Artificial Intelligence

Course Code	20CS4501D	Year	III	Semester	I
Course Category	PEC	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Basic Mathematics
Continuous Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the basic concepts of Artificial Intelligence.	L2
CO2	Apply the principles of AI in solutions that require problem solving, knowledge representation.	L3
CO3	Apply Planning and Learning for solving AI problems.	L3
CO4	Analyze a given problem and apply AI Techniques.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	2								1	1				
CO3														2
CO4		2				1			1	1		1		

Syllabus		Mapped CO
Unit No.	**Contents**	
UNIT-1	**Introduction**: Definition of AI, Foundations of AI, Applications of AI. **Intelligent agents:** Agents and Environments, Structure of agents.	**CO1,CO4**
UNIT-2	**Problem Solving Techniques:** **Solving Problems by Searching:** Problem Solving Agents, Searching for Solutions. **Uninformed Search Strategies**- Breadth first search, depth first Search **Informed (Heuristic) Search Strategies**- Hill climbing, A* Algorithm, Alpha-Beta Pruning, Constraint Satisfaction Problem.	**CO2,CO4**
UNIT-3	**Knowledge Representation** **Logical Agents:** Knowledge Based Agents, Logic, Propositional logic, First order logic, Syntax and Semantics in First order Logic. **Inference in first order logic**: propositional vs. First order inference, Unification and Lifting, Forward chaining, Backward chaining, Resolution	**CO2,CO4**
UNIT-4	**Planning :** The Planning problem, planning with state space search, planning graphs, planning with propositional logic, Analysis of planning approaches, Hierarchical planning, conditional planning, Continuous and Multi Agent planning.	**CO3, CO4**
UNIT-5	**Learning:** Learning from Examples, Knowledge in Learning, Learning probabilistic Models, Reinforcement Learning.	**CO3, CO4**

Learning Resources
Text Books
1. Stuart Russell and Peter Norvig, ‒Artificial Intelligence: A Modern Approach‖ , 3rd Edition, Prentice Hall.
References
1. A Classical Approach to Artificial Intelligence, M.C. Trivedi, Khanna Book Publishing, 2019. **2.** Elaine Rich and Kevin Knight, ―Artificial Intelligence‖, Tata McGraw Hill **3.** Saroj Kaushik, ‒Artificial Intelligence‖, Cengage Learning India, 2011
e-Resources & other digital material
1. **https://www.udemy.com/course/artificial-intelligence-az/** 2. **https://nptel.ac.in/courses/106105078** 3. **https://www.coursera.org/learn/introduction-to-ai**