OCCUPATIONAL CERTIFICATE: **INTERNET-OF-THINGS DEVELOPER**

NQF 4

(141 credits)

QUALIFICATION OVERVIEW

The purpose of this qualification is to prepare learners to function as Internet-of-Things Developers. 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.

A qualified learner will be able to:

- Deploy an IoT solution by connecting sensors, devices, and things to a wired or wireless network.
- Collect, aggregate, disseminate and store large amounts of unstructured and structured data generated by these devices.
- Integrate collected data with the existing systems such as enterprise resource planning (ERP) of an organisation for consumption and use.

DURATION

12 Months.

WHO SHOULD ATTEND

The programme is intended for people who either have an interest in Information Technology or those that already work in the Sector. These will be individuals that are either Cloud Administrators as well as those who wish to further their careers as Cloud Specialists, Cloud Engineers and Cloud Architects.

PREREQUISITES

We offer a thorough pre-assessment process to align learners to appropriate qualifications and levels. Entry requirements for this qualification include:

- NQF Level 4 qualification

DELIVERY METHOD

Face-To-Face / Virtual Training

CONTACT

To enrol your Learners or for more information, please contact your Business Development Consultant on 0861 ILEARN or email info@ilearn.co.za.

LEARNING OUTCOMES

Knowledge Modules

- Introduction to Internet of Things
- Computers, Devices and Computing Systems
- Building Blocks of Internet of Things
- Internet of Things Design and Development Considerations
- Data, Databases and Visualisation
- 4IR and Future Skills
- Design Thinking Principles for Innovation
- Basic Electronic Principles

Practical Modules

- Apply Basic Scriptwriting for Internet of Things Toolsets
- Access, Analyse and Visualise Structured Data using Spreadsheets
- Implement the Internet of Things Solution Infrastructure and Deploy Edge Devices
- Provision and Manage Devices
- Process and Manage Data in an Internet of Things Solution
- Monitor, Troubleshoot and Optimise Internet of Things Solutions
- Implement Security Measures for Internet of Things Solutions
- Participate in a Design Thinking for Innovation Workshop
- Function Ethically and Effectively in the Workplace

LEARNING OUTCOMES

Workplace Module

- Internet of Things Solution Deployment Processes
- Data Collecting, Aggregating, Disseminating and Storing Processes
- Data Integration Systems and Processes

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PROJECT PLAN - SAQA: 119262

Exit Level Outcome	Type	Module Numbers	Clusters	NQF	Credit	Training Session Dates
Qualification Induction						
Cluster 1: Intro to Internet of Things						
ELO 1: Demonstrate knowledge to connect things to internet through gateways and edge technologies for communication.	Knowledge Module	251201003-KM-01	Introduction to Internet of Things	4	4	4 Days (Month 1)
	Practical Module	251201003-PM-01	Apply Basic Scriptwriting for Internet of Things Toolsets	4	4	
Cluster 1: Feedback and Remediation- Intro to Internet of Things						**1 Day**
Cluster 2: Device Management						
ELO 1: Demonstrate knowledge to connect things to internet through gateways and edge technologies for communication.	Knowledge Module	251201003-KM-02	Computers, Devices and Computing Systems	4	6	3 Days (Month 2)
	Practical Module	251201003-PM-04	Provision and Manage Devices	4	10	5 Days (Month 3)
Cluster 2: Feedback and Remediation - Device Management						**1 Day**
Cluster 3: Internet of Things Infrastructure						
ELO 3: Interpret and apply operational requirements to accurately collect large amounts of unstructured data according to the requirements of the context, aggregate and disseminate data, and store data in cloud infrastructure or intermittent local storage data base in terms of the IoT solution.	Knowledge Module	251201003-KM-03	Building Blocks of Internet of Things	4	8	4 Days (Month 4)
	Practical Module	251201003-PM-03	Implement the Internet of Things Solution Infrastructure and Deploy Edge Devices	4	10	5 Days (Month 5)
Cluster 3: Feedback and Remediation - Internet of Things Infrastracture						**1 Day**
Workplace _Logbook Submission		**251201003-WM-01**	**Internet of Things Solution Deployment Processes**	**4**	**15**	**Month 6**
Cluster 4: Internet of Things Processes						
ELO 2: Apply methods and procedures to maintain seamless connectivity and security of things in an IoT ecosystem throughout the entire lifecycle.	Knowledge Module	251201003-KM-04	Internet of Things Design and Development Considerations	4	8	4 Days (Month 6)
	Practical Module	251201003-PM-05	Process and Manage Data in an Internet of Things Solution	4	8	4 Days (Month 6)
Cluster 4: Feedback and Remediation - Internet of Things Processes						**1 Day**

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Exit Level Outcome	Type	Module Numbers	Clusters	NQF	Credit	Training Session Dates
Qualification Induction						
Cluster 5: Data Visualisation						
ELO 3: Interpret and apply operational requirements to accurately collect large amounts of unstructured data according to the requirements of the context, aggregate and disseminate data, and store data in cloud infrastructure or intermittent local storage data base in terms of the IoT solution.	Knowledge Module	251201003-KM-05	Data, Databases and Visualisation	4	4	4 Days (Month 7)
	Practical Module	251201003-PM-02	Access, Analyse and Visualise Structured Data using Spreadsheets	4	4	
Cluster 5: Feedback and Remediation - Data Visualisation						**1 Day**
Workplace _Logbook Submission		**251201003-WM-02**	**Data Collecting, Aggregating, Disseminating And Storing Processes**	**4**	**15**	**Month 8**
Cluster 6: Internet of Things Solutions						
ELO 4: Apply application programming interfaces (API) to integrate data with the existing systems for effective data usage.	Knowledge Module	251201003-KM-06	4IR and Future Skills	4	4	5 Days (Month 8)
	Practical Module	251201003-PM-06	Monitor, Troubleshoot and Optimise Internet of Things Solutions	4	8	
Cluster 6: Feedback and Remediation - Internet of Things Solutions						**1 Day**
Cluster 7: Innovation Processes						
ELO 2: Apply methods and procedures to maintain seamless connectivity and security of things in an IoT ecosystem throughout the entire lifecycle.	Knowledge Module	251201003-KM-07	Design Thinking Principles for Innovation	4	1	2 Days (Month 9)
	Practical Module	251201003-PM-08	Participate in a Design Thinking for Innovation Workshop	4	3	
Cluster 7: Feedback and Remediation - Innovation Processes						**1 Day**

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Exit Level Outcome	Type	Module Numbers	Clusters	NQF	Credit	Training Session Dates
Qualification Induction						
Cluster 8: Compliance Principles						
ELO 4: Apply application programming interfaces (API) to integrate data with the existing systems for effective data usage.	Knowledge Module	251201003-KM-08	Basic electronic principles	3	4	3 Days (Month 10)
	Practical Module	251201003-PM-09	Function Ethically and Effectively in the Workplace	4	3	
		251201003-PM-07	Implement Security Measures for Internet of Things Solution	4	10	5 Days (Month 11)
Cluster 8: Feedback and Remediation - Compliance Principles						**1 Day**
Workplace _Logbook Submission		**251201003-WM-03**	**Data Integration Systems and Processes**	**4**	**12**	**Month 12**

FINAL REMEDIATION	1 Day (Month 12)	
MOCK EXAM	1 Day (Month 12)	
EXTERNAL INTEGRATED SUMMATIVE ASSESSMENT (EISA)	1 Day	
PREPARATION FOR EISA RE-WRITE	1 Day	
EXTERNAL INTEGRATED SUMMATIVE ASSESSMENT (EISA) - SECOND ATTEMPT	1 Day	