla**

*B.Sc. in Business Information Systems (Special)*

Udara is a visiting lecturer at the Open University of Sri Lanka and is associated with a reputed institute for CA Sri Lanka. He previously worked at the Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, from 2014 to 2017. With six years of experience in the Business Intelligence field, Udara has developed expertise in this domain.

Currently, Udara holds the position of Business Development Specialist and Data Evangelist at Xenosys Software Solution in Sri Lanka. In this role, he is involved in business development activities and serves as an advocate for data-driven solutions. This position allows Udara to leverage his knowledge and experience in Business Intelligence to contribute to the growth and success of Xenosys Software Solution.



# APIBA's Learning Experience



## Hands-on Projects

Open-ended, experiential projects are designed to reflect actual workplace challenges. They aren't just instead requiring critical thinking.



## Quizzes

Auto-graded quizzes strengthen comprehension. Learners can return to lessons at any time during the course to refresh.



## Knowledge

Find answers to your questions with Knowledge, our proprietary wiki. Search questions asked by other students, connect with technical mentors, and discover how to solve the challenges that you encounter.



## Custom Study Plans

Create a personalized study plan that fits your individual needs. Utilize this plan to keep track of movement toward your overall goal.



## Workspaces

See your code in action. Check the output and quality of your code by running it on interactive workspaces that are integrated into the platform.



## Progress Tracker

Take advantage of milestone reminders to stay on schedule and complete your program.

# Our proven approach for building job-ready digital skills.

## Experienced Project Reviewers

### Verify skills mastery.



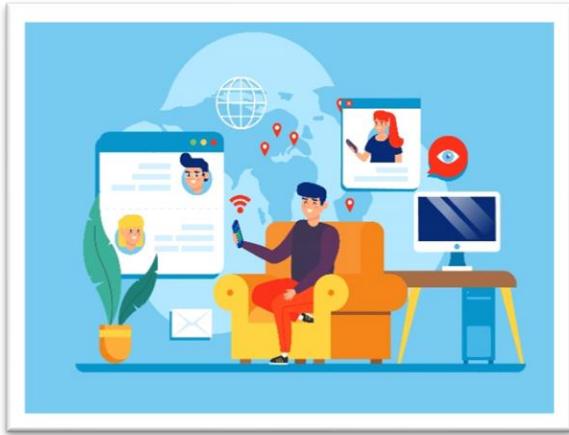
- Personalized project feedback and critique includes line-by-line code review from skilled practitioners with an average turnaround time of 1.1 hours.
- Project review cycle creates a feedback loop with multiple opportunities for improvement—until the concept is mastered.
- Project reviewers leverage industry best practices and provide pro tips

## Technical Mentor Support

### 24/7 support unblocks learning.



- Learning accelerates as skilled mentors identify areas of achievement and potential for growth.
- Unlimited access to mentors means help arrives when it's needed most.
- 2 hrs or less average question response time assures that skills development stays on track.



## Mentor Network

### Highly vetted for effectiveness.

- Mentors must complete a 5-step hiring process to join APIBA's selective network.
- After passing an objective and situational assessment, mentors must demonstrate communication and behavioral fit for a mentorship role.
- Mentors work across more than 30 different industries and often complete a Nanodegree program themselves.

**Learn more at**

[www.apiba.org](http://www.apiba.org)



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