SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION:

Occupational Certificate: Electrician

SAQA QUAL ID	QUALIFICATION TITLE			
91761	Occupational Certificate: Electrician			
ORIGINATOR				
Development Quality Partner - LG SETA				
PRIMARY OR DELEGATED QUALITY ASSURANCE FUNCTIONARY			**NQF SUB-FRAMEWORK**	
QCTO - Quality Council for Trades and Occupations			OQSF - Occupational Qualifications Sub-framework	
QUALIFICATION TYPE	**FIELD**		**SUBFIELD**	
Occupational Certificate	Field 12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	**MINIMUM CREDITS**	**PRE-2009 NQF LEVEL**	**NQF LEVEL**	**QUAL CLASS**
Undefined	360	Not Applicable	NQF Level 04	Regular-ELOAC
REGISTRATION STATUS		**SAQA DECISION NUMBER**	**REGISTRATION START DATE**	**REGISTRATION END DATE**
Reregistered		EXCO 0425/24	2018-07-01	2025-12-30
LAST DATE FOR ENROLMENT		**LAST DATE FOR ACHIEVEMENT**		
2026-12-30		2029-12-30		

In all of the tables in this document, both the pre-2009 NQF Level and the NQF Level is shown. In the text (purpose statements, qualification rules, etc), any references to NQF Levels are to the pre-2009 levels unless specifically stated otherwise.

This qualification replaces:

Qual ID	Qualification Title	Pre-2009 NQF Level	NQF Level	Min Credits	Replacement Status
63889	Further Education and Training Certificate: Electrical Engineering	Level 4	NQF Level 04	130	Complete
72072	Further Education and Training Certificate: Electrical Engineering: Chemical	Level 4	NQF Level 04	130	Complete
72070	Further Education and Training Certificate: Electrical Engineering: Electrical Construction	Level 4	NQF Level 04	130	Complete
23625	National Certificate: Electrical	Level 4	Level TBA: Pre-2009 was L4	301	Complete
20420	National Certificate: Electrical Engineering	Level 4	NQF Level 04	120	Complete
20418	National Certificate: Electrical Engineering	Level 2	NQF Level 02	120	Complete
48474	National Certificate: Electrical Engineering	Level 4	Level TBA: Pre-2009 was L4	134	Complete
48473	National Certificate: Electrical Engineering	Level 2	NQF Level 02	143	Complete
63790	National Certificate: Electrical Engineering	Level 3	NQF Level 03	133	Complete
48475	National Certificate: Electrical Engineering	Level 3	NQF Level 03	127	Complete
20419	National Certificate: Electrical Engineering	Level 3	NQF Level 03	120	Complete
63789	National Certificate: Electrical Engineering	Level 2	NQF Level 02	140	Complete
72074	National Certificate: Electrical Engineering: Chemical	Level 3	NQF Level 03	133	Complete
67431	National Certificate: Electrical Engineering: Chemical	Level 2	NQF Level 02	140	Complete

72073	National Certificate: Electrical Engineering: Electrical Construction	Level 3	NQF Level 03	133	Complete
67430	National Certificate: Electrical Engineering: Electrical Construction	Level 2	NQF Level 02	140	Complete
72071	National Certificate: Electrical Engineering: Mining	Level 3	NQF Level 03	133	Complete
67429	National Certificate: Electrical Engineering: Mining and Minerals	Level 2	NQF Level 02	140	Complete
72080	National Certificate: Electrical Engineering: Transport	Level 3	NQF Level 03	133	Complete
67434	National Certificate: Electrical Engineering: Transport	Level 2	NQF Level 02	140	Complete

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of this qualification is to prepare a learner to operate as an Electrician.

Electricians plan, prepare install, test, connect, commission, maintain, alter and repair electrical equipment, wiring and control systems and apply the knowledge and skills obtained, in a variety of contexts.

A qualified learner will be able to:

Plan and prepare work site, equipment, tools, consumables and materials for electrical activities and operations.

