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## GOVERNMENT NOTICES

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### SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

No. 873

22 August 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

#### **Retail and Wholesale**

registered by Organising Field 11, Services, 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](http://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 September 2008**. All correspondence should be marked **Standards Setting – SGB for Retail and Wholesale** and addressed to

The Director: Standards Setting and Development  
SAQA

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DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### QUALIFICATION: *National Certificate: Wholesale and Retail Operations*

SAQA QUAL ID	QUALIFICATION TITLE		
63409	National Certificate: Wholesale and Retail Operations		
ORIGINATOR		PROVIDER	
SGB Retail and Wholesale			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	11 - Services	Wholesale and Retail	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	120	Level 3	Regular-Unit Stds Based

#### *This qualification replaces:*

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
48764	National Certificate: Wholesale and Retail Sales Practice	Level 3	131	Will occur as soon as 63409 is registered

#### **PURPOSE AND RATIONALE OF THE QUALIFICATION**

##### Purpose:

This qualification will serve to link the NQF Level 2 National Certificate: Wholesale and Retail Operations qualification and the NQF Level 4 National Certificate: Wholesale and Retail Operations Supervision qualification. The current gap in the learning pathway for Wholesale and Retail (W and R) practitioners will be filled by this qualification. It will serve as the second in the Wholesale and Retail Operations learning pathway and provide a basis for further learning. While the qualifying learners will experience personal growth and development, workplace succession planning will be more readily achieved.

The operational process includes; ordering stock, receiving, dispatching and distributing, marketing and displaying.

This qualification will serve to provide the W and R sector with personnel that can perform the operation functions to industry standards, optimise productivity and improve service levels. The qualifying learner will undergo personal development that will contribute to social and economic development.

The learner assessed as competent against this qualification will be able to:

- > Ensure a positive customer experience in a W and R business unit.
- > Explain how employees can influence the objectives of a W and R business unit.

##### Rationale:

This qualification will serve to further develop learners who have achieved the NQF Level 2: National Certificate: Wholesale and Retail Operations. It will also serve new-comers to the operations function, school leavers and the currently unemployed. It will enhance career development for learners that have previous experience in operations.

The scarce and critical skills list compiled by the South African Department of Labour includes many of the competencies in this qualification. The occupations associated with these competencies are listed as:

- > Sellers: Sales Persons and Assistants, Representatives.
- > Cashiers.
- > General and Finance Administrators.
- > Trade Union Officials.
- > Merchandisers.
- > Checkout Operators and Office Cash Clerks.
- > General Clerks.

This qualification provides a planned combination of learning outcomes that will equip qualifying learners with the knowledge and applied competence in wholesale and retail operations and a basis for further learning. It provides a formal route to acquiring the operations skills and will provide recognition of experiential learning in the sector.

This is one of the fastest growing industries in SA with the emergence of the informal sector. Previous restrictions (legislation) are no longer an obstacle to industry development. It is one of the largest contributors to the GDP and there is regional strength of the sector in the SADC region.

#### **RECOGNIZE PREVIOUS LEARNING?**

Y

#### **LEARNING ASSUMED IN PLACE**

It would be desirable for learners wishing to access this Qualification to be competent at:

- > Communication at NQF Level 2.
- > Mathematical Literacy at NQF Level 2.

Recognition of Prior Learning:

This Qualification and the entire fundamental, core and elective Unit Standards associated with it can be achieved by any learner through the recognition of prior learning, which includes learning outcomes achieved through formal, informal and non-formal learning and work experience. The qualification can be obtained in part through the recognition of prior learning.

Access to the Qualification:

There is open access to this Qualification.

#### **QUALIFICATION RULES**

The qualifying learner will achieve this Qualification by complying with the following rules of combination:

- > All fundamental unit standards totalling 36 credits are compulsory.
- > All core unit standards totalling 38 credits are compulsory.
- > For the elective component, the qualifying learner must achieve a minimum of 46 credits by:
  - > Choosing one area of specialisation and complete all the unit standards listed in the specialisation.
  - > Choosing additional unit standards from the general elective component or any of the other areas of specialisation to make up a total of 46 credits for the elective component.

The specialisation areas are:

**Stock Control:**

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 114896: Receive stock; NQF Level 3; 12 Credits.
- > ID 114892: Dispatch stock; NQF Level 3; 10 Credits.
- > ID 114891: Count stock for a stock take; NQF Level 2; 5 Credits.

Or:

**Cash Control:**

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 258157: Explain the processing of transactions in a wholesale and retail outlet; Level 2; 6 Credits.
- > ID 114905: Administer day-end cashing up procedures; Level 3; 8 Credits.
- > ID 114909: Administer and control the organisation's deposits and floats; Level 3; 8 Credits.

Or:

**Credit Control:**

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 258159: Offer a Credit Facility; Level 3; 8 Credits.
- > ID 114898: Minimise Defaulting Customer Accounts; Level 3; 5 Credits.
- > ID 258177: Process credit applications; Level 3; 8 Credits.

Or:

**Retail Sales:**

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 258162: Sell products to customers in a Wholesale and Retail outlet; Level 3; 12 Credits.
- > ID 258160: Demonstrate knowledge of products in own area of operation in a wholesale and retail environment; Level 3; 8 Credits.

Or:

**Wholesale Sales:**

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 243680: Take orders; Level 3; 12 Credits.
- > ID 243712: Address customer queries in a wholesale environment; Level 3; 10 Credits.

Or:

Sales and preparation of perishable foods:

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 119957: Clean and maintain premises and equipment; Level 3; 5 Credits.
- > ID 119961: Implement personal hygiene for perishable food stores; Level 3; 3 Credits.
- > ID 119956: Promote sales and reduce wastage at a perishable foods department; Level 3; 15 Credits.
- > ID 119962: Mark and label perishable foods; Level 3; 3 Credits.

Or:

Cosmetics:

The learner must complete the following compulsory unit standards and additional unit standards from the generic electives or from the other specialisations to give a minimum of 46 credits:

- > ID 258176: Advise on and promote colour cosmetic products in a retail environment; Level 3; 3 Credits.
- > ID 258178: Advise on and promote hair care products in a retail environment; Level 3; 3 Credits.
- > ID 258158: Advise on and promote nail care products in a retail environment; Level 3; 3 Credits.
- > ID 258179: Advise on and promote skin care products in a retail environment; Level 3; 5 Credits.

