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Course Objectives:

Students undergoing this course are able to
- To understand the various characteristics of Intelligent agents
- To learn the different search strategies in AI
- To understand the different ways of designing software agents
- To know about the various applications of AI.

UNIT I	INTRODUCTION	9 Hours

Introduction–Definition –Agent based approach - Characteristics of Intelligent Agents– Typical Intelligent Agents – Problem Solving Approach to Typical AI problems – AI Environments.

UNIT II	PROBLEM SOLVING METHODS	9 Hours

Problem solving Methods - Search Strategies- Uninformed - Informed - Heuristics - Local Search Algorithms and Optimization Problems - Searching with Partial Observations - Backtracking Search –A* Search – Mini-max search - Performance of search algorithms.

UNIT III	KNOWLEDGE REPRESENTATION	9 Hours

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

UNIT IV	SOFTWARE AGENTS	9 Hours

Architecture for Intelligent Agents – Agent communication – Negotiation and Bargaining – Argumentation among Agents – Trust and Reputation in Multi-agent systems.

UNIT V	APPLICATIONS	9 Hours

AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing - Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving

UNIT VI	CASE STUDY	

Case study on Reinforcement Learning - Learning Decision Trees - Expert Systems

Course Outcomes:

Upon completion of the course, the students will be able to
- Use appropriate search algorithms for any AI problem
- Represent a problem using first order and predicate logic
- Design applications for NLP that use Artificial Intelligence.

Text books:

1. S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach, Prentice Hall,

Third Edition, 2009.

2. I. Bratko, ―Prolog: Programming for Artificial Intelligence, Fourth edition, Addison-

Wesley Educational Publishers Inc., 2011.

Reference books:

1. M. Tim Jones, ―Artificial Intelligence: A Systems Approach(Computer Science), Jones and Bartlett Publishers, Inc.; First Edition, 2008
2. Nils J. Nilsson, ―The Quest for Artificial Intelligence, Cambridge University Press, 2009.