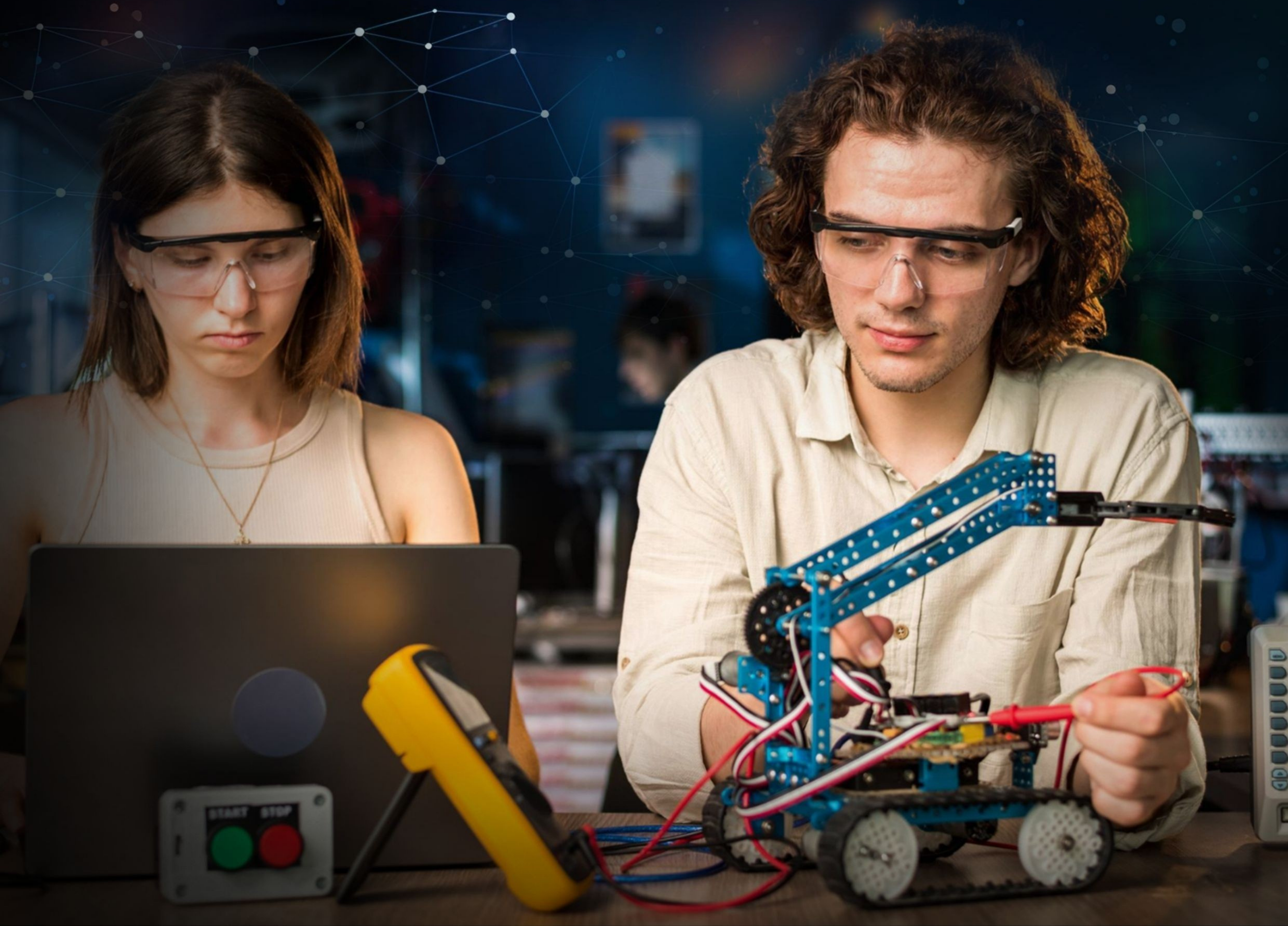




AI Certification Program

AI+ Robotics Practitioner™



Executive Summary

The AI+ Robotics Practitioner certification program offers a transformative journey into the dynamic intersection of Artificial Intelligence (AI) and Robotics. From foundational concepts to advanced Deep Learning algorithms and Reinforcement Learning, the immersive experience is tailored for Robotics applications. Each module provides a well-rounded understanding, exploring autonomous systems, intelligent agents, and generative AI. Through hands-on activities and real-world case studies, practical skills are honed. Ethical considerations and policy frameworks are navigated responsibly. Stay updated on emerging trends, shaping the future of the industry. By the program's end, acquire both robust theoretical knowledge and practical expertise, empowering you to lead innovation in the ever-evolving AI and Robotics landscape.

Prerequisites

- Familiarity with basic concepts of Artificial Intelligence (AI), without the need for technical expertise.
- Openness to generate innovative ideas and concepts, leveraging AI tools effectively in the process.
- Ability to analyze information critically and evaluate the implications of AI and Robotics technologies.
