No. 988 **22 September 2008**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Electrical Engineering and Construction

registered by Organising Field 12, Physical Planning and Construction, publishes the following Qualification and Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification and Unit Standards. The full Qualification and Unit Standards can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification and Unit Standards should reach SAQA at the address below and ***no later 22 October 2008.*** All correspondence should be marked **Standards Setting – Electrical Engineering and Construction** addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
Further Education and Training Certificate: Electrical Engineering

SAQA QUAL ID	*QUALIFICATION TITLE*		
63889	Further Education and Training Certificate: Electrical Engineering		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
Further Ed and Training Cert	12 - Physical Planning and Construction	Electrical Infrastructure Construction	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	130	Level 4	Regular-Unit Stds Based

This qualification replaces:

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
48474	National Certificate: Electrical Engineering	Level 4	134	Will occur as soon as 63889 is registered

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

The purpose of this qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to work effectively within various industries, making use of electrical engineering knowledge and skills to meet the challenges of such an environment.

Qualifying learners will also be able to relate their learning to scientific and technological principles and concepts. They will also be able to maintain and support the various policies and procedures related to the safety, health, environment and quality systems that govern their workplace. This qualification will enable the learner to find employment as a skilled worker to perform Artisan duties in the electrical field.

Qualifying learners at NQF Level 4 will be able to:

> Understand electrical equipment and protection technology and interpret integrated system schematics.
> Install and commission electrical equipment on integrated electrical systems.
> Maintain and repair electrical equipment on integrated electrical systems.
> Evaluate and solve familiar problems pertaining to electrical equipment, integrated electrical systems and related processes.
> Accept responsibility for utilising and maintaining equipment without working under direct supervision.

The FETC Electrical Engineering (NQF Level 4) is the culmination of a learning path spanning three qualifications and is intended to produce a highly competent person who will be able to meet the challenges of a competitive and demanding environment.

Rationale:

This is the third of a three-level qualification series that reflect the workplace-based needs of the electrical field that is expressed by employers and employees, both now and for the future. This electrical engineering qualification provides the advanced competencies required to work on integrated electrical systems and installations. This qualification provides the learner with accessibility to be employed within the electrical engineering field and provides the flexibility to pursue different careers across various industry sectors and articulate within industries such as:

> Manufacturing and Engineering.
> Energy Sector.
> Mining.
> Chemical.
> Transport.
> Other related engineering industry sectors.

This qualification will enhance the status and productivity of the learner as well as contribute to improved quality, production rate and growth within the engineering sector. The range of typical learners at this level could include individuals preparing to qualify as an Electrician. Qualifying learners will obtain a Further Education Certificate in Electrical Engineering which places the learner in a position to investigate requirements for advancement to qualified artisan status or progress to a National Certificate or Diploma at NQF Level 5.

This qualification could assist with the achievement of national government and industrial development policies and strategies to grow a pool of scarce and other related skills in support of sustainable economic growth. People working in the electrical engineering fields require specialized technical skills and knowledge in order to meet the requirements of continually changing environment of the various industries. Through its design, this qualification will meet the needs of learners within the electrical engineering sectors who require technical expertise and essential knowledge needed to earn formal qualifications. This qualification facilitates access for previously disadvantaged groups and other learners to acquire the technical knowledge and skills that are required as well as provide access and mobility into higher-level more specialised occupations. This will allow the learner greater employability and support the development of small, medium enterprises (SME).

RECOGNIZE PREVIOUS LEARNING?
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LEARNING ASSUMED IN PLACE
This qualification assumes learners obtained a National Certificate in Electrical Engineering NQF Level 3 or an equivalent qualification. If the learner does not already have such a qualification, learning in preparation for this qualification would also have to include:

> Language and Maths at NQF Level 3.
> Advanced concepts of Science and Technology related to electrical engineering, materials and tools used in installation processes.
> An ability to install integrated electrical equipment and circuits.
> Occupational health, safety and environmental practices within the electrical environment.
> An understanding of procedures related to workplace relationships, roles and responsibilities.

Recognition of Prior Learning:

This qualification can be obtained wholly or in part through the recognition of prior learning (RPL) The learner should be thoroughly briefed on the process. Support and guidance should be provided. The process should not be so onerous as to prevent learners from taking up the RPL option in obtaining the qualification.

Access to the Qualification:

Access to this qualification is open. However learners must have completed a National Certificate at NQF Level 3 (in trade-related sub-field) or equivalent. The learner must be physically able to perform the outcomes as specified in the unit standards and be able to differentiate between various colours applicable to the industry.

QUALIFICATION RULES
Fundamental Component:

In the Fundamental Component of the qualification, learners must demonstrate their competence in:

> Languages and Communication: 40 credits, 20 of these credits must be at NQF Level 4 and 20 credits may be at NQF Level 3 in a second South African language.
> Mathematical Literacy: 16 credits.

Core Component:

The compulsory unit standards in the Core Component of this qualification reflect the generic competencies required in the field of Electrical Engineering for all industrial environments. The learner must demonstrate competence in the Core Component for the total of 54 credits.

Elective Component:

This component consists of several specialisations each with its own set of unit standards. Learners are to choose a specialisation area and complete a minimum of 20 credits from the unit standards listed under that specialisation area so as to attain a minimum of 130 credits required for certification purposes.

Specialisation Area 1:

Mining:

Unit Standard Title; Level; Credits:

> Carry out work on energized medium voltage networks; Level 4; 16 Credits.
> Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment; Level 4; 6 Credits.
> Inspect, test and maintain high voltage isolators; Level 4; 12 Credits.
> Inspect, test and maintain Medium/High Voltage earthing systems; Level 4; 4 Credits.
> Inspect, test and maintain Medium/High Voltage transformers; Level 4; 6 Credits.
> Install/replace medium/high voltage equipment and hardware; Level 4; 6 Credits.
> Install and commission direct current (DC) machines; Level 4; 8 Credits.
> Install and terminate Medium Voltage cables; Level 4; 6 Credits.
> Joint Medium Voltage cables; Level 4; 8 Credits.
> Maintain Direct Current (DC) machines; Level 4; 5 Credits.
> Maintain low voltage switchgear; Level 4; 4 Credits.
> Operate on Medium Voltage networks; Level 4; 20 Credits.
> Troubleshoot on programmable logic controllers; Level 4; 5 Credits.
> Maintain unit protection devices on transformers; Level 4; 6 Credits.
> Advance or retreat electrical reticulation in an underground coal section; Level 3; 6 Credits.
> Control electrical networks from a control centre; Level 4; 14 Credits.
> Fault-find and repair a DC powered machine; Level 4; 6 Credits.
> Fault-find and repair the electrical system of winder installations; Level 4; 4 Credits.

