

16CS344**ARTIFICIAL INTELLIGENCE**

Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P	CS	WARA	SSH	SA	S	BS
45	-	-	5	5	40	8	5	2

**Course Description and Objectives:**

This course will provide knowledge of ideas and techniques underlying the design of intelligent computer systems. Develop problem solving skills in students. This course also provide knowledge of the tools and applications of AI and lay the foundation for research areas like Natural language Processing.

Course Outcomes:

The student will be able to:

- understand the basic knowledge of AI principles, techniques and Expert Systems.
- develop applications of basic AI techniques for problem solving.
- understand knowledge representation and new knowledge deduction in intelligent systems.
- understand the Natural language Processing and Machine learning techniques.

SKILLS:

- ✓ *Analyzes Intelligent systems.*
- ✓ *Applies problem solving techniques.*
- ✓ *Interface of various knowledge representation.*
- ✓ *Creates a dynamic planning.*
- ✓ *Discernment of learning.*

ACTIVITIES:

- *Design solution for real time problems using AI Techniques*
- *Develop knowledge representation for real time problems*
- *Develop an algorithm for planning and learning*

UNIT - 1**L-09**

INTELLIGENT SYSTEMS: Introduction, What is AI, Examples of AI systems, Brief history of AI, Intelligent Agent, Agents and environments, The concept of rationality, The nature of environments, Structure of agents, Stimulus-response agents.

UNIT - 2**L-09**

PROBLEM SOLVING: Searching, Solving problems by searching, A* algorithm, AO* algorithm, Heuristic functions, Hill climbing, Searching game trees.

UNIT - 3**L-09**

KNOWLEDGE REPRESENTATION: Propositional logic, Logical agents, Reasoning patterns in propositional logic, Inference in propositional logic, Resolution, Forward chaining, Backward chaining, First order logic, Reasoning patterns in First order logic, Inference in First order logic, Resolution, Forward chaining, Backward chaining.

UNIT - 4**L-09**

PLANNING: The planning problem, Planning with state space search, Partial order planning, Planning graphs, Planning with propositional logic, Analysis with planning approaches.

UNIT - 5**L-09**

LEARNING: Forms of learning, Inductive learning, Learning Decision Trees, Ensemble Learning, Why learning works, Natural Language Processing.

TEXT BOOK:

1. Stuart Russell and Peter Norvig, "Artificial Intelligence", 2nd edition, Pearson Education, 2003.

REFERENCE BOOKS:

1. G.Luger and W.A. Stubblefield, "Artificial Intelligence", 3rd edition, Addison Wesley Longman, 1998.
2. N.J. Nilsson, "Principles of Artificial Intelligence", 1st edition, Narosa Publishing House, 1980.