

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

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Programmings Assignments
- Final Exam

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment/ Quiz./Seminar	Programming Assignments	End Semester Examinations
CO 1	✓	✓	✓	✓
CO 2	✓	✓	✓	✓
CO 3	✓		✓	✓
CO 4	✓			✓

4. KNOWLEDGE REPRESENTATION AND REASONING

Discipline	COMPUTER SCIENCE				
Course Code	UK3DSCCSC204				
Course Title	KNOWLEDGE REPRESENTATION AND REASONING				
Type of Course	DSC				
Semester	III				
Academic Level	2				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	4 hours	-	-	4 hours

Pre-requisites	Nil
Course Summary	This course delivers various forms of knowledge representations

Detailed Syllabus:

Module	Unit	Content	Hrs (L)
I	Introduction to Knowledge Representation		12
	1	The Key Concepts: Knowledge, Representation and Reasoning Knowledge-Based Systems, Knowledge acquisition	
	2	Need for good representation. Various representations - Semantic Net, Frames, Scripts, Conceptual Dependencies, Ontology	
	3	Search Space, Semantic Tree, Search Tree, Goal Tree- Uses of goal trees	
II	Introduction to Logic		12
	4	Introduction to Logic- Propositional Logic, Use of logic in AI, Logical operators	
	5	Truth Table, Equivalence, Tautology, Contradiction, Various deductions	
	6	Predicate Calculus- First Order Predicate Logic	
	7	Universal Instantiation, The Unification Algorithm	
III	Rule Based Systems		12
	8	Rules for knowledge representation, Rule Based Systems - Forward and Backward Chaining, Comparing forward & backward chaining	
	9	Basics of Knowledge Engineering.	
	10	Taxonomies and Inheritance. Default Reasoning	
IV	Reasoning		12
	11	Reasoning in Artificial intelligence	
	12	Inductive reasoning Vs Deductive reasoning	
	13	Probabilistic reasoning in Artificial intelligence	
V	Flexi Module (Not included for end semester exam)		12
	14	Expert Systems – Architecture of Expert System	

	15	Case Study: DENDRAL, MYCIN, PXDES, CaDeT	
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References

1. Ben Coppin: Artificial Intelligence Illuminated, Jones and Bartlett Publishers
2. Ronald J Brachman, Hector J Levesque: Knowledge Representation and Reasoning
3. John F Sowa: Knowledge Representation: Logical, Philosophical & Computational Foundations
4. Nilsson N.J.: Artificial Intelligence - A New Synthesis, Harcourt Asia Pvt. Ltd
5. Stuart Russell and Peter Norvig: Artificial Intelligence: A Modern Approach, 3rd Edition. Prentice Hall.

Web Resources

<https://nptel.ac.in/courses/106106140>

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Summarise the concepts of knowledge, representation, and reasoning	U	PSO – 1, 2
CO-2	Identify equivalences, tautologies, and contradictions.	Ap	PSO – 1, 2
CO-3	Sketch the fundamentals of knowledge engineering	Ap	PSO – 1, 2
CO-4	Show the design of expert systems	Ap	PSO – 1, 2

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

Name of the Course: KNOWLEDGE REPRESENTATION AND REASONING

Credits: 4:0:0 (Lecture: Tutorial: Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/ Tutorial (T)	Practical (P)
1	Summarise the concepts of	PO –1,2,6,7 PSO – 1, 2	U	F, C	L	-

	knowledge, representation, and reasoning					
2	Identify equivalences, tautologies, and contradictions.	PO –1,2,5, 6,7 PSO – 1, 2	Ap	F, C, P	L	-
3	Sketch the fundamentals of knowledge engineering	PO –1,2,6,7 PSO – 1, 2	Ap	F, C, P	L	-
4	Show the design of expert systems	PO –1,2,5, 6,7 PSO – 1, 2	Ap	F, C, P	L	-

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

Mapping of COs with PSOs and POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO 7	PO8	PSO 1	PSO 2	PSO 3	PSO4
CO 1	2	1	-	-	-	2	1	-	3	1	-	-
CO 2	3	2	-	-	2	2	1	-	3	3	-	-
CO 3	3	2	-	-	-	2	1	-	3	3	-	-
CO 4	2	2	-	-	2	2	1	-	3	2	-	-

Correlation Levels:

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

Assessment Rubrics:

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

Mapping of COs to Assessment Rubrics:

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

6. VISUAL PROGRAMMING

Discipline	Computer Science
Course Code	UK3DSCCSC205
Course Title	VISUAL PROGRAMMING
Type of Course	DSC