- Readiness to engage in problem-solving activities and apply AI techniques to real-world scenarios

Exam Blueprint

Number
of Questions

50

Passing
Score

35/50 or 70%

Duration

90 Minutes

Format

**Online via AI
Proctoring platform**

Question Type

**Multiple Choice/Multiple
Response**

Exam Overview

Module	Weight
Introduction to Robotics and Artificial Intelligence (AI)	5%
Understanding AI and Robotics Mechanics	6%
Autonomous Systems and Intelligent Agents	6%
AI and Robotics Development Frameworks	9%
Deep Learning Algorithms in Robotics	9%
Reinforcement Learning in Robotics	9%
Generative AI for Robotic Creativity	9%
Natural Language Processing (NLP) for Human-Robot Interaction	9%
Practical Activities and Use-Cases	8%
Emerging Technologies and Innovation in Robotics	9%
Exploring AI with Robotic Process Automation	9%
AI Ethics, Safety, and Policy	6%
Innovations and Future Trends in AI and Robotics	6%
	100%

The logo for AI CERTs, featuring a stylized circuit icon to the left of the text "AI CERTs" with a registered trademark symbol.

AI CERTs®

AI⁺
Robotics
Practitioner™



Certification Modules

Module 1

Introduction to Robotics and Artificial Intelligence (AI)

