PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY
KANURU, VIJAYAWADA
II B. Tech – I Sem CSE (AI&ML)
ARTIFICIAL INTELLIGENCE

Course Code	23ES1305	**Year**	II	**Semester**	I
Course Category	Engineering Science	**Branch**	CSE (AI & ML)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Discrete Mathematical Structures, Probability and Statistics
Continuous Internal Evaluation:	30	**Semester End Examination:**	70	**Total Marks**	100

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

Contribution of Course Outcomes towards achievement of Program Outcomes& Strength of correlations (3: High,2: Medium, 1: Low)

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

Syllabus		
Unit No.	**Contents**	**Mapped CO**
I	**Introduction**: Definition of AI, Foundations of AI and History of AI, Applications of AI. **Intelligent agents:** Agents and Environments, Good Behavior: The Concept of Rationality, The Nature of Environments, Structure of agents, Problem Solving Agents.	**CO1**
II	**Searching** : Searching for Solutions **Uninformed Search Strategies**: Breadth First Search, Depth First Search, Search with partial information(Heuristic Search), Hill Climbing, A*,AO* Algorithms, Problem Reduction. **Game Playing- Adversial search**: Games, mini-max algorithm, optimal decisions in multiplayer games, Alpha-Beta pruning.	**CO1,CO2,CO4**
III	**Knowledge Representation** **Logical Agents:** Knowledge-Based Agents**,** Logic**,** Propositional Logic**,** Syntax and semantics**,** A simple knowledge base**,** A simple inference procedure **Logic concepts**: First order logic. Inference in first order logic, propositional vs. first order inference, unification and lifting, forward chaining, Backward chaining, Resolution.	**CO1,CO2,CO4**
IV	**Planning**: Definition of classical planning, Algorithms planning as state space search: Forward (progression) state-space search, backward (regression) relevant-states search, Heuristics for planning, planning graphs, Analysis of planning approaches, Hierarchical planning, Multi Agent Planning.	**CO1,CO3, CO4**
V	**Learning**: Forms of Learning, Decision trees, Theory of Learning, Explanation based learning, Statistical Learning methods, Reinforcement Learning.	**CO1,CO3, CO4**

Learning Resources
Text Books
1. Artificial Intelligence-A Modern Approach, Stuart Russell and Peter Norvig, Third Edition, Pearson Education.
References
1. Computational Intelligence: a logical approach, David Poole, Alan Mackworth, Randy Goebel, Oxford University Press. 2. Artificial Intelligence: Structures and Strategies for complex problem solving, G. Luger, Fourth Edition, Pearson Education. 3. Artificial Intelligence: A new Synthesis, J. Nilsson, Elsevier Publishers. 4. Artificial Intelligence: Saroj Kaushik, 2011, Cengage Learning India.
e-Resources & other digital material
1. https://ai.google/ 2. https://swayam.gov.in/nd1_noc19_me71/preview