



**B. P. PODDAR INSTITUTE OF MANAGEMENT & TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**ACADEMIC YEAR: 2024-2025 [ODD SEMESTER]**

**LESSON PLAN**

**Course: Artificial Intelligence**

**Code: PEC-IT501B**

**Branch & Sec: CSE (Sec-A)**

**1. Textbook:**

T1: E. Rich, K. Knight, “Artificial Intelligence”, TMH.

T2: D. Patterson, “Artificial Intelligence and Expert Systems”, PHI.

T3: S. J. Russell, P. Norvig, “Artificial Intelligence”, PHI.

T4: N. J. Nilsson, “Principles of Artificial Intelligence”, Narosa Publishing House.

**E-Learning Courses for Reference:**

W1: [https://www.tutorialspoint.com/artificial\\_intelligence/index.htm](https://www.tutorialspoint.com/artificial_intelligence/index.htm)

W2: <https://www.javatpoint.com/artificial-intelligence-tutorial>

Lecture No.	Topics to be covered	Ref	Teaching Aids	Teaching Method
1	Overview of Artificial intelligence- Problems of AI	T1,T2	BB, PPT	Lecture
2	AI technique, Tic - Tac - Toe problem	T1,T2	PPT	Illustration by example, Lecture
3	Agents & environment, nature of environment, structure of agents	W1, W2	BB, PPT	Lecture
4	Goal based agents, utility based agents, learning agents	W1, W2	BB, PPT	Lecture
5	Problems, Problem Space & search: Defining the problem as state space search	T1,T2	BB	Lecture, Problem solving
6	Production system, problem characteristics, issues in the design of search programs	T1,T2	BB	Lecture, Problem solving
7	Solving problems by searching: problem solving agents, searching for solutions	T1,T2	BB	Lecture
8	Uninformed search strategies: breadth first search, depth first search	T1,T2	BB	Lecture, Problem solving
9	Depth limited search, Iterative deepening search, bi-directional search	T1,T2	BB	Lecture
10	Comparing uninformed search strategies	T1,T2	BB	Lecture
11	Greedy best-first search	T2,T3	BB	Lecture, Problem solving
12	A* search	T2,T3	BB, PPT	Lecture, Problem solving
13	Hill climbing search, simulated annealing search	T2,T3	PPT	Lecture, Problem solving
14	Local beam search, genetic algorithms	T2, T3	BB, PPT	Lecture

Lecture No.	Topics to be covered	Ref	Teaching Aids	Teaching Method
15	Constraint satisfaction problems, local search for constraint satisfaction problems	T2, T3	PPT	Lecture
16	Game Trees, optimal decisions & strategies in games	T1, T4	BB	Lecture, Problem solving
17	The minimax search procedure, alpha-beta pruning	T1, T4	BB	Lecture, Assignments
18	Additional refinements, iterative deepening	T2, T3	BB	Lecture
19	Knowledge representation issues, representation & mapping	T1, T2	BB	Lecture
20	Approaches to knowledge representation, issues in knowledge representation	T1, T2	BB	Lecture
21	Representing simple fact in logic, representing instant & ISA relationship	T1, T2	BB	Lecture
22	Computable functions & predicates, resolution, natural deduction	T1, T2	BB	Problem Solving, Lecture
23	Procedural verses declarative knowledge	T1, T2	BB	Lecture
24	Logic programming	T1, T2	BB, PPT	Lecture
25	Forward verses backward reasoning, matching, control knowledge	T1, T2	BB, PPT	Lecture
26	Representing knowledge in an uncertain domain, The semantics of Bayesian networks	T1, T2	BB, PPT	Lecture
27	Dempster-Shafer theory	T1, T2	BB, PPT	Lecture
28	Fuzzy sets & fuzzy logics	T1, T2	BB, PPT	Lecture
29	NLP - Syntactic processing, semantic analysis	T1, T2	BB, PPT	Lecture
30	NLP - discourse & pragmatic processing	T1, T2	BB, PPT	Lecture
31	Forms of learning, inductive learning, learning decision trees, explanation based learning	T1, T2	BB, PPT	Lecture
32	Learning using relevance information, neural net learning, Genetic learning	T1, T2	BB, PPT	Lecture
33	Representing and using domain knowledge	T1, T2	BB, PPT	Lecture
34	Expert system shells, knowledge acquisition	T1, T2	BB, PPT	Lecture
*35	AO* search algorithm	T1	BB, PPT	Lecture
*36	Different types of learning - Supervised, Unsupervised & Reinforcement	T1	BB, PPT	Lecture

\* Gaps within syllabus

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Faculty