

Data Analytics & AI (Fundamentals):

Course Description

This course provides the essential concepts and tools for data analytics and artificial intelligence at a beginner level. Students will learn how to collect, clean, and analyze data using accessible tools and develop an understanding of basic AI concepts. The emphasis is on hands-on skills that can be applied in business, administration, and technical support roles.

Learning Outcomes

- 1. Explain key concepts of data analytics and AI in simple terms.*
- 2. Clean and organize small datasets using Excel and basic Python.*
- 3. Create simple, meaningful visualizations to communicate data insights.*
- 4. Recognize common AI applications and their business relevance.*
- 5. Apply ethical principles in handling and interpreting data.*

Topics to be covered:

Introduction to Data Analytics

- What is Data Analytics? Types of Analytics (Descriptive, Diagnostic, Predictive, Prescriptive)
- Data sources and formats (structured vs. unstructured data)
- Importance of data-driven decision-making in business

Data Handling with Excel / Google Sheets

- Importing and cleaning datasets
- Sorting, filtering, and using basic formulas
- Creating simple charts and pivot tables

Introduction to Python for Data Analysis

- Basic Python syntax & environment setup (Jupyter Notebooks)

- Data handling with Pandas (loading CSV/Excel files, basic filtering)
- Simple visualizations with Matplotlib

Fundamentals of Data Visualization

- Choosing the right chart for the right data
- Introduction to Power BI (basic data import, creating simple dashboards)
- Data storytelling basics

Basics of Artificial Intelligence

- What is AI? Myths vs. reality
- Examples of AI applications in everyday life
- Introduction to machine learning (concepts only, minimal coding)
- Understanding supervised vs. unsupervised learning

Data Ethics and Privacy

- Importance of data accuracy and integrity
- Ethical considerations in AI use
- Data protection basics (GDPR concept, local regulations)

Recommended Resources

- McKinney, W. Python for Data Analysis
- Murray, D. G. Tableau Your Data!
- Online tutorials (Power BI basics, Excel data analysis)