GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VIII
COMPUTER ENGINEERING

Subject Name: **ARTIFICIAL INTELLIGENCE**

Sr. No.	Course Contents	Total Hrs
1.	**Problems And State Space Search** The AI Problems, The Underlying Assumption, What Is An AI Techniques, The Level Of The Model, Criteria For Success, Some General References, One Final Word.	02
2.	**Problems And State Space Search** Defining The Problems As A State Space Search, Production Systems, Production Characteristics, Production System Characteristics, And Issues In The Design Of Search Programs, Additional Problems.	04
3.	**Heuristic Search Techniques** Generate-And-Test, Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction, Means-Ends Analysis.	04
4.	**Knowledge Representation Issues** Representations And Mappings, Approaches To Knowledge Representation.	04
5.	**Using Predicate Logic :** Representation Simple Facts In Logic, Representing Instance And Isa Relationships, Computable Functions And Predicates, Resolution.	04
6.	**Representing Knowledge Using Rules** Procedural Versus Declarative Knowledge, Logic Programming, Forward Versus Backward Reasoning.	04
7.	**Symbolic Reasoning Under Uncertainty** Introduction To Non-monotonic Reasoning, Logics For Non-monotonic Reasoning.	04
8.	**Statistical Reasoning :** Probability And Bays' Theorem, Certainty Factors And Rule-Base Systems, Bayesian Networks, Dempster-Shafer Theory, Fuzzy Logic.	04
9.	**Weak Slot-And-Filler Structure :** Semantic Nets, Frames.	04
10.	**Game Playing: Overview, And Example Domain** The Blocks World, Components Of A Planning System, Goal Stack Planning, Nonlinear Planning Using Constraint Posting, Hierarchical Planning, Reactive Systems, Other Planning Techniques.	04
11.	**Natural Language Processing** Introduction, Syntactic Processing, Semantic Analysis, Semantic Analysis, Discourse And Pragmatic Processing.	04
12.	**Connectionist Models** Introduction: Hopfield Networld, Learning In Neural Networld, Application Of Neural Networks, Recurrent Networks, Distributed Representations, Connectionist AI And Symbolic AI.	04
13.	**Expert Systems** An Introduction To Expert System, Explanation Facilities, Expert System Developments Process, knowledge Acquisition.	04
14.	**Introduction to Prolog** Introduction To Prolog: Syntax and Numeric Function, Basic List Manipulation Functions In Prolog, Functions, Predicates and Conditional, Input, Output and Local Variables, Iteration and Recursion, Property Lists and Arrays, Miscellaneous Topics, LISP and Other AI Programming Languages.	10

Texts:

1. "Artificial Intelligence" -By Elaine Rich And Kevin Knight (2nd Edition) Tata Mcgraw-Hill
2. Introduction to Prolog Programming By Carl Townsend.

References:

1. "Artificial Intelligence And Expert System, Development" -By D.W.Rolston Mcgraw-Hill International Edition.
2. "Artificial Intelligence And Expert Systems " -By D.W.Patterson
3. "PROLOG Programming For Artificial Intelligence" -By Ivan Bratko(Addison-Wesley)
4. "Programming with PROLOG" –By Klocksin and Mellish.
5. "Artificial Intelligence" (Fifth Edition) –By George F Luger, Pearson Education.
6. "Artificial Intelligence" (Second Edition)–By Stuart Russell and Peter Norvig, Pearson Education.
7. Artificial Intelligence Application Programming, Tim Jones, Wiley India