ICT Introduction to Artificial Intelligence (AI)

Exam Objectives

The ICT *Introduction to Artificial Intelligence (AI)* courseware is written to the following ICT Introduction to Artificial Intelligence (AI) Exam Objectives:

Domain 1: Artificial Intelligence (AI)

    1.1: Defining Artificial Intelligence
        1.1.1 Define Artificial Intelligence and how it relates to problem solving
        1.1.2 Describe how algorithms are used in AI
        1.1.3 Explain what an algorithm consists of and how they are used in problem solving
        1.1.4 Define "Big Data" and examples of it in today's world
        1.1.5 Describe some everyday examples of AI and their purposes
        1.1.6 Describe AIs significant impact in different areas

Domain 2: Subsets and History of AI

    2.1: Describing the Subsets of AI
        2.1.1 Define the three subsets of AI
        2.1.2 Describe how these subsets are connected
        2.1.3 Explain why machine learning is the most used area of AI
        2.1.4 Explain the difference between machine learning and deep learning
    2.2: Describe how AI has developed over time
        2.2.1 Create a timeline of the development of AI
        2.2.2 Identify who the word "Artificial Intelligence" was first coined by and when
        2.2.3 Identify milestones in the development of AI
        2.2.4 Describe some examples of how AI has been used over time (Product Examples)
        2.2.5 What are some international laws and ethics regulations regarding the use of AI

Domain 3: AI Types Based on Technology

    3.1: Types of AI according to technology
        3.1.1 Identify the three types of AI that are divided by technology
        3.1.2 Explain why narrow AI is the only one achieved so far
        3.1.3 Describe some examples of narrow AI
        3.1.4 Explain what Natural Language Processing is and how it provides a personalized
            experience
        3.1.5 Explain how narrow AI can be reactive or have limited memory
        3.1.6 Describe examples of narrow AI in today's world
        3.1.7 Define what factors make AI considered to be "Deep AI" type
        3.1.8 Explain how Deep AI is different from Narrow AI
        3.1.8 Define Artificial Super Intelligence

Domain 4: AI Types Based on Functionality

    4.1: Types of AI according to functionality
        4.1.1 Identify the four types of AI that are divided by functionality
        4.1.2 Describe what a reactive machine can and cannot do
        4.1.3 Explain how a reactive machine can make predictions
        4.1.4 Explain how reactive machines work.
        4.1.5 Describe some everyday examples reactive machines

4.1.6 Define what the limited memory class of machines are.
4.1.7 Explain how the "Theory of Mind" machines are for the future and are different from reactive and limited memory machines
4.1.8 Explain how machines with self-awareness are the final future step of AI

Domain 5: Machine Learning in AI

5.1: How does Machine Learning fit into AI
    5.1.2 Define machine learning
    5.1.2 Describe how artificial intelligence applies machine learning
    5.1.3 Identify the four stages of machine learning training
    5.1.4 Explain how data collection is the first step in ML
    5.1.5 Identify examples of machine learning
    5.1.6 Identify examples of machine learning
    5.1.7 Explain how machine learning works
5.2: Describe three categories of machine learning
    5.2.1 Define supervised learning
    5.2.2 Define unsupervised learning
    5.2.3 Define reinforcement learning
    5.2.4 Describe how machines use data differently in each category of machine learning

Domain 6: AI and Robotics

6.1: AI and Robotics Together
    6.1.1 Explain how is AI and robots work together
    6.1.2 Identify examples of robots that use AI
    6.1.3 Describe how robots use AI accomplish tasks
    6.1.4 Explain how robots help people in different areas of life
    6.1.5 Identify different types of robots
    6.1.6 Define what a robot is

Domain 7: The Future of AI and Careers

7.1: The Future of AI
    7.1.1 Explain why the "Theory of Mind" AI will be in the future
    7.1.2 Explain how AI will help solve problems
    7.1.3 Define deep neural networks
7.2 Describe some careers in AI
    7.2.1. Identify careers that use AI
    7.2.2 Explain some soft skills that people in AI careers will need to be successful
    7.2.3 Explain ways career fields will be impacted by AI
    7.2.4 Describe the skills and background needed to have a career in AI
    7.2.5 Describe Career Paths in AI
    7.2.6 Identify some companies that hire AI Professionals

Domain 8: Legal and Ethical considerations

8.1.1 Identify what ethical considerations will need to continue to be addressed in AI in the future
8.1.2 Explain some security issues that arise with AI
8.1.3 Explain what "algorithmic bias" means.
8.1.4 Describe how training data affects the accuracy of supervised machine learning
8.1.5 Identify privacy issues involved with AI
8.1.6 Explain how culture, beliefs and religion can create bias/conflict in AI
8.1.7 Define what ethical guidelines, organizations and principles that govern them