DAIDS-1-01T: Introduction to Artificial Intelligence

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Introduction to Artificial Intelligence	
Course Code: DAIDS-1-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Explain the basic concepts, principles, and techniques of artificial intelligence.
CO2	Explore real-world applications of AI in various domains such as healthcare, finance, and robotics.
CO3	Develop the ability to identify and formulate problems that can be solved using AI techniques.
CO4	Apply AI solutions to address real-world challenges.
CO5	Describe the basic concepts, principles, and techniques for the development of expert systems

Detailed Contents:

Module	Module Name	Module Contents
Module I	**Introduction to Artificial Intelligence**	Definitions of AI, Intelligent Agents, Problem solving. Knowledge, Reasoning and Planning: Logical Agents, Classical Planning, Knowledge Representation and Reasoning. Learning: Learning from examples, Knowledge in learning.
Module II	**Communicating, Perceiving and Acting**	Communication, Natural Language Processing, Perception, Computer Vision, Robotics.
Module II	**Searching**	Searching for solutions, uniformed search strategies: Breadth first search, depth first Search. Search with partial information (Heuristic search) Hill climbing, A*, AO* Algorithms
Module IV	**Expert Systems**	Introduction, basic concepts, structure of expert systems, the human element in expert systems how expert systems works, problem areas addressed by expert systems, expert systems success factors, types of expert systems, knowledge engineering, scope of knowledge, difficulties, in knowledge acquisition methods of knowledge acquisition, machine learning,

		intelligent agents, selecting an appropriate knowledge acquisition method, societal impacts reasoning in artificial intelligence, inference with rules, with frames: model based reasoning, case based reasoning, explanation & meta knowledge inference with uncertainty representing uncertainty.
Module V	**AI Applications (General)**	Speech Recognition, Image Recognition, Natural Language Processing, Autonomous Transportation. Natural Language understanding, Recognizing objects and describing images, Dimensionality reduction, feature selection and feature extraction.
Module VI	**AI Applications (Specific)**	Virtual Personal Assistants/ Chatbots, Gaming, Smart Cars, Drones, Fraud Detection, Software Testing and Development, Business, Health Care, Education, Finance.

Books

1. S. Russel and P. Norvig, "Artificial Intelligence – A Modern Approach", 2nd Edition, Pearson Education.
2. David Poole, Alan Mackworth, Randy Goebel, "Computational Intelligence: a logical approach", Oxford University Press.
3. G. Luger, "Artificial Intelligence: Structures and Strategies for complex problem solving", 4th Edition, Pearson Education.
4. J. Nilsson, "Artificial Intelligence: A new Synthesis", Elsevier Publishers.