



MAURITIUS QUALIFICATIONS AUTHORITY

MAURITIUS QUALIFICATIONS AUTHORITY

NATIONAL DIPLOMA

LEVEL 6

IN

ARTIFICIAL INTELLIGENCE

AND

ROBOTICS

National Diploma Level 6 in Artificial Intelligence and Robotics

- 1. Level of qualification: 6**
- 2. Total Credit: 225**
- 3. Review date: 03 July 2031**
- 4. Access to qualification**

4.1 Entry information

HSC/GCE 'A' Level and with passes in Mathematics and any other subject at Principal level

or

A National Certificate Level 5 in Information Technology

4.2 Recognition of Prior Learning (RPL)

Potential candidates holding at least three (3) years relevant experience and a recognized qualification at NQF Level 5, in the relevant field, may obtain this qualification through the Recognition of Prior Learning (RPL) process.

5. Award of Unit Standards

Unit No.	Unit Standard Title	Level	Credit
Fundamentals of Artificial Intelligence			
01	Demonstrate and apply knowledge in Artificial Intelligence, Machine Learning and Deep Learning	6	3
02	Analyse the Importance of Intelligent Agents and their environments in Artificial Intelligence Systems	6	3
03	Design a Search Algorithm	6	2
04	Demonstrate and apply knowledge on Fuzzy Logic System and Neural Networks	6	2
05	Evaluate Knowledge Representation in Artificial Intelligence	6	3
Programming Techniques Fundamentals			
06	Apply concepts of Algorithm design and problem-solving	6	3
07	Illustrate pseudocode and flowcharts	6	3

08	Apply programming concepts	6	4
09	Apply knowledge of high-level programming concepts	6	4
Python Foundations			
10	Perform programming using Python	6	2
11	Manipulate variables and data types, basic input-output operations and operators	6	3
12	Apply Boolean values, conditional execution, loops, lists and logical operations	6	3
13	Create and apply functions, tuples and dictionaries	6	4
Maths for AI and Robotics			
14	Demonstrate and apply knowledge of Matrix Theory & solving systems of linear equations	6	4
15	Demonstrate and apply knowledge of Kinematics and Theory of Machines	6	4
16	Explain Vector Spaces, Eigenvalues and Eigenvectors	6	4
17	Apply Knowledge of Dimensions Reduction – Principal Component Analysis (PCA)	6	1
18	Demonstrate and apply knowledge of Optimization Techniques (Gradient Descent Algorithm & Support Vector Machine (SVM))	6	1
19	Assert an understanding to Graph Theory	6	2
Communication Skills			
20	Develop Business Communication Skills	6	12
Fundamentals of IoT and Robotics			
21	Analyse the Fundamentals of IoT and Robotics	6	15
Object-Oriented Programming			
22	Write Programs using Objects and Classes	6	7
23	Write Programs using Object-Oriented Concepts	6	3
Statistics and Probability Engineering			
24	Express familiarity with Descriptive Statistics	6	3

25	Apply Probability comprehension to distributions (discrete and continuous expectation and variance)	6	12
26	Apply an understanding of Markov chains and Inferential Statistics	6	5
Database Management Systems			
27	Work with Database Systems for AI	6	12
Organisation and Management			
28	Analyze planning, decision-making, and ethics as management functions	6	6
Cloud and Big Data			
29	Adapt the emerging big data and cloud technologies	6	8
Blockchain Technologies			
30	Recognize the foundations of Blockchain Technologies and Management	6	2
31	Demonstrate and apply knowledge of Blockchain Transaction Flow	6	3
32	Demonstrate and apply knowledge of Decentralisation	6	2
33	Demonstrate and apply knowledge of Blockchain and Cryptocurrency	6	7
Machine Learning			
34	Describe the fundamental concepts of Machine Learning	6	2
35	Express comprehension for Data Preprocessing and Feature Engineering Flow	6	3
36	Demonstrate and apply knowledge on Supervised/Unsupervised Learning Algorithms	6	3
37	Demonstrate knowledge for Model Evaluation and Validation	6	3
Neural Networks			
38	Give an Overview of Neural Networks	6	8
39	Demonstrate and apply knowledge of Convolutional Neural Networks (CNNs)	6	4
Entrepreneurship and Innovation			
40	Demonstrate and apply knowledge the principles of assessment and evaluation of entrepreneurial opportunities for new ventures and building up business plan	6	8
Introduction to Industry 5.0			

41	Demonstrate and apply knowledge on the core technologies of Industry 5.0	6	2
42	Implement Industry 5.0 by taking into account ethical and legal parameters	6	5
Robotics and AI with Industrial Attachment			
43	Develop hands-on experience with designing, building, and programming robotic systems	6	20
Capstone Project			
44	Perform project proposal, design, development, testing and implementation	6	15
	Total Credits		225

6. Purpose of Qualification:

The aim of the qualification is to equip students with knowledge about Technical Mathematics, Fundamentals of Artificial Intelligence, Python Foundations, Embedded Programming, Machine Learning and AI Techniques, Fundamentals of Database Systems, Software Engineering and AI Programming with Pythons.