



External Assessment Specifications Document

| Curriculum Code | Qualification Title | NQF Level | | |
|---------------------------------------|--|-------------------------------|---|---|
| 311102001 | Occupational Certificate: Meteorologist (Meteorological Technician) | 5 |  | |
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Date

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Table of content

| | |
|---|---|
| 1 ASSESSMENT STRATEGY..... | 3 |
| 1.1 Assessment Model..... | 3 |
| 1.2 Qualification Purpose..... | 3 |
| 1.3 Assessment Standards..... | 3 |
| 1.3.1 Assessment Standards for the Qualification..... | 3 |
| 1.3.2 Assessment Standards for Phases..... | 5 |
| 1.3.3 Assessment Standards for Part Qualifications..... | 5 |
| 2 ASSIGNMENTS TO BE EVALUATED EXTERNALLY..... | 5 |
| 3 CRITICAL ASPECTS OF THE INTERNAL ASSESSMENTS TO BE ASSESSED EXTERNALLY..... | 5 |
| 4 CRITERIA FOR THE REGISTRATION OF ASSESSORS..... | 5 |
| 5 FOUNDATIONAL LEARNING..... | 5 |
| 6 ELIGIBILITY REQUIREMENTS FOR THE EXTERNAL ASSESSMENT..... | 6 |
| 6.1 Qualification..... | 6 |
| 6.2 Phase 1..... | 8 |
| 6.3 Part Qualification..... | 8 |

1 ASSESSMENT STRATEGY

1.1 Assessment Model

The external assessment will be conducted through a combination of written and demonstration of practical tasks at a registered assessment facility. The written examination will be concluded by the QCTO registered assessment facility and marked by QCTO registered assessors and will be marked by a registered assessor. The written and practical assessment will be conducted over a maximum period of three working days. During the written and practical assessment, the learner must demonstrate the knowledge and understanding of installation, maintenance and verification of meteorological instrumentation and sensors, gathering, recording coding/ decoding of surface meteorological variables and phenomena as well as gathering and interpretation of upper air meteorological variables. The candidate who attempted this assessment will be given recognition for those tasks in which he/she has been found competent and not be retested in those tasks provided that: The learner is competent in 50% of the knowledge component tested during the assessment, The learner is competent in at least 75% of the practical tasks tested during the assessment, and lastly The recognition will be retained by the candidate for a maximum of 2 attempts or 12 months from the date of successful completion of the assessment, which one comes first.

1.2 Qualification Purpose

The purpose of this qualification is to prepare a learner to operate as an/a Meteorological Technician

An/A Meteorological Technician A meteorological technician installs and inspects weather stations, conducts climate data checking, conducts surface and upper air observations and disseminates data into specific coded forms.

A qualified learner will be able to:

- Install, maintain and verify meteorological instrumentation and electronic sensors
- Gather, record, code and decode surface meteorological variables and phenomena
- Gather and interpret upper air meteorological variables

1.3 Assessment Standards

1.3.1 Assessment Standards for the Qualification

Integrated Assessment Focus Area 1

Install, maintain and verify meteorological instrumentation and electronic sensors to ensure compliance to all regulations (40%)

Associated Assessment Criteria

- Pre-inspection check lists are completed according to South African Weather Service (SAWS) regulations for full inspections of automatic weather stations (AWS).
- Inspection procedures are carried out on all AWS instruments and meteorological instrument camps.
- Post-inspection reports are completed according to the South African Weather Service (SAWS) regulations.
- Errors in meteorological variables are identified using 5-minute AWS data.
- The inspections of climate and rainfall stations are carried out according to the South African Weather Service (SAWS) manual on climate inspections.
- Pre-inspection check lists are completed according to South African Weather Service (SAWS) regulations. Check with SYFRED
- Post-inspection reports are completed according to the South African Weather Service (SAWS) regulations. Check with SYFRED

- The verification of electronic sensors is done by initiating the appropriate forms.
- Areas to establish a new weather camp are identified in order to find a suitable location according to World Meteorological Organisation criteria.
- Authorisation to open a new weather station is obtained according to the South African Weather Service Regulations.
- Weather station files are created according to the South African Weather Service (SAWS) regulations.
- Analyse climate and rainfall data for quality assurance.
- Basic statistical techniques are applied to the different climate and rainfall variables.
- Climatological ranges are explained for all the basic climate and rainfall variables.
- Quality assurance techniques are applied according to the various climate and rainfall variables.

