Exploring Data Analytics, Business Intelligence (BI) and Machine Learning

Course Description: This five-day corporate training program is designed to provide an in-depth understanding of data analytics, business intelligence (BI), data science, and machine learning, equipping participants with practical skills to analyze, visualize, and extract insights from data. The training covers essential tools such as Power BI, Python, and R, while also integrating industry best practices for data-driven decision-making. Participants will engage in hands-on exercises, real-world case studies, and interactive discussions to enhance their proficiency in data analytics. By the end of this program, attendees will be able to develop data-driven reports, create predictive models, and apply machine learning algorithms to business scenarios.

Tools/Technologies Used:

- Power BI – Data visualization and business intelligence
- Python – Data processing, analysis, and machine learning
- R – Statistical computing and predictive modeling
- Additional Tools: SQL, Pandas, NumPy, Scikit-learn, Azure ML Studio

Prerequisites:

- Basic knowledge of statistics and data analysis
- Familiarity with Excel and SQL (recommended but not mandatory)

Course Content :

Day 1: Foundations of Data Analytics & BI

- Introduction to Data Analytics, BI, and Data Science
- Understanding Business Intelligence & Reporting
- Power BI Fundamentals – Interface, dashboards, data import
- Data Cleaning & Transformation using Power Query
- Hands-on: Creating interactive reports in Power BI

Day 2: Advanced Data Visualization & Analytics

- Data Modeling & Relationships in Power BI

- Introduction to DAX (Data Analysis Expressions) for calculations

- Advanced visualization techniques and custom dashboards

- Connecting multiple data sources (SQL, Excel, Web APIs)

- Hands-on: Building a complete BI report

Day 3: Introduction to Python for Data Science

- Basics of Python Programming for analytics

- Working with Pandas & NumPy for data manipulation

- Data visualization using Matplotlib & Seaborn

- Exploratory Data Analysis (EDA) techniques

- Hands-on: Analyzing a real-world dataset with Python

Day 4: Statistical Analysis & Machine Learning Basics

- Introduction to R for Statistical Computing

- Descriptive & Inferential Statistics in R

- Machine Learning fundamentals & algorithms (Supervised vs. Unsupervised Learning)

- Implementing Linear Regression & Decision Trees

- Hands-on: Building a simple predictive model in Python & R

Day 5: Advanced Machine Learning

- Feature Engineering & Model Optimization

- Introduction to Time Series Analysis & Forecasting

- Deploying Machine Learning models in Azure ML Studio (if required)

- Final Hands-on Project: Participants will work on a real-world case study using Power BI, Python, and R