# Business Analytics Syllabus

## 1: Business Analytics Fundamentals

- Introduction to Business Analysis
- Business Analysis Frameworks and Methodologies
- Requirements Elicitation and Management
- Process Modeling and Improvement
- Stakeholder Management
- Business Case Development
- Project Management Fundamentals
- Data Analysis for Business Analysts

## 2 – EXCEL

### 1: Introduction to Excel for Data Analysis

- Overview of Excel's role in data analysis.
- Navigating the Excel interface.
- Basic Excel operations and shortcuts.
- Introduction to datasets.
- Data Entry and Basic Functions
- Entering and formatting data.
- Basic formulas and functions (SUM, AVERAGE, COUNT).
- Using relative and absolute cell references.
- Introduction to named ranges.

### 2: Data Cleaning and Preparation

- Identifying and handling missing data.
- Data validation techniques.
- Text functions (LEFT, RIGHT, MID, LEN, TRIM, CONCATENATE).
- Removing duplicates.

### 3: Sorting and Filtering Data

- Sorting data (single and multiple columns).
- Filtering data using AutoFilter.
- Advanced filtering techniques.
- Introduction to slicers.

### 4: Data Visualization with Charts

- Creating basic charts (bar, line, pie).
- Customizing chart elements (titles, labels, colours).
- Introduction to combo charts.
- Using sparklines for data trends.

### 5: PivotTables and Pivot Charts

- Creating and customizing PivotTables.
- Grouping and summarizing data in PivotTables.
- Creating Pivot Charts.
- Using slicers with PivotTables and Pivot Charts.

### 6: Advanced Excel Functions

- LOOKUP functions (VLOOKUP, HLOOKUP, XLOOKUP).
- INDEX and MATCH functions.
- Advanced date and time functions.
- Conditional functions (IF, SUMIF, COUNTIF).

### 8: Data Analysis Tools

- Introduction to Excel's Analysis ToolPak.
- Descriptive statistics using Data Analysis tools.
- Performing correlation and regression analysis.
- Using Goal Seek and Solver.

### 9: Introduction to Power Query

- Overview of Power Query.
- Importing data from various sources.
- Basic data transformation and cleansing.
- Combining multiple datasets.

### 10: Advanced Power Query Techniques

- Advanced data transformation techniques.
- Creating custom columns.
- Merging and appending queries.

- Using parameters in queries.

## 11: Introduction to PowerPivot

- Overview of PowerPivot.
- Creating a Data Model.
- Importing data into PowerPivot.
- Relationships between tables.

## 12: Advanced PowerPivot Techniques

- Creating calculated columns and measures.
- Using DAX (Data Analysis Expressions) for advanced calculations.
- Time intelligence functions in PowerPivot.
- Optimizing the Data Model.
- Creating PivotTables from the Data Model.
- Advanced PivotChart techniques.
- Using slicers and timelines with PowerPivot.
- Enhancing visualizations with conditional formatting.

## 13: What if Analysis

## 14: Excel Dashboards

# 3 - MySQL

## 1: Introduction to Databases and SQL

- Understanding databases and their importance
- What is SQL and RDBMS?
- Overview of MySQL installation and setup

## 2: Basic SQL Commands

- Basic SQL syntax
- Creating databases and tables
- Data types in MySQL
- Primary keys and foreign keys

**3: Inserting and Modifying Data**

- INSERT INTO statement
- Handling NULL values
- UPDATE and DELETE statements

**4: Querying Data**

- Basic SELECT statements
- Using WHERE clause for filtering
- Logical operators: AND, OR, NOT
- Using functions: COUNT, SUM, AVG, MIN, MAX
- GROUP BY and HAVING clauses

**5: Joining Tables**

- INNER JOIN
- LEFT JOIN, RIGHT JOIN
- Practical examples of joining tables

**6: Sub queries and Nested Queries**

**7: Indexes and Performance Tuning**

- Importance of indexes
- Creating and dropping indexes
- Query optimization techniques
- Using EXPLAIN to analyse queries

**8: Views**

- What are views?
- Creating and managing views
- Benefits and limitations of using views

**9: Stored Procedures and Functions**

- Introduction to stored procedures
- Creating and executing stored procedures
- Introduction to user-defined functions

**10: Transactions and Error Handling**

- Introduction to transactions
- COMMIT and ROLLBACK commands
- Error handling in SQL using TRY...CATCH blocks

**11: User Management and Security**

- Creating and managing users in MySQL
- Granting and revoking privileges
- Database security basics

**12: Backup and Recovery**

- Importance of backups
- Backup strategies
- Using MySQL dump for backups
- Restoring data from backups

**13: Advanced Query Techniques**

- Advanced querying techniques
- Using window functions
- Advanced aggregate functions

**14: Data cleaning with MySQL**

**15 - Data Analysis Project**

## 4 - Powerbi

**1: Introduction to Power BI and Data Visualization**

- Overview of Power BI and its components
- Installation and setup
- Tour of Power BI interface
- Loading data into Power BI
- Data Loading and Basic Transformations
- Connecting to different data sources (Excel, CSV, databases)

- Basic data transformations (cleaning, shaping)
- Introduction to Power Query Editor