> Fault find and repair the electrical system of a conveyor installation; Level 4; 5 Credits.
> Fault find and repair the electrical system of a surface mining production machine; Level 4; 4 Credits.
> Fault find a medium voltage reticulation system; Level 4; 4 Credits.
> Maintain and repair Medium Voltage Switchgear; Level 4; 7 Credits.
> Construct, maintain and dismantle HV overhead lines; Level 4; 20 Credits.

Specialisation Area 2:

Electrical Construction:

Unit Standard Title; Level; Credits:

> Complete certificate of compliance for a single phase domestic installation; Level 4; 5 Credits.
> Maintain low voltage switchgear; Level 4; 4 Credits.
> Troubleshoot on programmable logic controllers; Level 4; 5 Credits.
> Select a back-up generator for a stand-alone renewable energy system; Level 4; 4 Credits.
> Design a solar pump system; Level 4; 4 Credits.
> Apply the principles of energy efficiency; Level 4; 4 Credits.

Specialisation Area 3:

Chemical:

Unit Standard Title; Level; Credits:

> Complete certificate of compliance for a single phase domestic installation; Level 4; 5 Credits.
> Maintain Direct Current (DC) machines; Level 4; 5 Credits.
> Maintain low voltage switchgear; Level 4; 4 Credits.
> Maintain unit protection devices on transformers; Level 4; 6 Credits.
> Fault-find and repair a DC powered machine; Level 4; 6 Credits.
> Install electronic motor speed control units; Level 4; 5 Credits.

Specialisation Area 4:

Electrical Distribution:

Unit Standard Title; Level; Credits:

> Carry out work on energized medium voltage networks; Level 4; 16 Credits.
> Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment; Level 4; 6 Credits.
> Inspect, test and maintain high voltage isolators; Level 4; 12 Credits.
> Inspect, test and maintain Medium/High Voltage earthing systems; Level 4; 4 Credits.
> Inspect, test and maintain Medium/High Voltage transformers; Level 4; 6 Credits.
> Install/replace medium/high voltage equipment and hardware; Level 4; 6 Credits.
> Install and terminate Medium Voltage cables; Level 4; 6 Credits.
> Joint Medium Voltage cables; Level 4; 8 Credits.
> Maintain unit protection devices on transformers; Level 4; 6 Credits.
> Operate on Medium Voltage networks; Level 4; 20 Credits.
> Spray-wash energized medium / high voltage networks; Level 4; 4 Credits.
> Fault find a medium voltage reticulation system; Level 4; 4 Credits.
> Maintain and repair Medium Voltage Switchgear; Level 4; 7 Credits.
> Apply the principles of energy efficiency; Level 4; 4 Credits.
> Construct, maintain and dismantle HV overhead lines; Level 4; 20 Credits.

Specialisation Area 5:

Electrical Generation:

Unit Standard Title; Level; Credits:

> Inspect, test and maintain high voltage isolators; Level 4; 12 Credits.
> Inspect, test and maintain Medium/High Voltage transformers; Level 4; 6 Credits.
> Install and commission direct current (DC) machines; Level 4; 8 Credits.
> Install and terminate Medium Voltage cables; Level 4; 6 Credits.
> Joint Medium Voltage cables; Level 4; 8 Credits.
> Maintain Direct Current (DC) machines; Level 4; 5 Credits.
> Maintain low voltage switchgear; Level 4; 4 Credits.
> Maintain unit protection devices on transformers; Level 4; 6 Credits.
> Troubleshoot on programmable logic controllers; Level 4; 5 Credits.
> Fault find and repair the electrical system of a conveyor installation; Level 4; 5 Credits.
> Maintain and repair Medium Voltage Switchgear; Level 4; 7 Credits.
> Apply the principles of energy efficiency; Level 4; 4 Credits.

Specialisation Area 6:

Transport:

Unit Standard Title; Level; Credits:

> Control electrical networks from a control centre; Level 4; 14 Credits.
> Inspect, test and maintain 3-kV DC high-speed circuit breaker(HSCB) in traction sub-stations; Level 4; 8 Credits.
> Inspect, test and maintain 3-kV DC rectifiers and associated equipment in traction sub-stations; Level 4; 8 Credits.
> Inspect, test and maintain 3-kV DC busbar chamber and associated equipment in traction sub-stations; Level 4; 8 Credits.
> Inspect, test and maintain earthing and negative return systems on 3-kV DC traction substations; Level 3; 7 Credits.
> Inspect, test and maintain 3-kV DC regeneration equipment in traction sub-stations; Level 5; 8 Credits.
> Fault find and repair a stand-alone battery charging wind turbine; Level 4; 5 Credits.
> Inspect, maintain, repair and do faultfinding on Medium/High Voltage networks; Level 4; 8 Credits.
> Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment; Level 4; 6 Credits.
> Install and terminate Medium Voltage cables; Level 4; 6 Credits.
> Joint Medium Voltage cables; Level 4; 8 Credits.
> Maintain low voltage switchgear; Level 4; 4 Credits.
> Maintain unit protection devices on transformers; Level 4; 6 Credits.
> Troubleshoot on programmable logic controllers; Level 4; 5 Credits.

EXIT LEVEL OUTCOMES

1. Install and commission electrical equipment in integrated systems.

2. Demonstrate the ability to test, fault find, maintain and repair electrical equipment and installations in integrated systems.

3. Demonstrate operational knowledge of mathematical, technological and theoretical concepts during the execution of tasks with an ability to read, interpret technical drawings, sketch electrical/electronic wiring diagrams applicable to integrated systems.

