Course code	Course Title	L	T	P	C
BITE308L	Artificial Intelligence	3	0	0	3
Pre-requisite	BITE201L, BITE201P	Syllabus version			
		1.0			

Course Objectives:

1. To develop an understanding of the basic principles, models and algorithms of Artificial Intelligence.
2. To facilitate with the techniques for problem solving, knowledge representation and reasoning systems capability
3. To explain the characteristics and development steps of intelligent agents.

Course Outcomes:

1. Elucidate various Artificial Intelligence techniques and their areas of applications
2. Solve various real-world problems using Artificial Intelligence techniques
3. Apply different knowledge representations and reasoning techniques
4. Exercise probabilistic reasoning to solve problems with uncertain knowledge
5. Practice various planning and learning methods in solving real-world problems

Module:1	**Preliminaries**	**5 hours**
Foundation of AI - History-State of the Art - Applications of AI - Intelligent Agents –Agent and Environment		
Module:2	**Solving Problems by Searching**	**9 hours**
Problem Solving agents- Uninformed search- BFS, DFS, IDS, Uniform cost search - Informed search - Best First search, A* search, Local search - Hill climbing, Adversarial Search – Minimax, Alpha beta pruning		
Module:3	**Knowledge Representation**	**5 hours**
Rule based system - Semantic Net - Reasoning in Semantic Net - Frames and slots - Ontological representation		
Module:4	**Reasoning**	**8 hours**
Propositional Logic - Reasoning Patterns in propositional logic - First order logic - Inferences in First order logic - Forward and backward chaining – Unification – Resolution		
Module:5	**Uncertainty-Probabilistic Reasoning**	**6 hours**
Prior and Posterior Probabilities - Bayes' Theorem – Bayesian Network - Probabilistic reasoning over time - Inference in temporal model		
Module:6	**Planning**	**5 hours**
Representation for planning- Planning with State Space Search - Partial order Planning – Planning and Acting in the Real World - Conditional Planning – Re-planning Agents, Robotics-Action		
Module:7	**Learning**	**5 hours**
Learning - Forms of learning – Choosing the best hypothesis, Classification and regression		
Module:8	**Contemporary Issues**	**2 hours**
	Total Lecture hours:	**45 hours**

Text Book

1. Stuart J. Russell and Peter Norvig, "Artificial *Intelligence*: A Modern Approach", 2020, 4th Edition, Pearson.

Reference Books				
1.	Elaine Rich and Kevin Knight, “Artificial Intelligence”, 2018, 2nd Edition, Tata McGraw Hill.			
2	Patrick Henry Winston, “Artificial Intelligence”, 2011, 3rd Edition, Addison Wesley.			
Mode of Evaluation: Continuous Assessment Tests, Assignment, Quiz, Final Assessment Test				
Recommended by Board of Studies		20-05-2022		
Approved by Academic Council		No. 66	Date	16-06-2022