B.TECH. (INFORMATION TECHNOLOGY)

7th SEMESTER (DETAILED SYLLABUS)

ARTIFICIAL INTELLIGENCE (KCS 071)		
DETAILED SYLLABUS		**3-0-0**
Unit	**Topics**	**Proposed Lecture**
I	**INTRODUCTION:** Introduction–Definition – Future of Artificial Intelligence – Characteristics of Intelligent Agents– Typical Intelligent Agents – Problem Solving Approach to Typical AI problems.	**08**
II	**PROBLEM SOLVING METHODS:** Problem solving Methods – Search Strategies- Uninformed – Informed – Heuristics – Local Search Algorithms and Optimization Problems – Searching with Partial Observations – Constraint Satisfaction Problems – Constraint Propagation – Backtracking Search – Game Playing – Optimal Decisions in Games – Alpha – Beta Pruning – Stochastic Games	**08**
III	**KNOWLEDGE REPRESENTATION:** First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation – Ontological Engineering-Categories and Objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories – Reasoning with Default Information	**08**
IV	**SOFTWARE AGENTS:** Architecture for Intelligent Agents – Agent communication – Negotiation and Bargaining – Argumentation among Agents – Trust and Reputation in Multi-agent systems	**08**
V	**APPLICATIONS:** AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing – Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving	**08**

Text books:

1. S. Russell and P. Norvig, “Artificial Intelligence: A Modern Approach‖, Prentice Hall, Third Edition, 2009.

2. I. Bratko, “Prolog: Programming for Artificial Intelligence”, Fourth edition, Addison-Wesley Educational Publishers Inc., 2011.

3. M. Tim Jones, ―Artificial Intelligence: A Systems Approach(Computer Science)‖, Jones and Bartlett Publishers, Inc.First Edition, 2008

4. Nils J. Nilsson, ―The Quest for Artificial Intelligence‖, Cambridge University Press, 2009.

5. William F. Clocksin and Christopher S. Mellish,‖ Programming in Prolog: Using the ISO Standard‖, Fifth Edition, Springer, 2003.

6. Gerhard Weiss, ―Multi Agent Systems‖, Second Edition, MIT Press, 2013.

7. David L. Poole and Alan K. Mackworth, ―Artificial Intelligence: Foundations of Computational Agents‖, Cambridge University Press, 2010.