VIT Vidyalankar Institute of Technology
Accredited A+ by NAAC

Version 08/06-06

Consolidated Academic Administration Plan for the Course

Artificial Intelligence (Program Core)
Sem. 5 Program CMPN 2025-26 Odd Semester
Faculty –Mahesh Khandke & Dr. Suja Jayachandra (Cluster Mentor)

The academic resources available in VIT—

VMIS (ERP)	V-Refer and V-Live	VIT Library	VAC & MOOC Courses
Institute & Department Vision and Mission	Former IA question papers and solutions (prepared by faculty)	Former IA question paper solutions—hard copy	Value Added Courses (VAC) are conducted throughout the semester & in the semester break - Enrol for the VACs
Program Educational Objectives (PEO)	MU end semester examination question papers and solutions (prepared by faculty)	MU end semester exam question paper & solutions— by faculty, hard copy	
Program Specific Outcome (PSO)	Class notes and Digital Content for the subject (scanned/typed by faculty)	All textbooks, reference books, and e-books mentioned in the syllabus & AAP	Online courses from NPTEL, Coursera, etc., are pursued throughout the semester. Register for the course & get certified
Program Outcome (PO)	Comprehensive question bank, EQ, GQ, PPT, Class Test papers	Technical journals and magazines for reference	
Departmental Knowledge Map	Academic Administration Plan & Beyond Syllabus Activity report	VIT library has many resources, e.g., IEEE, Nimbus, Xplore, EBSCO, etc.	Watch former lectures captured in LMS at VIT

1.a Course Objectives (Write in detail— as per NBA guidelines)

Cognitive	What do you want students to know?	Architecture of Intelligent agents, searching Techniques, Knowledge representation techniques, drawing Inferences, planning and reasoning, and recent trends in AI
Affective	What do you want students to think/ care about?	To induce human like intelligence in an artifact, what all components are needed.
Behavioural	What do you want students to be able to do?	Implement core concepts of AI such as searching technique, Knowledge representation, planning, and learning to solve real life problem

Advice to Students:

Attend every class!!! Missing even one class can have a substantial effect on your ability to understand the course. Be prepared to think and concentrate, in the class and outside. I will try to make the class very interactive. Participate in the class discussions. Ask questions when you don't understand something. Keep up with the class readings. Start assignments and homework early. Meet me in office hour to discuss ideas, solutions or to check if, what you understand is correct.

The v-Refer Link: http://vidyalankarlive.com/vrefer/index.php/apps/files/?dir=/vRefer/CMPN/SEM%20V/2025-26/Verticals/PC-PCC/Subjects/Artificial%20Intelligence_PCCE10T&fileid=1080157

Creation of microsite or teams link:

Collaboration Policy:

We encourage discussion between students regarding the course material. However, no discussion of any sort is allowed with anyone on the assignment and homework for the class. If you find solution to some problems

in a book or on the internet, you may use their idea for the solution; provided you acknowledge the source (name and page in the book or the website, if the idea is found on the internet). Even though you are allowed to use ideas from another source, you must write the solution in your own words. If you are unsure whether or not certain kinds of collaboration is possible, please ask the teacher.

1.b Course Outcome (CO) Statements and Module-Wise Mapping (follow NBA guideline)

CO No.	Statements	Related Module/s
CO1	Recall and explain fundamental AI concepts.	1
CO2	Apply search algorithms and adversarial techniques to solve problems.	2
CO3	Translate natural language into formal logic (FOPL) and implement resolution refutation.	3
CO4	Compute probabilities using Bayes' Rule and design Bayesian networks for decision-making.	2, 4
CO5	Classify ML paradigms and implement models.	2,5
CO6	Develop AI applications and critique ethical/societal implications.	4,5,6

1.c Course Outcome (CO) Statements and Module-Wise Mapping (follow NBA guideline)

	Mapped to Learning Outcomes
CO1	1.1, 1.2, 1.3
CO2	2.1
CO3	3.1, 3.2
CO4	2.2, 3.3, 4.1, 4.2, 5.2
CO5	2.3, 5.1
CO6	4.3, 5.3, 6.1, 6.2, 6.3

1.d Mapping of COs with POs (mark S: Strong, M: Moderate, W: Weak, Dash '–': not mapped)

(List of POs is available in V-refer)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
	Knowledge	Analysis	Design	Investigation	Modern Tools	Society	Environment &sustainability	Ethics T	Teamwork C	Communication	Project Mgt	Life long learning
CO 1	4/36	3/36	1/36	-	-	-	-		-	-	-	-
CO 2			3/36	-	1/36	-	-		-	-	-	-
CO 3			2/36	2/36	-	-	-		-	-	-	-
CO 4			2/36	3/36	3/36	-	-		-	-	-	-
CO 5			1/36	1/36	2/36	-	-		-	-	-	-
CO 6	1/36	1/36	1/36		3/36	2/36		-		-		

1.e **Mapping of COs with PSOs (mark S: Strong, M: Moderate, W: Weak, Dash '–': not mapped)**

	PSO 1	PSO 2	PSO 3
CO 1	8/36	-	-
CO 2	3/36	1/36	-
CO 3	4/36	-	-
CO 4	5/36	3/36	-
CO 5	2/36	2/36	-
CO6	3/36	5/36	-

1.f **Teaching and Examination Scheme (As specified by the autonomous syllabus) for the Course**

Verticals	BSC/ESC	Program Courses	Multidisciplinary Courses	Skill Courses	HSSM	Experiential Learning	Liberal Learning
Tick suitable category		√					

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW/Practical	Tutorial	Total
PCCE10T	Artificial Intelligence	02	--	--	02	--	--	02
PCCE10P	Artificial Intelligence Lab	--	02	--	--	01	--	01

Subject Code	Subject Name	MSE-1*		
		Q, No	Module wise % Distribution	Relevant to Bloom Taxonomy
PCCE10T	Artificial Intelligence	1	Module1:10M: on assignments with slight difficulty (50%)	Understand Remember
		2	Module2:10M: Thought Provoking (50%)	Understand Apply

