

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. IT. I-Sem.

ARTIFICIAL INTELLIGENCE

UNIT I:

Introduction to artificial intelligence: Introduction, history, intelligent systems, foundations of AI, applications, tic-tac-toe game playing, development of AI languages, current trends in AI

UNIT II:

Problem solving: state-space search and control strategies: Introduction, general problem solving, characteristics of problem, exhaustive searches, heuristic search techniques, iterative-deepening a^* , constraint satisfaction

Problem reduction and game playing: Introduction, problem reduction, game playing, alpha-beta pruning, two-player perfect information games

UNIT III:

Logic concepts: Introduction, propositional calculus, propositional logic, natural deduction system, axiomatic system, semantic tableau system in propositional logic, resolution refutation in propositional logic, predicate logic.

UNIT IV:

Knowledge representation: Introduction, approaches to knowledge representation, knowledge representation using semantic network, extended semantic networks for KR, knowledge representation using frames

Advanced knowledge representation techniques: Introduction, conceptual dependency theory, script structure, cyc theory, case grammars, semantic web

UNIT V:

Expert system and applications: Introduction phases in building expert systems, expert system versus traditional systems, rule-based expert systems, blackboard systems, truth maintenance systems, application of expert systems, list of shells and tools

UNIT VI:

Uncertainty measure: probability theory: Introduction, probability theory, Bayesian belief networks, certainty factor theory, Dempster-Shafer theory

Fuzzy sets and fuzzy logic: Introduction, fuzzy sets, fuzzy set operations,

types of membership functions, multi valued logic, fuzzy logic, linguistic variables and hedges, fuzzy propositions, inference rules for fuzzy propositions, fuzzy systems.

UNIT VII:

machine learning paradigms: Introduction, machine learning systems, supervised and unsupervised learnings, inductive learning, deductive learning, clustering, support vector machines, case based reasoning and learning

UNIT VIII:

Artificial neural networks: Introduction, artificial networks, single layer feed forward networks, multi layered forward networks, design issues of artificial neural networks

TEXT BOOKS:

1. Artificial Intelligence- Saroj Kaushik, CENGAGE Learning,
2. Artificial Intelligence, A modern Approach , 2nd ed, Stuart Russel, Peter Norvig, PEA
3. Artificial Intelligence- Rich, Kevin Knight, Shiv Shankar B Nair, 3rd ed, TMH
4. Introduction to Artificial Intelligence, Patterson, PHI.

REFERNCE BOOKS:

1. Artificial Intelligence, structures and Strategies for Complex problem solving, -George F Luger, 5th ed, PEA
2. Introduction to Artificial Intelligence, Ertel, Wolf Gang, Springer
3. Artificial Intelligence, A new Synthesis, Nils J Nilsson, Elsevier