A

Course File Report

On

"Artificial Intelligence"

Submitted by

Mrs.G.SUMALATHA
Associate Professor

Department

of

Computer Science & Engineering

CMR ENGINEERING COLLEGE

(Approved by AICTE-New Delhi, Affiliated to JNTU, Hyderabad)
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(2023-24, I Semester)

CONTENTS OF COURSE FILE:

COURSE INSTRUCTOR NAME: Mrs.G.SUMALATHA ACADEMIC YEAR:2023-24

SUBJECT NAME:ARTIFICIAL INTELLIGENCE

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SEM START DATE AND END DATE: 21-8-23 T0 26-12-23

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HOD

1.DEPARTMENT VISION & MISSION

- **VISION**

Toproduce globally competent and industry-ready graduates in Computer Science & Engineering by imparting quality education with the know-how of cutting-edge technology and holistic personality.

- **MISSION**

1. To offer high-quality education in Computer Science & Engineeringin order tobuild core competence for the graduatesby laying a solid foundation in Applied Mathematicsand program frameworkwith a focus on concept building.
2. Thedepartment promotesexcellenceinteaching,research, and collaborativeactivities to preparegraduates for a professional career or higher studies.
3. Creating an intellectual environment for developing logical skills and problem-solving strategies, thus developing, an able and proficient computer engineer to compete in the current global scenario.

2.LIST OF PEOS, POS & PSOs

2.1 PROGRAM EDUCATIONAL OBJECTIVES (PEO):

PEO 1: Excel in professional career and higher education by acquiring knowledge of mathematical computing and engineering principles.
PEO 2: To provide an intellectual environment for analyzing and designing computing systems for technical needs.
PEO 3: Exhibit professionalism to adapt current trends using lifelong learning with legal and ethical responsibilities.
PEO 4: To produce responsible graduates with effective communication skills and multidisciplinary practices to serve society and preserve the environment.

2.2 .PROGRAM OUTCOMES:

- **PO1. Engineering Knowledge:**

  An ability to apply knowledge of computing, mathematics, science and engineering fundamentals appropriate to the discipline.

- **PO2.Problem Analysis:**

  An ability to analyze a problem, and identify and formulate the computing requirements appropriate to its solution.

- **PO3.Design/Development Of Solutions:**

  An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

- **PO4**. **Conduct Investigations Of Computer Programs:**

  An ability to design and conduct experiments, as well as to analyze and interpret data.

- **PO5**. **Modern Tool Usage:**

  An ability to use current techniques, skills, and modern tools necessary for computing practice.

- **PO6.The Engineer And Society:**

  An ability to analyze the local and global impact of computing on individuals, organizations, and society.

- **PO7. Environment And Sustainability:**

  Knowledge of contemporary issues.

- **PO8. Ethics**:

  An understanding of professional, ethical, legal, security and social issues and responsibilities.

- **PO9. Individual And Team Work;**

  An ability to function effectively individually and on teams, including diverse and multidisciplinary, to accomplish a common goal.

- **PO10. Communication**:

An ability to communicate effectively with a range of audiences.

- **PO11. Project Management And Finance** :

  An understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects.

- **PO12.life long-learning**:

  Recognition of the need for and an ability to engage in continuing professional development.

2.3. PROGRAM SPECIFIC OUTCOMES (PSO's)

PSO1: **Professional Skills and Foundations of Software development:** Ability to analyze, design and develop applications by adopting the dynamic nature of Software developments.

PSO2: **Applications of Computing and Research Ability**: Ability to use knowledge in cutting edge technologies in identifying research gaps and to render solutions with innovative ideas.

3. LIST OF CO's (ACTION VERBS AS PER BLOOM'S TAXONOMY)

COURSE OUTCOMES:

SUBJECT NAME: ARTIFICIAL INTELLIGENCE

CO1	**Understand** the various searching techniques, constraint satisfaction problems, and example problems- game playing techniques **.(Understanding)**
CO2	Apply these techniques in applications that involve perception, reasoning, and learning. .(**Applying)**
CO3	**Explain** the role of agents and how it is related to the environment and the way of evaluating it and how agents can act by establishing goals **.(Understanding)**
CO4	**Illustrate** the knowledge of real-world Knowledge representation. (**Understanding)**
CO5	**Analyze** and design a real-world problem for implementation and understand the dynamic behavior of a system. .**(Analyzing)**

