Artificial Intelligence & Machine Learning

Duration - 6 weeks

Artificial intelligence (AI) is wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. AI is an interdisciplinary science with multiple approaches, but advancements in machine learning and deep learning are creating a paradigm shift in virtually every sector of the tech industry. Machine learning feeds a computer data and uses statistical techniques to help it "learn" how to get progressively better at a task, without having been specifically programmed for that task, eliminating the need for millions of lines of written code

Software: Anaconda Navigator Latest (IDE) version

- Web-based interactive computing note book environment – **Jupyter Notebook** 6.4.5 or higher
- Scientific Python Development Environment **Spyder** 5.0.5 or higher

Module - 1

Python Environment Concepts

1. Jupyter Note Book – Spyder Overview

2. JYNB Working Environment

3. Structure of jpynb

4. Saving/Loading Notebook

5. Edit Cells /View Cells /Insert Cells

6. Keyboard Shortcuts /Magic Commands

7. Execute Cells /Kernel Cells /Widgets / Markdown

Data Analysis

8. Numpy

9. Scipy

10. Pandas

11. Seaborn

12. Bokeh

Module -2

Overview of Artificial Intelligence & Machine learning

13. Introduction to types of Machine Learning

14. Introductions to   Supervised Learning

15. Introductions to   Unsupervised Learning

16. Introduction to   Reinforcement learning

17. Introductions to ML with Pipelines – Automatic Workflows

18. Introductions to   Improving Performance of ML Models

19. Performance Improvements with Algorithm Tuning_1

20. Performance Improvements with Algorithm Tuning_2

21. Introduction to types of Artificial Intelligence

22. Introductions to   Reactive Machines

23. Introductions to   Limited Memory

24. Introductions to   Theory of Mind

25. Search Techniques.

26 . Knowledge Representations

27. Neural networks and Deep learning.

28. Natural language processing

29 . Fuzzy logic and its applications

30. Introductions to   AI with Python – Speech Recognition

Types of Data Analysis

31. Descriptive Analyses

32. Exploratory Data Analysis

33. Predictive Analysis

34. Inferential Analysis

Module - 3

Data Visualization with Matplotlib

35. Working with Pyplot

36. Lines, Bar, Pie, Scatter, Histogram, Box, Violin Plots

Algorithms Implementation

37. Introduction to Algorithm and how it is implement

38 . Algorithm_1 Linear regressions.

39. Algorithm_2 logistic regressions.

40. Algorithm_3 Decision tree.

41 . Algorithm_4 Support Vector Machine (SVM)

42 . Algorithm_5 Naive Bayes

43. Algorithm_6 KNN algorithm.

44. Algorithm_7 K-means

45. Algorithm_8 Random forest algorithms.

Industry Based Project &Machine learning and Artificial Intelligence libraries in python

46. My first project in AI & ML
47 . Case study Industry Project and Implementation with analysis