Subject Code	Subject Name	Examination Scheme							
		Theory			Total (Theory)	Practical			Total (Practical)
		ISA	MSE	ESE		ISA	ESE	ORAL	
PCCE10T	Artificial Intelligence	20	15	40	75				
PCCE10P	Artificial Intelligence Lab	--	--	-	-	25	25	-	50

Subject Code	Subject Name	MSE-2*		
		Q, No	Module wise % Distribution	Relevant to Bloom Taxonomy
PCCE10T	Artificial Intelligence	1	Module3:10M: on assignments with slight difficulty (50%)	Understand Apply
		2	Module4:10M: Thought Provoking (50%)	Evaluating

Subject Code	Subject Name	ESE#		
		Q, No	Distribution	Relevant to Bloom Taxonomy
PCCE10T	Artificial Intelligence	1	10M: on assignments with slight difficulty (25%)	Understand Remember
		2	10M: Thought Provoking (25%)	Apply Analyse
		3	10M: Thought Provoking (25%)	Apply Analyse Evaluating
		4	10M: on assignments with slight difficulty (25%)	Understand Analyse

* **Recommended distribution: -** 30 Marks from Assignments, 40 marks based on assignments with slightly enhance difficulty /complex, 30 marks from thought provoking

 # Recommended distribution: - 30 Marks from Assignments, 40 marks based on assignments/MSE with slightly enhance difficulty /complex, 30 marks from thought provoking

1.g Faculty-Wise Distribution of all Lecture-Practical-Tutorial Hours for the Course

Divisions	Lecture (Hrs.)	Practical (Hrs.)				Tutorial (Hrs.)			
		Batch 1	Batch 2	Batch 3	Batch 4	Batch 1	Batch 2	Batch 3	Batch 4
A	2 MAK	2 MAK	2 MAK	2 MAK	--	--	--	--	--
B	2 MAK	2 MAK	2 MAK	2 MAK	--	--	--	--	--
C	2 MAK	2 MAK	2 UMK	2 UMK	--	--	--	--	--

1.h Office Hours (Faculty will be available in office in this duration for solving students' query)

Division	Day	Time (at least 1 Hr. / Division)	Venue (Office Room No.)
A	Monday	3:45 pm to 4:30 pm	M209 Discussion Room
B	Wednesday	3:45 pm to 4:30 pm	M209 Discussion Room
C	Friday	3:45 pm to 4:30 pm	M209 Discussion Room

2.a Syllabus: Module Wise Teaching Hours and % Weightage in autonomous syllabus Question Paper

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in autonomous syllabus Question Papers			Performance Indicator Mapping
			ISA	MSE	ESE	
1	**Introduction to Artificial Intelligence** Artificial Intelligence Introduction Artificial Intelligence Problems Agents and Environments The structure of Agents Types of Agents PEAS.	4	13%	55%	13%	1.1.1, 1.1.2, *1.4.1, 2.1.1, 2.1.2, 2.2.1, 3.2.1*
Learning Outcome-1.1	Define AI and distinguish narrow vs. general AI. (P.I. 1.1.1, 1.1.2, 1.4.1) (CO1)					
Learning Outcome-1.2	Explain agent types and environment classifications. (P.I. 2.1.1, 2.1.2) (CO1)					
Learning Outcome-1.3	Categorize agents by architecture. (P.I. 2.2.1, 1.4.1, 3.2.1) (CO1)					
2	Problem Solving	7	25%	45%	25%	5.1.1, 3.4.2,

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in autonomous syllabus Question Papers			Performance Indicator Mapping
			ISA	MSE	ESE	
	Problem solving Agent Problem formulation Search Strategies Uninformed Search: Breadth First Search (BFS), Depth First Search (DFS), Depth Limited Search, Depth First Iterative Deepening (DFID) Heuristics Informed Search: Greedy best first Search, A* Search, Memory bounded heuristic Search Local Search: Hill climbing search Simulated annealing, Genetic algorithms Adversarial Search: Game Playing, Min-Max Search, Alpha Beta Pruning					3.2.2, 5.3.1, 3.4.1, 4.2.1
Learning Outcome-2.1	*Implement BFS/DFS for pathfinding. (P.I. 5.1.1, 3.4.2) (CO2)*					
Learning Outcome-2.2	*Compare A* vs. Greedy Search efficiency. (P.I. 3.2.2, 5.3.1) (CO4)*					
Learning Outcome-2.3	*Apply Min-Max with Alpha-Beta pruning. (P.I. 3.4.1, 4.2.1) (CO5)*					
3	Knowledge Representation Knowledge based Agents Propositional logic First Order Predicate Logic (FOPL) Inference in FOPL (Resolution by refutation) Forward chaining, backward Chaining. Uncertain Knowledge and Reasoning: Uncertainty, Representing knowledge in an uncertain domain, The semantics of Belief Network, Simple Inference in Belief Network	6	20%	70%	20%	3.2.1, 4.1.2, 3.4.2, 4.3.2, 4.1.2, 5.1.1
Learning Outcome-3.1	Convert statements to FOPL expressions. (P.I. 3.2.1, 4.1.2) (CO3)					
Learning Outcome-3.2	Implement resolution refutation. (P.I. 3.4.2, 4.3.2) (CO3)					
Learning Outcome-3.3	Build belief networks for medical diagnosis. (P.I. 4.1.2, 5.1.1) (CO4)					
4	Reasoning Under Uncertainty Handling Uncertain Knowledge Random Variables, Prior and Posterior Probability, Inference using Full Joint Distribution Bayes' Rule and its use Bayesian Belief Networks Reasoning in Belief Networks	4	13%	30%	13%	4.3.2, 5.2.1, 4.1.2, 5.1.1, 6.1.1