1.1 Overview of Robotics: Introduction, History, Evolution, and Impact

1.2 Introduction to Artificial Intelligence (AI) in Robotics

1.3 Fundamentals of Machine Learning (ML) and Deep Learning

1.4 Role of Neural Networks in Robotics

Module 2

Understanding AI and Robotics Mechanics

2.1 Components of AI Systems and Robotics

2.2 Deep Dive into Sensors, Actuators, and Control Systems

2.3 Exploring Machine Learning Algorithms in Robotics

Module 3

Autonomous Systems and Intelligent Agents

3.1 Introduction to Autonomous Systems

3.2 Building Blocks of Intelligent Agents

3.3 Case Studies: Autonomous Vehicles and Industrial Robots

3.4 Key Platforms for Development: ROS (Robot Operating System)

Module 4

AI and Robotics Development Frameworks

4.1 Python for Robotics and Machine Learning

4.2 TensorFlow and PyTorch for AI in Robotics

4.3 Introduction to Other Essential Frameworks

Module 5

Deep Learning Algorithms in Robotics

5.1 Understanding Deep Learning: Neural Networks, CNNs

5.2 Robotic Vision Systems: Object Detection, Recognition

5.3 Hands-on Session: Training a CNN for Object Recognition

5.4 Use-case: Precision Manufacturing with Robotic Vision

Module 6

Reinforcement Learning in Robotics

6.1 Basics of Reinforcement Learning (RL)

6.2 Implementing RL Algorithms for Robotics

6.3 Hands-on Session: Developing RL Models for Robots

6.4 Use-case: Optimizing Warehouse Operations with RL

Module 7

Generative AI for Robotic Creativity

7.1 Exploring Generative AI: GANs and Applications

7.2 Creative Robots: Design, Creation, and Innovation

7.3 Hands-on Session: Generating Novel Designs for Robotics

7.4 Use-case: Custom Manufacturing with AI

Module 8

Natural Language Processing (NLP) for Human-Robot Interaction

8.1 Introduction to NLP for Robotics

8.2 Voice-Activated Control Systems

8.3 Hands-on Session: Creating a Voice-command Robot Interface

8.4 Case-Study: Assistive Robots in Healthcare

Module 9

Practical Activities and Use-Cases

9.1 Hands-on Session-1: Building AI Models for Object Recognition using Python Programming

9.2 Hands-on Session-2: Path Planning, Obstacle Avoidance, and Localization Implementation using Python Programming

9.3 Hands-on Session-3: PID Controller Implementation using Python programming

9.4 Use-cases: Precision Agriculture, Automated Assembly Lines

Module 10

Emerging Technologies and Innovation in Robotics

10.1 Integration of Blockchain and Robotics

10.2 Quantum Computing and Its Potential

Module 11

Exploring AI with Robotic Process Automation

11.1 Understanding Robotic Process Automation and its use-cases

11.2 Popular RPA Tools and Their Features

11.3 Integrating AI with RPA

Module 12

AI Ethics, Safety, and Policy

12.1 Ethical Considerations in AI and Robotics

12.2 Safety Standards for AI-Driven Robotics

12.3 Discussion: Navigating AI Policies and Regulations

Module 13

Innovations and Future Trends in AI and Robotics

13.1 Latest Innovations in Robotics and AI

13.2 Future of Work and Society: Impact of AI and Robotics

Additional Module

AI Agents for Robotics

1. What Are AI Agents

2. Key Capabilities of AI Agents in Robotics

3. Applications and Trends for AI Agents in Robotics

4. How Does an AI Agent Work

5. Core Characteristics of AI Agents

6. The Future of AI Agents in Robotics

7. Types of AI Agents

Certification Outcome

Upon successful completion of the AI+ Robotics Practitioner certification, participants will emerge equipped with a comprehensive understanding of the symbiotic relationship between Artificial Intelligence (AI) and Robotics. They will possess proficiency in foundational Robotics and AI mechanics, along with advanced knowledge in Deep Learning algorithms and Reinforcement Learning tailored for Robotics applications. Participants will be adept at navigating the realm of autonomous systems, intelligent agents, and generative AI, honing practical skills through hands-on activities and real-world use-cases. Furthermore, they will demonstrate a nuanced understanding of ethical considerations and policy frameworks surrounding AI deployment, empowering them to drive innovation responsibly in the ever-evolving landscape of AI and Robotics.



Market Insight

In today's rapidly evolving landscape, the demand for AI and Robotics expertise is skyrocketing. Our course meets this demand, offering a strategic mix of theory and practice to equip professionals with the skills needed to excel in industries embracing automation and AI-driven solutions.



