

# ICT Introduction to Artificial Intelligence (AI) Objectives and Locations

The *ICT Introduction to Artificial Intelligence (AI)* program focuses on providing students with a basic understanding of AI. It allows them to understand the subsets of AI and the different types based on functionality and technology. Students learn about the development and history of AI, as well as people who were important pioneers, influencers, and creators in this field of computer science. Students will understand the differences between artificial narrow intelligence, artificial general intelligence, and artificial super intelligence. They will learn about reactive machines, limited memory, theory of mind and self-awareness. Students will explore the world of machine learning including AI robots and understand how they function and the purposes they serve. The course provides examples of real-world applications of AI and how it solves problems and benefits society. Considerations about ethics, privacy and security will be explored. By learning about many examples of the technology and through experiences students gain a practical understanding. Students will learn the implications for the future of AI and how it benefits mankind. They will be exposed to the extensive and innovative careers that are available.

ICT Introduction to Artificial Intelligence (AI) Objective	ICT Introduction to Artificial Intelligence (AI) Course
<b>Domain 1: Artificial Intelligence (AI)</b>	
<b>1.1: Defining Artificial Intelligence (AI)</b>	
1.1.1 Define Artificial Intelligence (AI) and how it relates to problem solving	<b>Lesson 1: Understanding Artificial Intelligence</b> -Defining Artificial Intelligence <b>Lesson 5: AI and Robotics</b> -AI and Robots work together <b>Lesson 6: The Future of AI and Careers</b> -AI Moving to the Future
1.1.2 Describe how algorithms are used in AI	<b>Lesson 1: Understanding Artificial Intelligence</b> -Algorithms
1.1.3 Explain what an algorithm consists of and how they are used in problem solving	<b>Lesson 1: Understanding Artificial Intelligence</b> -Algorithms
1.1.4 Define “Big Data” and examples of it in today’s world	<b>Lesson 1: Understanding Artificial Intelligence</b> -Defining Artificial Intelligence
1.1.5 Describe some everyday examples of AI and their purposes	<b>Lesson 1: Understanding Artificial Intelligence</b> -Algorithms

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1.1.6 Describe AI's significant impact in different areas	<b>Lesson 1: Understanding Artificial Intelligence</b> -Defining Artificial Intelligence <b>Lesson 6: The Future of AI and Careers</b> -AI Moving to the Future -AI and the Oceans
<b>Domain 2: Subsets and History of AI</b>	
<b>2.1: Describing the subsets of AI</b>	
2.1.1 Define the three subsets of AI	<b>Lesson 1: Understanding Artificial Intelligence</b> -AI Subsets
2.1.2 Describe how these subsets are connected	<b>Lesson 1: Understanding Artificial Intelligence</b> -AI Subsets
2.1.3 Explain why machine learning is the most used area of AI	<b>Lesson 1: Understanding Artificial Intelligence</b> -Machine Learning
2.1.4 Explain the difference between machine learning and deep learning	<b>Lesson 1: Understanding Artificial Intelligence</b> -Machine Learning -Deep Learning -Neural Networks
<b>2.2 Describe how AI has developed over time</b>	
2.2.1 Create a timeline of the development of AI	<b>Lesson 2: The Development of AI</b> -The Growth of AI
2.2.2 Identify who the word "Artificial Intelligence" was first coined by and when	<b>Lesson 2: The Development of AI</b> -The History of AI
2.2.3 Identify milestones in the development of AI	<b>Lesson 2: The Development of AI</b> -The History of AI -The Growth of AI -AI Ethics -AI and causes in the world
2.2.4 Describe some examples of how AI has been used over time (Product Examples)	<b>Lesson 2: The Development of AI</b> -The Growth of AI -AI and causes in the world -AI Ethics
2.2.5 What are some international laws and ethics regulations regarding the use of AI	<b>Lesson 2: The Development of AI</b> -AI and Ethical Issues -AI Ethics
2.2.6 Identify some pioneers and leaders in AI including important women	<b>Lesson 2: The Development of AI</b> -The History of AI -AI Ethics -AI and causes in the world

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<b>Domain 3: AI Types Based on Technology</b>	
<b>3.1: Types of AI according to technology</b>	
3.1.1 Identify the three types of AI that are divided by technology	<b>Lesson 3: Types of AI</b> -AI Based on Technology -Artificial Narrow Intelligence
3.1.2 Explain why narrow AI is the only one achieved so far	<b>Lesson 3: Types of AI</b> -Artificial Narrow Intelligence
3.1.3 Describe some examples of narrow AI	<b>Lesson 3: Types of AI</b> -Artificial Narrow Intelligence
3.1.4 Explain what Natural Language Processing is and how it provides a personalized experience	<b>Lesson 3: Types of AI</b> -Natural Language Processing
3.1.5 Explain the difference between reactive AI and limited memory AI	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
3.1.6 Describe examples of narrow AI in today's world	<b>Lesson 3: Types of AI</b> -AI Based on Technology -Artificial General Intelligence
3.1.7 Define what factors make AI considered to be “Deep AI” type	<b>Lesson 3: Types of AI</b> -Artificial General Intelligence
3.1.8 Explain how Deep AI is different from Narrow AI	<b>Lesson 3: Types of AI</b> -Artificial General Intelligence
3.1.9 Define Super AI	<b>Lesson 3: Types of AI</b> -Artificial Super Intelligence
<b>Domain 4: AI Types Based on Functionality</b>	
<b>4.1: Types of AI according to functionality</b>	
4.1.1 Identify the four types of AI that are divided by functionality	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.2 Describe what a reactive machine can and cannot do	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.3 Explain how a reactive machine can make predictions	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.4 Explain how reactive machines work	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.5 Describe some everyday examples reactive machines	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.6 Define what the limited memory class of machines are	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
4.1.7 Explain how the” Theory of Mind” machines are for the future and are different from reactive and limited memory machines	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality

