Quality Council for Trades & Occupations
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QCTO OCCUPATIONAL SKILLS PROGRAMME DOCUMENT

IN LINE WITH THE OQSF POLICY (2021) OCCUPATIONAL QUALIFICATION TYPE (NOMENCLATURE)

	SKILLS PROGRAMMES ID	TITLE (DESCRIPTOR)	NQF LEVEL	CREDITS
SKILLS PROGRAMME	SP-250820	Electrical Network Operations (Medium and High Voltage)	5	52

START DATE	END DATE	LAST DATE FOR ENROLMENT	LAST DATE FOR ACHIEVEMENT
13 Aug 2025	13 Aug 2030	13 Aug 2031	13 Aug 2034

CURRICULUM CODE	900522-000-00-00

PARTNER DETAILS	ORGANISATION NAME	WEBSITE ADDRESS	TELEPHONE NUMBER	LOGO
QUALITY PARTNER - DEVELOPMENT	The Energy & Water Sector Education Training Authority (EWSETA)	www.ewseta.org.za	011 274 4700	EW SETA

Contents

1. SKILLS PROGRAMME DETAILS

1.1 Sub-Framework: Occupational Qualifications Sub-Framework

Occupational Qualifications Sub-Framework

1.2 Type (Nomenclature):

1.2.1 Specify if this is a Qualification/Part-Qualification/Skills Programme

Skills Programme

1.2.2 Type: (Nomenclature) e.g. Advanced Occupational Certificate)

Skills Programme

1.3 Title Descriptor:

Electrical Network Operations (Medium and High Voltage)

1.4 NQF Level:

5

1.5 Credits:

52

1.6 QCTO Curriculum Code:

900522-000-00-00

1.7 Originator/Quality Partner (QP) – Development

1.7.1 Quality Partner (Qualifications Development)

The Energy & Water Sector Education Training Authority (EWSETA)

1.7.2 Quality Partner (Assessment)

N/A

1.8 Replacement

This Skills Programme replaces:

SAQA QUAL/US/LP ID OR QCTO/SETA APPROVAL ID	QUALIFICATION TITLE	Pre-2009 NQF Level	CURRICULUM CODE *(if Occupational)*	NQF LEVEL	MIN. CREDITS
None					

2. RATIONALE

2.1 The need for the Skills Programmes

The need for this Skills Programme resulted from the requirement to provide qualified Electricians, Electrical Line Mechanics, and others with the requisite competencies to conduct switching, isolating, testing and earthing of electrical equipment on an electrical network within this strict regulatory framework. Currently there is a shortage of people with the required knowledge and skills to perform this work safely according to standards. This skills programme addresses this specific need.

2.2 Similar Qualification(s), Part-Qualifications/Skills Programmes

Currently, there are no similar qualifications, part-qualifications or skills programmes specifically focused on the knowledge and skills required for Electrical Network Operations (Medium and High Voltage).

2.3 Benefit to the sector, society and the economy

The introduction of the Electrical Network Operations (Medium and High Voltage) skills programme would bring significant and far-reaching benefits to the energy sector, society, and the broader economy. **For the energy sector**, the programme would ensure a steady pipeline of qualified Network Operators who possess the technical skills to monitor, maintain, and manage electrical networks efficiently. This would have a positive contribution towards the enhancement, reliability and stability of power transmission and distribution systems, reducing downtime, equipment failure, and energy losses—critical for the effective functioning of national infrastructure.

From a societal perspective, improved electrical network operations translate into a more consistent and equitable supply of electricity. This uninterrupted access to energy is essential for quality of life and supports the functioning of vital public services such as healthcare facilities, educational institutions, public transport, and communication systems. In turn, it contributes to social well-being and inclusive development, especially in under-served or rural communities.

Economically, the skills programme would contribute to the strengthening of the foundation for industrial productivity and business continuity by ensuring a dependable energy supply. Reliable electricity is a key enabler of innovation, investment, and technological advancement. By supporting manufacturing, digital industries, and commercial enterprises, the programme directly contributes to increased economic output, job creation, and GDP growth—positioning the country for long-term, sustainable economic development.

2.4 Typical learners

Typical learners are already qualified Electricians or Electrical Line Mechanics or others who have completed electrical qualifications at NQF Level 4 or higher, who are either already employed in this environment or who aspire to start working in this environment.