4. Demonstrate the ability to gather and interpret information from a range of sources and apply solutions to familiar problems related to working in the electrical engineering field with some scope for personal decision-making and responsibility.

Critical Cross-Field Outcomes:

These are embedded in the unit standards, which make up the qualification and are thus also reflected in the Exit Level Outcomes of the qualification.

The critical cross-field outcomes are supported by the exit level outcomes as follows:

Identifying and solving problems in which responses display that responsible decisions using critical thinking have been made:

Solving problems related to the installation and maintenance of electrical machinery, components and circuits.

Working effectively with others as a member of a team, group, organization and community:

> All tasks and work-related experience are performed within a team environment.
> Taking into account, the safety of others.
> Communicating with production, quality control and supervisory personnel and/or clients.

Organising and managing oneself and one's activities responsibly and effectively:

> Related to planning and preparation for installation and maintenance activities.
> Developing best practice behaviour in work performance and adhering to standard operating procedures.
> Focussing on housekeeping, safe practices and care and storage of tools and equipment.

Collecting, analyzing, organizing and critically evaluating information:

> Completion of technical reports related to the job activity.
> Interpret findings to solve familiar problems during the execution of electrical tasks.

Communicating effectively using visual, mathematical and/or language skills:

> Execution of commands and completion of technical reports related to the job activity.
> Communicating as a part of a team.

Using science and technology effectively and critically, showing responsibility toward the environment and health of others:

> Application of science and technology during the installation and maintenance of electrical machinery, components and circuits.
> Relating to the safety of others and paying attention to environmental issues.
> Solving problems and applying science and technology to the job activity.

Demonstrate an understanding of the world as a set of related systems by recognizing that problem contexts do not exist in isolation:

> Integrating the task with the functionality of electrical installations.
> Solving problems through the integration of various sources of information.
> Demonstrating and understanding of related systems through the use of general and specific channels of communication when dealing with peers, production, quality control and supervisory personnel and/or clients.

ASSOCIATED ASSESSMENT CRITERIA
Associated Assessment Criteria for Exit-Level-Outcome 1:

1.1 Skills and ability to install and commission integrated systems are demonstrated according to work instructions and manufacturers' operational specifications.
1.2 Cables and conductors are installed, joined, terminated and tested for integrated systems.
1.3 Components and equipment are joined in integrated systems.

Associated Assessment Criteria for Exit-Level-Outcome 2:

2.1 Integrated systems are isolated and made secure.
2.2 Solutions to problems are demonstrated during the fault finding, testing and commissioning processes and are based on a clear analysis of information gathered through the use of diagnostic procedures.
2.3 Skills and ability to test, overhaul and commission integrated systems are demonstrated according to work instructions and manufacturers' operational specifications.

Associated Assessment Criteria for Exit-Level-Outcome 3:

3.1 Advanced principles of electricity are applied.
3.2 Integrated system, electrical drawings and diagrams are read and interpreted.
3.3 Understanding of the principle and operation of electrical components utilised in integrated systems is demonstrated.

Associated Assessment Criteria for Exit-Level-Outcome 4:

4.1 Own work is planned and scheduled in terms of productivity, safety, health and the environment.
4.2 A variety of common problems, both familiar and unfamiliar are solved by applying knowledge of advanced electrical theory and practice.
4.3 Responsibility for own actions is demonstrated within sphere of operation.
4.4 Effective interaction and communication is conducted with clients, colleagues and management.
4.5 Knowledge of and application of statutory requirements is demonstrated as they relate to integrated systems.

Integrated Assessment:

Integrated assessment during the implementation of this qualification provides an opportunity for learners to show that they are able to integrate knowledge, skills and values integral to a range of unit standards and practical contexts. Some assessment aspects will demand practical demonstration.

Assessors will be required to collect evidence of the learner's competence by:

> Observing the learner at work (both in primary activities, as well as other interactions) or by relevant simulations.
> Asking questions and initiating formative discussions to assess understanding.
> Evaluating records and reports.

Learners may choose in which language they want to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach.

INTERNATIONAL COMPARABILITY

This qualification forms part of a progression across the three levels of the Further Education and Training band. The international comparability section for the field of Electrical Engineering applies to Levels 2, 3 and 4 of the qualification series.

The qualification series was compared to similar outcomes-based qualifications in New Zealand, Australia, United Kingdom, and to some African countries in the Southern African Development Community (SADC); Mozambique, Namibia, Botswana, Zimbabwe, as well as countries in the East African Community (EAC); Kenya, Tanzania and Uganda.

SADC:

Mozambique, Zimbabwe and Zambia:

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.

Botswana:

The Botswana Training Authority website provides information on the development and co-ordination of an integrated and standards-based vocational training system. At this present time, focus on the development of standards-based qualifications through a Botswana Vocation Education and Training System (BVET) has focused on the Wholesale and Retail and Tourism sectors.

Currently, electricians in Botswana are trained through the apprenticeship system. The length and duration of the practical and theoretical components differ slightly to the South African apprenticeship system, but the learning competencies are similar, with a focus on the predominant diamond mining and small local manufacturing and engineering industries.

Namibia:

There are currently no qualifications or unit standards for electrical training registered on the Namibian Training Framework.

EAC:

In Kenya, Tanzania, and Uganda, the three member states of the East African Community (EAC), no comparable qualification systems and related infrastructure could be identified.

Through enquiry and research in the Mining and Chemical sectors, it has been established that training, in the field of electrical engineering, of foreign nationals from Mozambique, Nigeria, Tanzania as well as, Zambia and Zimbabwe employed in International companies, takes place in South Africa. These candidates are trained in-house and achieve company certificates for Unit Standards completed.

New Zealand:

The South African 'National Certificate: Electrical Engineering NQF Level 2 has elements of both Levels 2 and 3 of the NZ 'National Certificate in Electrical Engineering'. Although NZ qualifications are also unit standard based, the focus of the NZ unit standards at Level 2 [NQF Ref:0174] and 3 [NQF Ref:0223] is largely on knowledge acquisition whereas the practical competencies are assessed only at Level 4.

