Tulsiramji Gaikwad-Patil College of Engineering and Technology
WardhaRoad,Nagpur-441108
NAAC Accredited (A+ Grade)
An Autonomous Institute affiliated to RTMNU Nagpur

Second Year (Semester-III) B.Tech. (CSE)

Course Name:- Introduction to Artificial Intelligence(BCS32325)

Teaching Scheme	
Lectures	3Hrs/week
Tutorial	-
Total Credit	4

Examination Scheme	
CT-1	15 Marks
CT-2	15 Marks
TA	10 Marks
ESE	60 Marks
Total	100 Marks
Duration of ESE:03Hrs 00Min.	

Course Objective:

1	To introduce the fundamental concepts and history of Artificial Intelligence and intelligent agents.
2	To explore problem-solving through various searching techniques and their applications.
3	To understand constraint satisfaction problems, game playing, and logic-based reasoning.
4	To study propositional logic, first-order logic, and their role in AI systems.
5	To gain knowledge of reasoning under uncertainty and basic learning systems in AI.

Course Contents

Unit I	**Introduction to AI, Intelligent Agents:-** Definition of AI, birth of AI, brief history, Turing test, Types of environment, Types of agents, PEAS(Performance measure , Environment, Actuators, Sensors).
Unit II	**Introduction to searching: -** State Space, SAGP (State, Action, Goal test, Path cost), DFS, BFS (Completeness, Time complexity, Space complexity, Optimality), Heuristics, Local Search Algorithm, Hill Climbing. Applications of Artificial Intelligence in real word.
Unit III	**CSP, Game Playing and Logics: -** Constrain Satisfaction Problems examples, Approaches to solve CSPs, Test and generate method, back tracking. Game Playing, Optimal decision in games, Min Max algorithm, Evaluation functions
Unit IV	**Introduction to Propositional Logic and First Order:-** Logic, Syntax, Substitution, Unification, Deduction, Soundness, Completeness, Consistency, Satisfiability, Expert Systems.
Unit V	**Uncertain Knowledge, Reasoning:-** Probabilistic Reasoning, Review of Probability Theory, Probabilistic Inference Rules, Bayes Theorem, examples of Bayes theorem, Introduction to Learning, Taxonomy of Learning Systems, Concept Learning,

Text Books

T1	Stuart Russell and Peter Norvig – Artificial Intelligence a Modern Approach, PEARSON Education
T2	Simon Haykin -Neural Networks PHI.

Reference Books

1	N. P. Padhy – Artificial Intelligence and Intelligence Systems, OXFORD publication
2	B. YagnaNarayana - Artificial Neural Networks, PHI

Useful Links

1	http://nptel.ac.in/courses/106105077/

2	http://nptel.ac.in/courses/106105079/
3	http://nptel.ac.in/courses/106106126/

	Course Outcomes	CL	Class Session
1	Understand AI fundamentals, intelligent agents, and the PEAS framework..	2	9
2	Apply search algorithms and explore real-world AI applications.	3	9
3	Solve CSPs and implement game-playing strategies.	3	9
4	Use propositional and first-order logic in knowledge representation.	3	9
5	Apply probabilistic reasoning and understand basic AI learning techniques.	3	9