Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Internal	Final Exam	Total
MCA-205	Artificial Intelligence	PCC	4	4	0	0	40	60	100

Course Outcomes

	At the end of the course the student will be able to
CO1	Assimilate the fundamental concepts in Artificial Intelligence
CO2	Analyze a real-world problem for implementation and understand the dynamic behavior of a system.
CO3	Apply techniques in applications which involve perception, reasoning and learning.
CO4	Develop a practical skills in designing and implementing multi-agent systems and genetic algorithms
CO5	Use different machine learning techniques to design AI machine and enveloping applications for real world Problems.

Detailed Syllabus
Section-A

UNIT-I: Introduction: Introduction to AI: History of AI, Basic Elements of AI, Introduction to Turing Machine, Turing Test and Rational Agent, Approaches; State Space Representation of Problems, Game Playing, Min-Max Search, Alpha Beta Cutoff Procedures, Introduction to Expert system, Expert System Life Cycle, Study of existing expert systems like MYCIN and DENDRAL.

(10Hrs)

UNIT-2: Searching Techniques: Heuristic Search techniques-Hill Climbing, Best first search: OR graph, A* algorithm, Problem Reduction: AND-OR graph, The AO* Algorithm. Constraint satisfaction: Introduction and algorithm.

(10Hrs)

UNIT-3: Knowledge Representation: Knowledge Representation Structures: Prepositional Logic, First Order Predicate Logic, CNF, DNF, Prenex Normal Form, Resolution, Unification, Inference Mechanisms Semantic Nets, Frames, Scripts, conceptual dependences, Procedural & Declarative knowledge, Reasoning, Uncertainty.

(10Hrs)

Section-B

UNIT–4: Multi Agent Systems and Genetic Algorithms: Multi Agent Systems: Agents and Objects; Agents and Expert Systems; Generic Structure of Multiagent System, Semantic Web, Agent Communication, Knowledge Sharing using Ontologies, Agent Development Tools, Genetic Algorithms (GA): Encoding Strategies, Genetic Operators, Fitness Functions and GA Cycle; Problem Solving using GA.

(10Hrs)

UNIT–5: Understanding Natural Languages: Understanding Natural Languages: Parsing techniques, context free and transformational grammars, transition nets, augmented transition nets, Fillmore's grammar; grammar-free analyzers, sentence generation.

(10Hrs)

Textbooks

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Artificial Intelligence: A Modern Approach	S. Russell and P. Norvig	Pearson Education,	2nd(2012)
2	Introduction to Artificial Intelligence and Expert Systems	Dan W. Patterson	Prentice Hall India	1st(2015)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Our final invention: Artificial intelligence and the end of the human era	Barrat, James	Macmillan,	2nd(2013)