EMPOWERED

Executive Summary

Qualification	Occupational Certificate Internet-of-Things Developer
Purpose	The purpose of this qualification is to prepare a learner to function as an Internet-of-Things Developer. An Internet-of-Things Developer coordinates all components of an Internet-of-Things (IoT) solution that includes sensors, devices, actuators, networks, and other infrastructure to aggregate and disseminate data, store the data on the cloud, and make it available to the data scientist for decision making, thus being responsible for the full cycle from data collection to data delivery.
Qualification ID	119262
NQF Level	4
Minimum Credits	141
Duration	One year
Field	Physical, Mathematical, Computer, and Life Sciences
Subfield	Information Technology and Computer Sciences
Quality Partner	MICT SETA
Entry Requirements	NQF Level 3 qualification

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Qualification Overview

IoT has become an integral part of the life of the individual, providing advantages and benefits in terms of leisure, socialising, healthcare, better user experiences, to name but a few.

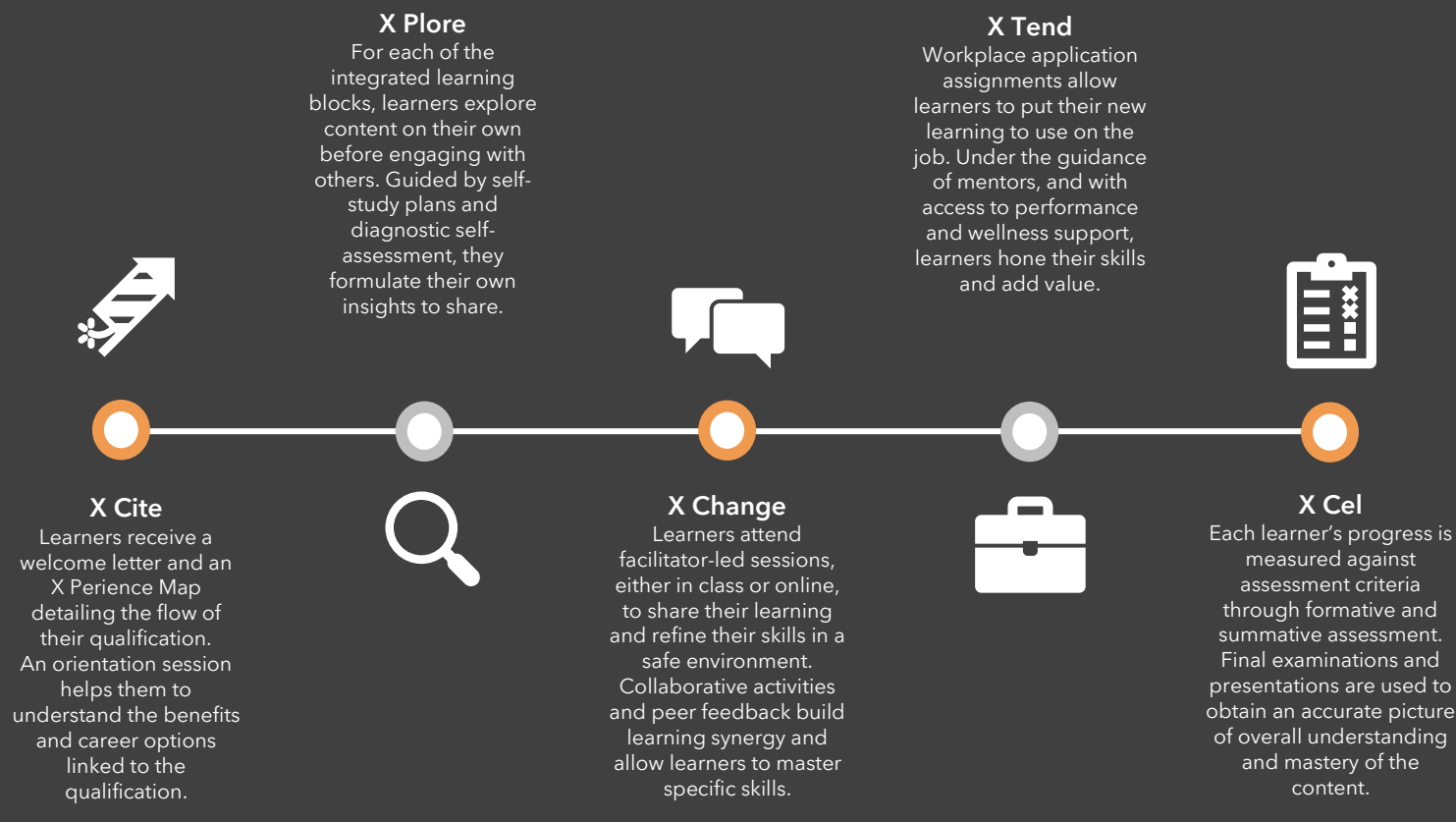
IoT is a big driver in big data analytics, providing magnitudes of data in real-time used for real-time decision making for various economic sectors. Healthcare, Agriculture and Manufacturing and many other industries will benefit immensely because of the availability of big data to help making well-versed, on-time decisions.

