



# Executive Summary

<b>Qualification</b>	Occupational Certificate: Artificial Intelligence Software Developer
<b>Purpose</b>	<p>The Occupational Certificate: Artificial Intelligence Software Developer prepares learners to build, train, test, deploy and maintain Artificial Intelligence solutions that solve business and real-world problems.</p> <p>Artificial Intelligence Software Developers play a critical role in modern software environments by integrating AI algorithms and logic into applications and systems. They create intelligent solutions that can identify patterns, learn from information and automate decision-making processes.</p>
<b>Qualification ID</b>	118792
<b>NQF Level</b>	5
<b>Minimum Credits</b>	209
<b>Duration</b>	12-18 Months
<b>Field</b>	Information and Communication Technology
<b>Subfield</b>	Software Development / Artificial Intelligence
<b>Quality Partner</b>	MICT SETA
<b>Entry Requirements</b>	NQF Level 4

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**Qualification Overview**

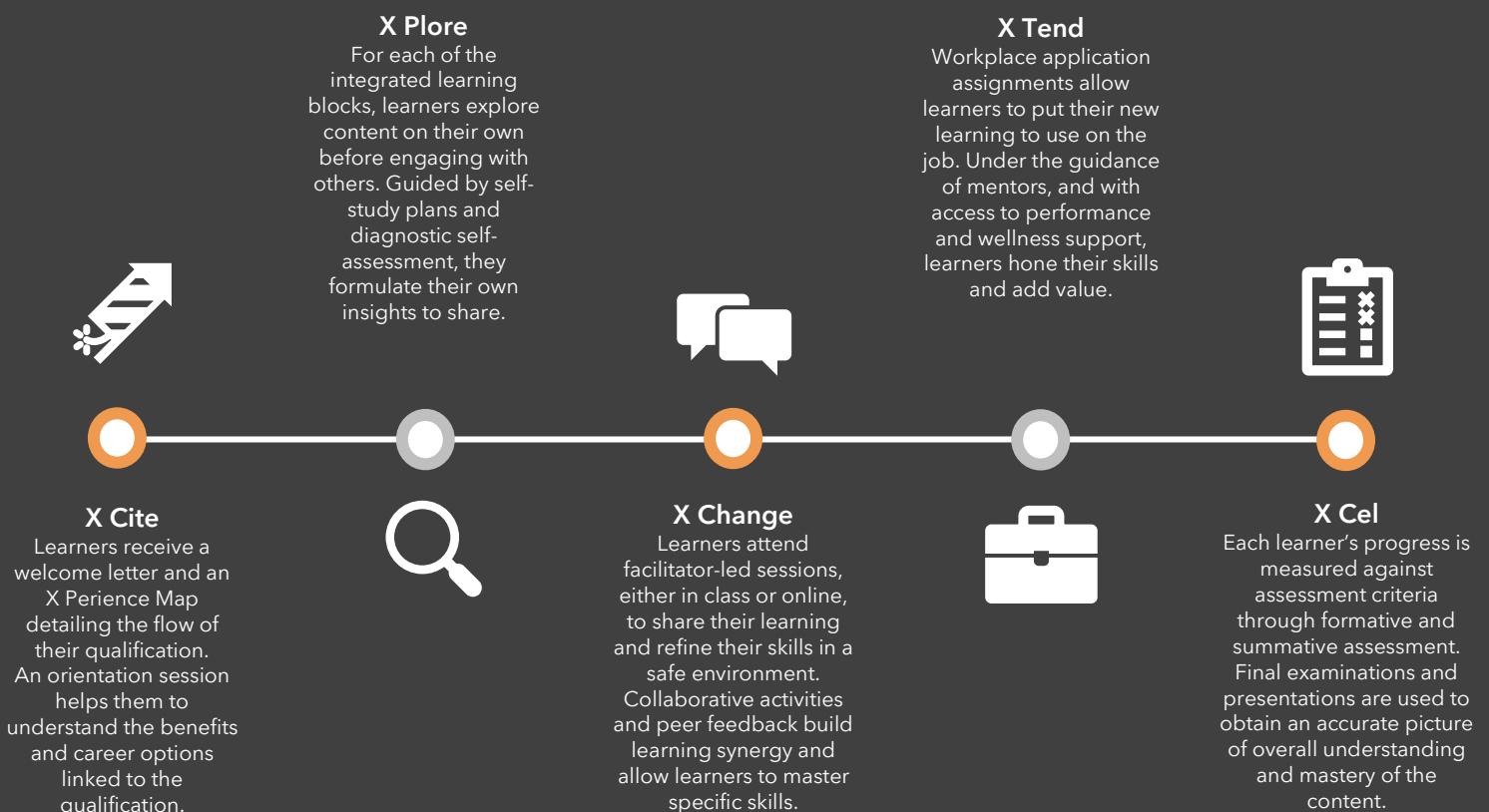
The programme develops both technical and analytical capability in programming, mathematics, machine learning, neural networks, deep learning and AI solution deployment.