### **EXIT LEVEL OUTCOMES**

The first TWO Exit Level Outcomes are compulsory (1 and 2). The qualifying learner must achieve ONE more Exit Level Outcome from the remaining outcomes (3, 4, 5, 6, 7, 8 or 9).

1. Ensure a positive customer experience in a W and R business unit.

And.

2. Explain how employees can influence the objectives of a W and R business unit.

And one of the following Exit Level Outcomes:

3. Cash up point of sale and deposit unit takings.

Or.

4. Administer the movement of stock into and from a W and R unit.

Or.

5. Control credit accounts in a W and R environment.

Or.

6. Provide a sales service to customers of a retail unit.

Or.

7. Provide a sales service to customers of a wholesale unit.

Or.

8. Enhance the sale and preparation of perishable foods.

Or.

9. Advise on and promote a range of cosmetics.

**ASSOCIATED ASSESSMENT CRITERIA**

The first TWO exit level outcomes are compulsory (1 and 2). The qualifying learner must achieve ONE more exit level outcome from the remaining outcomes (3, 4, 5, 6, 7, 8 or 9).

Assessment Criteria for Exit Level Outcome 1:

1.1 Customer's shopping experience is enhanced according to organisations policies and procedures.

1.2 A safe shopping environment is maintained in terms of organisational policies and procedures.

1.3 The procedures to deal with internal and external theft are explained according to organisational policies and procedures.

1.4 Customers queries are answered using appropriate business terms in accordance with organisational policies and procedures.

And

Assessment Criteria for Exit Level Outcome 2:

2.1 The net profit of a W and R unit is calculated given a set of figures.

2.2 The impact own area of responsibility has on the bottom line of a W and R unit is explained with examples.

2.3 The flow of cash and stock and the impact they have on each other is explained as they apply to a W and R business.

And one of the following exit level outcomes:

Assessment Criteria for Exit Level Outcome 3:

3.1 Cash is secured in order to minimise losses in terms of organisation policies and procedures.

3.2 Variances in point of sale takings are calculated according to organisations policies and procedures.

3.3 Takings are balanced and deposited according to the organisations policies and procedures.

Or

Assessment Criteria for Exit Level Outcome 4:



4.1 Stock movement is administered to maintain stock balances according to organisational policies and procedures.

4.2 Stock is handled to reduce shrinkage and losses according to organisational policies and procedures.

4.3 Goods are received and dispatched according to organisations policies and procedures.

Or

Assessment Criteria for Exit Level Outcome 5:

5.1 Credit options, legal implications and client responsibilities are explained according to organisational credit account procedures and guidelines.

5.2 The credit application is processed and the finalisation of administrative documentation is controlled in accordance with legal requirements and organizational policies and procedures.

5.2 The further risk of customers defaulting is minimised by contacting them to obtain a commitment to a payment plan according to legal and organisational procedures.

Or

Assessment Criteria for Exit Level Outcome 6:

6.1 Products are explained to customers in terms of features and benefits of the product.

6.2 The product is matched with the customer's needs.

6.3 The sale is closed according to the organisation's policies and procedures.

Or

Assessment Criteria for Exit Level Outcome 7:

7.1 The customer's order is recorded according to organisational policies and procedures.

7.2 The customer's query is addressed according to organisational polices and procedures.

7.3 The customer's details are updated according to organisational policies and procedures.

Or

Assessment Criteria for Exit Level Outcome 8:

8.1 Personal and departmental health and hygiene standards are maintained according to organisational policies and procedures.

8.2 Wastage of stock is minimised according to organisational procedures.

8.3 Customer's queries regarding perishable products are addressed in accordance with organisational policies and procedures.

8.4 Perishable products are displayed and ticketed in terms of organisational policies and procedures.

Or

Assessment Criteria for Exit Level Outcome 9:

9.1 Cosmetic products/product ranges are described in terms of their benefits, advantages and disadvantages.

9.2 Customer needs are determined in accordance with the expected outcome of cosmetic requirements.

9.3 The interaction between a mix of products/product ranges is explained with reference to the expected outcome.

> Range: Products include colour cosmetics, nail care, hair care and skin care.

**Integrated Assessment:**

Integrated assessment at the level of Qualification provides an opportunity for learners to show that they are able to integrate concepts, ideas and actions across Unit Standards to achieve competence that is grounded and coherent in relation to the purpose of the Qualification. Integrated assessment should show how already demonstrated competence in individual areas can be linked and applied for the achievement of a holistic outcome as described in the exit level outcomes.

Integrated assessment must judge the quality of the observable performance, and also the quality of the thinking that lies behind it. Assessment tools must encourage learners to give an account of the thinking and decision-making that underpin their demonstrated performance. Some assessment practices will demand practical evidence while others may be more theoretical, depending on the type of outcomes to be assessed. The ratio between action and interpretation is not fixed, but varies according to the demands of the particular exit level outcome of the Qualification.

The primary aim of this Qualification is to ensure that learners have a sound base of general education to prepare them for further learning, whatever career path they may choose. Learners must be able to transfer generic skills across a number of different contexts, and apply them within a number of learning areas.

A broad range of task-orientated and theoretical assessment tools may be used, with the distinction between practical knowledge and disciplinary knowledge maintained so that each takes its rightful place.

### **INTERNATIONAL COMPARABILITY**

This qualification has been compared with similar qualifications in the following countries:

- > United Kingdom.
- > Singapore.
- > Australia.
- > New Zealand.
- > United State of America.
- > Botswana.

These countries represent a broad spectrum of countries that have either long standing evidence of successful wholesale and retail practices or developing countries that of late managed to maintain competitive business practices.

United Kingdom: [www.qca.org.uk](http://www.qca.org.uk):

The National Qualifications Framework of the United Kingdom has the:

- > Certificate in Retail Operations Level 3 qualification: (WRR 30202).

The following competencies are incorporated in the WRR30202 (consisting of 9 units of which five are core and 4 elective):

- > Maintain and order stock.
- > Maintain store security.
- > Apply store security systems and procedures.

- > Build relationships with customers.
- > Develop innovative ideas at work.
- > Profile a retail market.
- > Maintain store safety.