In New Zealand, a learner could register for the Level 4 qualification over a 3-4 year period and be awarded the Level 2 and 3 certificates as well because the Level 4 NZ qualification shares credit/unit standards with both levels 2 and 3 qualifications. Holders of the NZ National Certificate in Electrical Engineering (Electrician for Registration) (Level 4) [NQF Ref: 1195] can apply to the Electrical Workers Registration Board (EWRB) for electrical registration and practising license. The SA Electrical.

Engineering qualifications in comparison require competencies achieved at levels 2 and 3 or through RPL processes to gain entry to Level 4 and a further trade test before full licensing is achieved. The NZ Level 5 qualification [NQF Ref: 0951] focuses mainly on management skills and business skills in the elective component but the core electrical unit standards are similar to the level of those in the SA Level 4 qualification.

United Kingdom:

To qualify as an electrician in the U.K. the learner must have the Electrotechnical Services NVQ at Level 3, which is awarded by City and Guilds (2356) and EMTA Awards Limited. As another option in England, Wales and Northern Ireland, an apprentice between the ages of 16-19 may sign up with an electrical contractor or building company. An alternative for those not eligible for apprenticeship or direct access into the NVQ is the City and Guilds (2330) Technical Certificate in
Electrotechnical Technology Levels 2 and 3 at a college. Graduates would then need to gain employment in the industry to complete the NVQ. These technical certificates would compare with the SA National certificates: Electrical Engineering Levels 2 and 3. The NVQ (Level 3) compares with the SA Level 4 qualification.

Australia:

The following information was obtained on the website: http://www.ntis.au (National Information Training System) with regards to qualifications in electrical engineering training streams in Australia.

"Australian Apprenticeships" is the new name for the scheme formerly known as `New Apprenticeships`.

Australian Apprenticeships encompass all apprenticeships and traineeships. They combine time at work with training and can be full-time, part-time or school-based. The change of name and appearance is the first step in a range of improvements to be introduced in Australian Apprenticeships. The qualifications for electricians cover:

> ASCO4311-11: General Electrician.
> ANZSCO341111: Electrician (General).

Comments:

> Apprenticeships and VET programmes: In all the examples found, learning is vocational-based. In some countries (England, Scotland, New Zealand and Australia) these are called "modern apprenticeships". These take the form of two categories, namely a programme-led apprenticeship where learners are able to follow a vocational programme at a college and then

seek employment as trainees/apprentice/interns in order to qualify as artisans; and an employer-led apprenticeship, in which learners are engaged in a formal contract of learning and most learning is workplace-based. In most cases learners "earn while they learn".

> International qualifications researched, do not lead to three different qualifications, but in most cases culminate in one qualification over a four-year period. It is only in the vocational context, that we find the tendency to "break up" the traditional trades into levels of learning. This practice is endemic of those countries which have a close association with outcomes-based methodology and standards-based qualifications development.

ARTICULATION OPTIONS

The Qualification has been designed and structured so that qualifying learners can move from one engineering context to another. This can be achieved by the appropriate selection of credits in the elective category. Equally, holders of other similar fitting Qualifications may be evaluated against this Qualification for the purpose of RPL.

Vertical articulation may exist (wholly or in part) in the HET band on application by the individual.

Horizontal articulation:

Fundamental learning at this level applies to equivalent credit accrual for most engineering qualifications at NQF Level 4.

Core learning at this level applies to equivalent credit accrual for some unit standards in the following qualification:

SAQA ID No: 50371: National Certificate in Domestic Appliance Repair at NQF Level 4.

Other horizontal articulation options may exist and need further investigation in cases where recognition of prior learning is sought.

MODERATION OPTIONS

> Anyone assessing a learner against this qualification must be registered as an assessor with a relevant ETQA.

> Any institution or learning provider offering learning towards the achievement of this qualification should be accredited as a provider with a relevant ETQA.

> Moderation of assessment should be overseen by a relevant ETQA according to the moderation guidelines provided for in this qualification as well as the agreed ETQA guidelines.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

The following criteria should be applied by a relevant ETQA as a minimum requirement:

Assessors should be in possession of an appropriate qualification, namely:

> Electrical Engineering at NQF level 4 and a minimum of 2 years related experience.
> An artisan qualification in Electrical Engineering (Trade test certificate or completed contract of apprenticeship) with a minimum of 2 years related experience.
> Subject matter experience of at least five years, which may be established through recognition of prior learning (RPL).

Evidence of competency in a unit standard related to assessment theory, processes and practices.

NOTES

This qualification replaces qualification 48474, "National Certificate: Electrical Engineering", Level 4, 134 credits.

A generic qualification was developed to give meaning to NQF objectives to provide articulation possibilities, enable learners to get recognition for learning achievements across economic sub-sectors and to support the notion of life long learning.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	Level 3	5
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5
Fundamental	9015	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6
Fundamental	119462	Engage in sustained oral/signed communication and evaluate spoken/signed texts	Level 4	5
Fundamental	119469	Read/view, analyse and respond to a variety of texts	Level 4	5
Fundamental	9016	Represent analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	Level 4	4
Fundamental	119471	Use language and communication in occupational learning programmes	Level 4	5
Fundamental	7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6
Fundamental	119459	Write/present/sign for a wide range of contexts	Level 4	5
Core	113899	Demonstrate an understanding of basic programmable logic controllers	Level 3	6
Core	259200	Design, construct and commission three phase electrical circuits	Level 4	10
Core	259217	Install and commission AC machines and control gear	Level 4	8
Core	259177	Maintain, test and repair AC machines and control gear	Level 4	12
Core	259197	Test and inspect a three phase industrial/commercial installation	Level 4	10
Core	113873	Understand basic electrical and mechanical engineering principles	Level 4	8
Elective	10639	Advance or retreat electrical reticulation in an underground coal section	Level 3	6
Elective	259218	Apply the principles of energy efficiency	Level 4	4
Elective	259237	Carry out work on energised medium voltage networks	Level 4	16
Elective	113898	Complete certificate of compliance for a single phase domestic installation	Level 4	5
Elective	259184	Construct, maintain and dismantle High Voltage overhead networks	Level 4	20
Elective	116434	Control electrical networks from a control centre	Level 4	10
Elective	113901	Demonstrate an understanding of process communication systems	Level 4	8
Elective	113892	Design a solar pump system	Level 4	4
Elective	113888	Design a stand alone renewable energy system	Level 4	10
Elective	113890	Design a wind/solar hybrid system	Level 4	5
Elective	259179	Fault find a medium voltage reticulation system	Level 4	4
Elective	113884	Fault find and repair a stand-alone battery charging wind turbine	Level 4	5
Elective	259185	Fault find and repair the electrical system of a conveyor installation	Level 4	5
Elective	259193	Fault find and repair the electrical system of a surface mining production machine	Level 4	4
Elective	259180	Fault-find and repair a DC powered machine	Level 4	6
Elective	259183	Fault-find and repair the electrical system of winder installations	Level 4	4

