Suggested Teaching Guidelines for

Fundamentals of Artificial Intelligence PG-DAI February 2025

Duration: 40 classroom hours

Objective: To introduce the student to fundamentals of Artificial Intelligence.

Prerequisites: Knowledge of programming language, Computing Fundamentals, and some basic statistical knowledge.

Evaluation method: Theory exam– 80% weightage
Internal exam– 20% weightage

List of Books / Other training material

Text Book:
1. Artificial Intelligence: A Modern Approach, 4e, Peter Norvig, Stuart J. Russell, PearsonEducation, 4th Edition.

Reference Book:
1. Artificial Intelligence by Example, Denis Rothman
2. Artificial Intelligence by Saroj Kaushik

Note:
- ***Each session mentioned is of 2 hours' duration theory. Faculty can givecase studies to students***
- ***Faculties are advised to relate the topics with real world applications.***

Session 1 & 2
Lecture
- Introduction to AI
- AI Evolution: Turing's Work
- Turing Machine & Test

Session 3 & 4
Lecture
- Ethics of AI
- Structure of AI
- Real world Implications
- Revolution & Current Trends in AI
- Being Human in the Age of AI
- Responsible AI

Session 5
Lecture
- Artificial Life, Learning through
- Emergent Behavior
- Rules and Expert Systems

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Session 6 & 7

Lecture

- Supervised & Unsupervised Learning

Session 8 & 9

Lecture

- Knowledge Representation
- Problem Solving
- Types of Searches
- Search Methodologies, Classical Search Methodologies
- Beyond Classical Search, Parallel Search, Search Engines
- Adversarial Search

Session 10 & 11

Lecture

- Intelligent Agents, Uninformed Search
- Constraint Satisfaction Search
- Combinatorial Optimization Problems

Session 12 & 13

Lecture

- Knowledge Representation and Automated
- Propositional and Predicate Logic

Session 14 & 15

Lecture

- Logic Concepts & Logic Programming
- Inference and Resolution for Problem Solving

Session 16, 17 & 18

Lecture

- Introduction to Big data
- Structured and Unstructured Data
- Relevance of Big data in AI
- Data Analysis and Data Analytics
- Applications of Big data

Session 19 & 20

Lecture

- Inference and Resolution for Problem Solving
- Advanced Problem-Solving Paradigm: Planning