**A basic course of AL & ML, a student would gain basic and important knowledge which will enhance his skills and experience in AL and ML.**

**15-day online AI and ML course for D3 learning course:**

**Day 1: Introduction to AI and ML**

Objective: Understand what AI and ML are, their history, and their significance.

Content: Definitions, brief history, differences between AI, ML, and deep learning, overview of applications.

**Day 2: Python for Data Science**

Objective: Introduce Python, focusing on features important for AI and ML.

Content: Basic syntax, data types, libraries like NumPy and Pandas.

**Day 3: Data Handling**

Objective: Learn to manipulate data using Python.

Content: Data manipulation and preparation techniques using Pandas.

**Day 4: Introduction to Machine Learning**

Objective: Overview of machine learning concepts and types.

Content: Supervised vs. unsupervised learning, basic algorithms.

**Day 5: Linear Regression**

Objective: Understand the basics of regression analysis.

Content: Simple linear regression, introduction to cost function and gradient descent.

**Day 6: Logistic Regression**

Objective: Explore classification techniques.

Content: Basics of logistic regression, binary classification.

**Day 7: Decision Trees**

Objective: Learn about decision tree algorithms.

Content: How decision trees work, basics of tree-based algorithms.

**Day 8: Support Vector Machines (SVM)**

Objective: Understand another powerful classification technique.

Content: Basics of SVM, linear vs. non-linear classification.

**Day 9: Clustering Techniques**

Objective: Explore unsupervised learning.

Content: K-means clustering, hierarchical clustering basics.

**Day 10: Neural Networks**

Objective: Introduction to neural networks.

Content: Perceptrons, multi-layer networks, backpropagation basics.

**Day 11: Deep Learning Overview**

Objective: Understand the concepts of deep learning.

Content: Introduction to CNNs and RNNs, use cases.

**Day 12: Model Evaluation**

Objective: Learn how to evaluate machine learning models.

Content: Metrics like accuracy, precision, recall, confusion matrix.

**Day 13: Overfitting and Underfitting**

Objective: Understand challenges in training models.

Content: Bias-variance tradeoff, techniques to manage overfitting.

**Day 14: Ensemble Learning**

Objective: Introduction to ensemble methods.

Content: Bagging, boosting, Random Forests.

**Day 15: Current Trends in AI and ML**

Objective: Explore recent advancements and ethical considerations.

Content: AI ethics, notable recent advancements, future directions.

**Course outcome:**

Upon completing this 15-day online AI and ML course, participants will acquire foundational knowledge of AI and ML principles, develop technical proficiency in Python and essential ML libraries, and learn to implement and interpret various machine learning algorithms. They will enhance their problem-solving skills, gain an understanding of the ethical implications of AI technologies, and prepare for advanced study and professional discussions on future trends in the field.