2.5 Relation to Occupation(s) and/or Profession(s)

2.5.1 Occupation(s) related:

2.5.1.1 Collaboration with relevant stakeholders:

Employers and Employer Associations, Skills Development Providers (Both public and private), Workplace Practitioners, Curriculum/ Assessment Experts

2.5.1.2 List typical occupations in which the qualifying learner will operate (if relevant)

Electrical Network Operator, Substation Operator, and Mini Sub Operator.

2.5.2 Profession(s) related:

2.5.2.1 Collaboration with relevant stakeholders:

N/A

2.5.2.2 List typical professions in which the qualifying learner will operate (if relevant)

N/A

3. PURPOSE

3.1 Benefit the learners:

This skills programme will benefit learners as it will provide them with the required knowledge and skills to conducts switching, isolating, testing and earthing of electrical equipment on an electrical network within the strict regulatory framework and to move to higher levels of authority after completion of the required experience of a duly authorised person.

3.2 What the skills programme intends to achieve:

The purpose of the skills programme is to prepare a learner to operate as an Electrical Network Operator (Medium and High Voltage).

An Electrical Network Operator (Medium and High Voltage) conducts switching, isolating, testing and earthing of electrical equipment on an electrical network above 1 kV AC or 1,5 kV DC up to and including 765 kV to control the flow of electrical power through the grid as per NRS 040.

A qualified learner will be able to:

- Monitor and document the performance of electrical network equipment.
- Conduct switching, isolating, testing, and earthing sequentially, as well as maintain and repair electrical network equipment.

3.3 Typical Graduate attributes

A qualified learner will demonstrate the following key attributes: problem solving, decision making, and accountability.

4. ENTRY REQUIREMENTS

NQF Level 4 Electrical Engineering related qualification

Or

Electrical Engineering Trade Certificate.

5. RECOGNITION OF PRIOR LEARNING (RPL)

5.1 RPL for Access to Training/Exemption:

Learners may use the RPL process to gain access to training opportunities for a skills programme if they do not meet the formal, minimum entry requirements for admission. RPL assessment provides an alternative access route into a skills programme.

Such an RPL assessment may be developed, moderated and conducted by the accredited Skills Development Provider which offers that specific skills programme. Such an assessment must ensure that the learner is able to display the equivalent level of competencies required for access, based on the NQF level descriptors.

For exemption from modules through RPL, learners who have gained the stipulated competencies of the modules of a skills programme through any means of formal, informal or non-formal learning and/or work experience, may be awarded credits towards relevant modules, and gaps identified for training, which is then concluded.

5.2 RPL for Access to the Final Integrated Supervised Assessment (FISA):

Learners who have gained the stipulated competencies of the modules of a skills programme through any means of formal, informal or non-formal learning and/or work experience, may be awarded credits towards relevant modules, and gaps identified for training, which is then concluded.

A valid Statement of Results is required for admission to the FISA in which confirmation of achievement is provided that all internal assessment criteria for all modules in the related curriculum document have been achieved.

For a Skills Programme, the accredited Skills Development Provider (SDP) must ensure all modular competency requirements are met prior to the FISA and keep record of such evidence.

Upon successful completion of the FISA, RPL learners will be issued with the QCTO certificate for the skills programme. Quality Partners are responsible for ensuring the RPL mechanism and process for qualifications and part-qualification is approved by the QCTO.

6. RULES OF COMBINATION

6.1 Components:

KNOWLEDGE/THEORY COMPONENT

MODULE CODE	MODULE TITLE	NQF LEVEL	CREDITS	MODE OF DELIVERY
900522-000-00-KM-01	Health, safety and risk assessment in high voltage areas	5	7	Blended
900522-000-00-KM-02	Standard for supervision of people in electrically hazardous locations	5	3	Blended
900522-000-00-KM-03	Network voltage operating principles	5	13	Blended
900522-000-00-KM-04	Equipotential earthing	5	3	Blended

Total Credits = 26

APPLICATION MODULE(S)

PRACTICAL SKILLS MODULE(S)

State compulsory modules:

MODULE CODE	MODULE TITLE	NQF LEVEL	CREDITS	MODE OF DELIVERY
900522-000-00-PM-01	Monitor and record the performance of electrical network equipment	5	6	Face to face
900522-000-00-PM-02	Prepare reports and make recommendations on actions to be taken	5	4	Face to face
900522-000-00-PM-03	Conduct switching, isolating, testing and earthing	5	13	Face to face
900522-000-00-PM-04	Conduct first line maintenance of electrical network equipment	5	3	Face to face

Total Credits =

26

6.2 Soft Skills Included:

Soft skill(s) is/are included in:

900522-000-00-KM-01, Health, safety and risk assessment in high voltage areas, Level 5, Credits 7

6.3. Foundational Learning:

N/A

7. EXIT LEVEL OUTCOMES (ELO) AND ASSOCIATED ASSESSMENT CRITERIA (AAC)

7.1 Exit Level Outcomes (ELO) 1:

Apply understanding of electrical network principles in monitoring the performance of electrical network equipment and recording of readings.