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4.1.8 Explain how machines with self-awareness are the final future step of AI	<b>Lesson 3: Types of AI</b> -Types of AI based on Functionality
<b>Domain 5: Machine Learning in AI</b>	
<b>5.1: How does machine learning fit into AI</b>	
5.1.1 Define machine learning	<b>Lesson 1: Understanding Artificial Intelligence</b> Machine Learning <b>Lesson 4: Machine Learning</b> -Defining Machine Learning
5.1.2 Describe how AI applies machine learning	<b>Lesson 1: Understanding Artificial Intelligence</b> -Machine Learning <b>Lesson 4: Machine Learning</b> -Defining Machine Learning <b>Lesson 5: AI and Robotics</b> -AI and Robots work together
5.1.3 Identify the five stages of machine learning training	<b>Lesson 4: Machine Learning</b> -Machine Learning Training Stages
5.1.4 Explain how data collection is the first step in ML	<b>Lesson 4: Machine Learning</b> -Defining Machine Learning
5.1.5 Identify examples of machine learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning -Machine Learning Training Stages
5.1.6 Explain how machine learning works	<b>Lesson 1: Understanding Artificial Intelligence</b> -AI Subsets -Machine Learning <b>Lesson 4: Machine Learning</b> -Types of Machine Learning -Machine Learning Training Stages
5.1.7 Identify the three functions of a machine learning system (descriptive, predictive and prescriptive)	<b>Lesson 4: Machine Learning</b> -Defining Machine Learning
<b>5.2 Describe three categories of machine learning</b>	
5.2.1 Define supervised learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning
5.2.2 Define unsupervised learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning
5.2.3 Define reinforcement learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning
5.2.4 Describe how machines use data differently in each category of machine learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning

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5.2.5 Describe the difference between classification and regression algorithms in supervised learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning
5.2.6 Define clustering algorithms in unsupervised learning	<b>Lesson 4: Machine Learning</b> -Types of Machine Learning
<b>Domain 6: AI and Robotics</b>	
<b>6.1: AI and robotics together</b>	
6.1.1 Explain how AI and robots work together	<b>Lesson 5: AI and Robotics</b> -AI Robots Development -AI and Robots work together
6.1.2 Identify examples of robots that use AI	<b>Lesson 5: AI and Robotics</b> -AI Robots Development
6.1.3 Describe how robots use AI to accomplish tasks	<b>Lesson 5: AI and Robotics</b> -AI and Robots work together -Parts and Types of Robots -AI and Robot Considerations
6.1.4 Explain how robots help people in different areas of life	<b>Lesson 5: AI and Robotics</b> -Parts and Types of Robots -AI and Robot Considerations
6.1.5 Identify different types of robots	<b>Lesson 5: AI and Robotics</b> -AI Robots Development -Parts and Types of Robots
6.1.6 Define what a robot is	<b>Lesson 5: AI and Robotics</b> -AI Robots Development -AI and Robots work together
<b>Domain 7: The Future of AI and Careers</b>	
<b>7.1: The future of AI</b>	
7.1.1 Explain why the “Theory of Mind” AI will be in the future	<b>Lesson 6: The Future of AI and Careers</b> -AI Moving to the Future
7.1.2 Explain how AI will help solve problems	<b>Lesson 6: The Future of AI and Careers</b> -AI Moving to the Future -AI and the Oceans
7.1.3 Define deep neural networks	<b>Lesson 1: Understanding Artificial Intelligence</b> -Deep Learning -Neural Networks
<b>7.2 Describe some careers in AI</b>	
7.2.1. Identify careers that use AI	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers -Women leaders in AI

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7.2.2 Explain some soft skills that people in AI careers will need to be successful	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers -Women leaders in AI -The Future of AI Ethics
7.2.3 Explain ways career fields will be impacted by AI	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers -Women leaders in AI -The Future of AI Ethics
7.2.4 Describe the skills and background needed to have a career in AI	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers
7.2.5 Describe Career Paths in AI	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers
7.2.6 Identify some companies that hire AI Professionals	<b>Lesson 6: The Future of AI and Careers</b> -AI and Careers -Women leaders in AI
<b>Domain 8: Legal and Ethical Considerations</b>	
<b>8.1: Legal and ethical considerations</b>	
8.1.1 Identify what ethical considerations will need to continue to be addressed in AI in the future	<b>Lesson 6: The Future of AI and Careers</b> -AI Moving to the Future -The Future of AI Ethics
8.1.2 Explain some security issues that arise with AI	<b>Lesson 1: Understanding Artificial Intelligence</b> -Facial Recognition
8.1.3 Explain what “algorithmic bias” means	<b>Lesson 1: Understanding Artificial Intelligence</b> -Neural Networks
8.1.4 Describe how training data affects the accuracy of supervised machine learning	<b>Lesson 4: Machine Learning</b> -Machine Learning Training Stages
8.1.5 Identify privacy issues involved with AI	<b>Lesson 2: The Development of AI</b> -AI and Ethical Issues
8.1.6 Explain how culture, beliefs and religion can create bias/conflict in AI	<b>Lesson 6: The Future of AI and Careers</b> -The Future of AI Ethics
8.1.7 Define what ethical guidelines, organizations and principles that govern them	<b>Lesson 6: The Future of AI and Careers</b> -The Future of AI Ethics