

# Introduction to Artificial Intelligence (AI)

## Certification Exam: ICT Introduction to Artificial Intelligence (AI) Certificate Test

The ICT Introduction to Artificial Intelligence (AI) program provides 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 the 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. Ethical, privacy, and security considerations will be explored. By learning about many examples of technology and through experiences, students gain a practical understanding. Students will learn the implications for AI's future and how it benefits mankind. They will be exposed to extensive and innovative career opportunities.

## Candidate Profile

The ICT Introduction to Artificial Intelligence (AI) certification and courseware serve a wide range of learners seeking practical, industry-relevant skills, including:

### Middle School Students

- Grades 5- 8th middle school students.
- Curious about how smart technologies like voice assistants, robots, or recommendation systems work.
- Awareness of how AI is used in everyday technology.

### High School Students

- Grades 9 – 12 or recent graduates with basic tech literacy.
- Show interest in computer science, data science, robotics, or emerging technologies.
- Are preparing for workforce readiness or career and technical education (CTE) pathways.

### Adults

- Basic computer and Internet literacy.
- Has an interest in understanding how AI technologies work and how they impact industries and careers.
- Individuals seeking to upskill, transition into technology fields, or understand emerging digital technologies.

## Career Profile

This course aligns with the Department of Labor Standard Occupational Classification for the following:

### SOC: 11-9040 Architectural and Engineering Managers

Architectural and Engineering Managers plan, direct, and coordinate activities in architecture and engineering organizations. They lead teams of engineers, architects, and technical professionals to design, develop, and implement projects such as buildings, infrastructure systems, manufacturing processes, and advanced technologies.

### SOC: 15-2050 Data Scientists

Data Scientists analyze and interpret complex data to help organizations make informed decisions. They use advanced analytical techniques, statistical methods, and machine learning algorithms to identify patterns, predict outcomes, and generate insights from large datasets.

### SOC: 15-0000 Computer and Mathematical Occupations

The Computer and Mathematical Occupations major group includes careers focused on designing, developing, analyzing, securing, and managing information systems, software applications, networks, databases, and data-driven solutions.

Professionals in this field apply computer science, mathematics, statistics, and analytical methods to solve complex technological and business problems.

## Topics

### Lesson 1: Understanding Artificial Intelligence

- Defining Artificial Intelligence (AI)
- Understanding AI
- Algorithms
- AI Subsets
- Machine Learning
- Deep Learning
- Facial Recognition
- Neural Networks

### Lesson 2: The Development of AI

- The History of AI
- The Growth of AI
- AI and Ethical Issues
- AI Ethics
- AI and Causes in the World

### Lesson 3: Types of AI

- AI Based on Technology
- Artificial Narrow Intelligence
- Artificial General Intelligence
- Artificial Super Intelligence
- Types of AI Based on Functionality

### Lesson 4: Machine Learning

- Defining Machine Learning
- Types of Machine Learning
- Machine Learning Training Stages
- Applications of Machine Learning

### Lesson 5: AI and Robotics

- AI Robots Development
- AI and Robots Work Together
- Parts and Types of Robots
- AI Robot Considerations

### Lesson 6: The Future of AI and Careers

- AI Moving to the Future
- AI and the oceans
- AI and Careers
- Entry-level and advanced jobs in AI
- Women leaders in AI
- The Future and AI Ethics
- AI Soft Skills