Artificial Intelligence / Applied Artificial Intelligence
Course Outline

Week No. Content

1 **Introduction to AI**
> Agents, Definitions of AI, History, Current State of the Art

2 **Agents + Environments**
> Structure of an Agent, Types of Environments, Types of Agents

3 **Local Search**
> Optimization Problems, Hill Climbing, Simulated Annealing

4 **Uninformed Searching**
> Depth First Search, Breadth First Search, Uniform Cost Search,
> Bidirec tional Search

5 **Informed Search**
> Greedy Search, A* Search, Simple + Recursive Best First Search

6 **Sessional I**

7 **Adversarial Searches**
> Min-Max, Alpha-Beta Pruning

8 **Machine Learning 1**
> Supervised Learning - kNN, Decision Trees/Naive Bayes, Random Forest

9 **Supervised Learning**
> Artificial Neural Networks (ANN) - Single layer + Multi-layer

10 **Machine Learning 2**
> Unsupervised Learning - K-means Clustering, PCA, SVMs

11 **Multi-layer Perceptron, Backpropagation**

12 **Sessional II**

13 **Constraint Satisfaction Problems**
> Graph coloring, N-Queen, etc.

14 **Genetic Algorithms**
> Darwin's theory of evolution-based techniques

15 **Concepts of Federated Learning, Reinforcement Learning (RL), En semble Techniques**
> Brief Introduction and Real-world Applications