Integrated Assessment Focus Area 2

Gather, record, code and decode surface meteorological variables and phenomena for optimum communication to clients (40%)

Associated Assessment Criteria

- Meteorological variables are read and recorded within ten minutes according to South African Weather Service Regulations
- Non-instrumented meteorological variables are observed and recorded in order to complete World Meteorological Organisation and/or International Civil Aviation Organisation meteorological messages.
- Faulty readings of instrumented and non-instrumented meteorological variables are identified and rectified in order to record accurate data.
- Meteorological variables are manually coded into the synoptic land code format within the standard time of 5 minutes.
- All synoptic messages are decoded according to South African regional regulations.
- Faulty synoptic messages are identified in order to rectify or discard data.
- Meteorological aviation variables are coded into a routine meteorological aviation report (METAR) within the standard time of 5 minutes.
- Observed meteorological aviation variables are determined as to whether they fall within the selected special aviation report (SPECI) criteria.
- METAR and SPECI reports are decoded in accordance with International Civil Aviation Organisation regulations (ICAO).
- Faulty METAR and SPECI reports are identified in order to rectify data.

Integrated Assessment Focus Area 3

Gather and interpret upper air meteorological variables for dissemination to meteorological clients and assist in surface observations. (20%)

Associated Assessment Criteria

- Temperature and humidity spikes are identified on an aerological diagram in order to rectify or discard data.
- Interpret coded upper air messages to determine specific parameters.

- An aerological diagram is interpreted in order to explain the vertical characteristics of the atmosphere.

1.3.2 Assessment Standards for Phases

None

1.3.3 Assessment Standards for Part Qualifications

Part Qualification 1: Aviation Meteorological Observer

Integrated Assessment Focus Area 1: Code and decode aviation based weather according to International Civil Aviation Organization (ICAO) formats and WMO competency requirements.

Associated Assessment Criteria

Meteorological aviation variables are coded into a routine meteorological aviation report (METAR) within the standard time of 5 minutes.

Observed meteorological aviation variables are determined as to whether they fall within the selected special aviation report (SPECI) criteria.

METAR and SPECI reports are decoded in accordance with International Civil Aviation Organisation regulations (ICAO).

Faulty METAR and SPECI reports are identified in order to rectify data.

2 ASSIGNMENTS TO BE EVALUATED EXTERNALLY

No assignments must be produced for external evaluation

3 CRITICAL ASPECTS OF THE INTERNAL ASSESSMENTS TO BE ASSESSED EXTERNALLY

- No internal assessments to be re-assessed during external assessment

4 CRITERIA FOR THE REGISTRATION OF ASSESSORS

- Qualified as a meteorologist with at least 3 years observational experience.
- Have successfully completed a recognised assessor training course
- Have experience in assessments of Meteorological Technicians

5 FOUNDATIONAL LEARNING

The Foundational Learning Competence (FLC) is not a pre-requisite for final assessment.

6 ELIGIBILITY REQUIREMENTS FOR THE EXTERNAL ASSESSMENT

In order to qualify for the external summative assessment learners must have a copy of a completed and signed Statement of Work Experience as well as proof of successful completion of the following subjects and modules or alternative programmes where applicable.

