

Vocational Qualifications Pathway (VQP) for Artificial Intelligence / Machine Learning

Job Area Job Level	Artificial Intelligence / Machine Learning
Master Level	<i>The ICT practitioners at this level mainly responsible for decision-making processes. They oversee the entire IT operations and strategic development direction in the organization. Professionals at this level require broad corporate perspective, good communication skills and great technology knowledge.</i>
Job Title	AI Business Director
Job Title	AI Senior Consultant
Specialist Level	<i>The ICT practitioners at this level mainly involve in managerial processes. They may associate with individual technical departments and manage those departments by applying their technical and managerial skills. The major tasks performed by the professionals at this level is to manage the individual activities and project segments to lead the project towards completion within the assigned budget and stipulated deadline.</i>
Job Title	AI/ML Engineer
Job Title	AI/ML Solution Architect
Job Title	AI/ML Business Analyst
Job Title	AI/ML Developer
Practitioner Level	<i>The ICT practitioners at this level manage certain parts of technical processes depending on their subject matter expertise. Many different profiles are served by professionals at this level who maybe fresh sub-degree graduates or those who possess certain experience in their field.</i>
Job Title	Junior AI/ML Engineer
Job Title	Junior AI/ML Developer
Support Level	<i>The ICT practitioners at this level provide basic technical support depending on their subject matter expertise. Many different profiles are served by the practitioners at this level who maybe S6 graduates with relevant ICT skills and knowledge or those who possess little experience in their field.</i>
Job Title	Computer Operator
Job Title	User Support Staff
Job Title	Technical Support Services Staff
Job Title	Help Desk Operator
Job Title	Field technician

Proposed Competency Requirements (AI/ML - Master Level)

Relevant Job Titles:

- AI/ML Business Director / AI/ML Senior Consultant

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Business strategies and policies for AI/ML application	1. Develop an AI/ML roadmap aligned to the organization's needs and vision.	<ul style="list-style-type: none"> ▪ Formulate business strategies and policies ▪ Formulate IT strategies and policies ▪ Identify and evaluate information technologies that support the objectives of an organisation ▪ Review the emerging technologies and cross-functional strategies ▪ Understand Systems Development Life Cycle (SDLC) and software development process 	<p>111201L6</p> <p>ITSWSM603A</p> <p>111202L6</p> <p>111207L6</p> <p>ITSWG619A</p>	Obtain qualification via training programmes (QF Level 6)
	2. Work closely with key stakeholders in other departments of the organization to identify, develop, prioritize and implement AI/ML solutions to satisfy key organization business needs	<ul style="list-style-type: none"> ▪ Review, design and re-engineer business processes to form a new business architecture ▪ Define metrics to ensure that a technology architecture meets the business goals 	<p>111125L6</p> <p>111127L5</p>	

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Business strategies and policies for AI/ML application (continued)	3. Ensure best practices are established and maintained for all key AI/ML and data management procedures, architecture, and standards	<ul style="list-style-type: none"> ▪ Review and comply with organisational policies and procedures, relevant laws and regulatory requirements ▪ Set policy to control data security and privacy ▪ Review the ethical and social issues for IT applications 	<p style="text-align: center;">111205L6</p> <p style="text-align: center;">111206L6</p> <p style="text-align: center;">111208L6</p>	(Continued) Obtain qualification via training programmes (QF Level 6)

Proposed Competency Requirements (AI/ML - Specialist Level)

Relevant Job Titles:

- AI/ML Engineer / AI/ML Solution Architect / AI/ML Business Analyst / AI/ML Developer

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Analysis of business needs for AI/ML technology	1. Analyze and associate AI/ML principles into reasoning and uncertainty in any perspective environment. Identify development needs in order to improve and streamline business operations.	<ul style="list-style-type: none"> ▪ Model technology architecture ▪ Formulate IT plan ▪ Perform statistical analysis and refine the operational decision-making process 	111129L5 111210L5 111158L5	Obtain qualification via training programmes (QF Level 5)
	2. Perform research to acquire new AI/ML knowledge necessary to perform assigned tasks and maintain a process of technological evolution.	<ul style="list-style-type: none"> ▪ Review the emerging technologies and cross-functional strategies ▪ Conduct solicitation process in project outsourcing 	111207L6 111196L5	

