

**Chapter 1 : Introduction to Artificial Intelligence** **1-1 to 1-18**

**Syllabus :** Introduction, History of Artificial Intelligence, Intelligent Systems : Categorization of Intelligent System, Components of AI Program, Foundations of AI, Sub-areas of AI, Applications of AI, Current trends in AI.

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**Chapter 3 : Problem Solving**
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**Syllabus : Uninformed Search Methods :** Breadth First Search (BFS), Depth First Search (DFS), Depth Limited Search, Depth First Iterative Deepening (DFID), Informed Search Methods : Greedy best first Search, A\* Search, Memory bounded heuristic Search.

**Local Search Algorithms and Optimization Problems :** Hill climbing search Simulated annealing, Genetic algorithms.

**Adversarial Search :** Game Playing, Min-Max Search, Alpha Beta Pruning.

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**Chapter 4 : Knowledge and Reasoning**

**4-1 to 4-72**

**Syllabus :** Knowledge based Agents, Brief Overview of propositional logic, First Order Logic : Syntax and Semantic, Inference in FOL, Forward chaining, backward Chaining. Knowledge Engineering in First-Order Logic, Unification, Resolution Uncertain Knowledge and Reasoning : Uncertainty, Representing knowledge in an uncertain domain, The semantics of belief network, Simple Inference in belief network.

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**Chapter 5 : Planning and Learning****5-1 to 5-49**

**Syllabus :** The planning problem, Planning with state space search, Partial order planning, Hierarchical planning, Conditional Planning. Learning : Forms of Learning, Theory of Learning, PAC learning. Introduction to statistical learning (Introduction only) Introduction to reinforcement learning : Learning from Rewards, Passive Reinforcement Learning, Active reinforcement Learning

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**Chapter 6 : AI Applications****6-1 to 6-21**

**Syllabus :** Introduction to NLP- Language models, Grammars, Parsing. Robotics - Robots, Robot hardware, Problems Robotics can solve AI applications in Healthcare, Retail, Banking.

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