



TECHNOCATION FREELANCING TRAINING INSTITUTE & SOFTWARE HOUSE

Professional Data Analysis Course Outline

Module 1: Introduction to Data Analysis

- What is Data Analysis?
 - Importance of Data-Driven Decision Making
 - Types of Data (Structured vs. Unstructured)
 - Overview of Data Analysis Tools (Excel, SQL, Python, R, Power BI)
-

Module 2: Data Collection & Cleaning

- Data Sources: Databases, APIs, Web Scraping, Surveys
 - Importing Data from Different Formats (CSV, JSON, SQL, Excel)
 - Handling Missing Data & Duplicates
 - Data Cleaning Techniques using Python (Pandas) & Excel
-

Module 3: Exploratory Data Analysis (EDA)

- Understanding Data Distributions
 - Summary Statistics (Mean, Median, Mode, Variance, Standard Deviation)
 - Detecting & Handling Outliers
 - Data Visualization Techniques (Histograms, Box Plots, Scatter Plots)
-

Module 4: Data Manipulation & Transformation

- Data Filtering, Sorting, and Aggregation
- Working with Dates & Time-Series Data

- Merging & Joining Datasets
 - Using SQL for Data Transformation (GROUP BY, JOIN, Subqueries)
-

Module 5: Data Visualization & Reporting

- Creating Charts & Graphs in Excel & Google Sheets
 - Advanced Visualizations using Python (Matplotlib, Seaborn)
 - Dashboards & Interactive Reports in Power BI & Tableau
 - Best Practices for Data Storytelling
-

Module 6: Statistical Analysis for Data Insights

- Introduction to Descriptive & Inferential Statistics
 - Hypothesis Testing (T-Test, Chi-Square, ANOVA)
 - Correlation & Regression Analysis
 - Predictive Analytics & Trend Analysis
-

Module 7: Introduction to Machine Learning for Data Analysis

- Overview of Machine Learning in Data Analysis
 - Supervised vs. Unsupervised Learning
 - Using Scikit-Learn for Simple Predictions
 - Feature Engineering & Model Evaluation
-

Module 8: Big Data & Advanced Techniques

- Introduction to Big Data & Cloud-Based Analysis
 - Working with Large Datasets (Hadoop, Spark)
 - Data Pipelines & Automation
 - AI & Data Analysis Integration
-

Final Module: Capstone Project & Certification

- Hands-on Data Analysis Project (Business, Healthcare, Finance, Marketing)
- Interpreting & Presenting Findings
- Building a Data Analytics Portfolio
- Course Completion Certification