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Application of AI/ML technology	3. Applying AI/ML techniques for business process analysis and reconstruction.	<ul style="list-style-type: none"> ▪ Develop programme modules of the software based on its design documents ▪ Develop data analysis programmes in enterprise intelligence systems ▪ Establish and develop the project team ▪ Manage project team 	ITSWDM504A 111156L5 ITSWPM513A ITSWPM514A	(Continued) Obtain qualification via training programmes (QF Level 5)
	4. Evaluate and improve the performance of applications in AI/ML domains	<ul style="list-style-type: none"> ▪ Project the potential costs, benefits and ROI of IT project ▪ Develop test plans for various levels of testing ▪ Conduct project performance reporting 	111211L5 ITSWDM507A ITSWPM517A	

Proposed Competency Requirements (AI/ML - Practitioner Level)

Relevant Job Titles:

- Junior AI/ML Engineer / Junior AI/ML Developer

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Development of AI/ML application	1. Develop AI/ML applications according to requirements	<ul style="list-style-type: none"> ▪ Apply diagnostic and troubleshooting skills to solve hardware, software and networking related issues. ▪ Perform statistical analysis and refine the operational decision-making process ▪ Implement algorithms and methods of image processing 	<p>111121L4</p> <p>111158L5</p> <p>111112L5</p>	Obtain qualification via training programmes (QF Level 4)
	2. Be conversant on the AI/ML developments, practices and principles	<ul style="list-style-type: none"> ▪ Analyze the available solutions from IT service providers 	111199L4	
Project Management for AI/ML project	3. Coordinate with other business units of the organization to ensure optimized hardware/software/resource utilization	<ul style="list-style-type: none"> ▪ Prepare system operation documentation ▪ Verify and validate that the deployed / migrated software and the existing software 	<p>111200L4</p> <p>111159L4</p>	

Proposed Competency Requirements (AI/ML - Support Level)

Relevant Job Titles:

- Computer operator / User support staff / Technical support services staff (TSS) / Help desk operator / Field technician

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Network Support	1. Network Support	<ul style="list-style-type: none"> Install and configure client/server application Configure WAN connection Troubleshoot network issues 	<p>107882L3</p> <p>107883L3</p> <p>107884L3</p>	Obtain qualifications via training programmes (QF Level 3) Or RPL Mechanism (QF Level 3 RPL Cluster: TOS010L3)
Network Security Support (Technical Support)	2. Network Security Support	<ul style="list-style-type: none"> Administer basic network security Administer basic website security Administer perimeter firewall Strengthen workstation protection 	<p>107887L3</p> <p>107889L3</p> <p>107890L3</p> <p>107891L3</p>	Obtain qualifications via training programmes (QF Level 3) Or RPL Mechanism (QF Level 3 RPL Cluster: ITOS011L3)
User Support	3. User Support	<ul style="list-style-type: none"> Provide support to mobile device users Troubleshoot client device hardware issues Perform remote support 	<p>107904L3</p> <p>107905L3</p> <p>107907L3</p>	Obtain qualifications via training programmes (QF Level 3) Or RPL Mechanism (QF Level 3 RPL Cluster: ITOS012L3)
System Security Support	4. System Security Support	<ul style="list-style-type: none"> Create and maintain user accounts on server Configure user access control on server Administer system security 	<p>107885L2</p> <p>107886L3</p> <p>107888L3</p>	Obtain qualifications via training programmes (QF Level 3) Or RPL Mechanism (QF Level 3 RPL Cluster: ITOS009L3)

Area of Work / Cluster Name	Major Task	Competency Requirements	Units of Competency (UoCs) Number	Relevant Qualification for fulfilling Competency Requirements
Web Support	5. Web Support	<ul style="list-style-type: none"> ▪ Troubleshoot web browser and connection issues ▪ Maintain website performance ▪ Build simple web site using content management systems ▪ Maintain website 	<p>107909L3</p> <p>107910L3</p> <p>107911L3</p> <p>107912L3</p>	<p>Obtain qualifications via training programmes (QF Level 3)</p> <p>Or</p> <p>RPL Mechanism (QF Level 3 RPL Cluster: ITOS013L3)</p>
Network and Security Support	6. Network and Security Support	<ul style="list-style-type: none"> ▪ Build a small wireless LAN ▪ Install and configure network components/devices ▪ Install and configure client/server application ▪ Strengthen workstation protection ▪ Troubleshoot web browser and connection issues 	<p>107879L2</p> <p>107880L2</p> <p>107882L3</p> <p>107891L3</p> <p>107909L3</p>	<p>Obtain qualifications via training programmes (QF Level 3)</p> <p>Or</p> <p>RPL Mechanism (QF Level 3 RPL Cluster: ITOS016L3)</p>