proposed

Ganpat University ॥ विद्यया समाजोत्कर्षः ॥ | Faculty of Computer Applications | NAAC A Grade Accredited University

Programme	B.Sc. IT Honours (Artificial Intelligence & Machine Learning)	**Branch**	Computer Applications
Semester	II	**Version**	1.0.0.0
Effective from Academic Year	2026-27	**Effective for the batch Admitted in**	June 2026
Subject code	U82E6AI2	**Subject Name**	ARTIFICIAL INTELLIGENCE-II

Teaching scheme						**Examination scheme (Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CCE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	2	-	-	-	2	Theory	25	25	50
Hours	2	-	-	-	2				

Objective:

To learn the basic principles, techniques, and applications of Artificial Intelligence

Pre-requisites:

One should have Basic Knowledge of probability and statistics

Learning Outcome:

Name of CO	Description
CO1	Explain knowledge-based systems and intelligent agents.
CO2	Describe logical knowledge representation using propositional and predicate logic.
CO3	Analyze models and inference in first-order predicate logic.
CO4	Apply probabilistic reasoning to handle uncertainty in AI.
CO5	Evaluate expert systems and basic learning techniques.

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	3	2	2	2	1	0	2
CO2	2	3	2	3	2	0	0	1
CO3	2	3	2	2	2	1	0	2
CO4	2	3	1	2	1	1	1	2
CO5	2	3	2	2	2	1	0	2

Content:

Unit	Content	Hrs.
1	**Knowledge-Based Systems and Agents:** Intelligent agents vs reactive agents, Concept of knowledge-based agents, Role of knowledge in intelligent systems, Knowledge representation and mappings, Importance of knowledge representation in AI, Real-world examples of knowledge-based systems.	06
2	**Logical Knowledge Representation:** Approaches to knowledge representation (brief overview), Declarative vs procedural knowledge, Representation of simple facts using logic, Syntax vs semantics in logic, Propositional logic, Predicate logic (First Order Predicate Logic – FOPL).	06
3	**Models and Inference in Predicate Logic:** Interpretation and satisfaction of formulas Syntax and semantics of First Order Predicate Logic, Models of FOPL, Entailment in first-order logic, Interpretation of predicates, Logical inference mechanisms in knowledge-based systems.	06
4	**Reasoning with Uncertain Knowledge:** Types of uncertainty, Deterministic vs probabilistic reasoning, Degree of belief and degree of truth, Probability theory fundamentals, Prior probability, Conditional probability, Probability axioms, Real-life uncertainty examples in AI systems.	06
5	**Expert Systems and Learning Techniques:** Probability distributions and joint probability distributions, Introduction to expert systems, Applications of expert systems, Expert system shells, MYCIN, Vidwan framework, Knowledge acquisition, Concept of learning, Rote learning, Supervised vs unsupervised learning (intro), Introduction to fuzzy systems.	06

1	Artificial Intelligence-A Modern Approach by Stuart Russell and Peter Norvig, Second Edition Pearson Education
2	Artificial Intelligence by Elaine Rich, Kevin Knight, Shivashankar B. Nair, Third Edition, McGraw Hill
3	Principles of Artificial Intelligence and Expert System Development by David W. Rolston, McGraw Hill.
4	Nils J. Nilsson, “Artificial Intelligence: A new Synthesis”, Harcourt Asia Pvt. Ltd
5	George F. Luger, “Artificial Intelligence-Structures And Strategies For Complex Problem Solving”, Pearson Education.
Web References / MOOC / Certification Course	
1	https://www.javatpoint.com/artificial-intelligence-tutorial
2	http://www-g.eng.cam.ac.uk/mmg/teaching/artificialintelligence/nonflash/resolutionframenf.htm
3	https://www.tutorialspoint.com/artificial_intelligence/index.htm
4	https://nptel.ac.in/courses/106106126 (Search Methods)
Question Paper Scheme:	
	End Semester Examination Duration: (1 Hour Theory Examination)

	Note for Examiner: - Q-1 Any one out of Two (05 Marks) Q-2 Any one out of Two (05 Marks) Q-3 Any one out of Two (05 Marks) Q-4 Any one out of Two (05 Marks) Q-5 Any one out of Two (05 Marks) *The question paper must comprehensively address all Course Outcomes (COs), align with Bloom's Taxonomy levels, and ensure complete syllabus coverage