4MCAEC13: ARTIFICIAL INTELLIGENCE

Total No. of Hours: 52 **Hours/Week: 04**

Course Objective: To familiarize students with Artificial Intelligence techniques for building well engineered and efficient intelligent systems.

Course Outcome: Students will be able to

CO1: Understand the basic principles and applications of Artificial Intelligence

CO2: Solve various problems by applying a suitable search method

CO3: Represent knowledge using various different techniques

CO4: Apply knowledge representation and list the key aspects of planning

Unit I	**Introduction**: What is Artificial Intelligence, what is an AI technique, criteria for success, Problems, problem spaces and search, Production system, Problem characteristics, Hill-climbing, Best-First search, algorithm, constraint satisfaction.	8 hrs
Unit II	**Knowledge Representation**: Knowledge Representation Issues, Approaches to knowledge Representation, Representing simple facts in logic, computable functions and predicates, Procedural declarative knowledge, forward vs Backward Reasoning matching, control knowledge.	10 hrs
Unit III	**Natural language Processing:** Natural language Processing, Introduction, overview of linguistics, Grammars and language, Basic Parsing techniques, Semantic analysis and representation, structure, Natural Language generation, Natural Language systems	10 hrs
Unit IV	**Expert systems**: Expert systems, Rule-Based system architecture Non-production system Architecture, dealing with uncertainty, knowledge acquisition and validation, knowledge system Building tools.	12 hrs
Unit V	**Pattern Recognition**: Pattern Recognition, Recognition classification process, learning classification Patterns, Recognizing and understanding speech.	12 hrs

REFERENCE BOOKS

[1] E. Rich and K. Knight, "*Artificial Intelligence",* Second Edition
[2] Dan. W. Patterson, "*Introduction to Artificial Intelligence and expert system*". PHI
[3] S. Russell and P. Norvig, "*Artificial Intelligence: A Modern Approach"*, Second Edition Pearson Education
[4] Eugene Charniak and Drew McDermott, "*Introduction to Artificial Intelligence*", Second Edition
[5] Nils J. Nilson, "*Principles of Artificial Intelligence",* Narosa Publication