



CS 503

ARTIFICIAL INTELLIGENCE

UNIT-I

Introduction, History Intelligent Systems, Foundations of AI, Sub areas of AI, Applications.

Problem Solving - State - Space Search and Control Strategies : Introduction General Problem Solving Characteristics of problem, Exhaustive Searches, Heuristi Search Techniques, Iterative - Deepening A*, Constraint Satisfaction.

Game Playing, Bounded Look - ahead Strategy and use of Evaluation Functions, Alpha Beta Pruning.

UNIT – II

Logic Concepts and Logic Programming : Introduction, Propositional Calculus Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Table a System in Propositional Logic, resolution Refutation in Propositional Logic, Predicate Logic, Logic Programming.

Knowledge Representation : Introduction, Approaches to knowledge Representation, Knowledge Representation using Semantic Network, Extended Semantic Networks for KR, Knowledge Representation using Frames.

UNIT - III

Expert System and Applications : Introduction, Phases in Building Expert Systems Expert System Architecture, Expert Systems vs Traditional Systems, Truth Maintenance Systems, Application of Expert Systems, List of Shells and tools.

Uncertainty Measure - Probability Theory : Introduction, Probability Theory, Bayesian Belief Networks, Certainty Factor Theory, Dempster - Shafer Theory.

UNIT - IV

Machine - Learning Paradigms : Introduction, Machine learning System, Supervised and Unsupervised Learning, Inductive Learning, Learning Decision Trees (Suggested Reading 2)

Deductive Learning, Clustering, Support Vector Machines.

Artificial Neural Networks : Introduction Artificial Neural Networks, Single - Layer Feed Forward Networks, Multi - Layer Feed Forward Networks, Radial - Basis Function Networks, Design Issues of Artificial Neural Networks, Recurrent Networks

UNIT - V

Advanced Knowledge Representation Techniques : Case Grammars, Semantic Web.

Natural Language Processing : Introduction, Sentence Analysis Phases, Grammars and Parsers, Types of Parsers, Semantic Analysis, Universal Networking Knowledge.

Suggested Reading :

1. SarojKaushik, Artificial Intelligence, Cengage Learning, 2011.
2. Russell, Norvig : Artificial Intelligence, A Modern Approach, Pearson Education, Second Edition, 2004.
3. Rich, Knight, Nair : Artificial Intelligence, Tata McGraw Hill, Third Edition 2009.