- Install, wire and connect electrical equipment and control systems.
- Test and inspect electrical equipment, control systems and installations.
- Commission control systems and installations.
- Maintain and repair electrical equipment, control systems and installations.

Rationale:

The Occupational Certificate: Electrician was developed with the full participation of the Metal and Chemical Industries, Mining, Railways, Electrical Contractors Authority, Agricultural Sector, Eskom, South African Navy, Further Education and Training Colleges and Municipalities. The development of this qualification will ensure that the training of Artisan learners will consistently produce Artisans that can fully function within all the sectors mentioned. Once qualified the mobility of Artisans between sectors will significantly be improved.

The entry requirements of the Qualification will allow learners leaving the general schooling system after Grade 9 to gain access to the qualification. Electricians qualified through this qualification will be able to plan, prepare, install, maintain, commission and fault find a range of equipment and systems within a variety of electrical installations in the construction, manufacturing, chemical, energy, mining, municipal, agricultural and railway environments. The

work experience modules were written to reflect all the different contexts that were prevalent in the various sectors and is aimed at producing an individual that is fully competent within the range of this curriculum.

Various specialisation areas where a learner must first be qualified as a electrician were identified within the areas of metering, high voltage and medium voltage (HV and MV), live work, hazardous areas, medium and high voltage cable jointing, switching and protection.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

Entry Requirements:

NQF Level 1 qualification with Mathematics and Science.

Recognition of Prior Learning (RPL):

RPL for access to the external integrated summative assessment: Accredited providers and approved workplaces must apply the internal assessment criteria specified in the related curriculum document to establish and confirm prior learning. Accredited providers and workplaces must confirm prior learning by issuing a statement of result or certifying a work experience record.

RPL for access to the qualification: Accredited providers and approved workplaces may recognise prior learning against the relevant access requirements.

RECOGNISE PREVIOUS LEARNING?

Y

QUALIFICATION RULES

This qualification is made up of the following compulsory Knowledge and Practical Skill Modules:

Knowledge Modules:

- Health, Safety, Quality and Legislation, NQF Level 4, 5 Credits.
- Tools, Equipment and Materials, NQF Level 4, 8 Credits.
- Electricity and Electronics, NQF Level 4, 13 Credits.
- Industry Context, NQF Level 3, 2 Credits.
- Wireways and Wiring, NQF Level 4, 11 Credits.
- Rotating Electrical Machinery, NQF Level 4, 13 Credits.
- Electrical Supply Systems and Components, NQF Level 4, 31 Credits.
- Low Voltage Protection, NQF Level 4, 5 Credits.
- Fault Finding, NQF Level 4, 3 Credits.

Total number of Credits for Knowledge Modules: 91.

Practical Skill Modules:

- Use hand and power tools, NQF Level 3, Credits 22.
- Plan and prepare the process for the wiring, connection, testing, inspecting, commissioning and maintaining electrical installations and control systems, NQF Level 3, 5 Credits.
- Prepare worksite set up for installing, wiring and connecting electrical equipment and control systems, NQF Level 3, 3 Credits.
- Install wireways, NQF Level 4, 5 Credits.
- Install, wire and connect electrical equipment and control systems, NQF Level 4, Credits 38.
- Conduct pre-commission inspection (power on and off) fault find and test new and existing installations, NQF Level 4, Credits 5.
- Carry out commissioning tests, NQF Level 4, Credits 13.
- Fault find and repair electrical control systems and electrical installations, NQF Level 4, Credits 22.

Total number of Credits for Practical Skill Modules: 113.

This qualification also requires the following Work Experience Modules:

- Planning and preparation process for the wiring, connecting, testing, inspecting, commissioning and maintaining of electrical installations and control systems, NQF Level 4, Credits 8.
- Processes of installation, wiring and connection of electrical equipment and control systems, NQF Level 4, Credits 74.
- Processes of testing and inspecting of electrical equipment, control systems and installations, NQF Level 4, 15 Credits.
- Processes of commissioning electrical installations and control systems, NQF Level 4, 15 Credits.
- Maintenance processes for electrical installations and control systems, NQF Level 4, 44 Credits.