Associated Assessment Criteria (AAC) for ELO 1:

- Transformers, transformer protection systems, and relay settings and flags are inspected, readings correctly recorded, whilst adhering to procedures and safety requirements.
- Oil levels of main tank, tap changer and conservator tank are inspected, readings correctly recorded, whilst adhering to procedures and safety requirements.
- Batteries and battery chargers are inspected, readings correctly recorded, whilst adhering to procedures and safety requirements.

7.2 Exit Level Outcomes (ELO) 2:

Perform sequential operations, maintenance, and repair on electrical network equipment applying industry principles and procedures.

Associated Assessment Criteria (AAC) for ELO 2:

- Safety procedures in terms of prohibitory notice and personal protective clothing (PPC) relevant to the ARC burn rating are correctly applied.
- Performance of switching, isolating, testing and earthing to take equipment out of service are conducted sequentially and in accordance with the instruction sheet.
- Performance of removing earthing, isolating and switching to put equipment back into service are conducted sequentially and in accordance with the instruction sheet.

8. INTEGRATED ASSESSMENT

8.1 Formative Assessments conducted internally

Formative assessments are conducted throughout the training of learners. A range of formal, non-formal, and informal ongoing assessment activities are used to focus on teaching and learning outcomes to improve learner attainment.

Formative assessments are conducted continuously by the facilitator to feed into further learning, to identify strengths and weakness, and to ensure the learner's ability to apply knowledge, skills and workplace experience gained.

Formative Assessments are conducted by the accredited Skills Development Provider (SDP), and a variety of ongoing assessment methods may be used, for example, quizzes, assignments, tests, scenarios, role play, interviews. Continuous feedback must be provided.

8.2 Integrated Summative Assessments conducted Internally

Integrated Assessment involves all the different types of assessment tasks required for a particular occupational skills programme, such as written assessment of theory and practical demonstration of competence. To achieve this, the Internal Assessment Criteria (IAC) for all modules as found in the QCTO curriculum document must be followed.

An accredited SDP should implement a well-designed, formal, relevant, final internal Summative Assessment strategy for all modules to prepare learners for the FISA. These assessments evaluate learning achievements relating to the achievement of each module of the relevant components of the skills programme.

Internal Summative Assessments are developed, moderated and conducted by the SDP at the end of each module or after integration of relevant modules, e.g. applied knowledge tests, workplace tasks, practical demonstrations, simulated tasks/demonstrations, projects, case studies, etc.

8.3 De-centralised Final Integrated Supervised Assessment (FISA) for Skills Programmes

The FISA is de-centralised and the assessment standards set by the QCTO must be implemented by the accredited SDP in the development, moderation and implementation of all FISA for Skills Programmes.

The accredited SDP manages and conducts the FISA and submits learner results for QCTO approval for certification, according to QCTO required compliance standards.

For entrance into the FISA, the learner must have completed the Skills Programme successfully and be found competent in all modules, recorded internally by the SDP.

Continuous Assessment

The SDP must ensure that all learners are enrolled with the QCTO at the start of training (within 5 days) in the format required by the QCTO.

Continuous assessments are set by the SDP in accordance with the outcomes provided.

This may consist of a variety of methods, e.g. practical or written assessments, assignments, projects, demonstrations, presentations or any other form of assessment to assist the learner in the learning process.

During training, it is mandatory for formal summative assessments to take place at the end of each module/topic. These results must be formally recorded and be available for monitoring and/or evaluation by the QCTO.

Final Integrated Supervised Assessment (FISA)

All learners gain entrance to the Final Integrated Supervised Assessment by successfully completing all formal summative assessments conducted by the SDP.

Format of FISA: A **practical** assessment integrating the relevant Exit Level outcomes, with simultaneous verbal assessment of embedded knowledge by the assessor before, during or after the FISA.

All FISAs must be supervised, and virtual FISAs must be recorded throughout the assessment.

All Exit Level Outcomes must be covered in the FISA. In the FISA, the learner must demonstrate applied knowledge and skills to prove that the competencies of the Skills Programme have been achieved.

The FISA may not contain any assessments used in the "Continuous Assessment" process (thus no re-assessment).

Special considerations should be made for candidates with special learning needs.

