DATA SCIENCE SYLLABUS

Programming for Data Science (Python)

- Python Basics
- Variables & Data Types
- Loops & Conditions
- Functions
- Modules & Packages
- Exception Handling

Libraries:

- NumPy
- Pandas
- Matplotlib
- Seaborn

Mathematics for Data Science

Statistics

- Mean, Median, Mode
- Variance & Standard Deviation
- Probability
- Normal Distribution
- Hypothesis Testing

DATA SCIENCE SYLLABUS

Data Collection & Data Cleaning

- Data Collection Methods
- Handling Missing Values
- Data Formatting
- Removing Duplicates
- Outlier Detection
- Feature Scaling

Exploratory Data Analysis (EDA)

- Data Visualization
- Pattern Identification
- Correlation Analysis
- Data Insights & Reporting

Tools:

- Pandas
- Matplotlib
- Seaborn

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Model Evaluation & Optimization

- Train-Test Split
- Cross Validation
- Bias vs Variance
- Accuracy, Precision, Recall, F1
- ROC-AUC
- Hyperparameter Tuning

Deep Learning (Intro to Advanced)

- Neural Networks Basics
- Activation Functions
- Loss Functions
- Backpropagation
- ANN, CNN, RNN
- Use Cases

Libraries:

- TensorFlow
- PyTorch

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Natural Language Processing (NLP)

- Text Cleaning
- Tokenization
- Stemming & Lemmatization
- Bag of Words
- TF-IDF
- Sentiment Analysis
- Text Classification

Big Data Basics

- Big Data Concepts
- Hadoop Overview
- Spark Basics
- Distributed Computing

Data Visualization & BI Tools

- Data Storytelling
- Dashboards
- Charts & KPIs

Tools:
- Power BI
- Tableau