

The Maharaja Sayajirao University of Baroda Polytechnic Higher Payment Program Diploma in Computer Engineering			ACADEMIC YEAR 2021-2022		
Year	III	ARTIFICIAL INTELLIGENCE (CSE3616)	Lecture Hrs per week	4	
Semester	II		Max marks	100	
Pre-requisite: Data structures and mathematics					
CO1	Explain the fundamental concepts of intelligent agents, their structures, behaviors and their interaction with environments.				
CO2	Study and formulate problems as state space searches and apply appropriate problem-solving strategies to find optimal solutions.				
CO3	Evaluate and implement various heuristic search techniques and simulated annealing to solve optimization problems.				
CO4	Interprete types of learning processes including supervised and unsupervised learning and describe expert-system tools and architectures.				
CO5	Evaluate and applying knowledge representation methods and uncertainty reasoning (Bayesian networks, Dempster-Shafer theory, fuzzy logic).				
BT	1. Remember 2. Understand 3. Application 4. Analysis 5. Evaluation 6. Creation				
COURSE CONTENT/SYLLABUS					
Unit	Unit Name		Hrs	Weightage	CO
1	INTRODUCTION Agent, Intelligent Agents, Agents and environment, behavior of Agent, Structure of Agents, applications of Artificial Intelligence.		08	14	CO1
2	PROBLEM SOLVING Problem solving, Problem Solving Agents, Defining the problem as state space search, production system, problem characteristics, issues in the design of search programs.		10	16	CO1,CO2
3	HEURISTIC SEARCH TECHNIQUES Hill Climbing, Branch and Bound Technique, Best First Search Technique and algorithm, A* Algorithm and AO* Algorithm, Constraints Satisfaction and related numeric problems, simulated annealing search, local beam search, genetic algorithms		12	24	CO3
4	LEARNING Introduction to Learning, Types of Learning, Leaning in Neural Network, Various learning Processes, Supervised and Unsupervised Learning,		08	14	CO4
5	EXPERT SYSTEM Characteristics of Expert System, Expert system Architecture, Expert system life Cycle, Expert System Tools, Representing and using domain knowledge, expert system shells, knowledge acquisition.		10	16	CO4
6	KNOWLEDGE & REASONING Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation. Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Fuzzy sets & fuzzy logics.		10	16	CO5
			58	100	
REFERENCE BOOKS:					
1.	Artificial Intelligence, Ritch & Knight, TMH				
2.	Artificial Intelligence A Modern Approach, Stuart Russel Peter Norvig Pearson				
3.	Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI				
4.	Expert Systems, Giarranto, VIKAS				
5.	Artificial Intelligence, Russel, Pearson				
6.	Principles of Artificial Intelligence by Nils J. Nilson.				