Course Objectives:

- To understand the various characteristics of Intelligent agents
- To learn the different search strategies in AI
- To learn to represent knowledge in solving AI problems
- To understand the ways of planning and acting in the real world
- To know about the models behind the AI application

Course Contents:

UNIT I

Introduction:

Introduction, Definition, Future of Artificial Intelligence, Characteristics of Intelligent Agents, Typical Intelligent Agents, Problem Solving Approach to Typical AI problems.

UNIT II

Problem Solving Methods:

Problem solving Methods, Search Strategies, Uninformed, Informed, Heuristics, Local Search Algorithms and Optimization Problems, Searching with Partial Observations, Backtracking Search, Performance of search algorithms.

UNIT III

Knowledge Representation:

First Order Predicate Logic, Unification, Forward Chaining, Backward Chaining, Resolution, Knowledge Representation using First order Predicate logic, Reasoning Systems.

UNIT IV

Planning:

Planning with state-space search, Partial-order planning, Planning graphs, planning and acting in the real world,Plan generation systems.

UNIT V

Uncertain Knowledge and Reasoning:

Uncertainty, Review of probability, Probabilistic Reasoning, Bayesian networks, Inferences in Bayesian networks, Temporal models, Hidden Markov models.

Course Outcomes:

CO1: Discover the concepts, applications, and the theory underlying AI.
CO2: Identify problems that are amenably solved by AI methods
CO3: Analyze the issues of knowledge representation and search techniques.
CO4: Analyze the engineering issues underlying the design of AI systems.
CO5: Discuss the uncertain knowledge on reasoning concepts in AI.
CO6: Apply AI techniques to develop programs to solve real life problems in
different domains.

Textbooks:

1. Stuart Russel, Peter. Norvig, “Artificial Intelligence – A Modern Approach”, Fourth Edition, Pearson Education, 2022

Reference Books:

1. Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, Pearson Education.