BCA 514: Artificial Intelligence

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	Class Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: -

Course Objectives:

1. To understand how these algorithms works so the main objective of this course is and how to analyze the data to make a proper decision.
2. To know the application areas and building blocks of AI as presented in terms of intelligent agents.
3. To initiate the concepts of a Rational Intelligent Agent and the different types of Agents that can be designed to solve problems in different fields.
4. To evaluate the different stages of development of the AI field from human like behavior to Intelligent Agents.
5. To build intelligent machine which can perform and act like humans.

Detailed Syllabus

Unit-1
Introduction to Artificial Intelligence, Simulation of sophisticated & Intelligent Behavior in different area, problem solving in games, natural language, automated reasoning, visual perception, and heuristic algorithm versus solution guaranteed algorithms.

Unit-2
Introduction to Search: Searching for solutions, uniformed search strategies, informed search strategies, Local search algorithms and optimistic problems.

Unit-3
Knowledge Representation First order predicate calculus, Horn Clauses, Semantic Nets, Partitioned Nets, Case Grammar Theory, Production Rules Knowledge Base, The Interface System, Forward & Backward Deduction.

Unit-4
Expert System Existing Systems (DENDRAL, MYCIN) domain exploration, Meta Knowledge.

Unit-5
Pattern Recognition Introduction to Pattern Recognition, Structured Description, Symbolic Description, Machine perception, Line Finding, Interception Semantic & Model, Object Identification, Speech Recognition.

Unit-6
Understanding Natural Languages, Natural Language Processing with its various components. Programming Language- Introduction to programming Language, LISP, PROLOG.

Text and Reference Books

1.Charnick "Introduction to A.I.", Addision Wesley
2. Rich & Knight, "Artificial Intelligence"
3. Winston, "LISP", Addision Wesley
4. Marcellous, "Expert System Programming", PHI
5.Elamie, "Artificial Intelligence", Academic Press
6.Lioyed, "Foundation of Logic Processing", Springer Verlag

Course Outcomes:

After completing the course, students will be able to:

1. How to solve a particular problem by using different algorithms which is impossible for humans.
2. How to make proper decisions by gathering information and analyzing them.
3. How expert system works and perform tasks.
4. How to convert a particular sentence into logical statement.
5. Analyze the problem as a state space, graph, design heuristics and select amongst different search based techniques to solve them.