

Syllabus for Data Analytics Courses

Python for Data Analytics (15 Hours)

Module 1: Python Basics (3 Hours)

- Introduction to Python and Jupyter Notebook
- Data types, Variables, and Operators
- Conditional Statements (if-else, elif)
- Loops (for, while)
- Functions and Lambda Expressions

Module 2: Working with Data in Python (3 Hours)

- Lists, Tuples, Sets, and Dictionaries
- String Manipulation and Formatting
- File Handling (Reading and Writing Files)

Module 3: NumPy for Data Handling (2 Hours)

- Introduction to NumPy Arrays
- Indexing, Slicing, and Broadcasting
- Mathematical and Statistical Functions

Module 4: pandas for Data Analysis (3 Hours)

- DataFrames and Series Objects
- Importing and Exporting Data (CSV, Excel)
- Data Cleaning (Handling Missing Values, Duplicates)
- Data Aggregation (groupby, .agg())

Module 5: Data Visualization (2 Hours)

- matplotlib and seaborn Basics
- Line, Bar, and Pie Charts
- Histograms and Scatter Plots

- Customizing Visualizations

Module 6: Working with Datetime and String Data (2 Hours)

- Handling Datetime Objects
 - Extracting Insights from String Data
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SQL Server (11 Hours)

Module 1: SQL Basics & Data Retrieval (2 Hours)

- Introduction to SQL and Databases
- SELECT, WHERE, ORDER BY, DISTINCT
- Filtering Data using LIKE, BETWEEN, IN, AND, OR

Module 2: Aggregation and Grouping (2 Hours)

- COUNT, SUM, AVG, MIN, MAX
- GROUP BY and HAVING

Module 3: Joins & Subqueries (3 Hours)

- INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN
- Nested Queries and Subqueries

Module 4: Window Functions (2 Hours)

- RANK(), DENSE_RANK(), ROW_NUMBER()
- LEAD(), LAG(), PARTITION BY

Module 5: Modifying Data (2 Hours)

- INSERT, UPDATE, DELETE
 - Transactions and COMMIT, ROLLBACK
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Power BI (9 Hours)

Module 1: Introduction to Power BI (1 Hour)

- Overview of Power BI
- Understanding Data Sources

Module 2: Data Import & Transformation (2 Hours)

- Connecting to Various Data Sources
- Data Cleaning & Preparation

Module 3: Data Modeling & Relationships (2 Hours)

- Creating Relationships Between Tables
- Creating Hierarchies

Module 4: DAX for Calculations (2 Hours)

- Measures vs. Calculated Columns
- Common DAX Functions (SUMX, CALCULATE, FILTER)

Module 5: Creating Reports & Dashboards (2 Hours)

- Designing Interactive Visuals
 - Using Slicers and Filters
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Excel for Data Analysis (10 Hours)

Module 1: Excel Basics & Data Handling (2 Hours)

- Understanding the Excel Interface
- Sorting and Filtering Data
- Basic Formulas (SUM, AVERAGE, MIN, MAX)

Module 2: Logical & Lookup Functions (2 Hours)

- IF, AND, OR, Nested IF
- VLOOKUP, HLOOKUP, INDEX-MATCH

Module 3: Pivot Tables & Data Visualization (2 Hours)

- Creating and Formatting Pivot Tables
- Using Slicers and Pivot Charts

Module 4: Data Cleaning & Error Handling (2 Hours)

- Removing Duplicates
- Handling Errors with IFERROR
- Advanced Sorting & Filtering

Module 5: Dashboard Creation (2 Hours)

- Creating Interactive Dashboards
- Formatting and Presentation Best Practices