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	259207	Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment	Level 4	6
Elective	259198	Inspect, test and maintain 3-kV DC busbar chamber and associated equipment in traction sub-stations	Level 4	8
Elective	259195	Inspect, test and maintain 3-kV DC high-speed circuit breaker(HSCB) in traction sub-stations	Level 4	8
Elective	259194	Inspect, test and maintain 3-kV DC rectifiers and associated equipment in traction sub-stations	Level 4	8
Elective	259205	Inspect, test and maintain Medium/High Voltage earthing systems	Level 4	4
Elective	259191	Inspect, test and maintain Medium/High Voltage transformers	Level 4	6
Elective	259199	Inspect, test and maintain earthing and negative return systems on 3-kV DC traction substations	Level 4	7
Elective	259202	Inspect, test and maintain high voltage isolators	Level 4	12
Elective	259188	Install and commission direct current (DC) machines	Level 4	8
Elective	259187	Install and terminate Medium Voltage cables	Level 4	6
Elective	259196	Install, connect and commission a stand-alone battery charging wind turbine	Level 4	8
Elective	259206	Install/replace medium/high voltage equipment and hardware	Level 4	6
Elective	259189	Joint Medium Voltage cables	Level 4	8
Elective	113885	Lower, inspect service and maintain a stand-alone battery charging wind turbine	Level 4	5
Elective	259201	Maintain Direct Current machines and control gear	Level 4	5
Elective	259186	Maintain and repair Medium Voltage Switchgear	Level 4	7
Elective	13818	Maintain low voltage switchgear	Level 4	4
Elective	259192	Maintain unit protection devices on transformers	Level 4	6
Elective	259181	Operate on High Voltage networks	Level 4	20
Elective	259204	Operate on Medium Voltage networks	Level 4	20
Elective	259182	Select a back-up generator for a stand-alone renewable energy system	Level 4	4
Elective	259178	Spray-wash energised Medium/High Voltage networks	Level 4	4
Elective	113897	Troubleshoot on programmable logic controllers	Level 4	5
Elective	259190	Inspect, test and maintain 3-kV DC regeneration equipment in traction sub-stations	Level 5	8

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain, test and repair AC machines and control gear

SAQA US ID	*UNIT STANDARD TITLE*		
259177	Maintain, test and repair AC machines and control gear		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10262	Maintain and repair three phase AC machines and control gear	Level 4	12	Will occur as soon as 259177 is registered

SPECIFIC OUTCOME 1
Prepare to maintain and repair AC machines and control gear.

SPECIFIC OUTCOME 2
Maintain AC machines and control gear.

SPECIFIC OUTCOME 3
Carry out fault finding and repairs on AC machines and control gear.

SPECIFIC OUTCOME 4
Conclude maintenance and repairs on AC machines and control gear.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

G08-095061—E

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Spray-wash energised Medium/High Voltage networks

SAQA US ID	*UNIT STANDARD TITLE*		
259178	Spray-wash energised Medium/High Voltage networks		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113878	Spray-wash energised medium / high voltage networks	Level 4	4	Will occur as soon as 259178 is registered

SPECIFIC OUTCOME 1
Plan to spray-wash energised Medium/High Voltage networks.

SPECIFIC OUTCOME 2
Prepare to spray-wash energised Medium/High Voltage networks.

SPECIFIC OUTCOME 3
Remove pollution from Medium/High Voltage networks with high pressure spray-wash plant.

SPECIFIC OUTCOME 4
Complete the work task.

SPECIFIC OUTCOME 5
Carry out routine inspections and tests of spray-wash equipment used on energised Medium/High Voltage networks.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fault find a medium voltage reticulation system

SAQA US ID	*UNIT STANDARD TITLE*		
259179	Fault find a medium voltage reticulation system		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the factors critical to fault finding a medium voltage reticulation system.

SPECIFIC OUTCOME 2
Prepare to fault find a medium voltage reticulation system.

SPECIFIC OUTCOME 3
Fault find the medium voltage reticulation system.

SPECIFIC OUTCOME 4
Complete the fault finding process and perform reporting duties.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fault-find and repair a DC powered machine

SAQA US ID	*UNIT STANDARD TITLE*		
259180	Fault-find and repair a DC powered machine		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the factors critical to fault-finding and repairing DC powered machines.

SPECIFIC OUTCOME 2
Prepare to fault-find and repair a DC powered machine.

SPECIFIC OUTCOME 3
Fault-find and repair the DC powered machine.

SPECIFIC OUTCOME 4
Test the machine and prepare for operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate on High Voltage networks

SAQA US ID	*UNIT STANDARD TITLE*		
259181	Operate on High Voltage networks		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	20

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Plan and prepare to operate on High Voltage networks.

SPECIFIC OUTCOME 2
Switch apparatus on High Voltage networks.

SPECIFIC OUTCOME 3
Link/isolate apparatus on High Voltage networks.

SPECIFIC OUTCOME 4
Safety test and earth apparatus on High Voltage networks.

SPECIFIC OUTCOME 5
Restore supply to High Voltage networks.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Select a back-up generator for a stand-alone renewable energy system

SAQA US ID	*UNIT STANDARD TITLE*		
259182	Select a back-up generator for a stand-alone renewable energy system		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
116681	Select a back-up generator for a stand-alone renewable energy system	Level 4	4	Will occur as soon as 259182 is registered

SPECIFIC OUTCOME 1
Assess wind and solar data to determine the need for a standby generator.

