Data Analytic Course Modules

Course Overview

The Data Analytics learning Program is a comprehensive and innovative, hands-on course designed to equip students and industry Professionals with the skills necessary to collect, process, analyze, and interpret large datasets to support strategic decision-making. This program combines theoretical fundamentals with practical applications in data analytics, using industry-standard tools and real-world case scenarios.

Students will learn key concepts in statistical analysis, data visualization, and predictive modelling. The course covers tools such as Excel, SQL, Python, Tableau, and Power BI. Emphasis is placed on developing the ability to translate business questions into data-driven solutions.

By the end of the learning program, students and professionals will be able to:

- Collect and preprocessing data from various sources
- Perform mathematical and statistical data analysis
- Build and evaluate predictive models using machine learning techniques
- Create interactive dashboards and visualizations

Prerequisites

1. Basic proficiency in mathematics and familiarity with spreadsheets.

2. No prior programming experience required.

Course Modules

Modules	Title	Topics
1.	**Introduction to Data Analytics**	➢ What is Data Analytics? ➢ Importance and applications in industries ➢ Types of analytics: Descriptive, Diagnostic, Predictive, Prescriptive ➢ Data-driven decision making
2.	**Data Collection and Preprocessing**	➢ Data types and sources (structured vs unstructured) ➢ Data collection methods ➢ Data quality and cleaning ➢ Handling missing and inconsistent data information

3.	**Exploratory Data Analysis (EDA)**	➢ statistics ➢ Distribution analysis ➢ Correlation ➢ Data visualization basics (using Excel, Python libraries, Power BI or Tableau)
4.	**Statistical Analysis**	➢ Probability concepts ➢ Hypothesis testing ➢ Regression analysis
5.	**Data Visualization and Dashboards**	➢ Principles of data visualization ➢ Creating interactive dashboards ➢ Tools: Tableau, Power BI
6.	**SQL for Data Analytics**	➢ Relational databases and schemas ➢ SQL queries: SELECT, JOINs , GROUP BY ➢ Data filtering, aggregation ➢ SQL for business insights
7.	**Python for Data Analysis**	➢ Data structures and libraries (Pandas, NumPy) ➢ Data cleaning and transformation ➢ Visualization tools (Matplotlib, Seaborn)
8.	**Predictive Analytics & Machine Learning**	➢ Introduction to supervised and unsupervised learning ➢ Linear/logistic regression, decision trees ➢ Clustering and classification ➢ Model evaluation parameter
9.	**Capstone Project**	➢ Real-world case study ➢ End-to-end data analytics process ➢ Team or individual project presentation ➢ Business report