REVISED Bloom's Taxonomy Action Verbs

Definitions	I. Remembering	II. Understanding	III. Applying	IV. Analyzing	V. Evaluating	VI. Creating
Bloom's Definition	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.
Verbs	• Choose • Define • Find • How • Label • List • Match • Name • Omit • Recall • Relate • Select • Show • Spell • Tell • What • When • Where • Which • Who • Why	• Classify • Compare • Contrast • Demonstrate • Explain • Extend • Illustrate • Infer • Interpret • Outline • Relate • Rephrase • Show • Summarize • Translate	• Apply • Build • Choose • Construct • Develop • Experiment with • Identify • Interview • Make use of • Model • Organize • Plan • Select • Solve • Utilize	• Analyze • Assume • Categorize • Classify • Compare • Conclusion • Contrast • Discover • Dissect • Distinguish • Divide • Examine • Function • Inference • Inspect • List • Motive • Relationships • Simplify • Survey • Take part in • Test for • Theme	• Agree • Appraise • Assess • Award • Choose • Compare • Conclude • Criteria • Criticize • Decide • Deduct • Defend • Determine • Disprove • Estimate • Evaluate • Explain • Importance • Influence • Interpret • Judge • Justify • Mark • Measure • Opinion • Perceive • Prioritize • Prove • Rate • Recommend • Rule on • Select • Support • Value	• Adapt • Build • Change • Choose • Combine • Compile • Compose • Construct • Create • Delete • Design • Develop • Discuss • Elaborate • Estimate • Formulate • Happen • Imagine • Improve • Invent • Make up • Maximize • Minimize • Modify • Original • Originate • Plan • Predict • Propose • Solution • Solve • Suppose • Test • Theory

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing, Abridged Edition. Boston, MA: Allyn and Bacon.

Action Words for Bloom's Taxonomy					
Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
define	explain	solve	analyze	reframe	design
identify	describe	apply	compare	criticize	compose
describe	interpret	illustrate	classify	evaluate	create
label	paraphrase	modify	contrast	order	plan
list	summarize	use	distinguish	appraise	combine
name	classify	calculate	infer	judge	formulate
state	compare	change	separate	support	invent
match	differentiate	choose	explain	compare	hypothesize
recognize	discuss	demonstrate	select	decide	substitute
select	distinguish	discover	categorize	discriminate	write
examine	extend	experiment	connect	recommend	compile
locate	predict	relate	differentiate	summarize	construct
memorize	associate	show	discriminate	assess	develop
quote	contrast	sketch	divide	choose	generalize
recall	convert	complete	order	convince	integrate
reproduce	demonstrate	construct	point out	defend	modify
tabulate	estimate	dramatize	prioritize	estimate	organize
tell	express	interpret	subdivide	find errors	prepare
copy	identify	manipulate	survey	grade	produce
discover	indicate	paint	advertise	measure	rearrange
duplicate	infer	prepare	appraise	predict	rewrite
enumerate	relate	produce	break down	rank	role-play
listen	restate	report	calculate	score	adapt
observe	select	teach	conclude	select	anticipate
omit	translate	act	correlate	test	arrange
read	ask	administer	criticize	argue	assemble
recite	cite	articulate	deduce	conclude	choose
record	discover	chart	devise	consider	collaborate
repeat	generalize	collect	diagram	critique	collect
retell	give examples	compute	dissect	debate	devise
visualize	group	determine	estimate	distinguish	express
	illustrate	develop	evaluate	editorialize	facilitate
	judge	employ	experiment	justify	imagine
	observe	establish	focus	persuade	infer
	order	examine	illustrate	rate	intervene
	report	explain	organize	weigh	justify
	represent	interview	outline		make
	research	judge	plan		manage
	review	list	question		negotiate
	rewrite	operate	test		originate
	show	practice			propose
	trace	predict			reorganize
	transform	record			report
		schedule			revise
		simulate			schematize
		transfer			simulate
		write			solve
					speculate
					structure
					support
					test
					validate

