

COURSE TOPICS::

Unit-I

Introduction and historical perspective, Hard and Soft AI – disciplines and applications, Theories of Intelligence, Detecting and Measuring Intelligence, Knowledge based approach, the prepare-deliberate engineering trade-off, Procedural v/s Declarative knowledge, Criticism of symbolic AI, Knowledge representation, desirable properties of KR schemata, Use of predicate calculus in AI.

Unit-II

Unification and Resolution, Architecture, design and manipulation of semantic networks, Frame Systems, Property Inheritance, Procedure Attachment, Conceptual Dependency, Current research areas in knowledge representation, Introduction to Natural Language, Processing, Syntax-Semantics-Pragmatics-Discourse analysis hierarchy, Recursive and Augmented – Transition Networks.

Unit-III

Expert Systems, Components, Production rules, Backwards vs Forward reasoning, Statistical reasoning, certainty factors, measure of belief and disbelief, Meta level knowledge, Introspection, Knowledge engineering case studies, Heuristic search of state space, DFS, BFS, UCS, choice of a search algorithm, Admissibility theorems, search performance metrics, Game playing, Alpha-Beta pruning, Quiescence search, Killer Move heuristic, AI programming environments.

AI oriented language and architecture – requirements and taxonomy, Case studies.

READINGS

TEXTBOOK::

- Artificial Intelligence: A new synthesis, Nils J Nilsson, Morgan Kaufmann Publishers.
- Artificial Intelligence, 2nd ed., Rich, Tata McGraw Hill.