

Course Module

Week 1: Python Fundamentals

- Environment setup (Jupyter/Colab)
- Data types, variables, operators
- Control structures (loops, conditions)
- Functions and file handling
- Introduction to scientific computing

Week 2: Data Science Essentials

- NumPy and Pandas
- Data cleaning and preprocessing
- Feature understanding
- Data visualization (Matplotlib/Seaborn)
- Case-based data analysis

Week 3: AI & Machine Learning Basics

- Introduction to AI/ML
- Supervised vs Unsupervised learning
- Classification and regression
- Model evaluation techniques
- Hands-on exercises

Week 4: Applied Machine Learning & Cybersecurity Fundamentals

- Introduction to AI/ML
- Supervised vs Unsupervised learning
- Classification and regression
- Model evaluation techniques
- Hands-on exercises
- Cybersecurity basics and threat landscape
- Data privacy and protection
- Secure coding practices
- Digital forensics basics
- Case studies on secure systems

*Capstone Project & Career Support

- Industry-oriented mini project
- Report preparation and presentation
- Resume & portfolio building
- Interview preparation guidance
- Final assessment

Software and Tools Used

- Python 3.x
- Jupyter Notebook / Google Colab
- Anaconda (optional) & VS Code / PyCharm (optional)
- NumPy, Pandas, Matplotlib, Scikit-learn
- Basic cybersecurity/open-source tools (for demonstrations)
- Laptop/Desktop system with Stable internet connection

