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GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 1157

8 October 2004



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 NSB 12, Physical Planning and Construction, publishes the following qualifications 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 upon which qualifications are based. The full qualification and unit standards can be accessed via the SAQA web-site at www.saga.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, Hatfield Forum West, 1067 Arcadia Street, Hatfield.

Comment on the unit standards should reach SAQA at the address *below and no later than 7 November 2004*. All correspondence should be marked **Standards Setting – SGB Electrical Engineering and Construction** and addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. D Mphuthing
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JOE SAMUELS
DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:

National Certificate: Domestic Appliance Repair

SAQA QUAL ID	QUALIFICATION TITLE	
49056	National Certificate: Domestic Appliance Repair	
SGB NAME	SGB Electrical Engineering & Construction	
ABET BAND	PROVIDER NAME	
Undefined		
QUALIFICATION CODE	QUAL TYPE	SUBFIELD
PPC-3-National Certificate	National Certificate	Electrical Infrastructure Construction
MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
131	Level 3	Regular-Unit Stds Based
SAQA DECISION NUMBER	REGISTRATION START DATE	REGISTRATION END DATE

PURPOSE OF THE QUALIFICATION

A person acquiring this Qualification will have skills, knowledge and experience to:

- > Identify, apply and demonstrate technical operational systems, by using procedures and equipment required to repair domestic appliances.
- > Summarise, interpret information, use knowledge and contexts in performing the tasks related to domestic appliance repair field or specialised contexts.
- > Select and organise information and use data, apply and demonstrate theories or principles to electrical domestic appliances and work in a disciplined manner.
- > Execute role and responsibilities by being able to summarize, classify, discuss and estimate application processes required through mathematical and theoretical concepts, technical and schematic diagrams, computer and technology usage in a range of different contexts.
- > Communicate with peers, customers and members of supervisory / management levels by demonstrating the ability to summarise and source information and express opinions in spoken and written form.
- > Understand broader competencies required for entrepreneurial qualities.

This Qualification will allow a person to advance through learning to a domestic appliance repair Qualification at NQF level 4. The core and required elective unit standards provide credits that allow access to both vertically and horizontally articulated Qualifications. This Qualification will enhance the social status, productivity and employability of the learner within the domestic appliance industry and contribute to the quality, production rate and growth of that environment within the energy sector.

Through the critical cross field component of the Qualification, learners are able to demonstrate vocational skills through which they are able to engage in life skills activities, small business development, health and environmental issues. Through recognition of prior learning adult learners are encouraged to access basic education with an understanding that they already have knowledge and experience.

Rationale of the Qualification

This is the first occupational based Qualification in a series of Qualifications for learners, stems from electrical field, that reflect the workplace-based needs of the domestic appliance industry that is expressed by employers and employees, both now and for the future. This Qualification provides the learner with accessibility to be employed within the domestic appliance industry and provides the flexibility to pursue different careers in the broader electrical energy sector. It also provides the Learner with enough knowledge and skills to pursue small business opportunities within the private sector through which the private sector and the economy can benefit.

For those who have acquired experience in the workplace, this Qualification represents part of the RPL process to acknowledge workplace skills acquired without the benefit of former education or training.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

NQF 2 or equivalent and competence in the following:

- > Occupational health, safety and environmental practices within the electrical environment
- > Fundamentals of electricity
- > Use of hand tools, power tools and measuring instruments
- > Perform basic gas welding
- > Mathematics, communication and language skills at NQF2

Recognition of prior learning

This Qualification may be obtained in whole or in part through RPL. The learner should be thoroughly briefed on the mechanism to be used and support and guidance should be provided. Care should be taken that the mechanism used provides the learner with an opportunity to demonstrate competence and is not so onerous as to prevent learners from taking up the RPL option towards gaining a Qualification.

QUALIFICATION RULES

N/A

EXIT LEVEL OUTCOMES

1. Identify and apply technical operational systems.
2. Summarise and interpret the requirements in performing the tasks related to domestic appliance repair field or specialised contexts.
3. Organise information and use data, apply theories and principles to electrical domestic appliance repair and work in a disciplined manner under supervision when or if necessary.

ASSOCIATED ASSESSMENT CRITERIA

1.
 - > Knowledge is applied identifying operational systems of domestic appliances and personal safety practices in a domestic energy environment are applied according to standard operating procedures and safety requirements
 - > Skills is applied regarding operational systems of domestic appliances and personal safety practices in a domestic energy environment are applied according to standard operating procedures and safety requirements
 - > Knowledge and skills regarding repair and maintenance on single phase domestic appliances are applied according to manufacturers' specifications.
2.
 - > Knowledge and skills to install, commission and maintain single phase domestic appliances are demonstrated according to relevant procedures.
 - > Faultfinding techniques are applied to manufacturers and industry specification
 - > Fault reports are interpreted and job cards completed according to company specifications
3.
 - > Sketches and diagrams are identified and interpreted in contexts with electrical domestic appliance situations.
 - > Data is used, theories and principles applied to do fault finding and repairs on domestic appliances.
 - > Information is selected, organised and data used to maintain electrical equipment and single phase systems.

