Applied Business Analytics: Excel to Power BI to SQL

Duration: 5 days (8 hours per day)

Day 1: Introduction to Data Analytics & Excel Fundamentals

Theme: Building a foundation in analytics thinking and Excel skills.

1. Introduction to Data Analytics

- What is Data Analytics?
- Importance in Business Decision-Making
- Data Analytics Life Cycle (Collect → Clean → Analyze → Visualize → Decide)
- Types of Data Analytics (Descriptive, Diagnostic, Predictive, Prescriptive)
- Real-World Examples: Banking, Retail, and HR Analytics

2. Understanding Data

- Data vs Information
- Types of Data (Quantitative, Qualitative)
- Structured vs Unstructured Data
- Data Sources in Business

3. Excel Refresher: Basics to Business Use

- Understanding Excel Interface
- Formatting, Sorting, and Filtering
- Conditional Formatting for Insights
- Data Validation & Drop-Down Lists
- Tables and Named Ranges

4. Practice Workshop

- Hands-on: Cleaning and Organizing Sales Data

- Mini Case: Analyzing Monthly Sales of a Retail Store

Day 2: Excel for Data Analysis & Business Insights

Theme: Turning raw data into insights using Excel tools.

1. Data Analysis Features in Excel

- Using Functions: SUMIFS, AVERAGEIFS, COUNTIFS
- Text Functions: LEFT, RIGHT, MID, FIND, CONCAT
- Logical Functions: IF, AND, OR, IFS
- Lookup Functions: VLOOKUP, XLOOKUP, INDEX-MATCH

2. Data Cleaning and Preparation

- Removing Duplicates, Handling Errors
- Flash Fill & Text to Columns
- Using TRIM, CLEAN, SUBSTITUTE for messy data

3. Exploratory Data Analysis (EDA)

- Descriptive Statistics: Mean, Median, Mode, Variance, Std. Dev
- Using Data Analysis ToolPak
- Creating Summary Tables

4. PivotTables & Charts

- Creating Dynamic PivotTables
- Slicers, Timelines, and Drill-downs
- Building Pivot Charts for Visual Insights

5. Practice Workshop

- Hands-on: Create an Interactive Sales Dashboard in Excel

Day 3: Power BI for Business Data Visualization

Theme: Transforming and visualizing data with Power BI.

1. Introduction to Power BI

- What is Power BI and Why It's Important
- Power BI vs Excel for Analytics
- Understanding Power BI Components: Power Query, Power Pivot, Power View

2. Power BI Interface & Data Import

- Connecting to Excel and CSV Files
- Data Modeling Concepts (Tables, Relationships, Keys)
- Cleaning and Transforming Data in Power Query

3. Visualizing Data

- Building Basic Charts (Bar, Line, Pie)
- Using Cards, Slicers, and Filters
- Formatting Visuals and Color Themes
- Hierarchies and Drill-Downs

4. Dashboard Design

- Layout Principles and Storytelling with Data
- Publishing Reports to Power BI Service

5. Practice Workshop

- Hands-on: Build a Sales & Profit Dashboard

Day 4: SQL for Business Data Analysis

Theme: Learning to extract and manipulate data using SQL.

1. Introduction to Databases

- What is a Database and Why Businesses Use SQL
- Tables, Records, and Fields Explained
- Understanding Primary and Foreign Keys

2. Basic SQL Commands

- SELECT, FROM, WHERE, ORDER BY
- Filtering Data with AND, OR, NOT, LIKE, IN, BETWEEN

3. Intermediate SQL

- Aggregate Functions: SUM, AVG, COUNT, MIN, MAX
- GROUP BY and HAVING
- Joining Tables: INNER JOIN, LEFT JOIN, RIGHT JOIN

4. Data Manipulation

- Using Subqueries
- Working with Aliases
- Case Statements for Conditional Logic

5. Practice Workshop

- Hands-on: Writing Queries for a Customer Sales Database

Day 5: Integrating Excel, Power BI & SQL for Business Decisions

Theme: Applying all tools to real business problems.

1. Connecting SQL and Excel

- Importing SQL Data into Excel
- Refreshing Data and Using Queries for Reporting

2. Connecting SQL and Power BI

- Direct Query vs Import Mode
- Building Reports from SQL Data Sources

3. Business Case Study

- Scenario: Analyzing Company Sales Across Regions
- Combine Data from Multiple Sources
- Create Reports & Visual Dashboards
- Draw Business Insights and Recommendations

4. Capstone Project

- **Task:** Create an End-to-End Analytics Solution
    - Clean Data in Excel
    - Visualize in Power BI
    - Extract Data using SQL
    - Present Findings

5. Wrap-Up & Next Steps

- Summary of Learning Outcomes
- Real-World Analytics Career Paths
- Recommended Certifications & Further Learning