Artificial Intelligence (AI)

Unit	Course Topics	Hours
1	**Introduction to AI:** Definition, history, applications, branches of AI, intelligent agents, environments, problem formulation	4L
2	**Search Strategies:** Uninformed search (BFS, DFS, UCS), informed search (Greedy, A*), heuristic functions, local search, optimization	6L
3	**Knowledge Representation & Reasoning:** Propositional logic, first-order logic, inference, knowledge bases, semantic networks, frames, ontologies	6L
4	**Planning & Decision Making:** Planning problem, planning graphs, STRIPS, decision theory, utility theory, Markov decision processes	6L
5	**Machine Learning Basics:** Supervised, unsupervised, reinforcement learning, classification, regression, clustering, overfitting & underfitting	5L
6	**Neural Networks & Deep Learning:** Perceptron, MLP, backpropagation, CNN, RNN, activation functions, training process	4L
7	**Expert Systems & Applications:** Components of expert systems, knowledge engineering, AI in robotics, NLP, computer vision, real-world applications	4L