Integrated Assessment

The applied competence (practical, foundational and reflective competencies) of this Qualification will be achieved if a learner is able to achieve all exit level outcomes of the Qualification.

The identification and solving of problems, team work, organising oneself, using of technical diagrams, implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the whole person development and integration of applied knowledge and skills.

- > Certain exit level outcomes are measurable and verifiable through assessment criteria assessed in one application.
- > Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the electrical installation and maintenance environment.
- > A detailed portfolio of evidence is required to proof the practical, applied and foundational competencies of the learner.
- > Assessors and moderators should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.
- > Summative assessment should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the Qualification.

Unit standards associated with the Qualification must be used to assess specific and critical cross-field outcomes.

During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflective competencies.

INTERNATIONAL COMPARABILITY

This Qualification could not be benchmarked against any international standards as there are no Domestic Appliances Repair Qualification in existence. However, in domestic appliances manufacturing leading countries like Germany, England, Australia, and Japan, appliance repair is a trade, which is based on an electrical learnership with an additional specialised in-house training. This kind of training does not allow an independent qualification and hinders personal development and entrepreneurship. Furthermore there is a critical lack of Qualifications in this specialist field of Domestic Appliance Repairs worldwide.

It is critical to note that in South Africa, companies like AEG, Bosch, Siemens, Gaggenau, Defy, MIELE, Whirlpool, LG, Samsung, Phillips, Bauer recognised the need for a structured, general Qualification which trains general knowledge in domestic appliance technology without being brand specific. However the Unit Standards on which this Qualification is based were compared with Unit Standards from New Zealand, Australia and Scotland in terms of their range of electrical Qualifications, Unit Standard titles, specific outcomes, assessment criteria and degree of difficulty.

The Qualifications for the above mentioned countries are subdivided into different domains of the low voltage electrical engineering field. However, although the overall scope of the other countries' Unit Standards for the electrical field has been adequately covered in this Qualification, there are no specific Qualifications for domestic appliances.

The focus and complexity level of the core units standards compares very well, but the up-liftment of literacy, innumeracy and social skills have been emphasized more in the fundamental requirement of this Qualification to redress the inequalities of the past. Computer related unit standards were included to provide foundational skills towards the next level due to the development of more advanced technologies such as programmable appliances.

ARTICULATION OPTIONS

This Qualification will allow a person to advance to learning for a Domestic Appliance Qualification at NQF level 4. This qualification provides the learner with the flexibility to pursue different careers in the energy industry and articulation within the engineering industries. The level of flexibility within the range of electives will allow the individual to pursue further learning within an entrepreneurship, supervision / management, quality assurance, health and safety and engineering contexts.

MODERATION OPTIONS

- > Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.

> Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies); and in terms of the moderation guideline detailed immediately below.

> Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes as well as the integrated competence described in the Qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors need experience in the following areas:

- > Interpersonal skills, subject matter and assessment.
- > The assessor needs to be competent in planning, conducting and providing feedback on assessment of learning outcomes and in the design and development of assessments as described in the unit standards. The assessor should at least be competent at the same level or be at a level above this level 3 Qualification with at least two years of practical experience in the domestic appliance or related environment. The assessor must comply with the criteria set by the relevant ETQA.
- > The subject matter experience of the assessor can be established by recognition of prior learning.
- > Assessors need to be registered with the relevant Education and Training Quality Assurance Body.

NOTES

This Qualification was developed by stakeholders in the domestic appliance industry as a result of continued technology changes in the appliance market. Due to the nature of this specialized field it is required that a person trained as a domestic appliance repairer would require a Qualification focused on this rapid changing technology.

This Qualification uses a combination of unit standards in other Qualifications but has as its key focus area as the repair of domestic appliances.

This Qualification prepares a candidate to move into the NQF level 4 qualification in domestic appliance repair, which has its core focus area as domestic electronic, gas and refrigeration appliances.

UNIT STANDARDS

(Note: A blank space after this line means that the qualification is not based on Unit Standards.)

