

## ARTIFICIAL INTELLIGENCE

**Paper Code: ETCS-310**

**Paper: Artificial Intelligence**

<b>L</b>	<b>T/P</b>	<b>C</b>
<b>3</b>	<b>1</b>	<b>4</b>

**INSTRUCTIONS TO PAPER SETTERS:**

**MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

**Objective:** To learn the basics of designing intelligent agents that can solve general purpose problems, represent and process knowledge, plan and act, reason under uncertainty and can learn from experiences

### **UNIT-I**

**Introduction:** Introduction to intelligent agents

**Problem solving:** Problem formulation, uninformed search strategies, heuristics, informed search strategies, constraint satisfaction Solving problems by searching, state space formulation, depth first and breadth first search, iterative deepening

[T1,T2][No. of hrs. 12]

### **UNIT-II**

**Logical Reasoning :** Logical agents , propositional logic, inferences ,first-order logic, inferences in first order logic, forward chaining, backward chaining, unification , resolution

[T1,T2][No. of hrs. 10]

### **UNIT-III**

**Game Playing:** Scope of AI -Games, theorem proving, natural language processing, vision and speech processing, robotics, expert systems, AI techniques- search knowledge, abstraction

[T1,T2][No. of hrs. 12]

### **UNIT-IV**

**Learning from observations:** Inductive learning, learning decision trees, computational learning theory, Explanation based learning

**Applications:** Environmental Science, Robotics, Aerospace, Medical Sciences etc.

[T1,T2][No. of hrs. 10]

### **Text Book:**

[T1] Rich and Knight, "Artificial Intelligence", Tata McGraw Hill, 1992

[T2] S. Russel and P. Norvig, "Artificial Intelligence – A Modern Approach", Second Edition, Pearson Edu.

### **Reference Books:**

[R1] KM Fu, "Neural Networks in Computer Intelligence", McGraw Hill

[R2] Russel and Norvig, "Artificial Intelligence: A modern approach", Pearson Education