

Artificial Intelligence 700

1. Overview

This programme prepares participants to understand and apply fundamental artificial intelligence concepts, theories, and technologies. Participants explore AI foundations and history, expert systems, machine learning principles, logical reasoning using truth tables and predicate calculus, the Turing test and intelligent machinery concepts, and introductory robotics. The programme develops practical skills for AI developers, researchers, and technology professionals working with intelligent systems and automation.

2. Learning Outcome

- Define artificial intelligence and explain its four main approaches, analyse the foundations and historical development of artificial intelligence, and apply intelligent agent concepts for autonomous system design
- Explain expert systems architecture and applications, and analyse machine learning principles and methodologies for building intelligent systems
- Construct and analyse truth tables for logical operations, apply binary operations for logical reasoning, interpret condensed truth tables for efficient analysis, and implement breadth-first branch algorithms for problem-solving
- Explain the Turing Test and its significance in measuring machine intelligence, analyse the Turing Machine as a computational model, distinguish between intelligence and intuition in artificial systems, evaluate concepts of intelligent machinery, examine the imitation of mind in artificial intelligence, and assess post-Turing Test developments in AI evaluation.
- Apply production systems for knowledge representation and reasoning, and distinguish between bound and free variables in predicate calculus for logical inference
- Explain fundamental robotics concepts and applications, and analyse dynamics of robot systems, including motion and control principles

Qualification:	Certificate of Competence
Duration:	3-Months
Programme Type:	Category B – Workplace-Based Learning Programme
Programme ID:	PA0686
NQF Level:	7
Credits:	10
Contact Days:	Three (3) facilitated online workshops (recordings available)
Prerequisites:	Grade 12 Qualification or NQF Level 4 equivalent
Training Options:	Online Learning: Please contact our Sales team to confirm the next available intake date for this programme.
Minimum Learner Required:	(1) Online

**A choice of leveraged programmes for any person,
At any level, in any department, of any company, in any industry.**

3. Topics

- Introduction to Artificial Intelligence
- History and Evolution of Artificial Intelligence
- Foundations of Artificial Intelligence
- Approaches to Artificial Intelligence
- Intelligent Agents and Autonomous Systems
- Problem Solving in Artificial Intelligence
- Search Algorithms and State Space Search
- Expert Systems
- Knowledge Representation
- Production Systems and Rule-Based Reasoning
- Introduction to Machine Learning
- Robotics Fundamentals
- Robot Dynamics, Motion, and Control
- Logic and Logical Reasoning
- Truth Tables and Boolean Logic
- Binary Operations in Artificial Intelligence
- Predicate Calculus
- Bound and Free Variables
- Breadth-First Search Algorithms
- The Turing Test
- The Turing Machine
- Intelligent Machinery and Human Intelligence
- Artificial Intelligence Ethics and Responsible AI
- Applications of Artificial Intelligence
- Emerging Trends in Artificial Intelligence
- Practical Artificial Intelligence Case Studies

4. Workplace-Based Learning Programme

This WLP is a fusion of academic learning and practical work. The learning is directly applied to the workplace by using client-based mentors and extensive workplace-based portfolio work and assignments. Apart from the obvious benefits of a workplace directed qualification, each WLP qualifies for recognition as a Category B Skills Programme in the Learning Matrix of the Amended BEE codes, which allows for the salaries of participants to be recognized as part of the Skills Development Expenditure.

We trust that the above is in order and look forward to hearing from you for Implementation