4. Syllabus copy

Unit– I	**Introduction:** AI problems, Agents and Environments, Structure of Agents, Problem Solving Agents **Basic Search Strategies**: Problem Spaces, Uninformed Search (Breadth-First, Depth-First Search,Depth-first with Iterative Deepening), Heuristic Search (Hill Climbing, Generic Best-First, A*), ConstraintSatisfaction (Backtracking, Local Search)
Unit– II	**Advanced Search**: Constructing Search Trees, Stochastic Search, A* Search Implementation, Minimax Search, Alpha-Beta Pruning **Basic Knowledge Representation and Reasoning**: Propositional Logic, First-Order Logic, ForwardChaining and Backward Chaining, Introduction to Probabilistic Reasoning, Bayes Theorem
Unit– III	**Advanced Knowledge Representation and Reasoning**: Knowledge Representation Issues, Non-monotonic Reasoning, Other Knowledge Representation Schemes **Reasoning Under Uncertainty**: Basic probability, Acting Under Uncertainty, Bayes' Rule, Representing Knowledge in an Uncertain Domain, Bayesian Networks
Unit– IV	**Learning: What Is Learning? Rote Learning, Learning by Taking Advice, Learning in Problem Solving, Learning from Examples, Winston's Learning Program, Decision Trees**
Unit– V	**Expert Systems: Representing and Using Domain Knowledge, Shell, Explanation, Knowledge Acquisition.**

4.1 References (Text books/websites/Journals)

TEXT BOOK:

1. Artificial Intelligence A Modern Approach,Third Edition,Stuart Russell and Peter Norvig, Pearson Education.

REFERENCESBOOKS:

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1. Artificial Intelligence ,3rdEdn,E.Rich and K.Knight(TMH)
2. Artificial Intelligence,3rdEdn.,Patrick Henny Winston,PearsonEducation.
3. Artificial Intelligence,Shivani Goel,Pearson Education.
4. Artificial Intelligence and Expert systems–Patterson,Pearson Education.

Journals with min 5 ref paper for literature study

1.QTCP: Adaptive Congestion Control with Reinforcement Learninghttps://sci-hub.mksa.top/10.1109/TNSE.2018.2835758

2. A comparative Approach To Predict Corona Virus Using Machine Learning

https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9395827

3. Machine Learning and Internet of Things based Smart Agriculture

https://sci-hub.mksa.top/10.1109/ICACCS48705.2020.9074472

4. Machine Learning Applications for Precision Agriculture: A Comprehensive Review

https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9311735

5. A Survey on Various Machine Learning Models in IOT Applications

https://sci-hub.mksa.top

5.INDIVIDUAL TIME TABLE (G.SUMALATHA)

Mrs.G.SUMALATHA

	I(9:10-10:10)	II(10:10-11:00)	III(11:00-11:50)	IV(11:50-12:40)		V(1:20-2:20)	VI(2:20-3:10)	VII(3:10-4:00)
MON	**III-B AI**	**III-D AI LAB**					**III-B AI**	
TUE	**III-B AI**	**III-B AI LAB**						
WED				**III-B AI**				
THU								
FRI		**III-AI**	**III-B AI**					
SAT	**III-B AI**	**III-B AI LAB**				**III-B AI**		

6.Session plan

S.NO	Topics (JNTUH Syllabus)	Sub-Topic	No.Of Lectures Required	Suggested Books	Teaching Methods
		UNIT-I			
1	**Introduction**	AI problems: Problem,)	L1	T1	BB/PPT
		Agents and Environments	L2	T1	BB/PPT
		Structure of Agents	L3	T1,	BB/PPT
2	**Basic Search strategies**	Problem Solving Agents, Uninformed Search	L4	T1,R1	BB/PPT
		Breadth-First, Depth-First Search, Depth-first with Iterative Deepening	5	T1, R1	BB/PPT
3	**Heuristic Search**	Heuristic Search (Hill Climbing), Generic Best-First, A*	L6	T1,R1	BB/PPT
		Constraint Satisfaction Problem	L7	T1	BB/PPT
		Backtracking, Local Search	L8	T1	BB/PPT

UNIT2					
4	**Advanced Search**	Constructing Search Trees	L9	T1,R1	BB/PPT
		Stochastic Search	L10	T1,R1	BB/PPT
		A* Search Implementation	L11	T1,R1	BB/PPT
		Minimax Search	L12	T1,R1	BB/PPT
		Alpha-Beta Pruning	L13	T1,R1	BB/PPT
		Example problems on Alpha beta Pruning	L14	T1,R1	BB/PPT
5	**Basic Knowledge Representation and Reasoning**	Propositional Logic ,First-Order Logic	L15	T1,R1	BB/PPT
		ForwardChaining and Backward Chaining	L16	T1,R1	BB/PPT
		Introduction to Probabilistic Reasoning, Bayes Theorem	L17	T1,R1	BB/PPT
UNIT3					
		Knowledge Representation Issues	L18	T1,R1	BB/PPT

