

**Course code: CS-531 T**

Total Credit: 2

Periods: 3 per week (50 Minutes each)

**Prerequisites**

- Data Structures, Mathematics

**Course Title: A1. Artificial Intelligence**

Marks: 50 (UA: 40 + IA: 10)

**Course Objectives**

- With the usage of Internet and World Wide Web increasing day by day, the field of AI and its techniques are being used in many areas which directly affect human life.
- Various techniques for encoding knowledge in computer systems such as Predicate Logic, Production rules, Semantic networks find application in real world problems.
- The fields of AI such as Game Playing, Natural Language Processing, and Connectionist Models are also important. Student should know some programming language for AI.

**Learning Outcomes**

On completion of the course, the students will be able to:

- Understand the search technique procedures applied to real world problems
- Understand and use various types of logic and knowledge representation schemes.
- Understand various Game Playing techniques and apply them in programs.
- Gain knowledge in AI Applications and advances in Artificial Intelligence

**Course Outline**

**Unit 1** - Introduction :The AI Problems, The Underlying Assumption, AI techniques, The Level of The Model, Criteria For Success

**Unit 2 - Problems, State Space Search & Heuristic Search Techniques:**As A State Space Search, Production Systems, Production Characteristics, Production System Characteristics and Issues in the Design of Search Programs, Generate-And-Test, Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction, Means-Ends Analysis.

**Unit 3 - Knowledge Representation:**Representations And Mappings, Approaches To Knowledge Representation, Representation Simple Facts In Logic, Representing Instance And Isa Relationships, Computable Functions and Predicates, Resolution, Procedural versus Declarative Knowledge, Logic Programming, Forward versus Backward Reasoning.

**Unit 4 - Symbolic Reasoning Under Uncertainty:**Introduction To Nonmonotonic Reasoning, Logics For Non-monotonic Reasoning. Expert System , Introduction to Prolog: Introduction, Converting English to Prolog Facts and Rules,

**Unit - 5 Test and Tutorial**

**Reference Books**

1. "Artificial Intelligence" -By Elaine Rich And Kevin Knight (2nd Edition) Tata Mcgraw-Hill
2. "Artificial Intelligence: A Modern Approach" -By Stuart Russel, Peter Norvig, PHI
3. "Introduction to Prolog Programming" -By Carl Townsend.
4. "PROLOG Programming For Artificial Intelligence" -By Ivan Bratko( Addison-Wesley)
5. "Programming with PROLOG" -By Klocksinn and Mellish.