The course and timings-

Course Number and Title	CSL7610 – Artificial Intelligence	
Lectures	Days	Tue, Wed, Fri
	Time	10-11am,9-10am,9-10am
	Venue	LHB105

Instructor(s)-

Name	**Email**	**Department**	**Contact Number**	**Office Address**
Course Coordinator				
Dr. Pratik Mazumder	**pratikm@iitj.ac.in**	**Computer Science and Engineering**	**7762834224**	**223, CSE Dept**

Office Timings during the week: 11am-12pm Thursday

Contact details of Teaching Assistants (TAs): Please contact the TAs for any query related to the course or attendance.

Name of the TA	Contact details
Avadhut Eknath Kabadi	d23csa001@iitj.ac.in
Alli Khadga Jyoth	m23csa003@iitj.ac.in
Ankit Kumar Sharma	m23csa006@iitj.ac.in

Lecture-wise detailed course content as approved by the Senate:

Title	**Artificial Intelligence (700)**	Number	CSL7XX0
Department	Computer Science and Engineering	L-T-P [C]	3–0–0 [3]
Offered for	B. Tech., M.Tech., Ph.D.	Type	Compulsory (AI)
Prerequisite	Data Structures and Algorithms	Antirequisite	Artificial Intelligence (300) - CSL 3XX

Objectives

The Instructor will:

1. Cover various paradigms that come under the broad umbrella of AI.

Learning Outcomes

The students are expected to have the ability to:

1. Develop an understanding of where and how AI can be used.

Contents

Introduction: Uninformed search strategies**,** Greedy best-first search, And-Or search, Uniform cost search, A* search, Memory-bounded heuristic search, Local and evolutionary searches (9 Lectures)
Constraint Satisfaction Problems: Backtracking search for CSPs, Local search for CSPs (3 Lectures)
Adversarial Search: Optimal Decision in Games, The minimax algorithm, Alpha-Beta pruning, Expectimax search (4 Lectures)
Knowledge and Reasoning: Propositional Logic, Reasoning Patterns in propositional logic; First order logic: syntax, semantics, Inference in First order logic, unification and lifting, backward chaining, resolution (9 Lectures)
Planning: Situation Calculus, Deductive planning, STRIPES, sub-goal, Partial order planner (3 Lectures)
Bayesian Network, Causality, and Uncertain Reasoning: Probabilistic models, directed and undirected models, inferencing, causality, *Introduction to Probabilistic reasoning* (6 lectures)
Reinforcement Learning: MDP, Policy, Q-value, Passive RL, Active RL, Policy Search (8 Lectures)

Textbook

1. Russel,S., and Norvig,P., (2015), *Artificial Intelligence: A Modern Approach*, 3rd Edition, Prentice Hall

Reference Books

1. Research literature

Self Learning Material

1. Department of Computer Science, University of California, Berkeley, http://www.youtube.com/playlist?list=PLD52D2B739E4D1C5F
2. NPTEL: Artificial Intelligence, https://nptel.ac.in/courses/106105077/

Evaluation policy for the course:

Components	Weightage (%)	Date and Timings	Remarks
Assignments	30	September, October	2 Assignments
Quizzes	10	September, November	2 Quizzes (Best 2 in case 3rd Quiz is conducted)
Minor	20	19-21 September	Closed Book, Written Examination
Major	40	20-26 November	Closed Book, Written examination
Project	**Non Graded**	November	Project on Reinforcement Learning - Certificates for Top 3 Teams

Guidelines for Examination: Closed Book, Written Examination

Attendance Policy: As per institute policy

Any other relevant information: Practicing Python Programming will help in the assignments

Google Classroom for Assignment Submission, Announcements: Invite Sent to Registered Students

Lecture Site: https://sites.google.com/iitj.ac.in/ai2024