Through an integrated combination of knowledge development, practical application and workplace exposure, learners develop competence across the full Artificial Intelligence development lifecycle.

On completion learners will be able to:

- Interpret solution design documentation and develop AI solutions
- Train machine learning models and evaluate model performance
- Build neural network architectures using Python and TensorFlow
- Deploy and optimise AI solutions within operational environments
- Apply ethical, governance and innovation principles within AI systems

**The KLM Empowered Learning X Perience**



## Qualification Outline

The Occupational Certificate: Artificial Intelligence Software Developer is structured into six integrated learning blocks, combining Knowledge Modules (KM), Practical Skill Modules (PM) and Work Experience Modules (WM).

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### MATHEMATICAL, ANALYTICAL AND COMPUTING FOUNDATIONS (31 CREDITS)

ID	Title	Level	Credits
KM-02	Introduction to Mathematics and Statistics	4	10
KM-03	Analytical Thinking and Problem Solving	4	3
KM-05	Computing Theory	4	8
PM-01	Mathematics and Statistics for Programming	4	8
PM-02	Problem Definition, Analytical Thinking and Decision-Making	4	2

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### DATA FOUNDATIONS AND DIGITAL ECOSYSTEMS (24 CREDITS)

ID	Title	Level	Credits
KM-04	Data, Databases and Data Visualisation	4	8
KM-12	4IR and Future Skills	4	4
PM-03	Access, Analyse and Visualise Structured Data Using Spreadsheets	4	4
PM-04	Use SQL to Communicate with a Database	5	4
PM-06	Use Python Data Scraping to Populate Database Tables in SQL	5	4

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### ARTIFICIAL INTELLIGENCE FOUNDATIONS (27 CREDITS)

ID	Title	Level	Credits
KM-01	Overview of Artificial Intelligence	4	2
KM-06	Introduction to Artificial Intelligence, Machine Learning and Deep Learning	4	5
KM-07	Artificial Intelligence	5	12
PM-05	Build a Simple AI Solution using Python	5	8

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## MACHINE LEARNING DEVELOPMENT (42 CREDITS)

ID	Title	Level	Credits
KM-08	Machine Learning	5	16
PM-07	Use Machine Learning to Build an AI Solution in Python	5	6
WM-01	AI Solution Design Interpretation and Development	5	20

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## DEEP LEARNING AND NEURAL NETWORKS (56 CREDITS)

ID	Title	Level	Credits
KM-09	Deep Learning	5	16
PM-08	Use Deep Learning to Build an AI Neural Network Architecture in Python	5	10
PM-09	Use Deep Learning to an AI Neural Network Architecture in TensorFlow	5	10
WM-02	AI Solution Performance Testing	5	20

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## GOVERNANCE, INNOVATION AND INTEGRATED AI DEPLOYMENT (29 CREDITS)

ID	Title	Level	Credits
KM-10	Introduction to Governance, Legislation and Ethics	4	1
KM-11	Fundamentals of Design Thinking and Innovation	4	1
PM-10	Function Ethically and Effectively as a member of a multidisciplinary Team	4	3
PM-11	Participate in a Design Thinking for Innovation Workshop	4	4
WM-03	AI Solution Deployment, Modification and Improvement	5	20

*The Greatness Effect*