This qualification is also vocationally based and compares closely with the National Certificate: Wholesale and Retail Operations Level 3. The common areas of learning are stock control, safety and security, customer relations and basic knowledge of the industry.

The South African Qualification complements these core components of learning with credit control and the inclusion of wholesale related competencies. The provision of electives in areas of specialisation makes provision for the development of competencies for specific operational requirements.

Singapore: [www.wda.gov.sg](http://www.wda.gov.sg):

The Singapore Workforce Development Agency is a statutory board under the Ministry of Manpower (MOM) and leads and drives workforce development in Singapore through a strong focus on industry driven competency requirements.

They offer the Certificate in Retail Operations which contains the following core modules:

- > Handle merchandise display.
- > Working in the retail industry.
- > Develop ideas for workplace innovation.
- > Maintain personal presentation.
- > Interact with customers.
- > Sell products and services.
- > Perform point of sale operations.
- > Perform routine housekeeping duties.
- > Perform stock control operations.
- > Apply safety and security practices.

Over and above the provision for retail office operations, elective modules for the qualification provide product specific selections for areas such as speciality store assistance, petroleum, product storage (meat, fresh products or seafood). Both these qualifications have product biased electives and can be used to provide a specialised knowledge base for specific working environments in the retail sector. The current South African options include SMME, perishable foods and cosmetics, amongst others.

The common competencies occur at the level of the unit standard or the specific outcomes between these qualifications. These commonalities include background to the industry, Customer care, Sales and Point of Sale operations, housekeeping, stock control and safety and security.

Australia: [www.ntis.gov.au](http://www.ntis.gov.au):

While in Australia the approach towards training in this sector is to separate training in wholesale from training in retail, in South Africa, these are treated as one, namely, wholesale and retail. However, each qualification presents an elective choice between retail and wholesale as well.

There are four qualifications in the learning pathway in retail registered with the Australian National Training Authority (ANTA) ranging from the Certificate II in retail operations to a Diploma in Retail Management. Certificate III was compared with the National Certificate in W and R Operations, Level 3 and was found to contain some similarities. The following areas of

learning are in this qualification with 5 electives: Transport and Logistics, Call Centre, Public Service, Workplace Trainers and Wholesale Operations.

- > Selling and Sales.
- > Inventory.
- > Operations and Planning.
- > Marketing.
- > Finance.
- > Business Service.
- > Purchasing and Supply.
- > Product Management.

There is less similarity in the areas of learning between this qualification and the South African qualification. The approach to the electives also differs. Similarities lie in selling and sales, stock control and product knowledge.

New Zealand: [www.Nzqa.govt.nz](http://www.Nzqa.govt.nz):

The defined learning pathway in retail span National Certificates from Level 2 to 4 with the National Certificate in Retail Management pegged at Level 3. The National Certificate in Retail (Level 3) [60 credits] was compared with the South African qualification. The approach to electives differs with areas of specialization of Bicycle Sales, Servicing Optional Strand, Garden Retail Optional Strand, Visual Merchandising Optional Strand, Delicatessen Optional Strand and Produce Optional Strand.

The following core unit standards indicate a similarity between these qualifications:

- > Apply safe work practices in the workplace: 17593: 4 credits.
- > Apply skills and qualities of a salesperson in a retail or distribution environment: 11831: 6 credits.
- > Maintain and take care of stock: 406: 4 credits.
- > Enhance work practices by the application of product and/or service knowledge: 11818: 4 credits.

USA: [www.dhrm.virginia.gov/compensation/careergroups/trades/RetailOperations79110.htm](http://www.dhrm.virginia.gov/compensation/careergroups/trades/RetailOperations79110.htm):

The Department of Human Resources of the State of Virginia lists Retail Operations in the occupational family of trades and operations within the pay band range of 2-5. The Retail Specialist I (Code 79111) was found to resemble the overall purpose and level of the South African qualification. The following roles and responsibilities of this qualification covers the following common areas of learning:

- > Effective customer service with the general public and accurate sales of merchandise and services result in increased revenues.
- > Sales of merchandise and services not in compliance with the Code of Virginia, as applicable, could impact public safety and well being.
- > Operates cash registers to receive payments in the form of credit/debit card, check or cash.
- > Arranges displays, and conducts physical inventories of the stock room and sales area.
- > Implements security procedure and prepares and maintains reports and records.

Botswana: [www.bota.org.bw](http://www.bota.org.bw):

National Intermediate Certificate in Wholesale and Retail (Sales and Administration) (S00013): 123 credits. The following unit standard titles indicate the similarity with the South African qualification:

- > Demonstrate knowledge of safe handling and storage of wholesale or retail products (00005.01.01) 4 credits.
- > Apply health, hygiene, housekeeping, safety and security measures in a wholesale and retail (00146.01.01) 20 credits.
- > Order wholesale or retail stock (00012.01.01) 2 credits.
- > Demonstrate knowledge of wholesale or retail products (00013.01.01) 8 credits.
- > Maintain wholesale and retail stock levels (00004.01.01) 10 credits.
- > Operate point of sale equipment in a wholesale and retail context (00010.01.01) 4 credits.
- > Promote and sell goods in a wholesale and retail context (00169.01.01) 5 credits.

#### Conclusion:

It can be concluded from all the forgoing examples that the South African National Certificate in Operations, Level 3 compares closely with International trends in the Wholesale and Retail (W and R) sector. The overall purpose of these qualifications is the same; to develop workplace competencies for operations within W and R at above entry level.

#### **ARTICULATION OPTIONS**

Examples of horizontal articulation with this Qualification:

- > ID 58308: National Certificate: Informal Small Business Practice, NQF Level 3.
- > ID 49792: National Certificate: Retail Perishable Food, NQF Level 3.

The possibility exists for vertical articulation with this Qualification. Examples of vertical articulation:

- > ID 49397: Further Education and Training Certificate: Wholesale and Retail Operations Supervision, NQF Level 4.
- > ID 49396: Further Education and Training Certificate: Wholesale and Retail Credit Control, NQF Level 4.

#### **MODERATION OPTIONS**

- > Any institution offering learning that will enable achievement of this Qualification must be accredited by the relevant ETQA.
- > External Moderation of assessment will be overseen by the relevant ETQA at its discretion.
- > The accredited Training Provider will oversee internal Moderation of assessment.
- > Moderation should encompass achievement of competence described in both individual Unit Standards as well as the integrated competence described in the Qualification.
- > Moderation must also encompass achievement of the competencies described in the exit level outcomes described above.

