SWARNANDHRA

College of Engineering & Technology

Autonomous and recognized under 2(F) and 12(B) by UGC

Recognized by AICTE, permanently affiliated to JNTUK Kakinada

Accredited by NAAC with 'A' Grade (2nd Cycle)

Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)

DEPARTMENT OF INFORMATION TECHNOLOGY

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20IT5T02	Artificial Intelligence	V	CSE-CS	5	2024-2025	05-06-2024

COURSE OUTCOMES

1	Define the fundamentals of AI techniques and search techniques.
2	Use appropriate search algorithms for any AI problem.
3	Represent a problem using first order and predicate logic.
4	Understand the concepts of non-monotonic reasoning.
5	Acquire the knowledge of various AI applications

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/ Activity	Text Book/ Reference	Contact Hours	Delivery Method
I	CO – 1	1	Introduction			Chalk & Board Power point presentations Assignment Test
		1.1	Artificial Intelligence definition - Introduction	T1,T2,T3	2	
		1.2	AI problems, Problem Spaces	T1,T2,T3	1	
		1.3	Defining the Problem as a State Space Search,	T1,T2,T3	1	
		1.4	problem characteristics, production Systems.	T1,T2,T3	2	
		1.5	Future of Artificial Intelligence	T1,T2,T3	1	
		1.6	Characteristics of Intelligent Agents	T1,T2,T3	2	
		1.7	Typical Intelligent Agents – Problem Solving	T1,T2,T3	2	
		1.8	Approach to Typical AI problems	T1,T2,T3	2	
		1.9	Cryptarithmetic problem	T1,T2,T3	2	
		1.10	Missionaries and Cannibals problem	T1,T2,T3	1	
		1.11	Problem solving	T1,T2,T3	1	

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				Total	17	
II	CO – 2	**2**	**Problem solving Methods**			Chalk & Board Power point presentations Assignment Test
		2.1	Issues in the design of search program	T1,T2,T3	1	
		2.2	Search Strategies- Uninformed (BFS and DFS	T1,T2,T3	1	
		2.3	Informed (Heuristic) - Local Search Algorithms and Optimization Problems	T1,T2,T3	1	
		2.4	Generate-And- Test, Hill Climbing	T1,T2,T3	1	
		2.5	Best-First Search, A* Algorithm	T1,T2,T3	2	
		2.6	Problem Reduction, AO*Algorithm)	T1,T2,T3	2	
		2.7	Constraint Satisfaction Problems,	T1,T2,T3	1	
		2.8	Backtracking Search	T1,T2,T3	1	
		2.9	Game Playing - Optimal Decisions in Games –	T1,T2,T3	1	
		2.10	Minimax Search, Alpha - Beta Pruning	T1,T2,T3	1	
		2.11	Stochastic Games	T1,T2,T3	1	
				Total	13	
III	CO – 3	**3**	**Knowledge Representation**			Chalk & Board Power point presentations Assignment Test
		3.1	Knowledge Representation	T3,R1	1	
		3.2	Representing Simple Facts in Predicate Logic	T3,R1	1	
		3.3	First Order Predicate Logic(FOPL)	T3,R1	1	
		3.4	Prolog Programming Unification	T3,R1	1	
		3.5	Forward Chaining, Backward Chaining	T3,R1	1	
		3.6	Resolution	T3,R1	1	
		3.7	Natural Deduction	T3,R1	1	
		3.8	Ontological Engineering, Categories and Objects	T3,R1	1	
		3.9	Events, Mental Events and Mental Objects	T3,R1	1	
		3.10	Reasoning Systems for	T3,R1	1	

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			Categories			
		3.11	Reasoning with Default Information	T3,R1	1	
			Total	11		
IV	CO – 4	4	**Uncertain Knowledge and Reasoning**			Chalk & Board Power point presentations Assignment Test
		4.1	Introduction to Non-Monotonic Reasoning	T1,T2,T3	1	
		4.2	acting under Uncertainty	T1,T2,T3	1	
		4.3	Basic Probability Notation	T1,T2,T3	1	
		4.4	Inference Using Full Joint Distributions	T1,T2,T3	1	
		4.5	Bayes' Rule and Its Use,Independence	T1,T2,T3	1	
		4.6	Representing Knowledge in an Uncertain Domain	T1,T2,T3	1	
		4.7	Probability and Bayes Theorem	T1,T2,T3	1	
		4.8	The Semantics of Bayesian Networks	T1,T2,T3	1	
			Total	8		
V	CO – 5	5.1	**AI Applications**			Chalk & Board Power point presentations Assignment Test
		5.2	Language Models	T1,T3,R1	1	
		5.3	Information Retrieval	T1,T3,R1	1	
		5.4	Information Extraction	T1,T3,R1	1	
		5.5	Expert Systems	T1,T3,R1	1	
		5.6	Natural Language Processing	T1,T3,R1	1	
		5.7	Machine Translation- Speech Recognition	T1,T3,R1	1	
		5.8	Robot-Hardwar, Perception ,Planning, Moving	T1,T3,R1	1	
			Total	07		
		CUMULATIVE PROPOSED PERIODS		57		

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Text Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approachl, Prentice Hall, Third Edition, 2009.
2	Saroj Kaushik, "Artificial Intelligence", Cengage Learning India, 2011
3	Artificial Intelligence, Elaine Rich, Kevin Knight, Shiva Sankar B. Nair, The McGraw Hill publications, Third Edition, 2017.
4	Bratko, —Prolog: Programming for Artificial Intelligencel, Fourth edition, Addison-Wesley Educational Publishers Inc., 2011.

Reference Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	George F. Luger, Artificial Intelligence: Structures and Strategies for Complex Problem Solving, Pearson Education, 6th ed., 2009.
2	David Poole and Alan Mackworth, "Artificial Intelligence: Foundations for Computational Agents", Cambridge University Press 2010.

Web Details:

1	https://nptel.ac.in/courses/106105077
2	https://nptel.ac.in/courses/106106126
3	https://aima.cs.berkeley.edu
4	https://ai.berkeley,edu/project_overview.html

		Name	Signature with Date
i.	Course Coordinator	Mr.K.Raja	
ii.	Module Coordinator	Mr.K.Raja	
iii.	Programme Coordinator	Dr. RVVSV Prasad	

Principal

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