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Course Content

Artificial Intelligence

Artificial Intelligence topics: Introduction, Problem solving, Search and control strategies, Knowledge representations issues, predicate logic, rules, Reasoning system - symbolic, statistical, Game playing, Learning systems, Expert systems, Fundamentals of neural networks, Fundamentals of genetic algorithms, Natural language processing, Common sense.

Course Content

Artificial Intelligence

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chakrat	Content	Hrs
و د 01	Introduction to AI Definitions, Goals of AI, AI Approaches, AI Techniques, Branches of AI, Applications of AI.	1-6
02	Problem Solving, Search and Control Strategies: General problem solving, Search and control strategies, Exhaustive searches, Heuristic search techniques, Constraint satisfaction problems (CSPs) and models.	7-14
03	Knowledge Representations Issues, Predicate Logic, Rules: Knowledge representation, KR using predicate logic, KR using rules.	15-22
04	Reasoning System - Symbolic , Statistical : Reasoning - Over view, Symbolic reasoning, Statistical reasoning.	23-28
05	Game Playing : Overview, Mini-Max search procedure, Game playing with Mini-Max, Alpha-Beta pruning.	29-30
06	Learning Systems: Rote learning, Learning from example: Induction, Explanation Based Learning (EBL), Discovery, Clustering, Analogy, Neural net and genetic learning, Reinforcement learning.	31-34
07	Expert Systems: Knowledge acquisition, Knowledge base, Working memory, Inference engine, Expert system shells, Explanation, Application of expert systems.	35-36
08	Fundamentals of Neural Networks: Research history, Model of artificial neuron, Neural networks architectures, Learning methods in neural networks, Single-layer neural network system, Applications of neural networks.	37-38
09	Fundamentals of Genetic Algorithms: Search optimization algorithm, Evolutionary algorithm, Encoding, Operators of genetic algorithm, Basic genetic algorithm.	39-40
10	Natural Language Processing: Introduction, Syntactic processing, Semantic and Pragmatic analysis.	41
11	Common Sense: Introduction, Formalization of common sense reasoning, Physical world, Common sense ontologies, Memory organization	42