Total number of credits for Work Experience Modules: 156.

EXIT LEVEL OUTCOMES

1. The ability to plan and prepare work site, equipment, tools, consumables and materials for electrical activities and operations.
2. The ability to install, wire and connect electrical equipment and control systems.
3. The ability to test and inspect electrical equipment, control systems and installations.
4. The ability to commission control systems and installations.
5. The ability to maintain and repair electrical equipment, control systems and installations.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

- Risk assessments, including work related hazards and ergonomics, are carried out and reports completed as per statutory requirements.
- Evidence of mitigation is observed in accordance with standard operating procedures.
- Approved work permit or other documentation is completed to reflect risk assessment conducted in accordance with approval procedures.
- The relevant tools, material and equipment are correctly listed and quantities recorded in accordance with the task specification.
- The correct human resources are listed that meet the job specification.
- The work flow/work order is correctly analysed and applied in accordance with the task specification.
- Worksite is prepared in terms of the procurement of resources, preparation and transportation of resources and the preparation equipment, tools, consumables and materials.
- Knowledge and understanding of planning and preparation of work site, equipment, tools, consumables and materials for electrical activities and operations are demonstrated.

Associated Assessment Criteria for Exit Level Outcome 2:

- The correct wire ways are selected in accordance with relevant regulations and codes that meet the operational conditions of the installation.
- The correct installation methods are selected in accordance with relevant regulations and codes, job instruction and environmental requirements.
- Tools, material and equipment are safely and correctly used while adhering to worksite and workshop safety procedures.
- Personal protective equipment are correctly selected and used according to statutory requirements.
- Power tools are selected and used correctly and safely while adhering fully to workplace safety regulations.
- Wireways are installed in accordance with design and layout requirements, termination and joining requirements and bonding requirements.
- Electrical equipment and control systems are installed, wired and connected in accordance with the requirements of identified hazards and the selection and installation method and installation, wiring and termination workshop practices confirmed.
- Knowledge and understanding of installing, wiring and connecting electrical equipment and control systems are demonstrated.

Associated Assessment Criteria for Exit Level Outcome 3:

- Operational procedures are correctly interpreted and applied in accordance with installation specifications.
- Inspection reports that confirms the correctness of the installation are completed and submitted in accordance with the requirements of relevant regulations and codes and relevant workshop practices.
- All terminations and connections are inspected for compliance with relevant regulations and codes.

- The installation's functionality is inspected for compliance with relevant regulations and codes and/or the relevant manufacturer's specifications.
- Work Instructions and testing procedures are correctly interpreted and applied in accordance with workshop practices.
- Test results are correctly interpreted and recorded in accordance with relevant regulations and codes.
- A test report that confirms the correctness of the installation is completed in accordance with relevant regulations and codes and relevant workshop practices.
- Personal protective equipment is selected and correctly used in accordance with the relevant subsection of the OHS Act and the Mines Health and Safety Act.
- The selected equipment is isolated and locked out.
- Knowledge and understanding of testing and inspecting electrical equipment, control systems and installations are demonstrated.

Associated Assessment Criteria for Exit Level Outcome 4:

- Work Instructions and testing procedures are correctly interpreted and applied in commissioning control systems and installations.
- Risks are identified and mitigated in accordance with risk management procedures.
- A test report that confirms the correctness of the installation is completed in accordance with relevant statutory requirements.
- The correct tools and testing equipment including hand tools, multimeters, insulation tester and tong tester are used and isolating and energising processes are followed in commissioning control systems and installations.
- The relevant commissioning tests are completed according to relevant regulations.
- Electrical installation or control system are isolated according to procedures.
- Operating procedures and electrical diagrams are interpreted according to manufacturer's specifications.
- The correct electrical testing and fault finding procedures are applied.
- Defects are rectified as per installation requirements.
- Repairs are recorded and reported as per reporting procedures.
- Measurements and observations are interpreted and captured accurately according to manufacturers specifications.
- All the relevant units/variables are recorded accurately.
- Hand-over documents are completed as per hand-over procedures.
- Knowledge and understanding of commissioning control systems and installations are demonstrated.