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in autonomous syllabus Question Papers			Performance Indicator Mapping
			ISA	MSE	ESE	
Learning Outcome-4.1	Compute posterior probabilities. (P.I. 4.3.2, 5.2.1) (CO4)					
Learning Outcome-4.2	Design a BBN for disease-symptom modeling. (P.I. 4.1.2, 5.1.1) (CO4)					
Learning Outcome-4.3	Critique bias in risk-assessment models. (P.I. 6.1.1) (CO6)					
5	Learning Types of learning: Concepts of Supervised, Unsupervised and Reinforcement Learning Learning Decision trees Explanation based learning Statistical Learning methods	4	13%	0%	13%	5.1.1, 5.2.1, 3.2.2, 4.3.4, 6.1.1, 8.1.1
Learning Outcome-5.1	Train a decision tree classifier. (P.I. 5.1.1, 5.2.1) (CO5)					
Learning Outcome-5.2	Compare SVM vs. k-NN for datasets. (P.I. 3.2.2, 4.3.4) (CO4)					
Learning Outcome-5.3	Debate ethical risks of facial recognition. (P.I. 6.1.1, 8.1.1) (CO6)					
6	Artificial Intelligence Applications Natural Language Processing Text Classification: Spam detection, sentiment analysis. Speech Recognition: Converting spoken language into text Speech Recognition Computer Vision Image Classification: Recognizing objects in images (e.g., cats, dogs, cars). Object Detection: Identifying and localizing objects within images	5	16%	0%	16%	1.4.1, 5.1.1, 2.1.1, 5.2.1, 3.2.1
Learning Outcome-6.1	Develop a spam detection model. (P.I. 1.4.1, 5.1.1) (CO6)					
Learning Outcome-6.2	Compare speech recognition architectures. (P.I. 2.1.1, 5.2.1) (CO6)					
Learning Outcome-6.3	Design a real-time object detector. (P.I. 3.2.1, 5.1.1) (CO6)					
	* Insert rows for more modules in the Course **Total**	**30**				

Note: - As an attachment Annexure is required for assessment criteria of learning outcomes.

2.b Prerequisite Courses

No.	Semester	Name of the Course	Topic/s

1	02	Data Structure	Array, link list and Trees.
2	03	Analysis of Algorithm	Complexity, Graph
3	03	Engineering Mathematics-3	Probability

2.c Relevance to Future Courses

No.	Semester	Name of the Course
1	VI	Machine Learning
2	VIII	Natural Language Processing
3	VII + VIII	Final Year Project

2.d

See :- Identify real life scenarios/examples which uses the knowledge of the subject ,(Discussion on how to prepare examples and case studies e.g. "Boeing Plane": C Programming Language – Intro to Computer Science – Harvard's CS50 (2018) – Bing video)

Real Life Scenario	Concept Used
Personal Assistant: Siri, Google Now and Cortana are intelligent personal assistants	Intelligent Agents
Video Games: Video game AI has been used for a very long time, but the complexity and effectiveness of that AI has increased exponentially over the past several decades.	Searching
Smart Cars: But self-driving cars are moving closer and closer to reality; Google's self-driving car project and Tesla's "autopilot" feature are two examples.	Intelligent Agents, Searching, Knowledge and Reasoning, Learning
Automobile Controls & Automation Systems – Engine firing control, Dashboard, Navigation and lighting control, Climate control, GPS, EBD/ABS Systems, Electronic Suspensions, CAN bus systems.	Intelligent Agents, Searching, Knowledge and Reasoning, Planning and Learning.
Purchase Prediction: Large retailers like Target and Amazon stand to make a lot of money if they can anticipate your needs.	Knowledge and Reasoning, Inferences and Learning.
Character Recognition, Handwriting Recognition, Activity Recognition, etc.	Applications

3 Past Results – Division-Wise

Details	Target – MAY 2025	DEC 2024	MAY 2024	DEC 2023
Course Passing % – Average of 3 Divisions	100	NA	NA	NA
Marks Obtained by Course Topper (mark/100)	79	NA	NA	NA

	Division A		Division B	
Year	Initials of Teacher	% Result	Initials of Teacher	% Result
May 2024	PJP	100	PJP	100
May 2023	ASH	100	ASH	100
May 2022	ASH	100	ASH	100

4 All the Learning Resources – Books and E-Resources

4.a List of Textbooks (T – Symbol for Textbooks) to be Referred by Students

Sr. No	Textbook Titles	Author/s	Publisher	Edition	Module Nos.	Available in our Library
1	Artificial Intelligence: A Modern Approach	Stuart J. Russell and Peter Norvig	Pearson Education.	Third Edition	ALL	Yes
2	Artificial Intelligence	Saroj Kaushik	Cengage Learning	First Edition	ALL	Yes
3	Artificial Intelligence: Structure and strategies for complex problem solving	George F. Luger	Pearson Education.	Fourth Edition	ALL	Yes
4	Artificial Intelligence and Intelligent Systems	N.P. Padhy	Oxford University Press.	--	ALL	Yes

4.b List of Reference Books (R – Symbol for Reference Books) to be Referred by Students

Sr. No	Reference Book Titles	Author/s	Publisher	Edition	Module Nos.	Available in our Library
1	Artificial Intelligence	Elaine Rich and Kevin Knight	Tata McGraw-Hill Education	Third Edition	All	Yes
2	Artificial Intelligence	Patrick Winston	Pearson Education	Third Edition	04	Yes
3	A first course in Artificial Intelligence	Deepak Khemani	McGraw-Hill Publication	-	All	Yes
4	Principles of Artificial Intelligence	Nils Nilsson	Narosa Publication	-	01,02, & 03	Yes

