EMPOWERED

# Executive Summary

| | |
|---|---|
| **Qualification** | Occupational Certificate: Data Science Practitioner |
| **Purpose** | The purpose of this qualification is to prepare a learner to operate as a Data Science Practitioner. Data Science Practitioners take custody of data and make it available in a structured format for Data Scientists to use. They support the data life cycle by collecting, transforming, and analysing data in response to identified business problems. They transform data into robust, comprehensive data sets, aligned with the problem identified in the statement of work and ready for storage. |
| **Qualification ID** | 118708 |
| **NQF Level** | 5 |
| **Minimum Credits** | 185 |
| **Duration** | One year |
| **Field** | Physical, Mathematical, Computer, and Life Sciences |
| **Subfield** | Information Technology and Computer Sciences |
| **Quality Partner** | MICT SETA |
| **Entry Requirements** | NQF Level 4 qualification with Mathematics |

**Head Office**
3rd Floor, South Wing
20 Skeen Boulevard
Bedfordview

**Centre of Leadership Excellence**
3rd Floor, North Wing
20 Skeen Boulevard
Bedfordview

**Telephone**
+27 11 856 4700

**Website**
www.klmempowered.com

**Contacts**
Lyn Mansour: +27 82 330 5160
Portia Matuludi: +27 67 421 0051
Clayton Lendrum: +27 66 478 2706

## Qualification Overview

Data science is an inter-disciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from many structured and unstructured data. There is an exponential demand for data analysts, engineers, architects, and practitioners in response to the proliferation of complex and voluminous data generated by cloud-businesses and social media networks.

The data science practitioner's duties can include developing strategies for analysing data, preparing data for analysis, exploring, analysing, and visualizing data, building models using programming languages, and deploying models into applications. This qualification covers the collection and transformation of data, solving business-related problems through the analysis of data to uncover patterns and trends, and the preparation and presentation of descriptive analytic reports using programming techniques, mathematics, and statistics.

Qualifying learners will be able to:

- Collect large amounts of structured and unstructured data from primary and secondary sources
- Extract and transform data into a usable format
- Apply data analysis techniques to uncover patterns and trends to solve business-related problems
- Prepare and present descriptive reports using computer programming languages and data visualisation tools

## The KLM Empowered Learning X Perience

**X Cite**
Learners receive a welcome letter and an X Perience Map detailing the flow of their qualification. An orientation session helps them to understand the benefits and career options linked to the qualification.

**X Plore**
For each of the integrated learning blocks, learners explore content on their own before engaging with others. Guided by self-study plans and diagnostic self-assessment, they formulate their own insights to share.

**X Change**
Learners attend facilitator-led sessions, either in class or online, to share their learning and refine their skills in a safe environment. Collaborative activities and peer feedback build learning synergy and allow learners to master specific skills.

**X Tend**
Workplace application assignments allow learners to put their new learning to use on the job. Under the guidance of mentors, and with access to performance and wellness support, learners hone their skills and add value.

**X Cel**
Each learner's progress is measured against assessment criteria through formative and summative assessment. Final examinations and presentations are used to obtain an accurate picture of overall understanding and mastery of the content.

## Qualification Outline

- The Occupational Certificate: Data Science Practitioner is presented over SIX learning blocks – covering both Knowledge Modules (KM) and Practical Modules (PM).
- Workplace Experience Modules are completed throughout the learning journey.
- Formative and summative assessments are conducted at regular intervals to prepare learners for the External Integrated Summative Assessment (EISA).

1

INTRODUCTION TO DATA SCIENCE (19 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| KM-01 | Introduction to Data Science and Data Analysis | 4 | 6 |
| KM-02 | Logical Thinking and Basic Calculations | 4 | 4 |
| PM-01 | Apply logical thinking and Maths | 4 | 3 |
| KM-03 | Computers and Computer Systems | 4 | 4 |
| KM-04 | Computing Theory | 4 | 2 |

2

GATHERING AND PROCESSING DATA (16 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| PM-02 | Apply Code to Use a Software Platform | 4 | 4 |
| PM-06 | Collect and Pre-process Data | 5 | 12 |

3

FUNDAMENTALS OF DATA ANALYSIS (25 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| KM-05 | Basic Statistics for Data Analysis | 4 | 10 |
| KM-06 | Statistics Essentials for Data Analytics | 5 | 4 |
| PM-03 | Use Spreadsheets to Analyse and Visualise Data | 4 | 3 |
| PM-04 | Use a Visual Analytics Platform to Analyse and Visualise Data | 5 | 4 |
| PM-05 | Apply Statistical Tools and Techniques | 5 | 4 |

4

DATA ANALYSIS IN ACTION (28 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| KM-07 | Data Science and Data Analysis | 5 | 12 |
| KM-08 | Data Analysis and Visualisation | 5 | 16 |

5

TREND REPORTING (24 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| PM-07 | Apply Data Analysis Techniques to Uncover Patterns and Trends in Datasets | 5 | 12 |
| PM-08 | Prepare and Present Descriptive Analytic Reports for Decision Making | 5 | 12 |

6

THE DATA SCIENCE PROFESSIONAL (13 credits)

| ID | Title | Level | Credits |
|---|---|---|---|
| KM-10 | Fundamentals of Design Thinking and Innovation | 4 | 4 |
| PM-09 | Participate in a Design Thinking for Innovation Workshop | 5 | 3 |
| KM-09 | Introduction to Governance, Legislation and Ethics | 4 | 3 |
| PM-10 | Collaborate Ethically and Effectively in the Workplace | 5 | 2 |
| KM-11 | 4IR and Future Skills | 4 | 1 |

## Work Experience Modules

The work experience modules give the learner an opportunity to perform the Data Science Practitioner function under authentic working conditions and to develop confidence by working with a mentor. They also expose 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 | Data Collection and Pre-processing | 5 | 16 |
| WM-02 | Statistical Data Analysis | 5 | 16 |
| WM-03 | Data Visualisation and Reporting | 5 | 16 |
| WM-04 | Capstone Project | 5 | 12 |