#### **CRITERIA FOR THE REGISTRATION OF ASSESSORS**

- > Assessors must be registered as assessors with a relevant ETQA or an ETQA that has a Memorandum of Understanding with the relevant ETQA.
- > Assessors must be in possession of a Qualification in Wholesale and Retail Operations or a related Qualification at a minimum of NQF Level 4 or have sufficient experience.

#### **NOTES**

This qualification replaces qualification 48764, "National Certificate: Wholesale and Retail Sales Practice", Level 3, 131 credits.

**UNIT STANDARDS**

	<b>ID</b>	<b>UNIT STANDARD TITLE</b>	<b>LEVEL</b>	<b>CREDITS</b>
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	Level 3	5
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
Fundamental	9013	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	9012	Investigate life and work related problems using data and probabilities	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5
Core	114895	Define the core concepts of the wholesale and retail environment	Level 2	10
Core	258161	Control theft, fraud and safety in a Wholesale and Retail outlet	Level 3	8
Core	258156	Enhance a customer shopping experiences	Level 3	10
Core	258155	Explain the factors that impact on the bottom line of a Wholesale and Retail business	Level 3	10
Elective	258175	Break bulk, pack and label stock	Level 2	8
Elective	114891	Count stock for a stock-take	Level 2	5
Elective	258157	Explain the processing of transactions in a wholesale and retail outlet	Level 2	6
Elective	246587	Fleck or fillet fish manually or by using automated equipment	Level 2	4
Elective	114904	Implement promotional instructions	Level 2	6
Elective	114893	Pack customer purchases at point of sales	Level 2	3
Elective	243712	Address customer queries in a wholesale environment	Level 3	10
Elective	114909	Administer and control the organisation's deposits and floats	Level 3	8
Elective	114905	Administer day-end cashing up procedures	Level 3	8
Elective	258176	Advise on and promote colour cosmetic products in a retail environment	Level 3	3
Elective	258178	Advise on and promote hair care products in a retail environment	Level 3	3
Elective	258179	Advise on and promote nail care products in a retail environment	Level 3	3
Elective	258158	Advise on and promote skin care products in a retail environment	Level 3	5
Elective	243808	Apply food safety practices in a retail business	Level 3	8
Elective	13883	Apply out-bound Contact Centre Operations within a commercial environment	Level 3	8
Elective	119957	Clean and maintain premises and equipment	Level 3	5
Elective	113909	Coach a team member in order to enhance individual performance in work environment	Level 3	5
Elective	243810	Control cash in a small business	Level 3	12
Elective	243806	Deal with customers in a retail business	Level 3	8
Elective	258160	Demonstrate knowledge of products in own area of operation in a Wholesale and Retail environment	Level 3	8
Elective	114892	Dispatch stock	Level 3	10
Elective	114907	Display merchandise visually in a Wholesale and Retail outlet	Level 3	15
Elective	243678	Grant credit to customers	Level 3	8
Elective	119961	Implement personal hygiene for perishable food stores	Level 3	3
Elective	119958	Implement requirements of the cold chain	Level 3	5
Elective	243807	Maintain a safe and secure environment in a retail business	Level 3	8
Elective	243672	Maintain the stockroom	Level 3	10
Elective	119962	Mark and label perishable foods	Level 3	3
Elective	119960	Merchandise chillers and freezers in a retail store	Level 3	3
Elective	243805	Merchandise products in a retail business	Level 3	12

	<b>ID</b>	<b>UNIT STANDARD TITLE</b>	<b>LEVEL</b>	<b>CREDITS</b>
Elective	243018	Mince fish or meat using automated mincing equipment	Level 3	4
Elective	114898	Minimise defaulting customer accounts	Level 3	5
Elective	13931	Monitor and control the maintenance of office equipment	Level 3	4
Elective	258159	Offer a credit facility	Level 3	8
Elective	117877	Perform one-to-one training on the job	Level 3	4
Elective	114091	Prepare a pre and post treatment machine for production	Level 3	6
Elective	114887	Prepare a vehicle for deliveries	Level 3	8
Elective	13932	Prepare and process documents for financial and banking processes	Level 3	5
Elective	119959	Prepare food for sale	Level 3	16
Elective	258177	Process credit applications	Level 3	8
Elective	119956	Promote sales and reduce wastage at a perishable foods department	Level 3	15
Elective	114896	Receive stock	Level 3	12
Elective	243679	Recommend orders for clients in a fast moving consumer goods environment	Level 3	8
Elective	243804	Replenish stock in a retail business	Level 3	12
Elective	243809	Run a small business	Level 3	12
Elective	258162	Sell products to customers in a wholesale and retail outlet	Level 3	12
Elective	243803	Start up a small business	Level 3	15
Elective	243680	Take orders from customers	Level 3	12
Elective	243681	Uplift stock for return	Level 3	5
Elective	114598	Demonstrate an understanding of an entrepreneurial profile	Level 4	5

**LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION**

**None**



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

***Explain the factors that impact on the bottom line of a Wholesale and Retail business***

SAQA US ID	UNIT STANDARD TITLE		
258155	Explain the factors that impact on the bottom line of a Wholesale and Retail business		
ORIGINATOR		PROVIDER	
SGB Retail and Wholesale			
FIELD		SUBFIELD	
11 - Services		Wholesale and Retail	
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

#### **SPECIFIC OUTCOME 1**

Explain the relationship between the bottom line of a business and the factors that will impact on it.

#### **SPECIFIC OUTCOME 2**

Explain how net profit is arrived at on a W&R financial report.

#### **SPECIFIC OUTCOME 3**

Identify how the cash and stock functions impact on each other and the business.

#### **SPECIFIC OUTCOME 4**

Explain how own job can impact on the bottom line of a business.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	ID	QUALIFICATION TITLE	LEVEL
Core	63409	National Certificate: Wholesale and Retail Operations	Level 3





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:***Enhance a customer shopping experiences*

SAQA US ID	UNIT STANDARD TITLE		
258156	Enhance a customer shopping experiences		
ORIGINATOR			PROVIDER
SGB Retail and Wholesale			
FIELD			SUBFIELD
11 - Services			Wholesale and Retail
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 3	10

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

**SPECIFIC OUTCOME 1**

Explain customer behaviour.

