

**CS6659 ARTIFICIAL INTELLIGENCE SYLLABUS**

**L T P C 3 0 0 3**

**OBJECTIVES:**

The student should be made to:

- Study the concepts of Artificial Intelligence.
- Learn the methods of solving problems using Artificial Intelligence.
- Introduce the concepts of Expert Systems and machine learning.

**UNIT I INTRODUCTION TO AI AND PRODUCTION SYSTEMS 9**

Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics - Specialized production system- Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breadth first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms.

**UNIT II REPRESENTATION OF KNOWLEDGE 9**

Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

**UNIT III KNOWLEDGE INFERENCE 9**

Knowledge representation -Production based system, Frame based system. Inference – Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.

**UNIT IV PLANNING AND MACHINE LEARNING 9**

Basic plan generation systems - Strips -Advanced plan generation systems – K strips - Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.

**UNIT V EXPERT SYSTEMS 9**

Expert systems - Architecture of expert systems, Roles of expert systems - Knowledge Acquisition – Meta knowledge, Heuristics. Typical expert systems - MYCIN, DART, XCON, Expert systems shells.

**TEXT BOOKS:**

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", Mc Graw Hill- 2008. (Units-I, II, VI & V)
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007. (Unit-III).

**REFERENCES:**

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education, 2007.
2. Stuart Russel and Peter Norvig "AI – A Modern Approach", 2nd Edition, Pearson Education 2007.

**AllAbtEngg.com**  
**For Questions, Notes, Syllabus & Results**

3. Deepak Khemani "Artificial Intelligence", Tata Mc Graw Hill Education 2013.
4. <http://nptel.ac.in>