Value Proposition

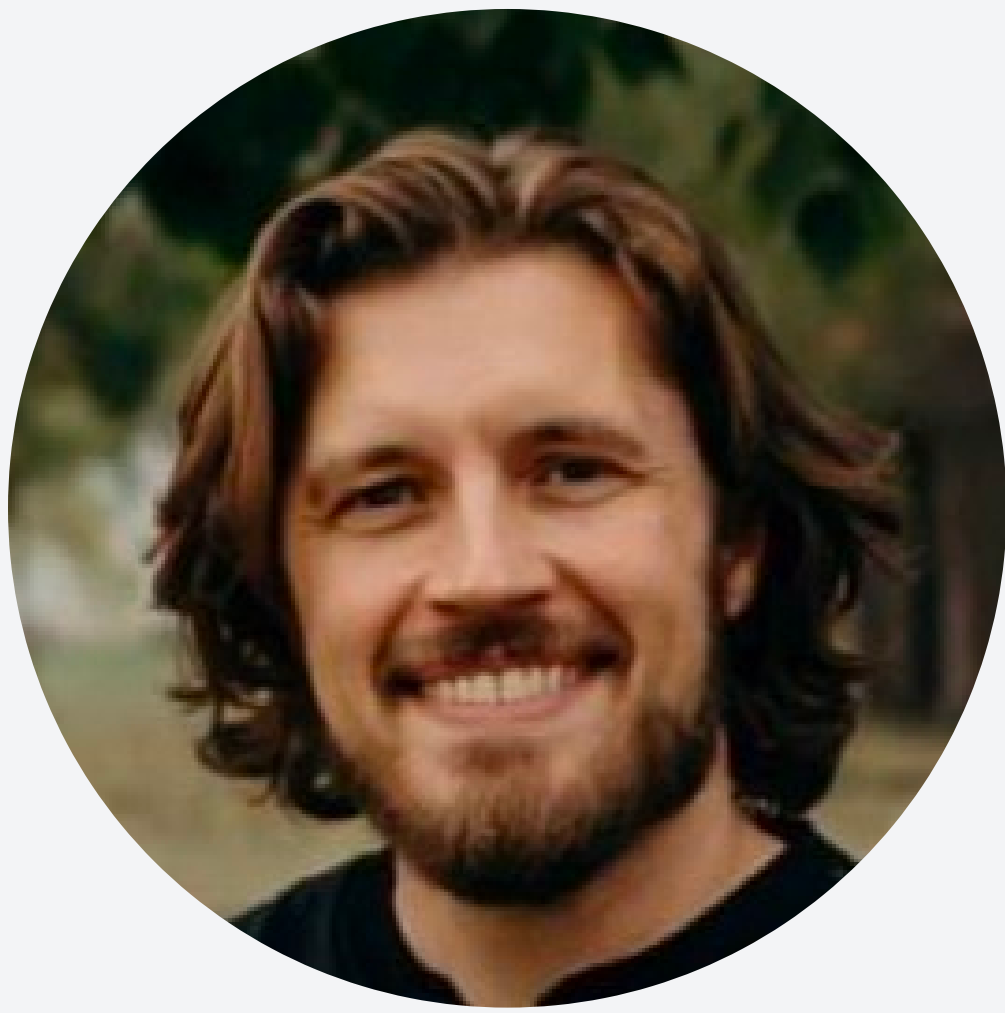
Gain essential AI and Robotics skills for thriving in today's dynamic industries. Our course offers practical expertise to meet the soaring demand for automation and AI-driven solutions, ensuring you're equipped to excel in diverse sectors.



Additional Features

Enhance your learning journey with additional features tailored to your success. Dive into interactive labs for hands-on reinforcement of theoretical concepts while receiving personalized guidance from industry experts. Connect with peers and professionals to expand your network and exchange insights, all while enjoying the flexibility to access course materials and participate in discussions at your convenience, ensuring a balanced approach to mastering AI and Robotics.

AI Experts



Jason Kellington

AI Expert

As a consultant, trainer, and technical writer with more than 25 years of experience in IT, I specialize in the development and delivery of solutions focused on effective and efficient enterprise IT.



Justin Frébault

AI Expert

I'm a boutique data consultant specializing in data mesh and lakehouse solutions. I've dedicated my career to helping organizations transform their approach to data, moving beyond mere knowledge.



J Tom Kinser

AI Expert

I have over forty years of experience in software development, data engineering, management, and technical training. I am a Microsoft Certified Trainer and a software developer, holding multiple certifications.



Terumi Laskowsky

AI Expert

Country Manager for Global Consulting Services in Japan, Specialties: Information Security (Compliance, Policy, Application, Host, Network)



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