4.c List of E - Books (E – Symbol for E-Books) to be Referred by Students

Sr. No	E- Book Titles	Author/s	Publisher	Edition	Module Nos.	Available in our Library
1	Artificial Intelligence	Elaine Rich and Kevin Knight	Tata McGraw-Hill Education	Third Edition	01,02,03,04, & 05	E book available In vRefer repository
2	Artificial Intelligence Lecture Notes MIT	Prof. Leslie Kaelbling and Prof. Tomas Lozano-Perez	MIT	-	01,02,03,04,05, & 06	E book available In vRefer repository
3	Artificial Intelligence	Abhesik Taneja	-	-	01,02,03, & 06	E book available In vRefer repository
4	Artificial Intelligence Lecture Notes	Gordon S. Novak Jr	University of Texas	-	01,02,03, & 06	E book available In

						vRefer repository

4.d Reading latest / top rated research papers (at least 5 papers)

Name of Paper	Name of Authors (Background)	Published in		Problem Statement	Available in our Library
		Date	Journal		
Artificial intelligence: an overview of research trends and future directions	Dogan Gursoy, Ruiying Cai	January 2025	International Journal of Contemporary Hospitality Management	To review current research trends, challenges, and opportunities, and to propose directions for future studies.	pdf available In vRefer repository
Artificial intelligence (AI) learning tools in K-12 education: A scoping review	Iris Heung Yue Yim & Jiahong Su	January 2025	Springer Nature	To understand regarding suitable pedagogical approaches, learning tools, and assessment strategies	pdf available In vRefer repository
Industrial Expert Systems Review: A Comprehensive Analysis of Typical Applications	Xianzhe Yang and Changsheng Zhu	June 2024	IEEE ACCESS	To review and analyze the current industrial applications of expert systems	pdf available In vRefer repository
Development Status, Frontier Hotspots, and Technical Evaluations in the Field of AI Music Composition Since the 21st Century: A Systematic Review	Weijia Yang, Lin Shen, Chih-Fang Huang, Johee Lee , & Xian Zhao	July 2024	IEEE ACCESS	To present the evolution trajectory of frontiers and hotspots through visualization maps.	pdf available In vRefer repository
Analysis of Recommender System Using Generative Artificial Intelligence: A Systematic Literature Review	Matthew O. Ayemowa Roliana Ibrahim, and Muhammad Murad Khan	June 2024	IEEE ACCESS	To compare traditional AI-based recommender systems with generative AI-based recommender systems.	pdf available In vRefer repository
Vehicle Positioning Systems in	Suying Jiang, Qiufeng Xu, Wei Wang,	Jan 2025	Complex & Intelligent	Surveys AI methods (sensor fusion, ML models) for robust	pdf available In vRefer repository

Tunnel Environments: A Review	Peng Peng, Jiachun Li		Systems, Springer	vehicle localization in GPS-denied tunnels	
MACI: Multi-Agent Collaborative Intelligence for Adaptive Reasoning and Temporal Planning	Edward Y. Chang (Stanford Univ.)	Jan 2025	IEEE Transactions on Emerging Topics in Computational Intelligence	Introduces an architecture (meta-planner + agents + run-time monitor) for collaborative temporal planning in dynamic environments	pdf available In vRefer repository
ACPs: Agent Collaboration Protocols for the Internet of Agents	Jun Liu et al. (Tsinghua Univ. & others)	May 2025	IEEE Transactions on Network Science and Engineering	Proposes a protocol suite/framework for standardized interaction among heterogeneous AI agents	pdf available In vRefer repository
On the Prospects of Incorporating Large Language Models (LLMs) in Automated Planning and Scheduling (APS)	Vishal Pallagani et al. (IBM Research et al.)	Jan 2024	IEEE Transactions on Pattern Analysis and Machine Intelligence	Evaluates integration of LLM techniques with symbolic planners for improved automated planning	pdf available In vRefer repository

4.e **Based on research paper an identify the current Problem statement**

Problem Statement			Used in				
	Quiz	Assignment	Lab	Mini Project	Poster Presentation	Test	Any Other
To review current research trends, challenges, and opportunities, and to propose directions for future studies.					√		
To review and analyze the current industrial applications of expert systems					√		
To compare traditional AI-based					√		

recommender systems with generative AI-based recommender systems.							

4.f **Identify Companies / Industries which use the knowledge of the subject and thus may provide Internships and final Placements**

Name of the Company	To be / Contacted for		
	Student Internship	Student Final Placement	Faculty Internship
Cere Labs	√		√
L & T	√	√	√

4.g **Identify suitable relevant TOP Guest Speakers from Industry, Example: - (CS50 Lecture by Mark Zuckerberg - 7 December 2005 - YouTube)**

Name of the Identified Guest Speaker	Designation	Name of the Company
Mr. Laksmikant Tiwari	AVP	IGP.COM

4.h **Identify relevant technical competitions to participate [Competitions -Paper Presentations, Projects, Hackathons, IVs etc..]**

Name of the Relevant Technical Competition Identified to participate	Organized by	Date of the Event
Smart India Hackathon	AICTE, New Delhi	December 2025
IITB Techfest	IITB, Mumbai	December 2025
HackIndia 2025 – India's biggest Web3 & AI hackathon	C# Corner	September 2025

4.i **Identify faculty in TOP schools / Universities who are teaching same / similar subject and develop rapport e.g. Exchange Lecture Material (Assignments / Tests / Project etc..), Joint Paper Publication**

University	Name of the Course	Name of Faculty	Type of Collaboration		
			Exchange of Lecture Material	Joint Publication/ Research	Other
Kitami Institute of Technology, Hokkaido Japan	AI and Robotics	Dr. Abhijeet R.		Initiating the discussion on Joint research	Expert Talk

IISc Bangalore	Artificial Intelligence: Concepts and Techniques	Prof. V. Susheela Devi	Will share and discuss the learning notes with students.	--	https://onlinecourses.nptel.ac.in/noc25_cs159/preview

4.j Module Best Available in – Title of the best resource [from *4.a* to *4.d* in this AAP] and other details as necessary