6	**Advanced Knowledge Representation and Reasoning**	Non-monotonic Reasoning	L19	T1,R1	BB/PPT
		OtherKnowledge Representation Schemes	L20	T1,R1	BB/PPT
		Basic probability	L21	T1,R1	BB/PPT
7		Acting Under Uncertainty	L22	T1,R1	BB/PPT
		Representing Knowledge in an Uncertain Domain	L23	T1,R1	BB/PPT
8	**Reasoning Under Uncertainty**	Bayes' Rule	L24	T1,R1	BB/PPT
		Bayesian Networks	L25	T1,R1	BB/PPT
		Example problems on Baye's theorem	L26	T1,R1	BB/PPT
		Example problems on Bayesian Networks	L27	T1,R1	BB/PPT
UNIT4					

9	**Learning**	What Is Learning?	L28	T1,R1	BB/PPT
		Rote Learning	L29	T1,R1	BB/PPT
		Learning by Taking Advice	L30	T1,R1	BB/PPT
		Learning in Problem Solving	L31	T1,R1	BB/PPT
		Learning from Examples	L32	T1,R1	BB/PPT
10		Winston's Learning Program	L33	T1,R1	BB/PPT
		Examples on Winston's Learning Program	L34	T1,R1	BB/PPT
		Examples on Winston's Learning Program	L35	T1,R1	BB/PPT
		Decision Trees	L36	T1,R1	BB/PPT
		Examples on Decision Trees	L37	T1,R1	BB/PPT
		Learning from Examples	L38 L39	T1,R1 T1	BB/PPT BB/PPT
UNIT5					
		Representing and Using Domain	L40	T1,R1	BB/PPT
		Shell	L41	T1,R1	BB/PPT
		KnowledgeExplanation	L42	T1,R1	BB/PPT

11	**Expert Systems**	Knowledge Acquisition.	L43	T1,R1	BB/PPT
		Knowledge Acquisition Techniques	L44	T1,R1	BB/PPT

TOTAL CLASSES =44

7.Session Execution Log

S No	Unit	Scheduled completed date	Completed date	Remarks
1	I	23/08/2023	14/09/2023	COMPLETED
2	II	15/09/2023	03/10/2023	COMPLETED
3	III	04/10/2023	18/10/2023	COMPLETED
4	IV	05/11/2023	19/11/2023	COMPLETED
5	V	20/11/2023	20/12/2023	COMPLETED

8.Lecture Notes

Attached

9.Assignment Questions along with sample Assignment Script

Assignment-1

1. a)Explain about constraint satisfaction problem in detail with Cryptarithmetic Problem.

SEND

+MORE

MONEY

----------(CO1)

b) Explain BFS and DFS with examples. (CO1)

2. Explain in detail about i) min-max and ii) alpha-beta pruning problem with example.(CO2)
3. a.Discuss in detail about Forward and Backward Chaining[CO2].
(CO2)

b.Define Agents. Explain the Structure of Agents?[CO1]

4. a.Define Baye's theorem and find the solution for the below problem .[CO2]

A man is known to speak the truth 2 out of 3 times. He throws a die and reports that the number obtained is four. Find the probability that the number obtained is actually a four.(CO2).

b.What are the Knowledge Representation issues?Discuss in Detail.[CO3].

5.a.Discuss in detail about A* algorithm with example .(CO1)

b. Define propositional logic and First-order logic and state some examples.(co2)

Assignment-II

1. Define Bayesian belief networks. write the steps involved to construct Bayesian belief networks.(co3)
2. What is expert system shell? Explain the architecture of expert system shell.(co5)
3. What is inference engine? Write the steps involved in knowledge acquisition method. (co5)
4. What is learning? Differentiate types of learning?(co4)
5. Write the difference between monotonic and non-monotonic reasoning.(co3)

10.Mid exam Question Papers along with sample Answer Scripts

Date: 29-01-2021.

III.B.TECH- I-SEM-I MID EXAMINATION ***Date:*** **Time*: 06:09:2022/10:00-11:30 AM***

Subject: Artificial Intelligence (CS502PC) Branch: Common to CSE & IT
Marks: 25 M

Note: Question paper contains two parts, Part - A and Part - B.

Part-A is compulsory which carries 10 marks. Answer all questions in part-A.

