Assessment Rubrics:
- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics :

	Internal Exam	**Assignment**	**Lab Assessment**	**End Semester Examination**
CO 1	✓		✓	✓
CO 2	✓		✓	✓
CO 3	✓	✓	✓	✓
CO 4	✓	✓	✓	✓

9. KNOWLEDGE REPRESENTATION AND INTELLIGENT AGENTS

Discipline	COMPUTER SCIENCE
Course Code	UK2DSCCSC102
Course Title	KNOWLEDGE REPRESENTATION AND INTELLIGENT AGENTS
Type of Course	DSC/ VOCATIONAL
Semester	II
Academic Level	2 .

Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	3 hours	-	2 hours	5 hours

Pre-requisites	Nil
Course Summary	The course delves into representing knowledge effectively and designing intelligent agents for problem-solving in artificial intelligence.

Detailed Syllabus:

Module	Unit	Content	Hrs (L+P)
I		**Algorithm Analysis and Techniques**	**15**
	1	Concepts in algorithm analysis – the efficiency of algorithms, average and worst – case analysis, Asymptotic notation, time and space complexity.	
	2	Techniques - brute force, divide and conquer, decrease and conquer, dynamic programming, shortest paths, backtracking	
II		**Heuristic Search Techniques**	**15**
	3	Heuristic search techniques - Generate and test, Hill climbing, Simulated annealing, Problem reduction, AO* algorithm, Constraints satisfaction, Means - Ends analysis. Search Techniques- Graph search, Depth First Search, Breadth First Search, Best first search, A* algorithm.	
III		**Knowledge Representation**	**15**
	4	Knowledge Management; Types of Knowledge; Knowledge Representation; Knowledgebase	
	5	Knowledge Representation structures: First order Logic, Frames, Conceptual Dependency, Scripts, Semantic Network	
IV		**Intelligent Agents**	**15**
	6	Intelligent agents - structure, types of agents, environment, autonomous agents. Nature inspired agents, Planning Agent, PEAS Representation	

V		Flexi module:- Not included for End Semester Examinations	15
	7	Reasoning: Abductive, Deductive, Inductive, Analogical, Cause-and-Effect, comparative, Conditional and Exemplar Reasoning	

References

1. Vinod Chandra S S, Anand H S, Artificial Intelligence: Principles and Applications, Prentice Hall of India, New Delhi, 2020

2. Kevin Knight, Elaine Rich, Artificial Intelligence, 3rd Edn, Pearson, Chennai

3. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, 3rd Edition Prentice Hall of India, New Delhi, 2009

<u>Lab Exercises</u>

1. Implementation of brute force algorithm
2. Implementation of divide and conquer algorithm
3. Implementation of decrease and conquer algorithm
4. Implementation of shortest paths algorithm
5. Implementation of Heuristic search techniques
6. Implementation of AO* algorithm
7. Implementation of Depth First Search method
8. Implementation of Breadth First Search method
9. Implementation of Best first search method
10. Implementation of A* algorithm.

<u>**Course Outcomes**</u>

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO1	Interpret the efficiency of different algorithm design methods	U	PSO- 1
CO2	Apply heuristic search techniques	Ap	PSO- 1, 2, 3
CO3	Demonstrate problem-solving skills	Ap	PSO- 1, 2
CO4	Distingush between the types of intelligent agents	U	PSO- 1, 2

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

Note: 1 or 2 COs/module

Name of the Course:KNOWLEDGE REPRESENTATION AND INTELLIGENT AGENTS

Credits: 3:0:1 (Lecture: Tutorial: Practical)

CO No.	CO	PO/ PSO	Cognitive Level	Knowledge Category	Lecture (L)/ Tutorial (T)	Practical (P)
CO1	Interpret the efficiency of different algorithm design methods	PO-1, 6,7 PSO-1	U	F, C	L	
CO2	Apply heuristic search techniques	PO-1, 6, 7 PSO-1, 2, 3	Ap	F, C, P	L	P
CO3	Demonstrate problem-solving skills	PO-1, 6, 7 PSO-1,2	Ap	F, C	L	
CO4	Distinguish between the types of intelligent agents	PO-1, 6, 7 PSO 1, 2	U	F, C	L	

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs :

	PO 1	PO2	PO3	PO4	PO 5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3	PSO 4

CO 1	1	-	-	-	-	3	3	-	2	-	-	-
CO 2	1	-	-	-	-	3	3	-	2	1	2	-
CO 3	1	-	-	-	-	3	3	-	2	1	-	-
CO 4	1	-	-	-	-	3	3	-	2	1	-	-

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

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- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
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- Final Exam

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment	Lab Assessment	End Semester Examinations
CO 1	✓			✓
CO 2	✓	✓	✓	✓
CO 3	✓			✓
CO 4	✓	✓		✓

10. ELECTRONIC HEALTH RECORD SYSTEM