Module No.	Title of the Module	Textbook	Mention the Tile					
			Reference Book	E-books	Journal	E-Journal	Available in our Library	V-refer
1	Introduction to Artificial Intelligence	√	√	√			Y	
2	Problem Solving	√		√			Y	
3	Knowledge Representation	√		√			Y	
4	Reasoning Under Uncertainty	√		√			Y	
5	Learning	√		√			Y	
6	Artificial Intelligence Applications		√				Y	

4.k Referred to any top-rated university in that subject for content

University	Name of the Course	Name of Faculty	Date of Delivery of the Course	Remarks
University of Toronto	CSC384 - Intro to AI	Bahar Ameri and Sonya Allin	Summer	Covers 80% topics of this course
Massachusetts Institute of Technology	60002: Introduction to Computational Thinking and Data Science	Prof. Eric Grimson Prof. John Guttag	Fall	Give information about basics of Data Science
Stanford University	Artificial Intelligence: Principles and Techniques	Andrew Ng, Christopher Manning, Chelsea Finn, Percy Liang, Jeanette Bohg.	Spring	Cover Searching algorithm in detail

4.l Faculty received any certification related to this subject. List of Certifications Identified / Done

Course	Certifying Agency	No. of Hours	Level of the Course		Certification		Remarks
			Introductory	Advance Skill Development	Done on	Proposed to be on	
AI for Everyone	Coursera	4 Weeks	√		22-6-2020		Completed

4.m **Completed subject wise/cluster wise training with cluster mentor.**
List of relevant Refresher Course Identified / Done

Course	Certifying Agency (As suggested by DAB/Cluster Mentor/Industry/University other than MU)	Certification		Remarks
		Done on	Proposed to be on	
Pedagogy	Gamification		In semester	A session to understand a topic using Gamification
PBL	Self		In semester	8 newly formed Problem based learning experiments
Sub. Content Training	Using YouTube Videos		In semester	Using YouTube content will implement a real world case.

4.n **Best Practices Identified and adopted**

No.	Item	Best Practices Identified		
		Univ. MIT	Univ. Stanford	Univ. Texas
1	Microsite	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-034-artificial-intelligence-fall-2010/	https://ai.stanford.edu/~latombe/cs121/2011/schedule.htm	https://www.cs.utexas.edu/~mooney/cs343/ Raymond J. Mooney
2	Video Lectures		https://online.stanford.edu/artificial-intelligence/free-content?category=All&course=All	
3	Assignments	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-034-artificial-intelligence-fall-2010/assignments/	https://ai.stanford.edu/~latombe/cs121/2011/schedule.htm	https://www.cs.utexas.edu/~mooney/cs343/
4	Mini Project	--	--	https://www.cs.utexas.edu/~mooney/cs343/proj1/
5	Assessment Metric	--	--	--
6	Quizzes	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-034-artificial-intelligence-fall-2010/exams/	--	--
7	Labs/ Practical (PBL)	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-034-artificial-intelligence-fall-2010/assignments/	--	--
8	Tests	https://ocw.mit.edu/courses/electrical-engineering-	--	https://www.cs.utexas.edu/~mooney/cs343/

		and-computer-science/6-034-artificial-intelligence-fall-2010/exams/		
9	Peer Assessment	--	--	--
10	Any Other	--	--	--

4.o Web Links for Online Notes/YouTube/VIT Digital Content/VIT Lecture Capture/NPTEL Videos

Students can view lectures by VIT professors, captured through LMS 'Lecture Capture' in VIT campus for previous years.

No.	Websites / Links	Module Nos.
1	https://www.coursera.org/courses?query=artificial%20intelligence/	01,02,03
2	https://onlinecourses.nptel.ac.in/noc25_cs88/preview	ALL
3	https://www.udacity.com/course/intro-to-artificial-intelligence--cs271/	01,02,03
4	https://thestempedia.com/blog/simple-ai-and-machine-learning-projects-for-students-and-beginners/	02,03
5	http://ai.stanford.edu/courses/	03,04
6	https://www.youtube.com/watch?v=gcK_5x2KsLA	04,05

4.p Recommended MOOC Courses like Coursera / NPTEL / MIT-OCW / edX/VAC etc.

Sr. No.	MOOC Course Link	Course conducted by – Person / University / Institute / Industry	Course Duration	Certificate (Y / N)
1	https://www.coursera.org/learn/ai-for-everyone	Google Andrew Ng	4 Weeks	Y
2	https://www.coursera.org/learn/introduction-tensorflow	Laurence Moroney Lead AI Advocate,	4 Weeks	Y
3	https://onlinecourses.nptel.ac.in/noc25_cs88/preview	Prof. Deepak Khemani	12 Weeks	Y
4	https://onlinecourses.nptel.ac.in/noc25_cs159/preview	Prof. V. Susheela Devi	12 Weeks	Y

5 Consolidated Course Lesson Plan

	From (date/month/year)	From (date/month/year)	Total Number of Weeks
Semester Duration	07/07/2025	18/10/2025	15

Week	Lecture no.	Module No.	Lecture Topics / MSE / BSA planned to be covered	Actual date of Completion (Handwritten)	COs Mapped	Mapping Bloom Taxonomy level	Recommended Prior Viewing / Reading	
							Lecture No. (on LMS)	Chapter No./ Books/ Web Site
1	1	1	Discussion on AAP, Grading system, ISA and ESE Introduction to AI		CO1	L2 (Understanding)	--	Chap 01 Book 01 Page 01-30
	2	1	Artificial Intelligence Problems Agents and Environments		CO1	L2 (Understanding)	--	Chap 01 Book 01 Page 01-30
2	3	1	The structure of Agents Types of Agents		CO1	L2 (Understanding)	--	Chap 01 Book 01 Page 01-30
	4	1	PEAS		CO2	L3 (Applying)	--	Chap 02 Book 01 Page 34-59
3	5	2	Problem solving Agent Problem formulation,		CO2	L2 (Understanding)	--	Chap 03 Book 01 Page 64-108
	6	2	Search Strategies Uninformed Search: Breadth First Search (BFS), Depth First Search (DFS),		CO2	L3 (Applying)	--	Chap 03 Book 01 Page 64-108
4	7	2	Depth Limited Search, Depth First Iterative Deepening (DFID) Heuristics		CO2	L4 (Analysing)	--	Chap 03 Book 01 Page 64-108

