

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
M.Sc. (I.T.) [Five Year Integrated Course]
M.Sc. (Information Technology)
Semester IX

Paper No : 902

L: 4, T:0, P:0 Hrs

Paper Title : Artificial Intelligence

1. Prolog

Facts, Objects, Predicates and Rules, Prolog variable and its type, Arithmetic & relational operators, I/O predicates, String operations, fail & ! predicates, Recursion & repeat predicates, List and various operation on lists, File operations predicates, Dynamic & Static database, Type conversions, Screens & Window predicates, Graphics predicates

2. Introduction to AI

Overview of AI application area
Automated reasoning & Theorem proving, Expert systems, Natural Language, Understanding & Semantic modeling, Modeling Human performance
Planning & Robotics
AI problem characteristics

3. Calculus

Propositional, Predicate, Produce predicate calculus expressions from Inference rules

4. State Space Search

Structures for State Space Search, State Space representation of Problem, Strategies for State Space Search, Represent reasoning with predicate calculus using state space, Recursive & Pattern-Directed search, Production system

5. Heuristic Search

6. Knowledge representation

Approaches & issues in knowledge representation, Network representation
Structures
Semantic nets, Frames, Scripts, Fuzzy Logic

7. Natural Language Understanding

Level & Stages of Natural language analysis, Specification & Parsing using Context-Free grammars, Transition Network Parsers, Chomsky Hierarchy & Context-Sensitive Grammars, Combining Syntax & Semantics

8. Expert Systems

Representing & Using Domain Knowledge, Expert System Shells, Explanation, Knowledge Acquisition

9. Handling Uncertainty

Non-Monotonic Reasoning, Probabilistic Reasoning, Use of certainty factors, Fuzzy Logic

10. Learning

Concept of Learning, Learning Automation, Genetic Algorithms, Learning by Inductions, Neural nets

Reference Books:

1. Charniak, E. - Introduction of Artificial Intelligence, - Narosa Publishing House.
2. Marcellus, - Expert Systems Programming in TURBO PROLOG, - Prentice-Hall Inc.
3. Elaine R. - Artificial Intelligence - Prentice-Hall Inc.
4. Hunt, E. B. - Artificial Intelligence - Academic Press.
5. Lloyd, J. - Foundation of Logic Programming - Springer-Verlag
6. Clockskin, W. F. and Mellish, C. S. - Programming in Prolog - Narosa Publ. House.
7. Carl Townsend - Introduction to Turbo Prolog - B. P. B. Publication