

Curriculum Plan

Paper Name: Artificial Intelligence
Class Type: B.Sc. Hons. Computer Science
Semester: IIIrd
Teacher Name: Ruby Gupta

S.No.	Schedule (Approximate)	Topic
1	August 2025	UNIT 1: Introduction: Introduction to artificial intelligence, background and applications, Turing test, rational agents, intelligent agents, structure, behaviour and environment of intelligent agents UNIT 2: Knowledge Representation: Propositional logic, first order predicate logic, resolution principle, unification PROLOG: Introduction to programming in PROLOG, Syntax and meaning of PROLOG program, Operators and Arithmetic <i>Test (Unit 1 and 2)</i>
2	September 2025	UNIT 2: Knowledge Representation: Semantic nets, conceptual dependencies, frames, scripts, production rules, conceptual graphs. UNIT 3: Reasoning with Uncertain Knowledge: Uncertainty, non-monotonic reasoning, truth maintenance systems, default reasoning and closed world assumption Reasoning with Uncertain Knowledge: Introduction to probabilistic reasoning: Bayesian probabilistic inference, introduction to fuzzy sets and fuzzy logic, reasoning using fuzzy logic. PROLOG: Lists, Controlling Backtracking <i>Test (Unit 2, 3)</i>
3	October 2025	UNIT 4: Problem Solving and Searching Techniques: Problem characteristics, production systems, control strategies, breadth first search, depth first search, hill climbing and its variations. Heuristics Search Techniques: Best first search, A* algorithm, constraint satisfaction problem, means-end analysis. UNIT 5: Game Playing: Min-Max Search, Alpha-Beta pruning

		PROLOG: Input and Output <i>Test (Unit 4 and 5)</i>
4	November 2025	UNIT 6: Understanding Natural Languages: Parsing Techniques Context free and Transformational Grammars; Recursive and Augmented Transition Nets UNIT 7: Ethics in AI, Fairness in AI, Legal perspective PROLOG: Revision <i>Test (Unit 6 and PROLOG)</i> <i>Mock Test and Mock Practical</i>

References:

- [1] Rich & Knight. (2012). *Artificial Intelligence*. 3rd Edition. Tata McGraw Hill.
- [2] Russell & Norvig. (2015). *Artificial Intelligence – A modern Approach*. 3rd Edition. Pearson Education.
- [3] Dan W. Patterson. (2015). *Introduction to AI and Expert Systems*. 1st Edition. Pearson Education.
- [4] Bratko. (2011). *Prolog Programming for Artificial Intelligence*. 4th Edition. Pearson Education.