Week	Lecture no.	Module No.	Lecture Topics / MSE / BSA planned to be covered	Actual date of Completion (Handwritten)	COs Mapped	Mapping Bloom Taxonomy level	Recommended Prior Viewing / Reading	
							Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	8	2	Informed Search: Greedy best first Search, A* Search		CO2, CO3	L3 (Applying)	--	Chap 03 Book 01 Page 64-108
5	9	2	Memory bounded heuristic Search Local Search: Hill climbing search Simulated annealing,		CO3	L4 (Analysing)	--	Chap 03 Book 01 Page 64-108
	10	2	Genetic algorithms Adversarial Search: Game Playing Min-Max Search, Alpha Beta Pruning			L3 (Applying)	--	Chap 03 Book 01 Page 64-108
6	11	3	Knowledge based Agents Propositional logic		CO3	L2 (Understanding)	--	Chap 07 Book 01 Page 238-279
	12	3	First Order Predicate Logic (FOPL) Inference in FOPL (Resolution by refutation)		CO3	L3 (Applying)	--	Chap 08, 09 Book 01 Page 290-362
7	13	3	Forward chaining, backward Chaining.		CO3	L4 (Analysing)	--	Chap 08, 09 Book 01 Page 290-362

Week	Lecture no.	Module No.	Lecture Topics / MSE / BSA planned to be covered	Actual date of Completion (Handwritten)	COs Mapped	Mapping Bloom Taxonomy level	Recommended Prior Viewing / Reading	
							Lecture No. (on LMS)	Chapter No./ Books/ Web Site
	14	3	Uncertain Knowledge and Reasoning: Uncertainty,		CO3	L2 (Understanding)	--	Chap 13 Book 01 Page 487-510
8	15	3	Representing knowledge in an uncertain domain, The semantics of Belief Network,		CO3	L3 (Applying)	--	Chap 13 Book 01 Page 487-510
	16	3	Simple Inference in Belief Network		CO3	L5 (Evaluating)	--	Chap 14 Book 01 Page 518-560
9	17	4	Handling Uncertain Knowledge Random Variables, Prior and Posterior Probability		CO4	L5 (Evaluating)	--	Chap 14 Book 01 Page 518-560
	18	4	Inference using Full Joint Distribution		CO4	L3 (Applying)	--	Chap 13 Book 01 Page 487-510
10	19	4	Bayes' Rule and its use Bayesian Belief Networks		CO4	L2 (Understanding)	--	Chap 13 Book 01 Page 487-510
	20	4	Reasoning in Belief Networks		CO4	L4 (Analysing)	--	Chap 13 Book 01 Page 487-510

Week	Lecture no.	Module No.	Lecture Topics / MSE / BSA planned to be covered	Actual date of Completion (Handwritten)	COs Mapped	Mapping Bloom Taxonomy level	Recommended Prior Viewing / Reading	
							Lecture No. (on LMS)	Chapter No./ Books/ Web Site
11	21	5	Types of learning: Concepts of Supervised, Unsupervised and Reinforcement Learning		CO5	L2 (Understanding)	--	Chap 10 Book 01 Page 366-393
	22	5	Learning Decision trees		CO5	L3 (Applying)	--	Chap 18 Book 01 Page 706-770
12	23	5	Explanation based learning		CO5	L2 (Understanding)	--	Chap 19 Book 01 Page 782-802
	24	5	Statistical Learning methods		CO5	L2 (Understanding)	--	Chap 20 Book 01 Page 817-840
13	25	6	Natural Language Processing		CO6	L6 (Creating)	--	Chap 22 Book 01 Page 876-899
	26	6	Text Classification: Spam detection, sentiment analysis.		CO6	L3 (Applying)	--	Chap 22 Book 01 Page 876-899
14	27	6	Speech Recognition: Converting spoken language into text Speech Recognition		CO6	L6 (Creating)		Chap 23 Book 01 Page 904-935
	28	6	Computer Vision		CO6	L6 (Creating)		Chap 24 Book 01 Page 944-981

Week	Lecture no.	Module No.	Lecture Topics / MSE / BSA planned to be covered	Actual date of Completion (Handwritten)	COs Mapped	Mapping Bloom Taxonomy level	Recommended Prior Viewing / Reading	
							Lecture No. (on LMS)	Chapter No./ Books/ Web Site
15	29	6	Image Classification: Recognizing objects in images (e.g., cats, dogs, cars)		CO6	L6 (Creating)		Chap 24 Book 01 Page 944-981
	30	6	Object Detection: Identifying and localizing objects within images.		CO6	L6 (Creating)		Chap 24 Book 01 Page 944-981

6 Rubric for Grading and Marking of Term Work (inform students at the beginning of semester)

- Activity/ies should be designed as per reference of credit structure.
- If the subject is of 2 credit, activity/ assignment should be design for 2 hours with appropriate complexity and engaging time.

