**Artificial Intelligence and Machine Learning with Python**

* Python (8 hrs)
  + Basic Data Types
    - Numerical Types
      * Integer
      * Floats
      * Complex
      * Booleans
    - Natively Implemented Arithmetic Operations
    - Containers
      * Lists
      * Sets
      * Tuples
    - String
    - Dictionaries
  + Working with Assignment Operator
  + Control Flow
    - If
    - Elif
    - Else
    - For / Range
    - While / Break / Continue
  + Advanced Iteration
  + Functions
    - Function Definition
    - Return Statement
    - Parameters
* Numpy for Machine Learning (3 hrs)
  + Importing Conventions
  + Creating Arrays
    - 1-D Array (Dimension & Shape)
    - 2-D and 3-D Array
  + Functions for Creating Arrays
    - Evenly Spaced
    - Number by Points
  + Common Arrays
    - Zeros
    - Ones
  + Basic Data type
  + Indexing and Slicing
* Matplot for Machine Learning (4 hrs)
  + Importing Convention
  + Simple Graph
  + Plot Function & Show Function
  + Title of Graph
  + X and Y Label
  + Adding another co-ordinate
  + Working with Legends
  + Changing colors and line width
  + Types of Plot
    - Regular Plot
    - Scatter Plot
    - Bar Plot
* Pandas for Machine Learning (4 hrs)
  + Importing Conventions
  + Creating Series and DataFrane
  + Functions for Creating and Manipulating
    - Series
    - DataFrame
  + Importing CSV and Excel Sheets
  + Performing Operations on CSV and Excel Sheets
* Intro to Artificial Intelligence(12 hr)
  + - What is Artificial Intelligence
    - History of AI
    - Application of Machine Learning
    - Necessary Conditions of AI
      * Should act like human
      * Should think like human
      * Should think rationally
      * Should act rationally
    - Total Turing Test
    - Knowledge Representations
    - Rational Agents
    - Goal of AI
* Intro to Machine Learning ( 1 hr)
  + - What is machine learning
    - Application of Machine Learning
    - Types of Machine Learning
    - Supervised Machine Learning
    - Unsupervised Machine Learning
    - Reinforcement Learning
* Key Machine Learning Terms (1 hr)
  + Data
  + Data types
  + Record
  + Data Set
  + Structured Data
  + Unstructured Data
  + Data Exploration
  + Data Mining
  + Descriptive Analytics
  + Predictive Analytics
  + Training Data
  + Test / Evaluation Data
* Linear Regression Algorithm (5 hrs)
  + Understanding Theory of Algorithm
  + Maths behind Algorithm
  + Practical Implementation
* Logistic Regression Algorithm (5 hrs)
  + Understanding Theory of Algorithm
  + Maths behind Algorithm
  + Practical Implementation
* Decision Tree Algorithm (5 hrs)
  + Understanding Theory of Algorithm
  + Maths behind Algorithm
  + Practical Implementation
* Neural Network Algorithm (8 hrs)
  + Understanding Theory of Algorithm
  + Maths behind Algorithm
  + Practical Implementation
* Doubt Clearing Session (8 hrs)