Artificial Intelligence	L	T	P	Data Structures and Algorithms
	3	0	2	

Course Objective: To provide the foundations for AI problem solving techniques and knowledge representation formalisms.

S. NO	Course Outcomes (CO)
CO1	Identify and formulate appropriate AI methods for solving a problem.
CO2	Implement AI algorithm
CO3	Compare different AI algorithms in terms of design issues, computational complexity, and assumptions

S. NO	Contents	Contact Hours
UNIT 1	Introduction: Uninformed search strategies, Greedy best-first search, And-Or search, Uniform cost search, A* search, Memory-bounded heuristic search. Local Search Techniques: Beam Search, Hill Climbing Search, Genetic Search techniques. Constraint Satisfaction Problems: Backtracking search for CSPs, Local search for CSPs	12
UNIT 2	Adversarial Search: Optimal Decision in Games, The minimax algorithm, Alpha-Beta pruning, Expectimax search. Knowledge and Reasoning: Propositional Logic, Reasoning Patterns in propositional logic; First order logic: syntax, semantics, Inference in First order logic, unification and lifting, backward chaining, resolution	12
UNIT 3	Representation: Information extraction, representation techniques, foundations of Ontology, Planning: Situation Calculus, Deductive planning, STRIPES, sub-goal, and Partial order planner. Bayesian Network and causality: Probabilistic models, directed and undirected models, inferencing, reasoning, causality	12
UNIT 4	Reinforcement Learning: MDP, Policy, Q-value	6
	TOTAL	42

REFERENCES		
S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint

1	Artificial Intelligence: A Modern Approach by Russell and Norvig Pearson	2022
2	Artificial Intelligence by Kevin Knight, Elaine Rich, and Shivashankar B. Nair, McGraw Hill Education	2017
3	Introduction to Artificial Intelligence by Wolfgang Ertel, Springer	2011
4	Artificial Intelligence: Foundations of Computational Agents by David L. Poole and Alan K. Mackworths, Cambridge University Press	2017

B.Tech. Information Technology				
Course code: Course Title	**Course Structure**			**Pre-Requisite**
Software Testing	**L**	**T**	**P**	**-**
	3	**1**	**-**	