Standards for Final Integrated Supervised Assessment (FISA):

The learner should be provided with a brief/job card/task to demonstrate what the learner should show, know or produce in a product, relevant to the Exit Level Outcomes and the purpose of the Skills Programme. This is the section where the learner must show applied competency (what the learner must be able to do, and to what expected standard)

The FISA INSTRUMENT (brief/task [similar to a job card]) must be developed and moderated by the SDP and conducted in a supervised environment. It is assessed by means of an **INSTRUMENT** and a **RUBRIC** developed by the SDP for this purpose:

A candidate must prove that he/she can work competently as An Electrical Network Operations (Medium and High) in terms of each of the Exit Level Outcomes by demonstrating competencies in the following standards:

1. Inspect Electrical Network Equipment and Record Readings

- Apply proper Personal Protective Equipment and safety practices throughout the inspection.
- Inspect transformers, relay protection systems, and record readings in accordance with safety and procedural standards.

- Measure and document oil levels of the main tank, tap changer, and conservator tank.
- Inspect battery banks and chargers, verify charging conditions, and record results.
- Use data logbooks or digital systems to record findings with accuracy.

2. Perform Sequential Operations for Maintenance and Repair

- Wear Personal Protective Equipment rated for ARC burns before initiating any switching or isolating task.
- Execute switching, isolating, testing, and earthing processes to take equipment safely out of service, using instruction sheets.
- Use lockout/tagout systems, warning notices, and grounding devices throughout the maintenance and repair.
- Carry out the reversal procedure (removing earths, re-energizing equipment) in correct sequence and verify completion.
- Document each step using operational checklists or job cards for compliance tracking.
- Respond to simulated faults and perform shutdown and startup safely.

Please take note of the following:

a. Candidates must be provided with clear guidelines and instructions on how to complete the assessment tasks/job, including the assessment criteria and expected outcomes.

b. The duration of the assessment is 4 hours 30 mins.

c. No FISA instrument is allowed to be used verbatim for re-assessment or for a different cohort of learners.

NOTE: Should a learner be found to be competent in all of the above areas, they should be declared “Competent”. If not yet competent in any of the above areas, they should be declared “NYC”, re-trained and then be reassessed with different applicable tasks/scenarios.

Whilst conducting the above practical, strategic, well-timed questions should be asked of the learner to assess embedded knowledge gained during the skills programme, as well as critical thinking and problem-solving skills: for e.g.

- *"Why.....?”*
- *"What would happen if …?”*
- *"When ….. is done, what would the result be?”*
- *"How would you deal with …..?”*
- *Etc.*

The marking rubric/compliance checklist used to assess these competencies must include a section for the assessor/facilitator used in this session to make a note of competencies shown,

(or not shown), as well as the questions that were asked, and a summary of the learner's answers, and state whether these are of the acceptable standard or not.

The marking rubric/compliance checklist compiled should contain specific areas marked with an asterisk (*) as compulsory sections in order for the learner to be declared C (Competent). Compulsory sections are when the safety of the candidate or others would be affected if incorrectly completed.

Learners who complete this skills programme will accumulate credits towards the relevant full or part qualification. The Credit Accumulation and Transfer (CAT) Policy may apply to these learners.

Submission of final results

Final results must be submitted to the QCTO in the required format, within 21 days of the date of the FISA, together with the following:

- Completed QA Verification Report on the FISA (QCTO template: relevant sections).
- A copy of the final Assessment Instrument used, as well as the marking guideline / rubric.
- Learner Enrolment Spreadsheet (completed from column A - AN according to the QCTO Data load Specification Document)

9. ARTICULATION

9.1 Articulation for Skills programmes

(a) Work Opportunities*:*

Electrical Network Operator, Substation Operator, and Mini Sub Operator

(b) Learning Opportunities:

Subject to satisfying their entry requirements, learners may enroll in other related skills programmes and or qualifications within the electrical engineering and related occupations.

10. NOTES

10.1 Additional Legal or Physical Entry Requirements

Must be visually and physically able.

10.2 Criteria for Accreditation

Accreditation requirements, against which Skills Development Providers (SDP) and Assessment Centres, will be accredited, is found in the Curriculum Document, as listed below.

Curriculum Code:

900522-000-00-00

10.3 Encompassed Trades (where applicable)

This is not a trade qualification.

12. ASSOCIATED QUALIFICATION(S)/PART-QUALIFICATION(S):

SAQA QUAL ID	QUALIFICATION TYPE	QUALIFICATION DESCRIPTOR	NQF LEVEL	CREDITS
…	N/A			