Data Science Learning Path (168 hours total)

Python Programming Data Analysis

(20 Hours)

- Introduction to Data Science using Python
- Python basic constructs
- Data types in python
- Conditional Statements
- Iterative Statements
- Functions in Python
- OOP in Python
- File Handling
- Exception Handling
- Databases and SQL

Assignments: Handling databases using Python, CRUD operations

Data Analysis using Python

(24 Hours)

- Probability
- Descriptive Statistics
- Inferential Statistics
- NumPy for mathematical computing
- Data manipulation using Pandas
- Data visualization with Matplotlib and Seaborn
- Web Scraping Using Beautifulsoup

Assignments: Data Pre-processing , Data Visualization, End to End Project (Web-Scraping , data cleaning and EDA)

Machine Learning

(40 Hours)

Introduction to Machine Learning

Supervised Learning

- **Regression**
  - Linear Regression
  - Multiple and Polynomial regression
  - Regularization, Ridge and Lasso regression
- **Classification**
  - Logistic Regression
  - K Nearest Neighbours
  - Decision Trees
  - Naïve Bayes
  - Support Vector Machine
  - Ensemble Techniques: Random Forests, Gradient boosting machines

Unsupervised Learning

- Clustering
- Principal Component Analysis

Assignments: Regression Analysis, Classification (Binary and Multiclass), Image classification, Clustering etc.

AI & Deep Learning

(40 Hours)

- Introduction to Deep Learning and Neural Networks
- Artificial neural Networks
- Neurons, Layers and Activation Functions
- Convolutional neural networks
- Convolution Operation, Pooling, Padding and Strides
- Recurrent neural networks
- LSTM, GRU
- Computer Vision & Natural Language processing using CNNs & RNNs

Assignments: Image classification using neural networks, Transfer learning, Neural Style Transfer, Sentiment Analysis

R for data science (12 hours, to be covered last)

Data Analytics (10 Hours will covered along with the course)

Tableau Training (10 Hours)

- Data Visualization
- Business Intelligence tools
- Introduction to Tableau
- Tableau Architecture
- Tableau Server Architecture
- VizQL
- Introduction to Tableau Prep
- Tableau Prep Builder User Interface
- Data Preparation techniques using Tableau Prep Builder tool

Power BI (10 Hours)

- Introduction to Power BI
- Learning Objective: This Power BI online training module will introduce you to its building blocks and
- the various fundamental concepts of Power BI. Topics:
- Business Intelligence
- Self Service Business Intelligence
- SSBI Tools
- Power BI vs Tableau vs QlikView
- What is Power BI
- Why Power BI?
- Key Benefits of Power BI
- Flow of Power BI
- Components of Power BI
- Architecture of Power BI
- Building Blocks of Power BI
- Question Bank