**SPECIFIC OUTCOME 2**

Create positive customer perceptions.

**SPECIFIC OUTCOME 3**

Build customer relations.

**SPECIFIC OUTCOME 4**

Resolve customer complaints.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	ID	QUALIFICATION TITLE	LEVEL
Core	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

*Explain the processing of transactions in a wholesale and retail outlet*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258157	Explain the processing of transactions in a wholesale and retail outlet		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Retail and Wholesale			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Wholesale and Retail	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 2	6

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

#### SPECIFIC OUTCOME 1

Explain how to record transactions at Point of Sale.

#### SPECIFIC OUTCOME 2

Explain processing payment at Point of Sale.

#### SPECIFIC OUTCOME 3

Explain the investigation of overs and shortages at Point of Sale.

#### QUALIFICATIONS UTILISING THIS UNIT STANDARD

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Advise on and promote skin care products in a retail environment***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258158	Advise on and promote skin care products in a retail environment		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Retail and Wholesale			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Wholesale and Retail	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	5

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

**SPECIFIC OUTCOME 1**

Describe different skin types and conditions.

**SPECIFIC OUTCOME 2**

Demonstrate knowledge of skin care routines and skin-care products.

**SPECIFIC OUTCOME 3**

Promote skin care products to meet individual needs.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:***Offer a credit facility*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258159	Offer a credit facility		
<b>ORIGINATOR</b>			<b>PROVIDER</b>
SGB Retail and Wholesale			
<b>FIELD</b>			<b>SUBFIELD</b>
11 - Services			Wholesale and Retail
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	8

*This unit standard replaces:*

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
114919	Offer a credit facility	Level 2	8	Will occur as soon as 258159 is registered

**SPECIFIC OUTCOME 1**

Explain credit.

**SPECIFIC OUTCOME 2**

Offer credit options.

**SPECIFIC OUTCOME 3**

Assist the customer when completing the credit application form.

**SPECIFIC OUTCOME 4**

Explain the customer's responsibility in managing their credit.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	ID	QUALIFICATION TITLE	LEVEL
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:**

***Demonstrate knowledge of products in own area of operation in a Wholesale and Retail environment***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258160	Demonstrate knowledge of products in own area of operation in a Wholesale and Retail environment		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Retail and Wholesale			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Wholesale and Retail	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	8

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

**SPECIFIC OUTCOME 1**

Identify products and ranges in the store.

**SPECIFIC OUTCOME 2**

Identify product features.

**SPECIFIC OUTCOME 3**

Explain the benefits of product features.

**SPECIFIC OUTCOME 4**

Explain post-purchase product care.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Control theft, fraud and safety in a Wholesale and Retail outlet***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258161	Control theft, fraud and safety in a Wholesale and Retail outlet		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Retail and Wholesale			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Wholesale and Retail		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	8

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
243807	Maintain a safe and secure environment in a retail business	Level 3	8	Will occur as soon as 258161 is registered

**SPECIFIC OUTCOME 1**

Explain how to maintain a safe and secure work area.

**SPECIFIC OUTCOME 2**

Respond to emergency situations.

**SPECIFIC OUTCOME 3**

Explain how to deal with theft and fraud in a wholesale and retail outlet.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

ID	QUALIFICATION TITLE	LEVEL
Core 63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:****Sell products to customers in a wholesale and retail outlet**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258162	Sell products to customers in a wholesale and retail outlet		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Retail and Wholesale			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Wholesale and Retail		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	12

**This unit standard replaces:**

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
114900	Sell products to customers in a Wholesale and Retail outlet	Level 3	12	Will occur as soon as 258162 is registered

**SPECIFIC OUTCOME 1**

Establish the customer's need.

**SPECIFIC OUTCOME 2**

Offer products to customer.

**SPECIFIC OUTCOME 3**

Overcome customer objections.

**SPECIFIC OUTCOME 4**

Close the sale.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	ID	QUALIFICATION TITLE	LEVEL
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Break bulk, pack and label stock*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258175	Break bulk, pack and label stock		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Retail and Wholesale			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Wholesale and Retail	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 2	8

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

#### **SPECIFIC OUTCOME 1**

Receive bulk stock.

#### **SPECIFIC OUTCOME 2**

Break bulk and store packs.

#### **SPECIFIC OUTCOME 3**

Pack items.

#### **SPECIFIC OUTCOME 4**

Label items.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Advise on and promote colour cosmetic products in a retail environment***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258176	Advise on and promote colour cosmetic products in a retail environment		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Retail and Wholesale			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Wholesale and Retail	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	3

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

**SPECIFIC OUTCOME 1**

Demonstrate knowledge of basic make-up techniques.

**SPECIFIC OUTCOME 2**

Demonstrate knowledge of colour cosmetic products.

**SPECIFIC OUTCOME 3**

Promote colour cosmetic products to meet individual needs.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Process credit applications*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258177	Process credit applications		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Retail and Wholesale			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Wholesale and Retail		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	8

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

#### **SPECIFIC OUTCOME 1**

Explain credit legislation and organisational policies.

#### **SPECIFIC OUTCOME 2**

Assess and validate the credit application and supporting documentation.

#### **SPECIFIC OUTCOME 3**

Communicate the credit decision.

#### **SPECIFIC OUTCOME 4**

Control the finalisation of administrative documentation.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Advise on and promote hair care products in a retail environment***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258178	Advise on and promote hair care products in a retail environment		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Retail and Wholesale			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Wholesale and Retail		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	3

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

**SPECIFIC OUTCOME 1**

Identify different hair types and conditions.

**SPECIFIC OUTCOME 2**

Demonstrate knowledge of hair care routines and hair-care products.

**SPECIFIC OUTCOME 3**

Promote hair care products to meet individual needs.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:****Advise on and promote nail care products in a retail environment**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258179	Advise on and promote nail care products in a retail environment		
<b>ORIGINATOR</b>			<b>PROVIDER</b>
SGB Retail and Wholesale			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Wholesale and Retail		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	3

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

**SPECIFIC OUTCOME 1**

Describe different nail types and conditions.

**SPECIFIC OUTCOME 2**

Demonstrate knowledge of nail care routines and nail-care products.