Theory (ISA=15)												
Class Participation	Activity-1	Activity-2	Activity-3	Activity-4	Activity-5	Activity-6	Activity-7	Activity-8	Activity-9	Activity-10	Activity-11	Total
Guest Session - 1 mark POP Quiz: 4 marks	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	Assignment: marks 1	15

Practical (ISA=25)												
Class Participation	Activity-1	Activity-2	Activity-3	Activity-4	Activity-5	Activity-6	Activity-7	Activity-8	Activity-9	Activity-10	Activity-11	Total
Attendance -5 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Lab Problem Statements: 2 marks	Mini Project: 5 marks	25

Class Participation	MSE-1	MSE-2	ESE	Total
15	20	20	40	75

7 Assignments / Tutorials Details

Assignment/ Tutorial No.	Title of the Assignments / Tutorials	CO Map	Mapping Bloom Taxonomy Level	Assignment/ Tutorials given to Students on	Assignments to be submitted back on
1	Assignment No. 1	CO1	L2 (Understanding)		
2	Assignment No. 2	CO1	L2 (Understanding)		
3	Assignment No. 3	CO2	L2 (Understanding)		
4	Assignment No. 4	CO2	L3 (Applying)		
5	Assignment No. 5	CO3	L3 (Applying)		
6	Assignment No. 6	CO3	L3 (Applying)		
7	Assignment No. 7	CO4	L4 (Analysing)		
8	Assignment No. 8	CO4	L5 (Evaluating)		
9	Assignment No. 9	CO5	L4 (Analysing)		
10	Assignment No. 10	CO5	L6 (Creating)		
11	Assignment No. 11	CO6	L6 (Creating)		

Analysis of Assignment / Tutorial Questions and Related Resources

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		OT	CS	DTP		Textbook	Reference Book	Other Learning Resource	Real Life Assignments	Thought Provoking
1	3		√		1	T1	NPTEL		√	
2	4		√		1	T1			√	
3	5		√		2	T1				√

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		OT	CS	DTP		Textbook	Reference Book	Other Learning Resource	Real Life Assignments	Thought Provoking
4	6	√			2	T1				√
5	7			√	3	T1				√
6	8			√	3	T1			√	
7	9			√	3	T1			√	
8	10			√	4	T1				√
9	11			√	4	T1			√	
10	12			√	5	R1				√
11	13			√	6	R1				√

* Tick (√) the Type of the Assignment: Online Tools (OT); Collaborative Assignments (CS); Design /Thought provoking (DTP)
# Write number for textbook, reference book, other learning resource from this AAP – *from Points 4.a to 4.d*

8 In Semester Assessment (ISE) / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	MSE Question Paper Pattern	Policy
MSE	7th week of the semester	MSE1: 1,2 MSE2: 3, 4	CO1, CO2, CO3	Q1 – 3 Sub Questions of 5 marks each, Attempt any 2 Q2 & Q3 – Descriptive & will be of • 3 Sub questions of 5 marks each & student will attempt any 2 Or • 2 Sub questions of 10 marks each & student will attempt any 1	MSE will be paper based examination covering 35 % to 40 % of the syllabus
Pop Quiz	Week 10	4	CO4		
Take Home Test	Week 11	5	CO5		

*** Failures of IA test (IA1+IA2) shall appear for IA test in the next semester. There is no provision for re-test in the same semester.**

9. Practical Activities

Practical No.	Module No.	Title of the **Experiments**	Type of Experiment		Topics to be highlighted	CO Map
			PBL	Newly Added		
1	1	*Implement Water Jug Puzzle (Basic UI)*			AI Techniques	
2	2	*Solve Water Jug Problem using BFS*			BFS	
3	2	Solve 8-Puzzle Problem using DFS			DFS	
4	2	Implement A* Algorithm for Pathfinding			A*	
5	2	Tic-Tac-Toe game (Rich & Knight Program)			Game Playing	
6	3	Propositional Logic Theorem Prover			Logic	
7	3	Maze Solver using A* Search		y	Game playing	
8	4	Implementation of BOTCLEAN, a cleaning bot whose to clean all the dirty cells	Y		Knowledge Base	
9	4	Implementation of BOT SAVE PRINCESS, a bot whose job is to rescue the princess	Y		Knowledge Base	
10	5	Decision Tree Classifier for Iris Dataset		Y	Learning	
11	6	Case study/ mini project on AI applications		Y	AI Applications	

10 Uncovering syllabus with different Activities.

No.	Type of the Activity	Activities	Number of beneficiaries	Other Details – guest profile, feedback, mark sheet, report
1	**Experiential learning/Interaction with Outside World**	1- Guest Lectures by Industry Expert	227	Planned
		2- Workshops		NA
		3- Mini Project	227	Planned
		4- Industrial Visit		NA
		5- Any other activity		NA
2	**Collaborative & Group Activity**	6- Poster Presentation	227	Planned
		7- Minute Papers		NA
		8- Students Seminars		NA
		9- Students Debates		NA
		10- Panel Discussion / Mock GD		NA
		11- Mock Interview		NA
		12- Any other activity		NA
3	**Co-Curricular Activity**	13- Informative videos (NPTEL/YouTube /TEDx/ MIT OW/edX)	227	Planned
		14- Lecture Capture Usage		NA
		15- Any other activity		NA
4	**Tests & Assessments**	16- Class Tests/ Weekly Tests		NA
		17- Pop Quiz		NA
		18- Mobile App Based Quiz	227	Planned
		19- Open Book Test		NA
		20- Take Home Test	227	Planned
		21- Any other activity		NA

11 AAP

No.	Programme	Course	Uploaded on V-refer	Date
1	CMPN	Artificial Intelligence	Yes	

12 Lecture Guide

No.	Programme	Course	Uploaded on V-refer	Date
1	CMPN	Artificial Intelligence	Yes	

*** Do not delete any activity. Give details for planned events. Write 'NA' for activity Not Planned.**

Consolidated Academic Administration Plan Prepared by (mention all theory teaching faculty names with signature)

Please write below your name and sign with date of the external cluster mentor meeting

Faculty 1	Faculty 2	Faculty 3

External Industry Mentor	External Academic Mentor	VIT Cluster Mentor	Program HOD

Annexure:

Assessment Criteria of Learning Outcomes:

