



# STANLEY

**COLLEGE OF ENGINEERING & TECHNOLOGY FOR WOMEN**  
( Approved by AICTE , New Delhi | Affiliated to Osmania University ,Hyderabad)  
Address : Chapel Road, Abids ,Hyderabad

**BIT 354**

## **ARTIFICIAL INTELLIGENCE**

### **UNIT-I**

**Introduction:** History, Intelligent Systems, Foundations of AI, Sub areas of AI, Applications.

**Problem Solving - State-Space Search and Control Strategies:** Introduction, General Problem Solving, Characteristics of Problem, Exhaustive Searches, Heuristic Search Techniques, Iterative- Deepening A\*, Constraint Satisfaction

**Game Playing:** Bounded Look-ahead Strategy and use of Evaluation Functions, Alpha-Beta Pruning

### **UNIT-II**

**Logic Concepts and Logic Programming:** Introduction, Propositional Calculus, Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Tableau System in Propositional Logic, Resolution Refutation in Propositional Logic, Predicate Logic, Logic Programming.

**Knowledge Representation:** Introduction, Approaches to Knowledge Representation, Knowledge Representation using Semantic Network, Extended Semantic Networks for KR, Knowledge Representation using Frames.

### **UNIT-III**

**Expert System and Applications:** Introduction, Phases in Building Expert Systems, Expert System Architecture, Expert Systems vs Traditional Systems, Truth Maintenance Systems, Application of Expert Systems, List of Shells and Tools.

**Uncertainty Measure - Probability Theory:** Introduction, Probability Theory, Bayesian Belief Networks, Certainty Factor Theory, Dempster-Shafer Theory.

### **UNIT-IV**

**Machine-Learning Paradigms:** Introduction. Machine Learning Systems. Supervised and Unsupervised Learning. Inductive Learning. Learning Decision Trees (Suggested Reading 2),

Deductive Learning. Clustering, Support Vector Machines.

**Artificial Neural Networks:** Introduction, Artificial Neural Networks, Single-Layer Feed-Forward Networks, Multi-Layer Feed-Forward Networks, Radial-Basis Function Networks, Design Issues of Artificial Neural Networks, Recurrent Networks.

## **UNIT-V**

**Advanced Knowledge Representation Techniques:** Case Grammars, Semantic Web

**Natural Language Processing:** Introduction, Sentence Analysis Phases, Grammars and Parsers, Types of Parsers, Semantic Analysis, Universal Networking Knowledge.

### **Suggested Reading:**

1. Saroj Kaushik, Artificial Intelligence. Cengage Learning, 2011.
2. Russell, Norvig, Artificial intelligence, A Modern Approach, Pearson Education, Second Edition. 2004
3. Rich, Knight, Nair: Artificial intelligence, Tata McGraw Hill, Third Edition 2009.