

**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**New Scheme Based On AICTE Flexible Curricula**

**Computer Science & Information Technology, V-Semester**

**Open Elective CSIT- 504 (B) Artificial Intelligence**

**Course Objectives**

- To present an overview of artificial intelligence (AI) principles and approaches
- Develop a basic understanding of the building blocks of AI

**Unit I:**

Meaning and definition of artificial intelligence, Production systems, Characteristics of production systems, Study and comparison of breadth first search and depth first search techniques, other Search Techniques like hill Climbing, Best first Search. A\* algorithm, AO\* algorithms etc, and various types of control strategies.

**Unit II:**

Knowledge Representation, Problems in representing knowledge, knowledge representation using propositional and predicate logic, comparison of propositional and predicate logic, Resolution, refutation, deduction, theorem proving, inferencing, monotonic and non-monotonic reasoning.

**Unit III:**

Probabilistic reasoning, Baye's theorem, semantic networks, scripts, schemas, frames, conceptual dependency, fuzzy logic, forward and backward reasoning.

**Unit IV:**

Game playing techniques like minimax procedure, alpha-beta cut-offs etc, planning, Study of the block world problem in robotics, Introduction to understanding, natural language processing.

**Unit V:**

Introduction to learning, Various techniques used in learning, Introduction to neural networks, applications of neural networks, common sense, reasoning, some example of expert systems.

**References:-**

1 Rich E and Knight K, “Artificial Intelligence”, TMH, New Delhi.

2 Nelsson N.J., “Principles of Artificial Intelligence”, Springer Verlag, Berlin.

**Course Outcomes:**

Upon successful completion of this course the students will:

- Be familiar with terminology used in this area
- Explain what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence.
- Know how to build simple knowledge-based systems
- Have ability to apply knowledge representation, reasoning, and machine learning techniques to real-world problems