**SPECIFIC OUTCOME 3**

Promote nail care products to meet individual needs.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

	<b>ID</b>	<b>QUALIFICATION TITLE</b>	<b>LEVEL</b>
Elective	63409	National Certificate: Wholesale and Retail Operations	Level 3

No. 874

22 August 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

**Real Estate**

registered by Organising Field 11, Services, publishes the following Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Unit Standards. The Unit Standards can be accessed via the SAQA web-site at [www.saqqa.org.za](http://www.saqqa.org.za). Copies may also be obtained from the Directorate for Standards Setting and Development at the SAQA offices, **Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.**

Comment on the Unit Standards should reach SAQA at the address below and ***no later than 22 September 2008***. All correspondence should be marked **Standards Setting – SGB Real Estate** and addressed to

The Director: Standards Setting and Development  
SAQA  
*Attention: Mr. D Mphuthing*  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 431-5144  
e-mail: [dmphuthing@saqa.co.za](mailto:dmphuthing@saqa.co.za)

**DR. S. BHIKHA**  
**DIRECTOR: STANDARDS SETTING AND DEVELOPMENT**



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Manage the marketing, selling and leasing of property developments***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258115	Manage the marketing, selling and leasing of property developments		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

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

**SPECIFIC OUTCOME 1**

Analyse properties in order to ensure competitive mandates from relevant parties.

**SPECIFIC OUTCOME 2**

Develop marketing, selling and leasing plans for a property.

**SPECIFIC OUTCOME 3**

Implement plans to ensure sales and marketing activities are effectively controlled.

**SPECIFIC OUTCOME 4**

Manage plans to ensure sales and marketing activities are effectively controlled.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:****Manage community schemes**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258116	Manage community schemes		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
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**

Demonstrate an understanding of the governance aspects of community scheme legislation and the legal basis of schemes not based on legislation.

**SPECIFIC OUTCOME 2**

Manage community scheme finances.

**SPECIFIC OUTCOME 3**

Administer community schemes.

**SPECIFIC OUTCOME 4**

Manage the buildings in a community scheme.

**SPECIFIC OUTCOME 5**

Manage conflict and the resolution of disputes in community schemes.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Manage a Real Estate franchise business*

SAQA US ID	UNIT STANDARD TITLE		
258117	Manage a Real Estate franchise business		
ORIGINATOR	PROVIDER		
SGB Real Estate			
FIELD	SUBFIELD		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
ABET BAND	UNIT STANDARD TYPE	NQF LEVEL	CREDITS
Undefined	Regular	Level 5	12

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

#### **SPECIFIC OUTCOME 1**

Analyse franchising opportunities.

#### **SPECIFIC OUTCOME 2**

Determine conditions of franchise agreement with franchisor.

#### **SPECIFIC OUTCOME 3**

Determine and fulfil reporting functions required by franchisor.

#### **SPECIFIC OUTCOME 4**

Maximise opportunities of franchise relationship.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Market, sell and lease community schemes***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258118	Market, sell and lease community schemes		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
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**

Market a property in community schemes.

**SPECIFIC OUTCOME 2**

Sell a property in community schemes.

**SPECIFIC OUTCOME 3**

Let and hire a property in community schemes.

**SPECIFIC OUTCOME 4**

Apply after sales service in sales process applicable to community schemes.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Manage an auctioneering business or division*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258119	Manage an auctioneering business or division		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

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

#### **SPECIFIC OUTCOME 1**

Analyse auctioneering as a separate and unique marketing channel in Real Estate.

#### **SPECIFIC OUTCOME 2**

Apply relevant acts to auctioneering operations.

#### **SPECIFIC OUTCOME 3**

Manage sales and marketing plans to ensure they are effective.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



**SOUTH AFRICAN QUALIFICATIONS AUTHORITY**

**UNIT STANDARD:**

***Integrate the principles of Agricultural property ownership into Real Estate sales and marketing functions***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258120	Integrate the principles of Agricultural property ownership into Real Estate sales and marketing functions		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

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

**SPECIFIC OUTCOME 1**

Apply the principles of agricultural property ownership.

**SPECIFIC OUTCOME 2**

Demonstrate an understanding of the agricultural property market.

**SPECIFIC OUTCOME 3**

Determine the value of agricultural property investments.

**SPECIFIC OUTCOME 4**

Demonstrate an understanding of agricultural taxation.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Manage Real Estate business operations***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258121	Manage Real Estate business operations		
<b>ORIGINATOR</b>			<b>PROVIDER</b>
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	8

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15064	Analyse and interpret real estate principles, practice, information in the real estate environment	Level 5	10	Will occur as soon as 258121 is registered

**SPECIFIC OUTCOME 1**

Analyse the Real Estate environment, in the context of own business niche.

**SPECIFIC OUTCOME 2**

Compile and implement a business plan.

**SPECIFIC OUTCOME 3**

Manage business operations.

**SPECIFIC OUTCOME 4**

Manage business risk.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Manage a business broking business or division***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258122	Manage a business broking business or division		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

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

**SPECIFIC OUTCOME 1**

Analyse a business broking business to determine its worth as an investment or business opportunity.

**SPECIFIC OUTCOME 2**

Develop a marketing and sales plan for business broking.

**SPECIFIC OUTCOME 3**

Demonstrate a working knowledge of the relevant Acts and their implications for business broking.

**SPECIFIC OUTCOME 4**

Manage plans to ensure sales and marketing plans are effective.

**SPECIFIC OUTCOME 5**

Manage and apply transaction law in the operation of a business broking operation.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:**

***Demonstrate an understanding of real estate economics in the South African context***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258123	Demonstrate an understanding of real estate economics in the South African context		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
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**

Explain basic economic concepts for real estate economic analysis.

**SPECIFIC OUTCOME 2**

Demonstrate an understanding of real estate markets.

**SPECIFIC OUTCOME 3**

Demonstrate an understanding of the economic factors influencing real estate development.

