

AC –
Item No. –

As Per NEP 2020

**Tolani College of
Commerce
(Autonomous)**



Knowledge is Supreme

Title of the Course: Artificial Intelligence

Programmes: Sem. IV

B.Com (Management Studies)

B.Com (Accounting & Finance)

B.Com (Banking & Insurance)

B.Com (Financial Markets)

Syllabus for 4 Credits

From the Academic Year: 2025-2026

Name of the Course: Artificial Intelligence

Sr. No.	Heading	Particulars
1	Description of the course :	This course explores the definition, historical evolution, and ethical considerations of AI, search algorithms, including heuristic methods and game-playing strategies and Programming in PROLOG.
2	Vertical :	Minor
3	Type :	Theory
4	Credit:	4 credits
5	Hours Allotted :	60 Hours
6	Marks Allotted:	100 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. comprehensive understanding of the fundamental concepts, definitions, and historical evolution of artificial intelligence.2. apply various problem-solving techniques and search algorithms to effectively address complex problems in AI.3. explore and implement different knowledge representation methods, including propositional and first-order logic, to model information and reasoning in AI systems.4. examine the ethical considerations and societal implications of AI.
8	Course Outcomes: Learner will be able to :	<ol style="list-style-type: none">1. define artificial intelligence, describe its historical evolution, and identify key milestones and figures in the field.2. demonstrate the ability to implement various problem-solving techniques, including search algorithms (e.g., breadth-first, depth-first, A*, hill climbing) in practical scenarios.3. explain and utilize different knowledge representation techniques, including propositional logic, first-order predicate logic, and semantic networks, in the context of AI applications.4. critically analyze the ethical implications of AI technologies, including issues related to explainability, interpretability, and the potential societal impacts of AI systems.

9	<p>Modules:-</p> <hr/> <p>Module 1: Introduction to AI</p> <ul style="list-style-type: none"> • Definition of AI, Historical context and evolution. • Current trends in AI research and development, Ethical considerations in AI. • Turing test, Software agents, Rational agents, Intelligent agents, structure of various agents, behavior and environment for agents. • Future Trends and challenges in AI. <hr/> <p>Module 2: Problem Solving and Searching Techniques</p> <ul style="list-style-type: none"> • Definition, Importance of Problem Solving. • Production Systems & their components. • Search Techniques: breadth-first search, depth-first search, hill climbing. • Heuristics search techniques: best-first search, A* algorithm, constraint satisfaction problem, means-end analysis, introduction to game playing, min-max and alpha-beta pruning algorithms. <hr/> <p>Module 3: Knowledge Representation</p> <ul style="list-style-type: none"> • Propositional logic, First-Order Predicate logic, • Resolution principle, unification, semantic nets, conceptual dependencies, • Frames and scripts, production rules, • Introduction to Programming in Logic (PROLOG). <hr/> <p>Module 4 : Natural Language Processing & Future of AI</p> <ul style="list-style-type: none"> • Components and steps of communication, contrast between formal and natural languages in the context of grammar. • Strong AI, Weak AI, Human Level AI models, • Interpretable and Explainable AI, Ethics of AI • Benefits and risks of AI.
10	<p>Text Books:</p> <p style="text-align: center;">Not Applicable</p>

Question Number	Nature of Questions		Maximum Marks
1)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
2)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
3)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
4)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.		
3.		
4.		
5.		

List of Practical's

1. Write a program to implement two agents to communicate with each other with message passing in Python/Prolog.
2. Write a program to implement the Hill climbing search algorithm in Python/Prolog.
3. Write a program to implement the Best first search algorithm in Python/Prolog.
4. Write a program to implement A* search algorithm in Python/Prolog.
5. Write a program to solve the Water-Jug Problem in Prolog.