6.1 Qualification

| <i>Proof of Knowledge Modules</i> | | | | <i>OR</i> | <i>Proof of Alternative Programmes</i> | | | |
|-----------------------------------|--|------------------|----------------|-----------|--|--------------|------------------|----------------|
| <i>Number</i> | <i>Title</i> | <i>NQF Level</i> | <i>Credits</i> | | <i>Number</i> | <i>Title</i> | <i>NQF Level</i> | <i>Credits</i> |
| 311102001-KM-01 | Basic meteorological concepts | 5 | 7 | | | | | |
| 311102001-KM-02 | Basic meteorological circulation | 5 | 10 | | | | | |
| 311102001-KM-03 | Cloud formation and associated precipitation types | 5 | 15 | | | | | |
| 311102001-KM-04 | Climate theory | 5 | 10 | | | | | |
| 311102001-KM-05 | Meteorological variables | 5 | 10 | | | | | |

| <i>Proof of Practical Skill Modules</i> | | | | <i>OR</i> | <i>Proof of Alternative Programmes</i> | | | |
|---|---|------------------|----------------|-----------|--|--------------|------------------|----------------|
| <i>Number</i> | <i>Title</i> | <i>NQF Level</i> | <i>Credits</i> | | <i>Number</i> | <i>Title</i> | <i>NQF Level</i> | <i>Credits</i> |
| 311102001-PM-01 | Identify and Install Meteorological instrumentation and AWS and use meteorological data according to World Meteorological | 5 | 10 | | | | | |

| | | | | | | | | |
|-----------------|--|---|---|--|--|--|--|--|
| | Organisation specifications | | | | | | | |
| 311102001-PM-02 | Maintain all meteorological instrumentation and electronic components | 5 | 6 | | | | | |
| 311102001-PM-03 | Verify all meteorological instrumentation and electronic components | 5 | 7 | | | | | |
| 311102001-PM-04 | Initialise and use all upper air instrumentation | 5 | 2 | | | | | |
| 311102001-PM-05 | Generate data according to upper air instrumentation | 5 | 3 | | | | | |
| 311102001-PM-06 | Decode and interpret upper air data | 5 | 4 | | | | | |
| 311102001-PM-07 | Record surface meteorological variables according to international regulations | 5 | 5 | | | | | |
| 311102001-PM-08 | Code and decode synoptic land and ship messages according to World Meteorological Organization (WMO) formats | 5 | 7 | | | | | |
| 311102001-PM-09 | Code and decode aviation based weather according to International Civil Aviation Organization (ICAO) formats and WMO | 5 | 7 | | | | | |

| | | | | | | | | |
|--|-------------------------|--|--|--|--|--|--|--|
| | competency requirements | | | | | | | |
|--|-------------------------|--|--|--|--|--|--|--|

And

Statement of Work experience

6.2 Phase 1

No Phase Tests applicable

6.3 Part Qualification

Part Qualification 1:

Title:

Aviation Meteorological Observer, NQF Level 5, Credits 50

Purpose:

The purpose of this part qualification is to observe and communicate aviation observations to the aviation industry.

Applicable Modules (Rules of Combination)

Knowledge Modules:

- 311102001-KM-03, Cloud formation and associated precipitation types, NQF Level 5, Credits 15
- 311102001-KM-05, Meteorological variables, NQF Level 5, Credits 10

Total number of credits for Knowledge Modules: 25

Practical Skill Modules:

- 311102001-PM-07, Record surface meteorological variables according to international regulations, NQF Level 5, Credits 5
- 311102001-PM-09, Code and decode aviation based weather according to International Civil Aviation Organization (ICAO) formats and WMO competency requirements, NQF Level 5, Credits 7

Total number of credits for Practical Skill Modules: 12

This qualification also requires the following Work Experience Modules:

- 311102001-WM-02, Processes and procedures for gathering, recording, coding and decoding WMO and ICAO coded surface meteorological messages, NQF Level 5, Credits 12

Total number of credits for Work Experience Modules: 12

Exit Level Outcomes and associated assessment criteria

Exit Level Outcome 1

Set up, operate and maintain a guillotine to cut a variety of products to specifications

Associated Assessment Criteria

- The machine is correctly setup according to job specifications and safety requirements
- The end products conforms to job specifications throughout the cutting process
- Faults have been diagnosed and corrective action has been taken in accordance with standard operating procedures

- Products are despatched to the next process to comply with production flow requirements
- Guillotine is inspected and repaired according to standard operating procedures
- Knife and cutting stick are changed, adjusted and tested according to safe standard operating procedures
- Maintenance is performed and safety devices are checked to determine proper working condition