CMOE1 FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE

COURSE OBJECTIVES:

1. Introduce fundamental concepts of problem solving methodologies in artificial intelligence
2. Demonstrate various search and game playing strategies
3. Instruct logical representation of natural language sentences
4. Discuss knowledge representation strategies and planning algorithms

COURSE OUTCOMES:

After successful completion of the course, the students are able to

1. Understand fundamentals of Artificial Intelligence
2. Apply problem-solving and search Techniques
3. Use advanced knowledge representation techniqes
4. Apply first order logic and inference

UNIT I [CO:1] **(12)**

Introduction: What Is AI? The Foundations of AI, the History of AI, the State of the Art.

Intelligent Agents: Agents and Environments, Good Behavior: The Concept of Rationality, The Nature of Environments, The Structure of Agents.

UNIT II [CO:2] **(12)**

Solving Problems by Searching: Problem-Solving Agents, Example Problems, Search Algorithms, Uninformed Search Strategies.

Solving Problems by Searching: Informed (Heuristic) Search Strategies, Heuristic Functions

UNIT III [CO:3] **(12)**

Logical Agents: Knowledge-Based Agents, The Wumpus World, Logic.

Propositional Logic: Propositional Theorem Proving, Effective Propositional Model Checking, Agents Based on Propositional Logic

UNIT IV [CO:4] **(12)**

First-Order Logic: Syntax and Semantics of First-Order Logic, Using First Order Logic, Knowledge Engineering in First-Order Logic.

Inference in First-Order Logic: Propositional vs. First-Order Inference, Unification and First-Order Inference, Forward Chaining, Backward Chaining, Resolution.

LEARNING RESOURCES:

TEXT BOOK:

Artificial intelligence, A modern Approach , 3rd ed, Stuart Russel, Peter Norvig, PEA

REFERENCE BOOK(s):

1. Artificial Intelligence, E. Richand K.Knight,3rdEdn.,(TMH)
2. Artificial Intelligence, 3rdEdn.,Patrick Henny Winston,3rdEdn.,Pearson Education.

3. A First Course in Artificial Intelligence, Deepak Khemani, Tata Mc-Grah Hill
4. Artificial Intelligence and Expert systems-Patterson, Pearson Education
5. Artificial Intelligence, Saroj Kaushik, CENGAGE Learning