Learning Outcomes: The Learner will:	**Assessment Criteria:** The Learner can:	**Evaluated under ISA/MSE/ESE/LAB**
LO *1.1 Define AI and distinguish narrow vs. general AI. (P.I.* 1.1.1, 1.1.2, *1.4.1) (CO1)*	• The student is able to define Artificial Intelligence clearly and accurately. • The student is able to differentiate between Narrow AI and General AI with relevant examples. • The student is able to express and communicate the differences and applications effectively. • The student is able to construct a concept map showing the relationship between AI categories. • The student is able to participate in discussions demonstrating understanding of core AI concepts.	ISA ISA MSE ESE ISA
LO *1.2 Explain agent types and environment classifications. (P.I. 2.1.1, 2.1.2) (CO1)*	• The student is able to classify types of agents based on their characteristics. • The student is able to explain different types of environments (deterministic, stochastic, etc.). • The student is able to match agent types to suitable environments. • The student can use examples to distinguish between agent-environment pairs.	MSE MSE, ESE ESE ISA
LO *1.3 Categorize agents by architecture. (P.I. 2.2.1, 1.4.1, 3.2.1) (CO1)*	• The student is able to identify and describe different agent architectures. • The student is able to classify agents as simple reflex, model-based, goal-based, and utility-based. • The student is able to present architectural comparisons effectively using diagrams or oral explanations.	ISA, MSE, LAB ESE
LO *2.1 Implement BFS/DFS for path finding. (P.I. 5.1.1, 3.4.2) (CO2)*	• The student is able to write code implementing BFS and DFS algorithms. • The student is able to trace and debug the search process. • The student is able to analyze and compare time and space complexity of BFS vs. DFS.	LAB ISA MSE, ESE
LO *2.2 Compare A* vs. Greedy Search efficiency. (P.I. 3.2.2, 5.3.1) (CO4)*	• The student is able to implement both A* and Greedy search algorithms. • The student is able to analyze and compare their performance on various problems. • The student is able to interpret heuristic behavior and solution optimality.	LAB MSE, ESE ISA

LO *2.3 Apply Min-Max with Alpha-Beta pruning. (P.I. 3.4.1, 4.2.1) (CO5)*	• The student is able to apply Min-Max algorithm in game trees. • The student is able to incorporate Alpha-Beta pruning effectively. • The student is able to simulate a game strategy using this technique.	LAB ISA, MSE MSE, ESE
LO 3.1 Convert statements to FOPL expressions. (P.I. 3.2.1, 4.1.2) (CO3)	• The student is able to translate natural language sentences into First-Order Predicate Logic. • The student is able to apply syntax and semantics accurately. • The student is able to verify logical consistency of expressions.	ISA, MSE ESE MSE, ESE
LO 3.2 Implement resolution refutation. (P.I. 3.4.2, 4.3.2) (CO3)	• The student is able to apply resolution rules for logical inference. • The student is able to implement resolution refutation algorithmically. • The student is able to test satisfiability through contradiction and trace derivations.	ISA,MSE LAB MSE, ESE
LO 3.3 Build belief networks for medical diagnosis. (P.I. 4.1.2, 5.1.1) (CO4)	• The student is able to construct Bayesian belief networks using medical data. • The student is able to define nodes, edges, and conditional probability tables (CPTs). • The student is able to explain reasoning and inference through the network.	ISA ISA, MSE, ESE MSE, ESE
LO 4.1 Compute posterior probabilities. (P.I. 4.3.2, 5.2.1) (CO4)	• The student is able to apply Bayes' Theorem for probability computation. • The student is able to analyze prior and likelihood data to compute posterior probabilities. • The student is able to interpret probabilistic outcomes and make decisions.	LAB ISA, MSE,ESE ESE
LO 4.2 Design a BBN for disease-symptom modelling. (P.I. 4.1.2, 5.1.1) (CO4)	• The student is able to design a Bayesian Belief Network (BBN) reflecting symptom-disease relationships. • The student is able to construct appropriate dependency structures and CPTs.	ISA,MSE ESE LAB

	• The student is able to demonstrate the model using tools and perform inference queries.	
LO 4.3 Critique bias in risk-assessment models. (P.I. 6.1.1) (CO6)	• The student is able to identify and explain types of bias in risk-assessment models. • The student is able to evaluate ethical implications and fairness issues. • The student is able to propose methods for mitigating model bias.	ISA MSE, LAB ESE
LO 5.1 Train a decision tree classifier. (P.I. 5.1.1, 5.2.1) (CO5)	• The student is able to use tools (e.g., scikit-learn) to train decision tree classifiers. • The student is able to visualize and interpret the tree structure and decision paths. • The student is able to evaluate classifier accuracy using validation data.	LAB LAB, ISA MSE, ESE
LO 5.2 Compare SVM vs. k-NN for datasets. (P.I. 3.2.2, 4.3.4) (CO4)	• The student is able to implement both SVM and k-NN classifiers. • The student is able to evaluate their performance using real-world datasets. • The student is able to compare strengths and limitations in context.	LAB MSE, ESE MSE
LO 5.3 Debate ethical risks of facial recognition. (P.I. 6.1.1, 8.1.1) (CO6)	• The student is able to identify privacy and ethical issues in facial recognition. • The student is able to argue potential societal risks and mitigation strategies. • The student is able to engage in informed debate with reasoned opinions.	ISA MSE, ESE ISA
LO 6.1 Develop a spam detection model. (P.I. 1.4.1, 5.1.1) (CO6)	• The student is able to collect and pre-process email datasets. • The student is able to build a spam classifier using ML techniques. • The student is able to evaluate model accuracy and performance metrics.	LAB LAB LAB
LO 6.2 Compare speech recognition architectures. (P.I. 2.1.1, 5.2.1) (CO6)	• The student is able to describe different speech recognition models. • The student is able to compare performance and limitations of models.	LAB ISA

	• The student is able to present findings through comparative analysis.	MSE, ESE
LO 6.3 Design a real-time object detector. (P.I. 3.2.1, 5.1.1) (CO6)	• The student is able to implement object detection using tools like YOLO or SSD. • The student is able to test and optimize the detector for real-time performance. • The student is able to demonstrate application with a live use case.	LAB ISA LAB, MSE