Module			Content	Hrs
1			**Introduction to Artificial Intelligence**	4
	1.1		Introduction, History of Artificial Intelligence, Intelligent Systems: Categorization of Intelligent System, Components of AI Program, Foundations of AI, Sub-areas of AI, Applications of AI, Current trends in AI.	
2			**Intelligent Agents**	4
	2.1		Agents and Environments, The concept of rationality, The nature of environment, The structure of Agents, Types of Agents, Learning Agent.	
	2.2		Solving problem by Searching: Problem Solving Agent, Formulating Problems, Example Problems.	
3			**Problem solving**	10
	3.1		Uninformed Search Methods: Breadth First Search (BFS), Depth First Search (DFS), Depth Limited Search, Depth First Iterative Deepening (DFID), Informed Search Methods: Greedy best first Search, A* Search, Memory bounded heuristic Search.	
	3.2		Local Search Algorithms and Optimization Problems: Hill climbing search Simulated annealing, Genetic algorithms.	
	3.3		**Adversarial Search:** Game Playing, Min-Max Search, Alpha Beta Pruning	
4			**Knowledge and Reasoning**	12
	4.1		Knowledge based Agents, Brief Overview of propositional logic, First Order Logic: Syntax and Semantic, Inference in FOL, Forward chaining, backward Chaining.	
	4.2		Knowledge Engineering in First-Order Logic, Unification, Resolution	
	4.3		Uncertain Knowledge and Reasoning: Uncertainty, Representing knowledge in an uncertain domain, The semantics of belief network, Simple Inference in belief network	
5			**Planning and Learning**	5
	5.1		The planning problem, Planning with state space search, Partial order planning, Hierarchical planning, Conditional Planning.	
	5.2		Learning: Forms of Learning, Theory of Learning, PAC learning. Introduction to statistical learning (Introduction only) Introduction to reinforcement learning: Learning from Rewards, Passive Reinforcement Learning, Active reinforcement Learning	
6			**AI Applications**	4
			A. Introduction to NLP- Language models, Grammars, Parsing B. Robotics - Robots, Robot hardware, Problems Robotics can solve C. AI applications in Healthcare, Retail, Banking	