Course Name: Introduction to Artificial Intelligence	**Course Code:** ITSE3102
Pre-Requisite: Data Structure and Algorithms	**Credit Hours:** 3
Passing Grade: C	**Level:** Year 3
No. Of Theory & Practical Hours : 3:2	

Goal: This course covers the fundamentals of artificial Intelligence and the use of logic programming language to solve AI related problems.

Objectives: The course should enable the student to :

1. Understand the concepts of AI
2. Use search methods in problem-solving for single agent and multi agents.
3. Examine constraint satisfaction problems.
4. Evaluate natural language sentences.
5. Use logic programming languages in problem solving.
6. Develop an agent planning.
7. Handle uncertain knowledge.
8. Create Decision-Tree.
9. Introduce robotics.

Outcomes At the end of this course, students should be able to:	**Method**
1. Discuss the concept of AI.	Theory
2. Discuss the role of an agent in AI.	Theory
3. Use Uninformed search and Informed search methods for problem-solving for single agent including Breadth First Search, Depth First Search, Depth Limited Search, Greedy Search and A* Search.	Theory & Practical
4. Use game playing methodology and search game tree for problem-solving for multi agents including Minimax and Alpha-Beta pruning algorithms.	Theory & Practical
5. Use techniques for solving Constraint Satisfaction Problems (CSPs) such as Backtracking algorithm.	Theory & Practical
6. Construct constraint-graph for constraints.	Theory & Practical
7. Evaluate natural language sentences using propositional logic and first order logic (FOL) as a knowledge representation language.	Theory & Practical
8. Evaluate entailment sentences.	Theory & Practical
9. Create Inferences in forms of Propositional Logic and First Order Logic Knowledge base.	Theory & Practical
10. Use logic programming languages such as Prolog and Lisp.	Practical
11. Use formal languages for planning such as STRIPS to create plan execution and action schema.	Theory & Practical
12. Use probability theory to represent uncertainty.	Theory & Practical
13. Construct a Bayesian network for given problems.	Theory & Practical
14. Use Hidden Markov models to solve fuzziness.	Theory & Practical
15. Create Decision-Tree using concepts of machine learning.	Theory & Practical
16. Discuss the concepts of robotics.	Theory

Hardware / Software Tools:
LISP OR Prolog

Text Book: Stuart Russell and Peter Norvig, Artificial Intelligence, A modern Approach, Published by Dorling Kindersley, India, ISBN 978-81-7758-367-0

Reference Book:

1) George F Luger, Artificial Intelligence, Structures and Strategies for Complex Problem Solving, Person Education Limited, UK, ISBN 0-201-64866-0
2) David L. Poole and Alan K. MackWorth, Artificial Intelligence, Foundations of Computational Agents, Cambridge University Press, UK, ISBN-13 978-0-511-72946-1.