SPECIFIC OUTCOME 2
Assess the load to determine the need for a standby generator.

SPECIFIC OUTCOME 3
Determine the rating of a standby generator.

SPECIFIC OUTCOME 4
Understand and make provision for the logistics in respect of a standby generator.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fault-find and repair the electrical system of winder installations

SAQA US ID	*UNIT STANDARD TITLE*		
259183	Fault-find and repair the electrical system of winder installations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the factors critical to fault-finding and repairing the electrical system of winder installations.

SPECIFIC OUTCOME 2
Prepare to fault-find and repair the electrical system of winder installations.

SPECIFIC OUTCOME 3
Fault-find and repair the electrical system of winder installations.

SPECIFIC OUTCOME 4
Test the electrical system of the winder and prepare for operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Construct, maintain and dismantle High Voltage overhead networks

SAQA US ID	*UNIT STANDARD TITLE*		
259184	Construct, maintain and dismantle High Voltage overhead networks		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	20

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Plan and prepare to construct, maintain and dismantle High Voltage networks.

SPECIFIC OUTCOME 2
Construct High Voltage networks.

SPECIFIC OUTCOME 3
Inspect, maintain and repair High Voltage networks.

SPECIFIC OUTCOME 4
Dismantle High Voltage networks.

SPECIFIC OUTCOME 5
Complete the work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fault find and repair the electrical system of a conveyor installation

SAQA US ID	*UNIT STANDARD TITLE*		
259185	Fault find and repair the electrical system of a conveyor installation		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	5

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the factors critical to fault finding and repairing the electrical system of conveyor installations.

SPECIFIC OUTCOME 2
Prepare to fault find and repair the electrical system of conveyor installations.

SPECIFIC OUTCOME 3
Fault find and repair the electrical system of conveyor installations.

SPECIFIC OUTCOME 4
Test the repaired electrical system of conveyor installations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain and repair Medium Voltage Switchgear

SAQA US ID	*UNIT STANDARD TITLE*		
259186	Maintain and repair Medium Voltage Switchgear		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	7

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the requirements of a maintaining and repairing medium voltage switchgear.

SPECIFIC OUTCOME 2
Prepare to maintain and repair the switchgear.

SPECIFIC OUTCOME 3
Maintain and repair the switchgear.

SPECIFIC OUTCOME 4
Test the switchgear and perform reporting and housekeeping duties.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install and terminate Medium Voltage cables

SAQA US ID	*UNIT STANDARD TITLE*		
259187	Install and terminate Medium Voltage cables		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113862	Install and terminate Medium/High Voltage cables	Level 4	6	Will occur as soon as 259187 is registered

SPECIFIC OUTCOME 1
Plan to install Medium Voltage cables.

SPECIFIC OUTCOME 2
Prepare the Medium Voltage cable ways and work areas.

SPECIFIC OUTCOME 3
Install Medium Voltage cables.

SPECIFIC OUTCOME 4
Terminate and connect Medium Voltage cables.

SPECIFIC OUTCOME 5
Complete the work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install and commission direct current (DC) machines

SAQA US ID	*UNIT STANDARD TITLE*		
259188	Install and commission direct current (DC) machines		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
13657	Install and commission direct current (DC) machines	Level 4	8	Will occur as soon as 259188 is registered

SPECIFIC OUTCOME 1
Plan task and select DC machines.

SPECIFIC OUTCOME 2
Install DC machines.

SPECIFIC OUTCOME 3
Connect DC machines.

SPECIFIC OUTCOME 4
Commission DC machines.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Joint Medium Voltage cables

SAQA US ID	*UNIT STANDARD TITLE*		
259189	Joint Medium Voltage cables		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113874	Joint Medium / High Voltage cables	Level 4	8	Will occur as soon as 259189 is registered

SPECIFIC OUTCOME 1
Plan to joint Medium Voltage cable.

SPECIFIC OUTCOME 2
Prepare the Medium Voltage cable and work area.

SPECIFIC OUTCOME 3
Joint Medium Voltage cable.

SPECIFIC OUTCOME 4
Complete the work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain 3-kV DC regeneration equipment in traction sub-stations

SAQA US ID	*UNIT STANDARD TITLE*		
259190	Inspect, test and maintain 3-kV DC regeneration equipment in traction sub-stations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	8

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Plan and prepare for inspection, testing, maintenance and repairs on 3-kV DC regeneration equipment in traction sub-stations.

SPECIFIC OUTCOME 2
Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 3
Carry out inspection and tests on 3-kV DC regeneration equipment in traction sub-station.

SPECIFIC OUTCOME 4
Carry out maintenance and repairs on 3-kV DC regeneration equipment in traction sub-stations.

SPECIFIC OUTCOME 5
Perform function tests and checks on 3-kV DC regeneration equipment in traction sub-stations.

SPECIFIC OUTCOME 6
Complete all tasks on 3-kV DC regeneration equipment in traction sub-stations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain Medium/High Voltage transformers

SAQA US ID	*UNIT STANDARD TITLE*		
259191	Inspect, test and maintain Medium/High Voltage transformers		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113880	Inspect, test and maintain Medium / High Voltage transformers	Level 4	6	Will occur as soon as 259191 is registered

SPECIFIC OUTCOME 1
Plan to maintain Medium/High Voltage transformers.

SPECIFIC OUTCOME 2
Prepare to maintain Medium/High Voltage transformers.

SPECIFIC OUTCOME 3
Inspect, test and maintain Medium/High Voltage transformers.

SPECIFIC OUTCOME 4
Complete Work Task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain unit protection devices on transformers

SAQA US ID	*UNIT STANDARD TITLE*		
259192	Maintain unit protection devices on transformers		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113895	Maintain unit protection devices on transformers	Level 4	6	Will occur as soon as 259192 is registered

SPECIFIC OUTCOME 1
Plan to maintain transformer unit protection devices.

SPECIFIC OUTCOME 2
Prepare to maintain transformers unit protection devices.

