C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Applications
SEMESTER:-   V
CODE: - 5CS05MAI1
NAME: – ARTIFICIAL INTELLIGENCE (AI)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme						
							Theory				Practical (Marks)		
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05MAI1	ARTIFICIAL INTELLIGENCE (AI)	4	0	0	4	4	30	1.5	70	3	----	---	---	100

Objectives:-
- Explain the basic knowledge representation, problem solving, and learning methods of Artificial Intelligence
- Develop intelligent systems by assembling solutions to concrete computational problems

Prerequisites:-
- The Artificial Intelligence involves the ability to be intelligent artificially and must possess the ability to come out with the human like responses and for the achievement of all these features.

Course outline:-

Sr. No.	Course content	No. of Hours
1.	**AI and Knowledge Based Decision Support** **Artificial Intelligence**: Concepts, Definitions, Fields, AI v/s Natural Intelligence **Problem Solving**: Defining the Problem as State Space Search, Water-jug Problem, Production System , Problem Characteristics, Production System Characteristics. **Heuristic Search Techniques**: Generate and Test, Hill Climbing, Best First Search, A* Algorithm, Problem Reduction, Constraint Satisfaction, Means - End Analysis. **Expert System**: Types of Knowledge Based DSS, Basic Concepts of ES, Structure of ES, Type of ES, Development Life Cycle of ES, Problem Area's and Example Of ES, Advantages and Limitations of ES, ES and Internet/Intranet/Web.	20
2.	**Knowledge Representation and Knowledge Acquisition Knowledge Representation**: Introduction, Representation in logic and Other Schemas, Rules in Knowledge Representation, Multiple, Experimental and Uncertain Knowledge Representation, Knowledge Representation Techniques: Semantic Net, Frame, Script. **Knowledge Acquisition**: KE Introduction, Scope Of Knowledge: Sources, Level and Categories, Difficulties in KA, Methods Of Knowledge Acquisition: Interview, Tracking Methods, Observation And Manual Methods, Expert Driven Method, RGA, Role Of	20

	Knowledge Engineer, Machine learning, KA from Multiple Experts ,V & V in Knowledge Base, Analyzing, coding, Documenting, Diagramming knowledge, Numerical and Documented KA, KA and Internet/Intranet. **Game Playing**: The Minimax Search Procedure, Alpha - Beta Cutoffs.	
3.	**Fuzzy Logic Fuzzy Set:** Introduction, Basic Types and Concepts, Basic Operation, Arithmetic and Relation, Fuzzy Decision Making	**10**
	Total	**50**

Learning Outcomes:
1. Analyze and solve problems involving various forms of search algorithms, including the design of heuristic functions to improve the efficiency of such solutions
2. solve a complicated task with limited resources in the form of time and computations
3. solve problems both individually and in groups
4. formulate and solve problems with uncertain information using Bayesian approaches

Text Books:
- Decision Support System and Intelligent System,**Efraim Turban and Jay E. Aronson**, PHI publication.
- Fuzzy Sets and Fuzzy Logic: Theory and Applications,**George J. Klir and Bo Yuan,** Prentice Hall Publication.

Reference Books:
- Principles of Artificial Intelligence and Expert System Development, **David W. Rolston,** TMH publication
- Artificial Intelligence - Elaine rich, Kevin Knight, Pub: Tata McGraw Hill.