**2 - Introduction to Data Visualization**

- Introduction to data visualization principles
- Creating basic charts (bar charts, line charts, pie charts)
- Formatting visualizations
- Working with advanced visuals (scatter plots, maps, treemaps)
- Applying filters and slicers
- Advanced chart types (waterfall charts, funnel charts, gauges, KPIs)

**3 - Advanced Formatting Techniques**

- Conditional formatting
- Themes and templates
- Customizing tooltips

**4 - Data Modelling in PowerBI**

**5 - Storytelling with Data**

- Using bookmarks and report navigation
- Building narrative-driven reports
- Sample Dashboard Demo
- Story telling with data

**6 - DAX Fundamentals**

**7 - Advanced Data Transformations**

- Merging and appending queries

**8 - Introduction to Power BI Paginated Reports**

- Understanding paginated reports
- Creating and formatting paginated reports
- Using Report Builder

**9 - PowerBI Exam Overview and Preparation Tips & Power BI Service**

- Overview of Microsoft Certified Exam

- Study resources and tips

- Understanding exam format and question types

- Time management strategies

## 10 - Sales Analysis Project

- Loading sales data into Power BI

- Creating KPIs (Key Performance Indicators)

- Analysing sales trends and patterns

- Visualizing sales performance

# 5 - Tableau

## 1 - Tableau Introduction

- Tableau - Overview

- Tableau - Environment Setup

- Tableau - Get Started

- Tableau - Navigation

- Tableau - Design Flow

- Tableau - File Types

- Tableau - Data Types

- Tableau - Show Me

- Tableau - Data Terminology

## 2 - Tableau Data Sources

- Tableau - Data Sources

- Tableau - Custom Data View

- Tableau - Extracting Data

- Tableau - Fields Operations

- Tableau - Editing Metadata

- Tableau - Data Joining

- Tableau - Data Blending

## 3 - Tableau Worksheets

- Tableau - Add Worksheets

- Tableau - Rename Worksheet

- Tableau - Save & Delete Worksheet

- Tableau - Reorder Worksheet

- Tableau - Paged Workbook

## 4 - Tableau Calculations

- Tableau - Operators

- Tableau - Functions

- Tableau - Numeric Calculations

- Tableau - String Calculations

- Tableau - Date Calculations

- Tableau - Table Calculations

- Tableau - LOD Expressions

## 5 - Tableau Sort & Filters - Part 1

- Tableau - Basic Sorting

- Tableau - Basic Filters

- Tableau - Quick Filters

- Tableau - Context Filters

## 6 - Tableau Sort & Filters - Part 2

- Tableau - Condition Filters

- Tableau - Top Filters

- Tableau - Filter Operations

## 7 - Tableau Charts - part 1

- Tableau - Bar Chart

- Tableau - Line Chart

- Tableau - Pie Chart

- Tableau - Crosstab

- Tableau - Scatter Plot

- Tableau - Bubble Chart

- Tableau - Bullet Graph

**8 - Tableau Charts - part 2**

- Tableau - Box Plot
- Tableau - Tree Map
- Tableau - Bump Chart
- Tableau - Gantt Chart
- Tableau - Histogram
- Tableau - Motion Charts
- Tableau - Waterfall Charts

**9 - Tableau Dashboard and Formatting**

- Tableau - Dashboard
- Tableau - Formatting
- Tableau - Forecasting
- Tableau - Trend Lines

**10 – Tableau Dashboard Demo**

# 6 - Python Fundamentals

**1: Introduction to Python**

- What is Python?
- Python for Data Science Overview
- Installing Python and setting up the environment
- Introduction to IDEs (Jupyter Notebook, VS Code)
- Running your first Python program
- Jupyter notebook Installation

**2: Basic Syntax and Data Types**

- Basic syntax and writing Python scripts
- Data types: integers, floats, strings, and Booleans
- Variables and type conversion
- Input and output functions

**3: String methods**

**4: Operators**

**5: Control Flow statements**

- Conditional statements (if, elif, else)
- Loops: for and while
- Break and continue statements

**6: Control Flow statements Practice**

**7: Functions**

**8: Data Structures - Lists and Tuples**

**9: Data Structures - Dictionaries and Sets**

**10: File Handling**

- Reading from and writing to files
- Working with text and CSV files
- Using with statement for file operations
- Basic file handling errors and exceptions

**12: Error Handling and Exceptions**

- Introduction to exceptions
- Try, except, else, and finally blocks
- Raising exceptions
- Common exceptions and handling strategies

**13: Object-Oriented Programming Basics**

- Introduction to object-oriented programming (OOP)
- Creating classes and objects
- Class attributes and methods
- Inheritance and polymorphism

**15: Advanced Python Concepts**

- Decorators and generators
- Context managers

- Regular expressions

**12 – Python for Data Science**

- **Module 2: Data Analysis with NumPy**
- **Module 3: Data Analysis with Pandas**
- **Module 4: Data Visualization with Matplotlib**
- **Module 5: Data Visualization with Seaborn**

**Introduction to Statistics for Data Analysis**

- Descriptive statistics

**2: Probability fundamentals**

- Probability fundamentals
- Distribution types
- Hypothesis Testing and Statistical Inference
- Understanding hypothesis testing
- Types of hypothesis tests
- Confidence intervals and p-values