Associated Assessment Criteria for Exit Level Outcome 5:

- Correct work instructions are followed and correct documentation including checklists are obtained in accordance with relevant workshop procedures.
- Correct tools and testing instruments are selected and used in the maintenance and repair of electrical equipment, control systems and installations.
- Faultfinding procedures are followed, fault finding techniques are applied and electrical schematics and drawings are interpreted in accordance with policies and procedures.
- Functionality of components are inspected in accordance with manufacturers specifications.

- Faults are correctly identified and causes are interpreted in accordance with fault finding procedures.
- Electrical installation or control system are correctly and safely isolated according to isolating procedures.
- Operating procedures and electrical diagrams are correctly interpreted according to manufacturer's specifications.
- Identified faults are correctly rectified to the original operating status.
- Risks associated with live testing are correctly identified and safety precautions taken.
- The correct electrical testing procedures were applied.
- Re-commissioning tests are done and complied with standard operating procedures.
- Documentation are correctly completed according to recording procedures.
- Causes are correctly interpreted and feedback given within the prescribed time frame.
- Knowledge and understanding of maintaining and repairing electrical equipment, control systems and installations are demonstrated.

Integrated Assessment:

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the Exit Level Outcomes and associated assessment criteria.

The external assessment model requires that the external assessment will be conducted through practical task at an accredited trade test centre. The examination and practical tasks will be concluded at an accredited assessment centre and marked by registered assessors. The trade test will be conducted over a period of two working days.

INTERNATIONAL COMPARABILITY

This International comparability study was undertaken to examine a selected number of electrical trades/occupations, including their levels of qualifications and related curricula. The purpose is to provide baseline information towards benchmarking of the electrical curricula under development for all sectors in South Africa.

The review included 5 countries: Australia, New Zealand, United Kingdom, Canada and South Africa. New Zealand and Australia were considered to be particularly the most appropriate countries with which to compare with South Africa. Amongst the Southern African Development Community (SADC) there are countries which align with the United Kingdom's model of Vocational Education and Training (VET), through the London City and Guilds qualification framework and the National Vocational Qualification system (NVQ). Despite the fact that SADC countries are not as industrialised as the United Kingdom, it could be concluded that countries using the British qualifications compare favourably to similar South African qualifications as discussed under the U.K. section. In all SADC countries researched, none currently have an active training infrastructure in electrical engineering.

Conclusion:

The findings reveal that the South African Occupational Electrical qualification is generally comparable to what is found in the chosen countries. The comparison mainly extends to the qualifications awarded, level of qualification, modes of delivery and, to some extent, the contents of the curricula. South Africa was found to generally have more detailed curricula. The difficulty in

comparing curricula is that units/unit standards are shared between qualifications from levels 2-5 in the reviewed countries thus a direct comparison on the higher levels become skewed.

In the study it become apparent that the qualifications that were inspected in the selected countries were broken down into smaller units pitched between the levels 2-5. In terms of content the South African qualification compared favourably to the other qualifications/programmes.

ARTICULATION OPTIONS

This Occupational Certificate articulates horizontally with other occupations with cross-cutting credits in the Knowledge Specifications.

The learner with this qualification should be able to articulate vertically with Higher Certificates in the Electrical or other related fields at NQF Level 5.

MODERATION OPTIONS

N/A

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Accreditation of providers will be done against the criteria as reflected in the relevant curriculum on the QCTO website.

