**ARTIFICIAL INTELLIGENCE**

**UNIT –I**

**Artificial Intelligence:** The AI Problems, The Underlying Assumption, What Is an AI Technique?.

**Problem, Problem Spaces, And Search:** Defining the Problem as a State Space Search, Production Systems, Problem Characteristics, Production System Characteristics, Issues in the Design of Search Programs.

**Heuristic Search Techniques:** Generate-and-Test, Hill Climbing Best- First Search, Problem Reduction, Constraint Satisfaction, Means-Ends Analysis.

**UNIT-II**

**Knowledge Representation Issues:**  Representations and Mappings, Approaches to Knowledge Representation, Issues in Knowledge Representation, The Frame Problem. **Using Predicate Logic:** Representing Simple Facts in Logic, Resolution, Natural Deduction.

**Representing Knowledge Using Rules:** Procedural versus Declarative Knowledge, Logic Programming, Forward versus Backward Reasoning, Matching, Control Knowledge.

**UNIT –III**

**Symbolic Reasoning Under Uncertainty:** Logics for Non-monotonic Reasoning, Implementation Issues, Augmenting a Problem Solver, Implementation: Depth-First Search, Implementation: Breadth-First Search.

**Statistical Reasoning:** Probability and Bayes Theorem, Certainty Factors and Rule-Based Systems, Bayesian Networks, Theory, Fuzzy Logic and operations.

**UNIT –IV**

**Planning And Learning:** Planning problem, Partial order planning, Planning and acting in non-deterministic domains, Learning decision trees ,  Knowledge in learning, Neural networks – Reinforcement learning – Passive and active.

**Game Playing :** Overview, The mini-max Search Procedure, Adding Alpha- Beta Cutoffs, Additional Refinements.

**UNIT –V**

**Expert Systems:** Basic components of an expert system, Expert System Architectures. An analysis of some classic expert systems, Features of an expert system, Knowledge Representation in expert systems. Building Expert Systems, Methodologies for building expert systems, knowledge acquisition and elicitation, formalization, representation and evaluation, Knowledge Engineering tools, mycin, emycin

**Text Book:**

Artificial Intelligence (2nd Edition) By Elaine Rich, Kevin Knight (Tmh)

**Reference**

1. Artificial Intelligence (3rd Edition) By Patrick Henry Winston, Pearson Education

2. Introduction to Artificial Intelligence and Expert Systems By Dan W. Patterson, PHI

3. Introduction to Artificial Intelligence By Eugene Charniak and Drew McDermott,

Addison Wesley.