

GUJARAT UNIVERSITY

K. S. SCHOOL OF BUSINESS MANAGEMENT
[Five Years' (Full-time) Integrated Degree Course]

Semester-7 [M.Sc. (CA & IT)]

Subject Code: - KS_C_CC-474

Subject Name: - Artificial Intelligence

Course Credit: - 3

Objective:

To introduce the necessary understanding of human intelligence and to explore the mechanisms that enables the intelligent thought and action. To Understand and learn effective ways for representing knowledge, applying intelligent problem solving techniques & searching techniques.

Unit No.	Course Content	Weight-age (%)
1	Introduction to AI and Problems, problem spaces and searches:- What is AI? AI problems, AI techniques to solve the problems, Application areas of AI, Criteria for success, Turing test. Defining the problem as a state space search, solving AI problem and defining it formally, production system, production system and its characteristics, problem characteristics, Introduction to heuristic search, heuristic function and its use, classifying various problems according to problem characteristics, issues in the design of search programs	(20%)
2	Heuristic search Techniques: -Basic search strategies - Breadth First search and depth first search, Heuristic search Techniques - Generate and test, Hill climbing, Best first search, Types of hill climbing - Simple and steepest ascent hill climbing, Problems with Hill climbing and methods to deal with it, local and global heuristics, OR Graph, A* Algorithm, issues in A* Algorithm, Problem reduction, AND-OR Graphs.	(20%)
3	Representation of knowledge, Knowledge Representation Using rules And Expert System Development: -Approach to knowledge representation, types of knowledge, Attributes of knowledge representation. Procedural/Declarative knowledge, representation in PROLOG, Forward/Backward reasoning. Introduction to expert system, Method of creating an Expert system, Types of Expert system, Process of developing an expert system, characteristic of an Expert system, problems facing	(20%)

	current expert system.	
4	Knowledge Representation Using predicate logic:- Representing facts using predicate logic and propositional logic, Computable functions and predicates.	(20%)
5	Structured Representation of knowledge And Game Playing :- Weak slot and filler structure, semantic Nets, support for inheritance, intersection search, partitioned semantic Nets, Frames. Minimax search procedure, Adding alpha cutoff, Beta cutoff, Adding refinements.	(20%)

Recommended Lecture Scheme: Approximately 40 to 45 hours in a semester

Recommended Practical Scheme: Project Development On KS_C_CC-478

Assignment: Minimum five assignments should be given.

Main Reference Books:

1. Artificial Intelligence by Rich & Knight

Reference Books:

1. Introduction to Artificial Intelligence & Expert Systems, Dan W. Patterson, Prentice-Hall India, 1998.
2. Artificial Intelligence, 2 Edition, Eliane Rich & Kelvin Knight, Tata McGraw-Hill, 1991
3. Artificial Intelligence & design of expert systems, Lager, Benjamin/Cummings.
4. Artificial Intelligence - An Engineering Approach, Schalkoff R. J., McGraw-Hill.
5. Expert Systems: Theory & Practice, Jean-Louis Ermine, Prentice-Hall India, 1997.
6. Introduction to Expert Systems, Peter Jackson, Addison- Wesley, 1988.
7. Programming in Prolog, Clocksin & Mellish, Narosa Publishing, 1989.
8. Turbo Prolog - Features for programmers, Sanjiva Nath, Galgotia, 1988.
9. Introduction to Turbo Prolog, Carl Townsend, BPB Publishers, 1987.
10. Expert system development process
11. "A First Course in Artificial Intelligence Paperback" by Deepak Khemani (Author)