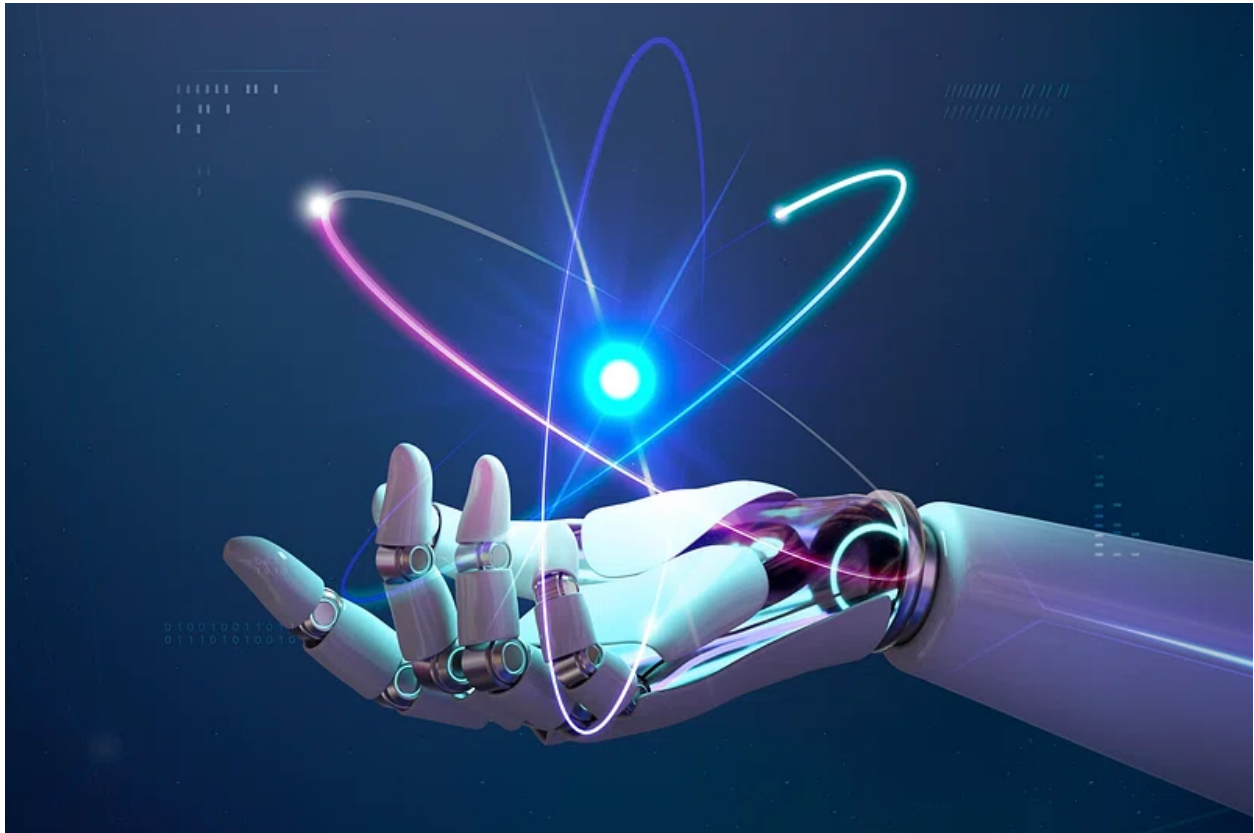


Lecture Note on **AI Literacy & Ethics**



Author: 99Scholar

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About This Resource

Author: 99Scholar

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Audience: Students and general interest use from all disciplines.

This resource provides an accessible introduction to Artificial Intelligence (AI), with a particular focus on the ethical and social implications of AI systems. It is designed to foster critical thinking and interdisciplinary engagement with AI topics.

Learning Outcomes

By the end of this module, students will be able to:

- Define key concepts of Artificial Intelligence.
- Describe the historical development of AI.
- Identify real-world applications of AI.
- Analyze the ethical implications of AI technologies.
- Recognize sources of bias and strategies for fairness in AI systems.
- Evaluate the impact of AI on privacy and surveillance.
- Understand environmental considerations related to AI.
- Discuss governance and policy issues related to AI.
- Apply critical thinking to case studies involving AI.

Introduction to AI Literacy

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines. These systems are designed to perform tasks such as learning, reasoning, problem-solving, perception, and language understanding.

AI is increasingly integrated into everyday life, from virtual assistants to medical diagnostics. However, with great power comes great responsibility: understanding how AI works, and its ethical and societal impacts, is essential for all students—not just those in technical fields.

Common misconceptions about AI include the belief that it is fully autonomous or capable of human-like consciousness. In reality, most current AI systems are narrow, designed to perform specific tasks under defined conditions.

History and Evolution of AI

The field of AI dates back to the 1950s, when computer scientists first began exploring how machines might simulate aspects of human intelligence.

Key milestones:

- **1956:** Dartmouth Conference marks the birth of AI as a field.
- **1960s–1970s:** Early work on symbolic AI and "expert systems."
- **1980s:** Rise of machine learning and neural networks.
- **2000s:** Big data and increased computing power fuel AI advances.
- **2010s–2020s:** Deep learning revolution enables breakthroughs in speech recognition, image processing, and natural language processing.

Today, AI is rapidly evolving, impacting industries such as healthcare, finance, transportation, and education.

Core Concepts in AI

Machine Learning (ML)

Machine Learning enables computers to learn from data without being explicitly programmed. ML is the most common approach to building AI systems today.

Types of ML:

- **Supervised Learning:** Trained on labeled data (e.g., image classification).
- **Unsupervised Learning:** Finds patterns in unlabeled data (e.g., clustering).
- **Reinforcement Learning:** Learns through trial and error using feedback (e.g., game-playing AI).

Neural Networks & Deep Learning

Deep Learning uses multi-layered neural networks to process complex data, enabling advances in image recognition and natural language understanding.

Natural Language Processing (NLP)

NLP allows computers to interpret, generate, and translate human language. Tools like GPT (Generative Pre-trained Transformer) models exemplify NLP capabilities.

Quiz Pack (10 Questions)

Multiple Choice Questions (MCQ)

1. What type of machine learning uses labeled data to train algorithms?

- A. Reinforcement Learning
- B. Unsupervised Learning
- C. Supervised Learning 
- D. Deep Learning

2. Which ethical framework focuses on outcomes and maximizing overall good?

- A. Virtue Ethics
- B. Utilitarianism 
- C. Deontological Ethics
- D. Pragmatism

3. Which of the following is a common example of AI in everyday life?

- A. Electric grid balancing
- B. Stock photography
- C. Recommendation systems 
- D. Bicycle sharing

4. What is a major environmental concern associated with AI?

- A. Job loss
- B. Water scarcity
- C. Energy consumption 
- D. Airspace congestion

5. What is a "black box" problem in AI?

- A. A physical hardware issue
- B. An algorithm that can only be used once
- C. A system whose decision-making process is not transparent 
- D. A coding language used in AI