**SPECIFIC OUTCOME 4**

Demonstrate an understanding of the economic factors affecting the real estate investment market.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:****Manage the marketing, selling and leasing of properties**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258124	Manage the marketing, selling and leasing of properties		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

**This unit standard replaces:**

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15054	Manage the marketing, selling and leasing of residential properties	Level 5	12	Will occur as soon as 258124 is registered
15060	Manage the marketing, selling and leasing of agricultural properties	Level 5	12	Will occur as soon as 258124 is registered
15069	Manage the marketing selling and leasing of commercial industrial business properties	Level 5	12	Will occur as soon as 258124 is registered
15074	Manage the marketing, selling and leasing of leisure properties	Level 5	12	Will occur as soon as 258124 is registered

**SPECIFIC OUTCOME 1**

Analyse properties in order to ensure competitive mandates from relevant parties.

**SPECIFIC OUTCOME 2**

Develop marketing, selling and leasing plans for a property.

**SPECIFIC OUTCOME 3**

Implement plans to ensure sales and marketing activities are effectively controlled.

**SPECIFIC OUTCOME 4**

Manage plans to ensure sales and marketing activities are effectively controlled.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

***Integrate the principles of Commercial/Industrial property ownership into Real Estate sales and marketing functions***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258125	Integrate the principles of Commercial/Industrial property ownership into Real Estate sales and marketing functions		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>		<b>SUBFIELD</b>	
11 - Services		Cleaning, Domestic, Hiring, Property and Rescue Services	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

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

#### **SPECIFIC OUTCOME 1**

Apply the principles of commercial/industrial property ownership.

#### **SPECIFIC OUTCOME 2**

Demonstrate an understanding of the commercial property market.

#### **SPECIFIC OUTCOME 3**

Determine the value of commercial property investments.

#### **SPECIFIC OUTCOME 4**

Apply commercial property taxation to transactions.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

**None**





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Apply facilities management principles***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258126	Apply facilities management principles		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	8

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15056	Negotiate and manage resources for facilities management	Level 5	4	Will occur as soon as 258126 is registered

**SPECIFIC OUTCOME 1**

Understand and apply key concepts of facilities management.

**SPECIFIC OUTCOME 2**

Comply with legal requirements in managing facilities.

**SPECIFIC OUTCOME 3**

Apply key disciplines for effective facilities management.

**SPECIFIC OUTCOME 4**

Obtain and manage resources necessary to manage facilities.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:**

***Develop, implement and control administration of Real Estate systems, policies and procedures***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258135	Develop, implement and control administration of Real Estate systems, policies and procedures		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	8

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15068	Implement and control administration of real estate systems, policies and procedures	Level 5	10	Will occur as soon as 258135 is registered

**SPECIFIC OUTCOME 1**

Manage client records.

**SPECIFIC OUTCOME 2**

Co-ordinate activities in debtors department to enhance financial operating performance and cash flow.

**SPECIFIC OUTCOME 3**

Identify, plan and implement approved Real Estate administrative systems, policies and procedures.

**SPECIFIC OUTCOME 4**

Liaise with tenants, business providers and other role players in Real Estate environment.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Perform market assessments.***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258136	Perform market assessments.		
<b>ORIGINATOR</b>			<b>PROVIDER</b>
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	12

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15085	Perform valuations of agricultural properties used for extensive farming	Level 5	12	Will occur as soon as 258136 is registered

**SPECIFIC OUTCOME 1**

Identify and collect information pertaining to a property.

**SPECIFIC OUTCOME 2**

Analyse the market pertaining to the property.

**SPECIFIC OUTCOME 3**

Determine the value of property or land.

**SPECIFIC OUTCOME 4**

Prepare and present a current market assessment report.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Collate, interpret and utilise financial information in a Real Estate business*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258137	Collate, interpret and utilise financial information in a Real Estate business		
<b>ORIGINATOR</b>		<b>PROVIDER</b>	
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	8

#### *This unit standard replaces:*

<b>US ID</b>	<b>Unit Standard Title</b>	<b>NQF Level</b>	<b>Credits</b>	<b>Replacement Status</b>
15071	Collate, interpret and utilise financial information in a real estate business	Level 5	5	Will occur as soon as 258137 is registered

#### **SPECIFIC OUTCOME 1**

Collate, interpret and analyse financial data in order to monitor financial property transactions.

#### **SPECIFIC OUTCOME 2**

Evaluate financial information against reporting requirements.

#### **SPECIFIC OUTCOME 3**

Apply financial and investment tools to interpret and report on financial and investment data.

#### **SPECIFIC OUTCOME 4**

Monitor the implementation of portfolio plan and resulting decisions from basic feasibility studies.

#### **SPECIFIC OUTCOME 5**

Plan and implement financial controls.

#### **SPECIFIC OUTCOME 6**

Maintain financial records.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Implement and maintain legal requirements within a Real Estate business***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258138	Implement and maintain legal requirements within a Real Estate business		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Real Estate			
<b>FIELD</b>	<b>SUBFIELD</b>		
11 - Services	Cleaning, Domestic, Hiring, Property and Rescue Services		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 5	6

***This unit standard replaces:***

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
15061	Implement and maintain legal requirements within a real estate business	Level 5	8	Will occur as soon as 258138 is registered

**SPECIFIC OUTCOME 1**

Understand and apply knowledge of property law relevant to the operation of a Real Estate business.

**SPECIFIC OUTCOME 2**

Manage and apply transaction law in the operation of a Real Estate business.

**SPECIFIC OUTCOME 3**

Manage and apply Business law to the governance of the operations of the a Real Estate business.

**SPECIFIC OUTCOME 4**

Mentor and instruct agents and employees on applicable legal principles necessary to execute their job functions in, and the governance of, a Real Estate business.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



### 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

#### Engineering

registered by Organising Field 06 – Manufacturing, Engineering and Technology, publishes the following Qualification for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification. The full Qualification can be accessed via the SAQA web-site at [www.saqqa.org.za](http://www.saqqa.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 should reach SAQA at the address below and **no later than 22 September 2008**. All correspondence should be marked **Standards Setting – SGB for Engineering** and addressed to

The Director: Standards Setting and Development  
SAQA  
*Attention: Mr. D. Mphuthing*  
Postnet Suite 248  
Private Bag X06  
Waterkloof  
0145  
or faxed to 012 – 431-5144  
e-mail: [dmpthuthing@saqa.org.za](mailto:dmpthuthing@saqa.org.za)

DR. S. BHIKHA  
DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### QUALIFICATION: National Certificate: Certificated Engineering

SAQA QUAL ID	QUALIFICATION TITLE		
63450	National Certificate: Certificated Engineering		
ORIGINATOR	PROVIDER		
SGB Engineering			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National Certificate	6 - Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	120	Level 7	Regular-ELOAC

***This qualification does not replace any other qualification and is not replaced by another qualification.***

#### **PURPOSE AND RATIONALE OF THE QUALIFICATION**

Purpose:

The purpose of the Qualification is to develop the necessary knowledge, understanding and skills required for learner's further learning towards becoming a competent Certificated Engineer. It is intended to subsequently empower Certificated Engineers to demonstrate that they are capable of applying their acquired knowledge, understanding, skills, attitudes and values in the engineering working environment.