SPECIFIC OUTCOME 3
Maintain transformer unit protection devices.

SPECIFIC OUTCOME 4
Complete work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fault find and repair the electrical system of a surface mining production machine

SAQA US ID	*UNIT STANDARD TITLE*		
259193	Fault find and repair the electrical system of a surface mining production machine		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Explain the factors critical to fault find and repair electrical systems of surface mining production machines.

SPECIFIC OUTCOME 2
Prepare to fault find and repair the electrical system.

SPECIFIC OUTCOME 3
Fault find and repair the electrical system.

SPECIFIC OUTCOME 4
Prepare and test the machine for operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain 3-kV DC rectifiers and associated equipment in traction sub-stations

SAQA US ID	*UNIT STANDARD TITLE*		
259194	Inspect, test and maintain 3-kV DC rectifiers and associated equipment in traction sub-stations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2
Plan and prepare for inspection, testing and maintenance on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 3
Prepare the 3-kV DC rectifiers and associated equipment in traction sub-stations for inspection, tests and maintenance.

SPECIFIC OUTCOME 4
Carry out inspection on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 5
Carry out maintenance on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 6
Perform function tests and post-maintenance checks on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 7
Complete all tasks on 3-kV DC rectifiers and associated equipment in traction sub-stations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain 3-kV DC high-speed circuit breaker(HSCB) in traction sub-stations

SAQA US ID	*UNIT STANDARD TITLE*		
259195	Inspect, test and maintain 3-kV DC high-speed circuit breaker(HSCB) in traction sub-stations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2
Plan and prepare for inspection, testing and maintenance on 3-kV DC high-speed circuit breaker (HSCB) in traction sub-stations.

SPECIFIC OUTCOME 3
Prepare the 3-kV DC high-speed circuit breaker (HSCB) in traction sub-stations for inspection, tests and maintenance.

SPECIFIC OUTCOME 4
Carry out inspection and tests on 3-kV DC high-speed circuit breaker (HSCB) in traction sub-station.

SPECIFIC OUTCOME 5
Carry out maintenance on 3-kV DC high-speed circuit breaker (HSCB) in traction sub-stations.

SPECIFIC OUTCOME 6
Perform function tests and post-maintenance checks on 3-kV DC high-speed circuit breaker (HSCB) in traction sub-stations.

SPECIFIC OUTCOME 7
Complete all tasks on 3-kV DC high-speed circuit breaker (HSCB) in traction sub-stations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

ID	QUALIFICATION TITLE	LEVEL

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install, connect and commission a stand-alone battery charging wind turbine

SAQA US ID	*UNIT STANDARD TITLE*		
259196	Install, connect and commission a stand-alone battery charging wind turbine		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
116679	Install, connect and commission a stand-alone battery charging wind turbine	Level 4	8	Will occur as soon as 259196 is registered

SPECIFIC OUTCOME 1
Plan to install, connect and commission a wind turbine.

SPECIFIC OUTCOME 2
Prepare to install, connect and commission a wind turbine.

SPECIFIC OUTCOME 3
Install and connect a wind turbine.

SPECIFIC OUTCOME 4
Connect wind turbine to charge regulator.

SPECIFIC OUTCOME 5
Commission a wind turbine.

SPECIFIC OUTCOME 6
Complete installation, connection and commissioning of a wind turbine.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Test and inspect a three phase industrial/commercial installation

SAQA US ID	*UNIT STANDARD TITLE*		
259197	Test and inspect a three phase industrial/commercial installation		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113894	Test and inspect a three phase industrial/commercial installation	Level 4	10	Will occur as soon as 259197 is registered

SPECIFIC OUTCOME 1
Plan the electrical installation tests to be done.

SPECIFIC OUTCOME 2
Inspect the electrical installation.

SPECIFIC OUTCOME 3
Test the electrical installation.

SPECIFIC OUTCOME 4
Complete the required test and inspection documentation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain 3-kV DC busbar chamber and associated equipment in traction sub-stations

SAQA US ID	*UNIT STANDARD TITLE*		
259198	Inspect, test and maintain 3-kV DC busbar chamber and associated equipment in traction sub-stations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2
Plan and prepare for inspection, testing and maintenance on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 3
Prepare the 3-kV DC rectifiers and associated equipment in traction sub-stations for inspection, tests and maintenance.

SPECIFIC OUTCOME 4
Carry out inspection on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 5
Carry out maintenance on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 6
Perform function tests and post-maintenance checks on 3-kV DC rectifiers and associated equipment in traction sub-stations.

SPECIFIC OUTCOME 7
Complete all tasks on 3-kV DC rectifiers and associated equipment in traction sub-stations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain earthing and negative return systems on 3-kV DC traction substations

SAQA US ID	*UNIT STANDARD TITLE*		
259199	Inspect, test and maintain earthing and negative return systems on 3-kV DC traction substations		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	7

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Communicate clearly and concisely without misunderstanding with relevant role players and complete relevant documentation.

SPECIFIC OUTCOME 2
Plan to maintain earthing and negative return systems on 3-kV DC traction substations.

SPECIFIC OUTCOME 3
Prepare to maintain earthing and negative return systems on 3-kV DC traction substations.

SPECIFIC OUTCOME 4
Inspect and maintain earthing and negative return systems on 3-kV DC traction substations.

SPECIFIC OUTCOME 5
Complete work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Design, construct and commission three phase electrical circuits

SAQA US ID	*UNIT STANDARD TITLE*		
259200	Design, construct and commission three phase electrical circuits		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

This unit standard does not replace any other unit standard and is not replaced by another unit standard.

SPECIFIC OUTCOME 1
Design a three phase Circuit diagram.

SPECIFIC OUTCOME 2
Plan work task.

SPECIFIC OUTCOME 3
Construct three phase electrical circuits.

SPECIFIC OUTCOME 4
Commission three phase electrical circuits.

SPECIFIC OUTCOME 5
Complete work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Maintain Direct Current machines and control gear

SAQA US ID	*UNIT STANDARD TITLE*		
259201	Maintain Direct Current machines and control gear		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
13682	Maintain Direct Current (DC) machines	Level 4	5	Will occur as soon as 259201 is registered

SPECIFIC OUTCOME 1
Plan the maintenance task.