Part-B consists of (2 1/2) units. Answer any one full question from each unit. Each question carries 5 marks and may have a,b,c sub questions.

PART-A **5x2=10**

1 Q.: Define Artificial Intelligence. (CO1)

2 Q. What are the different Problem Solving Agents. (CO1)

3 Q. Define BFS and DFS with an example. (CO2)

4 Q. What is meant by First-order logic and state some examples (CO2)

5 Q. What are the reasons for Uncertainity. (CO2)

PART-B **3X5=15**

6. Explain about constraint satisfaction problem in detail with Crypt arithmetic Problem.

SEND

+MORE

MONEY

(CO1)

(OR)

7. Describe the Agents and Environments. What are the different structure of Agents?

(CO1)

8 Define Baye's theorem and find the solution for the below problem

(CO2)

A man is known to speak the truth 2 out of 3 times. He throws a die and reports that the number obtained is four. Find the probability that the number obtained is actually a four.

(OR)

9 Explain in detail the i) min-max and ii) alpha-beta pruning problem with example (CO2)

10 Discuss in detail the Backward and Forward chaining (CO2)

(OR)

11.Define Non monotonic Reasoning. What are the issues in Knowledge Representation?

CMR ENGINEERING COLLEGE

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Kandlakoya (V), Medchal (M), Medchal - Malkajgiri (D)-501401

III.B.TECH- I-SEM-II MID EXAMINATION ***Date:*** **Time*: 26:12:2023 /10:00-11:30 AM***

Subject: Artificial Intelligence (CS503PC) **Branch: Common to CSE & IT** **Marks: 25 M**

Note: Question paper contains two parts, Part - A and Part - B.

Part-A is compulsory which carries 10 marks. Answer all questions in part-A.

Part-B consists of (2 1/2) units. Answer any one full question from each unit. Each question carries

5 marks and may have a,b,c sub questions.

PART-A **5x2=10**

1 Q.: What is the need of knowledge representation? (CO3)

2 Q. Write the difference between supervised and unsupervised learning? (CO4)

3 Q. How decision tree is important explain.
(CO4)

4 Q. Write Baye's rule?
(CO3)

5 Q. Name some of the expert systems.
(CO5)

PART-B **3X5=15**

6 **Q**. Explain the issues in knowledge representation?
(CO3)

(OR)

7 **Q**. Define Bayesian belief networks. Write the steps involved to construct Bayesian belief networks. (CO3)

8 **Q**. What is learning? Differentiate types of learning?
(CO4)

(OR)

9 **Q**. State and explain Winston's learning program.
(CO4)

10 **Q**. What is expert system shell? Explain the architecture of expert system shell.
(CO5)

(OR)

11 **Q**. What is inference engine? Write the steps involved in knowledge acquisition method.
(CO5)

11.Scheme of Evaluation

MID-I

S.NO	Q.NO	THEORY	MARKS	TOTAL
PART-A				
1	1	DEFINITION	2	2
2	2	DEFINITION	2	2
3	3	DEFINITION	2	2
4	4	DEFINITION,EXAMPLE	2	2
5	5	REASONS	2	2
PART-B				
6	6	EXPLANATION	3+2	5
7	7	DEFINITION,DIAGRAM	3+2	5
8	8	EXAMPLE	3+2	5
9	9	DEFINITION, DIAGRAM	3+2	5
10	10	DEFINITION, EXAMPLE EXPLANATION	5	5

MID-II

S.NO	Q.NO	THEORY	MARKS	TOTAL
PART-A				
1	1	DEFINITION	2	2
2	2	DEFINITION	2	2
3	3	DEFINITION	2	2
4	4	DEFINITION,EXAMPLE	2	2
5	5	REASONS	2	2
PART-B				
6	6	EXPLANATION	3+2	5
7	7	DEFINITION,DIAGRAM	3+2	5
8	8	THEOREM,EXAMPLE	3+2	5
9	9	DEFINITION, EXAMPLE	3+2	5
10	10	EXPLANATION	5	5

12. Mappings of Cos with Pos and PSOs

COURSE	Relationship of Course outcomes to Program Outcomes (PO AVG)													
CO-PO&PSO MATRIX	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3												
CO2													3	
CO3		2							2					3
CO4				2	2								3	
CO5	3		2		2				2			2		2
AVERAGE	**3**	**3**	**2**	**2**	**2**				**2**			**2**	**3**	**3**

13. COs, POs, PSOs Justification (from 2020-21 onwards)

Justification:

CO1: Understand the various searching techniques, constraint satisfaction problems, and example

problems- game playing techniques **.(Understanding)**
Correlated with PO1 High: Strongly mapped as students will be able to gain the knowledge of various searching techniques, constraint satisfaction problems, and example problems- game playing techniques
correlated with PO2 high: strongly mapped as students will be able to analyze problem solving method

CO2: Apply these techniques in applications that involve perception, reasoning, and learning. .(**Applying)**
Correlated with PSO1 High: Strongly mapped as students will be able to analyze techniques in applications that involve perception, reasoning, and learning.

