

**Artificial Intelligence : Course Content , Lecture hours – 42 , notes , slides : 565**  
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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

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