The curriculum title and code is: Occupational Certificate: Electrician: 671101000.

REREGISTRATION HISTORY

As per the SAQA Board decision/s at that time, this qualification was Reregistered in 2015.

NOTES

This Qualification replaces the following Qualifications:

- 63889, "Further Education and Training Certificate: Electrical Engineering", Level 4, 130 Credits.
- 72052, "Further Education and Training Certificate: Electrical Engineering", Level 4, 130 Credits.
- 72072, "Further Education and Training Certificate: Electrical Engineering: Chemical", Level 4, 130 Credits.
- 72070, "Further Education and Training Certificate: Electrical Engineering: Electrical Construction", Level 4, 130 Credits.
- 23625, "National Certificate: Electrical", Level 4, 301 Credits.
- 20420, "National Certificate: Electrical Engineering", Level 4,120 Credits.
- 73313, "National Certificate: Electrical Engineering", Level 2, 140 Credits.
- 20418, "National Certificate: Electrical Engineering", Level 2, 120 Credits.

- 48474, "National Certificate: Electrical Engineering", Level 4, 134 Credits.
- 48473, "National Certificate: Electrical Engineering", Level 2, 143 Credits.
- 63790, "National Certificate: Electrical Engineering", Level 3, 133 Credits.
- 48475, "National Certificate: Electrical Engineering", Level 3, 127 Credits.
- 20419, "National Certificate: Electrical Engineering", Level 3, 120 Credits.
- 72051, "National Certificate: Electrical Engineering", Level 3, 133 Credits.
- 63789, "National Certificate: Electrical Engineering", Level 2, 140 Credits.
- 72074, "National Certificate: Electrical Engineering: Chemical", Level 3, 133 Credits.
- 67431, "National Certificate: Electrical Engineering: Chemical", Level 2, 140 Credits.
- 72073, "National Certificate: Electrical Engineering: Electrical Construction", Level 3, 133 Credits.
- 67430, "National Certificate: Electrical Engineering: Electrical Construction", Level 2, 140 Credits.
- 72071, "National Certificate: Electrical Engineering: Mining", Level 3, 133 Credits.
- 67429, "National Certificate: Electrical Engineering: Mining and Minerals", Level 2, 140 Credits.
- 72080, "National Certificate: Electrical Engineering: Transport", Level 3, 133 Credits.
- 67434, "National Certificate: Electrical Engineering: Transport", Level 2, 140 Credits.

This qualification covers the following recorded trades:

- ID 60997, Electrician.
- ID 61021, Electrician.
- ID 60995, Electrician.
- ID 61019, Electrician.
- ID 61004, Electrician.
- ID 61015, Electrician.
- ID 60993, Electrician.
- ID 60986, Electrician.
- ID 61013, Electrician.
- ID 60992, Electrician.
- ID 61002, Electrician.
- ID 60991, Electrician.
- ID 61001, Electrician.
- ID 60990, Electrician.
- ID 61007, Electrician (Construction).
- ID 60989, Electrician (Construction).
- ID 60994, Electrician (Construction).
- ID 61005, Electrician (Engineering).
- ID 61006, Electrician (Engineering).

Qualifying for external assessment:

In order to qualify for an external assessment, learners must provide proof of completion of all required modules by means of statements of results and work experience.

Foundational learning:

Foundational learning competence is a pre-requisite for the awarding this qualification.

Part Qualifications:

This qualification does not have any associated part qualifications.

The learner must be age 16 and over.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION:

When qualifications are replaced, some (but not all) of their learning programmes are moved to the replacement qualifications. If a learning programme appears to be missing from here, please check the replaced qualification.

NONE

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS QUALIFICATION:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Primary or Delegated Quality Assurance Functionaries have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Primary or Delegated Quality Assurance Functionary should be notified if a record appears to be missing from here.

1. SAPITI (SOUTH AFRICAN PAINT INDUSTRY TRAINING INSTITUTE)