This qualification aims to prepare those who engage in IoT in broad areas of sensors and sensor nodes, connectivity and networks, and analytics and applications–and in the process benefit the development of the ICT sector.

Typical learners include school leavers, qualified learners from TVET colleges and those currently in employment without formal recognition of competencies. Qualifying learners will be able to:

- Deploy an IoT solution by connecting sensors, devices, and objects to a wired or wireless network
- Collect, aggregate, disseminate and store large amounts of unstructured and structured data generated
- Integrate collected data with existing systems such as enterprise resource planning

The KLM Empowered Learning X Perience



Qualification Outline

- The Occupational Certificate: Internet-of-Things Developer consists of the following Knowledge, Practical and Work Experience Modules.
- Workplace Experience Modules are completed throughout the learning journey and assessed every quarter.
- Formative and summative assessments are conducted at regular intervals to prepare learners for the External Integrated Summative Assessment (EISA).

Knowledge Modules

ID	Title	Level	Credits
KM-01	Introduction to Internet of Things	4	4
KM-02	Computers, Devices and Computing Systems	4	6
KM-03	Building Blocks of the Internet of Things	4	8
KM-04	Internet of Things Design and Development Considerations	4	8
KM-05	Data, Databases, and Visualisation	4	4
KM-06	4IR and Future Skills	4	4
KM-07	Design Thinking Principles for Innovation	4	1
KM-08	Basic Electronic Principles	3	4

Practical Modules

ID	Title	Level	Credits
PM-01	Apply Basic Scriptwriting for Internet of Things Toolsets	4	4
PM-02	Access, Analyse and Visualuse Structured Data Using Spreadsheets	4	4
PM-03	Implement an Internet of Things Solution Infrastructure and Deploy Edge Devices	4	10
PM-04	Provision and Manage Devices	4	10
PM-05	Process and Manage Data in an Internet of Things Solution	4	8
PM-06	Monitor, Troubleshoot and Optimise Internet of Things Solutions	4	8
PM-07	Implement Security Measures for Internet of Things Solutions	4	10
PM-08	Participate in a Design Thinking for Innovation Workshop	4	3
PM-09	Function Ethically and Effectively in the Workplace	4	3

Work Experience Modules

The focus of the work experience modules is to provide the learner an opportunity to implement RPA solutions under authentic working conditions and to develop confidence by working under the supervision of a workplace mentor. This also provides for the exposure of learners to the complexities of dealing with workplace demands, the pressures of work, and the dynamics of stakeholder management.

ID	Title	Level	Credits
WM-01	Internet of Things Solution Deployment	4	15
WM-02	Data Collection, Aggregation, Dissemination and Storage	4	15
WM-03	Data Integration Systems and Processes	4	12