

MCA 410: Artificial Intelligence

Teaching Scheme

Lectures: 3 hrs/Week

Tutorials: 1 hr/Week

Credits: 4


Examination Scheme

Class Test -12Marks

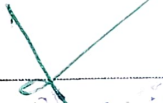
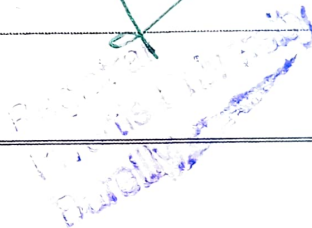
Teachers Assessment - 6Marks

Attendance – 12 Marks

End Semester Exam – 70 marks


Head

Department of Computer Applications
Faculty of Computer Applications
Invertis University, Deoria



Invertis University

Dean Academic
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Prerequisite: - CSH101 C Programming, CSH201 Discrete Mathematics.

Course Objectives:

1. To understand how these algorithms works so the main objective of this course is and how to analyse 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: Overview of Artificial Intelligence- Problems of AI AI and related fields. **Problem Solving:** Problems, Problem Space & Search: Defining the Problem as State Space Search, Production System, Problem Characteristics, issues in the design of Search Programs.

Unit-2

Search Techniques: Uniform Search Strategies: Breadth First Search, Depth First Search, Depth Limited Search, Comparing Uniform Search Strategies, Greedy Best-First Search, A* Search, Memory Bounded Heuristic Search: Local Search Algorithms & Optimization Problems: Hill Climbing Search.

Unit-3

Knowledge representation: Knowledge Representation Issues Representation and Mapping, Approaches to Knowledge Representation, Issues in Knowledge Representation, Knowledge manipulation, Knowledge acquisition.

Unit-4

Using Predicate Logic: Representing Simple Fact in Logic, Representing Instant & ISA Relationship, Computable Functions & Predicates, Resolution, natural deduction.

Representing Knowledge Using Rules: Procedural Verses Declarative Knowledge, Logic Programming, Forward Verses Backward Reasoning, Matching, Control Knowledge.

Unit-5

Natural Language Processing: Introduction, Syntactic Processing, Semantic Analysis, Discourse & Pragmatic Processing.

Unit-6

Expert System: Rule based system architecture, Non production system architecture, knowledge organization and validation, Existing Systems (DENDRAL, MYCIN).


Text and Reference Books

1. "Artificial Intelligence", Ritch & Knight, TMH, 2006.
2. "Introduction to Artificial Intelligence & Expert Systems", Patterson, PHI, 2007.
3. "Artificial Intelligence: A Modern Approach", Russell, S., Norvig, P, Pearson Education, 2006.
4. "Introduction to A.I.", Charnick, Addison Wesley, 1999.

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.


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