VAAGDEVI COLLEGE OF ENGINEERING
(AUTONOMOUS)

ARTIFICIAL INTELLIGENCE

B. TECH- V Semester **L/T/P/C**
3/0 /0 /3

Pre-Requisites: None

Course Objectives:

- To learn the difference between optimal reasoning vs human like reasoning
- Tounderstandthenotionsofstatespacerepresentation,exhaustivesearch,heuristicsearchalong withthetime and space complexities
- To learn different knowledge representation techniques
- To understand the applications of AI: namely Game Playing.
- To understand Theorem Proving, Expert Systems.

UNIT -I

Introduction: AI problems, Agents and Environments, Structure of Agents, Problem Solving Agents Basic Search Strategies: Problem Spaces, Uninformed Search (Breadth-First, Depth-First Search, Depth-first withIterativeDeepening),HeuristicSearch(HillClimbing,GenericBest- First, A*), Constraint Satisfaction(Backtracking, Local Search)

UNIT -II

Advanced Search: Constructing Search Trees, Stochastic Search, A* Search Implementation, Minimax Search, Alpha-Beta Pruning Basic Knowledge Representation and Reasoning: Propositional Logic, First-Order Logic, Forward Chaining and Backward Chaining, Introduction to Probabilistic Reasoning, BayesTheorem

UNIT -III

Advanced Knowledge Representation and Reasoning: Knowledge Representation Issues, Non monotonic Reasoning, Other Knowledge Representation Schemes Reasoning Under Uncertainty: Basic probability, Acting Under Uncertainty, Bayes'Rule, Representing Knowledge in an Uncertain Domain, Bayesian Networks

UNIT -IV

Learning: What Is Learning? Rote Learning, Learning by Taking Advice, Learning in Problem Solving, Learning from Examples, Winston's Learning Program, Decision Trees.

UNIT -V

Expert Systems: Representing and Using Domain Knowledge, Shell, Explanation, Knowledge Acquisition.

Course Outcomes:

CO-1: Possess the ability to formulate an efficient problem space for a problem expressed in English.
CO-2: Possess the ability to select a search algorithm for a problem.
CO-3: Possess the skill for representing knowledge using the appropriate technique
CO-4: Possess the ability to apply AI techniques to solve problems of Game Playing.
CO-5: Possess the Expert Systems, Machine Learning and Natural Language Processing

TEXTBOOK:

1.Russell, S. and Norvig, P, Artificial Intelligence: A Modern Approach, Third Edition,PrenticeHall,2010.

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