SPECIFIC OUTCOME 2
Prepare the work area.

SPECIFIC OUTCOME 3
Repair DC machines and control gear.

SPECIFIC OUTCOME 4
Complete the maintenance activity.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain high voltage isolators

SAQA US ID	*UNIT STANDARD TITLE*		
259202	Inspect, test and maintain high voltage isolators		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
13681	Inspect, test and maintain high voltage isolators	Level 4	12	Will occur as soon as 259202 is registered

SPECIFIC OUTCOME 1
Plan and prepare for inspection, testing and maintenance on high voltage isolators.

SPECIFIC OUTCOME 2
Carry out inspection and tests on switch gear.

SPECIFIC OUTCOME 3
Carry out maintenance on Isolators.

SPECIFIC OUTCOME 4
Perform function tests and post-maintenance checks.

SPECIFIC OUTCOME 5
Complete all tasks on isolators.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate on Medium Voltage networks

SAQA US ID	*UNIT STANDARD TITLE*		
259204	Operate on Medium Voltage networks		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	20

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113900	Operate on Medium Voltage radial networks	Level 4	20	Will occur as soon as 259204 is registered

SPECIFIC OUTCOME 1
Plan and prepare to operate on Medium Voltage networks.

SPECIFIC OUTCOME 2
Switch apparatus on Medium Voltage networks.

SPECIFIC OUTCOME 3
Link/isolate apparatus on Medium Voltage networks.

SPECIFIC OUTCOME 4
Safety test and earth apparatus on Medium Voltage networks.

SPECIFIC OUTCOME 5
Restore supply to Medium Voltage networks.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, test and maintain Medium/High Voltage earthing systems

SAQA US ID	*UNIT STANDARD TITLE*		
259205	Inspect, test and maintain Medium/High Voltage earthing systems		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113882	Inspect, test and maintain Medium / High Voltage earthing systems	Level 4	4	Will occur as soon as 259205 is registered

SPECIFIC OUTCOME 1
Plan and prepare to inspect, test and maintain/repair Medium/High Voltage earthing systems.

SPECIFIC OUTCOME 2
Inspect Medium/High Voltage earthing grids/networks.

SPECIFIC OUTCOME 3
Test Medium/High Voltage earthing grids/networks.

SPECIFIC OUTCOME 4
Maintain and repair/replace earthing on Medium/High Voltage networks.

SPECIFIC OUTCOME 5
Complete the work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install/replace medium/high voltage equipment and hardware

SAQA US ID	*UNIT STANDARD TITLE*		
259206	Install/replace medium/high voltage equipment and hardware		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113883	Install / replace medium / high voltage equipment and hardware	Level 4	6	Will occur as soon as 259206 is registered

SPECIFIC OUTCOME 1
Plan to install Medium/High Voltage equipment.

SPECIFIC OUTCOME 2
Prepare to install Medium/High Voltage equipment.

SPECIFIC OUTCOME 3
Remove Medium/High Voltage equipment.

SPECIFIC OUTCOME 4
Install Medium/High Voltage equipment.

SPECIFIC OUTCOME 5
Complete work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment

SAQA US ID	*UNIT STANDARD TITLE*		
259207	Inspect, record and report condition of Medium/High Voltage station apparatus and related equipment		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113969	Inspect, record and report condition of Medium / High Voltage station apparatus and related equipment	Level 4	6	Will occur as soon as 259207 is registered

SPECIFIC OUTCOME 1
Plan and prepare to inspect Medium/High Voltage station apparatus and related equipment.

SPECIFIC OUTCOME 2
Inspect and identify defects on Medium/High Voltage station apparatus and associated hardware.

SPECIFIC OUTCOME 3
Inspect, record readings and carry out functional tests on Medium/High Voltage station.

SPECIFIC OUTCOME 4
Complete the work task.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Install and commission AC machines and control gear

SAQA US ID	*UNIT STANDARD TITLE*		
259217	Install and commission AC machines and control gear		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
10264	Install and commission three phase AC machines and control gear	Level 4	8	Will occur as soon as 259217 is registered

SPECIFIC OUTCOME 1
Plan to install and commission AC machines and control gear.

SPECIFIC OUTCOME 2
Prepare to install, connect and commission AC machines and control gear.

SPECIFIC OUTCOME 3
Install A.C. machines and control gear.

SPECIFIC OUTCOME 4
Connect A.C. machines and control gear.

SPECIFIC OUTCOME 5
Commission AC machines and control gear.

SPECIFIC OUTCOME 6
Complete installation, connection and commissioning of AC machines and control gear.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply the principles of energy efficiency

SAQA US ID	*UNIT STANDARD TITLE*		
259218	Apply the principles of energy efficiency		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	4

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
113968	Apply the principles of energy efficiency	Level 4	6	Will occur as soon as 259218 is registered

SPECIFIC OUTCOME 1
Understand and select energy efficient devices.

SPECIFIC OUTCOME 2
An energy audit.

SPECIFIC OUTCOME 3
Energy management.

SPECIFIC OUTCOME 4
An understanding of the importance of system design.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Carry out work on energised medium voltage networks

SAQA US ID	*UNIT STANDARD TITLE*		
259237	Carry out work on energised medium voltage networks		
ORIGINATOR		*PROVIDER*	
SGB Electrical Engineering & Construction			
FIELD		*SUBFIELD*	
12 - Physical Planning and Construction		Electrical Infrastructure Construction	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	16

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
114604	Carry out work on energised medium voltage networks	Level 4	16	Will occur as soon as 259237 is registered

SPECIFIC OUTCOME 1
Prepare to work on energised Medium Voltage networks.

SPECIFIC OUTCOME 2
Carry out work on energised Medium Voltage networks.

SPECIFIC OUTCOME 3
Complete the work task.

SPECIFIC OUTCOME 4
Carry out routine inspections, maintenance and testing of insulated/insulating and lifting equipment used for work on energised Medium Voltage networks.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	63889	Further Education and Training Certificate: Electrical Engineering	Level 4