DAYANANDA SAGAR COLLEGE OF ENGINEERING
(An Autonomous Institute Affiliated to VTU, Belagavi) Approved by AICTE & ISO 9001:2008 Certified)
Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade
Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
SCHEME 2018

ARTIFICIAL INTELLIGENCE

Course code: 18IS5DCAIG   Credits: 03

L: P: T: S: 3:0:0: 0   CIE Marks: 50

Exam Hours: 03   SEE Marks: 50

Total Hours: 40

Course objectives:

1. Learn the role of intelligent agents in AI.
2. Analyze logical agents.
3. Usage of first order logic.
4. Assessing knowledge representation in AI.

Course Outcomes: At the end of the course, student will be able to:

CO1	Understand the fundamentals of AI and intelligent agents.
CO2	Understand and apply suitable search algorithms for given problem.
CO3	Analyze the logical agents and first order logic
CO4	Design knowledge representation to solve problem.
CO5	Analyze and apply planning ,uncertainty reasoning for solving problem.
CO6	Analyze and apply probabilistic reasoning for uncertain domain..

Mapping of Course outcomes to Program outcomes:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	-	-	-	-	-	-	-	-	-	1	1	-	-
CO2	3	3	1	1	-	-	-	-	-	-	-	1	1	-	-
CO3	3	2	-	-	-	-	-	-	-	-	--	-	-	1	-
CO4	3	3	2	1	1	-	-	-	-	-	-	-	2	2	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO6	3	2	2	1	-	-	-	-	-	-	-	-	-	1	-

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Unit	Contents of the Unit	Hours	Cos
1.	Introduction: What is AI? Intelligent Agents: Agents and environment; Rationality; the nature of environment; the structure of agents. Problem solving: Problem-solving agents; Example problems; Uninformed search strategies. Informed Search, Exploration: Informed search strategies; Heuristic functions.	08	CO1, CO2
2.	Adversial search: Games; Optimal decisions in games; Alpha-Beta pruning. Logical Agents: Knowledge-based agents; The wumpus world as an example world; Logic; propositional logic Reasoning patterns in propositional logic; Effective propositional inference; Agents based on propositional logic.	08	CO2, CO3
3.	First-Order Logic, Inference in First-Order Logic – 1: Representation revisited; Syntax and semantics of first-order logic; Using first-order logic; Knowledge engineering in first-order logic. Propositional versus first-order inference; Unification and lifting.	08	CO4
4.	Knowledge Representation: Ontological engineering; Categories and objects; Actions, situations, and events; Mental events and mental objects; The Internet shopping world; Reasoning systems for categories; Reasoning with default information; Truth maintenance systems.	08	CO5
5.	Planning, Uncertainty, Probabilistic Reasoning: Planning: The problem; Planning with state-space approach; Planning graphs; Planning with propositional logic. Uncertainty: Acting under certainty; Inference using full joint distributions; Independence; Bayes' rule and its use. Probabilistic Reasoning: Representing knowledge in an uncertain domain; The semantics of Bayesian networks; Efficient representation of conditional distributions; Exact inference in Bayesian networks.	08	CO6

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Dept. of Information Science & Engg

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TEXT BOOK:

1. Stuart Russel, Peter Norvig: Artificial Intelligence A Modern Approach, 3rd Edition, Pearson Education, 2015.

REFERENCE BOOKS:

1. Elaine Rich, Kevin Knight: Artificial Intelligence, 3rd Edition, Tata McGraw Hill, 2009.

2. Nils J. Nilsson: Principles of Artificial Intelligence, Elsevier, 1980.

Assessment Pattern:

CIE –Continuous Internal Evaluation Theory (50 Marks)

Bloom's Category	Tests	Assignments	AAT1	AAT2
Marks (Out of 50)	30	10	05	05
Remember	10			01
Understand	10	05	01	01
Apply	10	05	02	01
Analyze			02	02
Evaluate				
Create				

*AAT 1– Alternate Assessment Tool 1: Quiz

AAT 2 - Alternate Assessment Tool 2: Surprise Test

SEE –Semester End Examination Theory (50 Marks)

Bloom's Category	Marks Theory(50)
Remember	10
Understand	20
Apply	5
Analyze	5
Evaluate	10
Create	