CO3: Explain the role of agents and how it is related to the environment and the way of evaluating it and how agents can act by establishing goals **.(Understanding)**
Correlated with PO2 moderately: Moderately mapped as students will be able to analyze the the role of agents and how it is related to the environment and the way of evaluating it and how agents can act by establishing goals
Correlated with PO9 moderately: Moderately mapped as students will be able to design new techniques for evaluating the agents can act by establishing goals.
Correlated with PSO2 highly: highly mapped to students to Ability to use knowledge in technologies in identifying research gaps and to render solutions with innovative ideas.

CO4: Illustrate the knowledge of real-world Knowledge representation. (**Understanding)**
Correlated with PO4 moderately: moderately mapped as students will be able to get the knowledge of real-world Knowledge representation
Correlated with PO5 moderately: moderately mapped as students will be able to choose the different techniques to get knowledge of real-world Knowledge representation.
Correlated with PSO1 High: Strongly mapped as students will be able to analyze, design and develop applications to get real-world Knowledge.

CO5: Analyze and design a real-world problem for implementation and understand the dynamic behavior of a system. .**(Analyzing)**
Correlated with PO1 highly: Strongly mapped as students to design a real-world problem
Correlated with PO3 moderately: moderately mapped as students will be able to apply the real-world problem for implementation and understand the dynamic behavior of a system
Correlated with PO5 moderately: moderately mapped as students will be able to choose the different techniques in real world problems.
Correlated with PO9 moderately: moderately mapped as students will be able to design new techniques for evaluating understand the dynamic behavior of a system
Correlated with PO12 moderately: moderately Recognition of the need for and an ability to implement dynamic behavior of a system
Correlated with PSO2 moderately: moderately mapped as students will be able to use knowledge in technologies in identifying research gaps and to render solutions with innovative ideas.

14. Attainment of Cos, Pos and PSOs (Excel sheet)

15. . Previous Question Papers

Attached

16.Power Point Presentations (PPTs)

Attached

17. Innovative Teaching method if any(Attached Innovative Assignment)

QUESTIONS

1.Draw the mind map of Structure of Agents?(CO1)

2. Summarize any journal on Bayesian Belief Networks and explain with neat diagram?(CO3)

18. References (Textbook/Websites/Journals

1.Artificial Intelligence ,3rdEdn,E.Rich and K.Knight(TMH)

2.Artificial Intelligence,3rdEdn.,Patrick Henny Winston,PearsonEducation.

3.Artificial Intelligence,Shivani Goel,Pearson Education.

Artificial Intelligence and Expert systems–Patterson,Pearson Education

Websites or URLs e- Resources

UNIT	CONTENT /TOPIC DETAILS	HYPERLINKDETAILS
UNIT -1	**Introduction to Artificial Intelligence**	https://nptel.ac.in/courses/106105077 https://onlinecourses.nptel.ac.in/noc22_cs56/preview https://onlinecourses.nptel.ac.in/noc22_cs83/preview?user_email=mettu.jhansilakshmi@cmrec.ac.in
UNIT -2	**Advanced Search-strategies**	**https://onlinecourses.nptel.ac.in/noc22_cs56/preview** **https://onlinecourses.nptel.ac.in/noc22_cs67/preview?user_email=mettu.jhansilakshmi@cmrec.ac.in**

UNIT -3	**Logic and Knowledge Representation**	**https://nptel.ac.in/courses/106105077** **https://www.youtube.com/watch?v=GHpchgLoDvI&list=PLp6ek2hDcoNB_YJCruBFjhF79f5ZHyBuz&ab_channel=IITDelhiJuly2018**
UNIT -4	**Learning**	**https://nptel.ac.in/courses/106105077**
UNIT -5	**Expert Systems**	**https://nptel.ac.in/courses/106105077** **https://www.javatpoint.com/artificial-intelligence-tutorial**