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	10268 Fault Find, Test and Repair Domestic Appliances	Level 3	6	Reregistered
Core	10270 Construct Basic Electronic Circuits	Level 3	4	Reregistered
Core	13791 Fault find on single phase alternating current (AC) systems	Level 3	8	Reregistered
Core	114388 Install, joint and terminate Low Voltage cables and conductors	Level 3	8	Registered
Core	114406 Understand basic electronic theory and components	Level 3	4	Registered
Core	116229 Join and install refrigerant piping	Level 3	9	Public Comment
Core	116696 Identify, use and maintain power tools used in the air-conditioning, refrigeration and ventilation trades	Level 3	8	Public Comment
Core	116735 Interpret functioning diagrams of domestic appliances	Level 3	4	Draft - Prep for P Comment
Core	116738 Demonstrate knowledge of the principles of domestic electrical appliances	Level 3	10	Draft - Prep for P Comment
Core	116740 Test, maintain and commission motors in domestic electrical appliances	Level 3	5	Draft - Prep for P Comment
Elective	10006 Demonstrate an understanding of entrepreneurship and develop entrepreneurial qualities	Level 1	2	Reregistered
Elective	7570 Produce word processing documents for business	Level 3	5	Reregistered
Elective	14134 Maintain and repair single phase AC machines and control gear	Level 3	6	Reregistered

2004/09/27

Qual ID: 49056

SAQA: NLRD Report "Qualification Detail"

Elective	14135 Repair and maintain electric power tools	Level 3	3	Reregistered
Elective	110028 Understand Micro-Finance Business Principles	Level 3	6	Registered
Elective	116700 Maintain safety in the handling group 1 and 2 refrigerants	Level 3	9	Public Comment
Fundamental	7792 Maintain data in a computer system	Level 2	4	Reregistered
Fundamental	7455 Identify and work with simple forms of complex numbers	Level 3	1	Reregistered
Fundamental	7456 Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	2	Registered
Fundamental	8968 Accommodate audience and context needs in oral communication	Level 3	5	Registered
Fundamental	8969 Interpret and use information from texts	Level 3	5	Registered
Fundamental	8970 Write texts for a range of communicative contexts	Level 3	5	Registered
Fundamental	8973 Use language and communication in occupational learning programmes	Level 3	5	Registered
Fundamental	9010 Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	Level 3	2	Registered
Fundamental	9012 Investigate life and work related problems using data and probabilities	Level 3	5	Registered
Fundamental	9013 Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4	Registered
Fundamental	9303 Communicate verbally with clients in a financial environment	Level 3	3	Registered
Fundamental	9530 Manage work time effectively	Level 3	3	Reregistered
Fundamental	14086 Work with a wide range of patterns and basic functions and solve related problems	Level 3	3	Registered
Fundamental	14106 Demonstrate understanding of real and imaginary numbers and real number systems	Level 3	2	Reregistered



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

Demonstrate knowledge of the principles of domestic electrical appliances

SAQA US ID	UNIT STANDARD TITLE		
116738	Demonstrate knowledge of the principles of domestic electrical appliances		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Electrical Engineering & Construction		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Physical Planning and Construction		Electrical Infrastructure Construction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
PPC-EIC-0-SGB ECC	Regular	Level 3	10

Specific Outcomes:**SPECIFIC OUTCOME 1**

Demonstrate an understanding of the principles of wet appliances.

SPECIFIC OUTCOME 2

Demonstrate an understanding of the principles of dry appliances.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the principles of electric cooking and associated appliances.

SPECIFIC OUTCOME 4

Demonstrate an understanding of the principles of microwaves.

SPECIFIC OUTCOME 5

Demonstrate an understanding of the principles of small appliances.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

2

Test, maintain and commission motors in domestic electrical appliances

SAQA US ID	UNIT STANDARD TITLE		
116740	Test, maintain and commission motors in domestic electrical appliances		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Civil Engineering Construction		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Physical Planning and Construction		Civil Engineering Construction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
PPC-CEC-0-SGB CEC	Regular	Level 3	5

Specific Outcomes:

SPECIFIC OUTCOME 1

Identify by inspection and test faulty motors in domestic electrical appliances according to manufac

SPECIFIC OUTCOME 2

Repair or replace motors in domestic electrical appliances according to manufacturers specifications

SPECIFIC OUTCOME 3

Maintain motors in domestic electrical appliances according to manufacturers specifications.

SPECIFIC OUTCOME 4

Commission motor and domestic electrical appliance according to manufacturers specifications.

SPECIFIC OUTCOME 5

Transport and handle domestic appliances according to manufacturers specifications.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

3

Interpret functioning diagrams of domestic appliances

SAQA US ID	UNIT STANDARD TITLE		
116735	Interpret functioning diagrams of domestic appliances		
SGB NAME		ABET BAND	PROVIDER NAME
SGB Electrical Engineering & Construction		Undefined	
FIELD DESCRIPTION		SUBFIELD DESCRIPTION	
Physical Planning and Construction		Electrical Infrastructure Construction	
UNIT STANDARD CODE	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
PPC-EIC-0-SGB ECC	Regular	Level 3	4

Specific Outcomes:**SPECIFIC OUTCOME 1**

Demonstrate knowledge of electrical symbols, cam charts and terminology for domestic appliances.

SPECIFIC OUTCOME 2

Identify the purpose and features of diagrams used in appliance servicing.

SPECIFIC OUTCOME 3

Use diagrams to explain the operation of an electrical appliance and identify faults in given situat

SPECIFIC OUTCOME 4

Use diagrams and testing equipment to identify and locate faults.