A person meeting the requirements of this Qualification is assessed as competent at the level required for entry to:

- > Registration with the relevant Engineering Council as a Professional Certificated Engineer, and the accompanying statutory licensing.
- > Recognition as a competent Certificated Engineer for specific statutory, industry or company functions.

The context of assessment, expressed in terms of the engineering, management and legal knowledge, differentiates the various qualifications. The contextual information for each certificate is defined in the section E of the range statement.

Rationale:

Engineering is an activity concerned with the solution of problems of economic importance and those essential to the progress of society. Solutions are reliant on basic scientific, mathematical and engineering knowledge. Solutions rely on analysis and synthesis, underpinned by sound techno-economic analysis. Solutions must take into account the needs of society and protection of the physical environment. Engineering work requires management and communication, and must be conducted ethically and subject to applicable legislation.

Engineering activity is essential to both economic activity and to national development. Engineering activity, while offering such benefits also involves health, safety, environmental and sustainability risks that must be managed. Effective, safe and sustainable engineering activity is founded on the competence of engineering professionals.

Engineering activities include:

- > Designing materials, components, systems or processes.
- > Planning the capacity and location of infrastructure.
- > Investigating, advising and reporting on engineering problems.
- > Improvement of materials, components, systems or processes.
- > Managing the operation and maintenance of plant, machinery and processes.
- > Managing implementation or construction projects.
- > Implementing designs or solutions.
- > Research, development and commercialisation of products.

The practice of engineering activities at professional level involves a number of roles that are recognized by the Engineering Profession Act: Professional Engineer, Professional Engineering Technologist, Professional Engineering Technician, and Professional Certificated Engineer.

The Certificated Engineer applies current engineering technology with creativity and innovation. A Certificated Engineer has significant expertise and depth of knowledge in an industry context and area of technology. The Certificated Engineer brings to engineering leadership, management and a technologically specific approach, supported by financial, commercial, statutory, safety, and environmental knowledge as required. The Certificated Engineer manages interactions within and at the boundaries of the industry context and technology domain. This Qualification therefore defines the level of competency required by a Certificated Engineer at the baseline level required for competent practice and to register with the relevant Engineering Council as a Professional Certificated Engineer. In keeping with the objectives of the National Qualifications Framework (NQF), a person assessed as competent against this Qualification qualifies for a Stage 2 Certificated Engineer Certificate.

This occupation may originate in several ways, may be generally recognized, may be an industry sector requirement, may be required by an Act or may be established by ECSA as specified registration categories. The informative examples of occupations supported by this qualification give informative examples of development paths to occupations that can be supported by this qualification with additional education and training as required. The types and specialties of occupations are as follows:

- > Certificated Engineer (Electrical: Factories).
- > Certificated Engineer (Mechanical: Factories).
- > Certificated Engineer (Electrical: Mines).
- > Certificated Engineer (Mechanical: Mines).
- > Certificated Engineer (Mining: Metalliferous).
- > Certificated Engineer (Mining: Coal).

#### **RECOGNIZE PREVIOUS LEARNING?**

Y

#### **LEARNING ASSUMED IN PLACE**

It is assumed that learners are already competent in:

- > Communication, Mathematics and Natural (Basic) Science at NQF Level 6 and completed the National Certificate: Engineering at NQF Level 6.

Recognition of Prior Learning:

This Qualification may be achieved in part or wholly through recognition of prior learning (RPL) processes in the form of workplace practice and can submit or produce evidence for summative



assessment against this Qualification at the level equivalent to that specified under learning assumed to be in place.

The provision that the Qualification may be obtained through the recognition of prior learning facilitates access to an education, training and career path in engineering and thus accelerates the redress of past unfair discrimination in education, training and employment opportunities.

Evidence of prior learning must be assessed through formal RPL processes through recognized methods. Any other evidence of prior learning should be assessed through formal RPL processes to recognize achievement thereof.

Learners submitting themselves for RPL should be thoroughly briefed prior to the assessment and will be required to submit a Portfolio of Evidence (PoE) in the prescribed format to be assessed for formal recognition. While this is primarily a workplace-based qualification, evidence from other areas of learning may be introduced if pertinent to any of the Exit Level Outcomes (ELOs).

The structure of this non-unit standard based Qualification makes the RPL possible, if the learner is able to demonstrate competence in the knowledge, skills, values and attitudes implicit in this second stage engineering qualification.

Learners who already work in the engineering industry who believe they possess competencies to enable them to meet some or all of the ELOs listed in the qualification will be able to present themselves for assessment against those of their choice.

Access to the Qualification:

Access to this Qualification is open bearing in mind learning assumed to be in place.

However, learning assumed to be in place at the start of a programme of training and experience leading to this Qualification depends on the route taken by the candidate from the several possible pathways. All pathways must result in the candidate achieving Stage 1 outcomes at NQF Level 7 as specified in the Engineering contextual Level Descriptors for Stage 1. Routes to achieving Stage 1 status are defined in the guideline "Framework for Progression to Certificated Engineer". Hence, a Qualification meeting Engineering Council standards provides a benchmark for the learning assumed to be in place to enter a programme of training and experience leading to this certificate.

### **QUALIFICATION RULES**

Fundamentals:

- > Natural (Basic) Sciences, 10 Credits.
- > Mathematical Sciences, 15 Credits.

Core:

- > Engineering Practice, 10 Credits.
- > Computing and Information Technologies, 15 Credits.
- > Engineering Sciences, 40 Credits.

Electives:

- > Complementary Studies, 10 Credits.
- > Discretionary Studies, 20 Credits. Complementary Studies are portable and cover those disciplines outside of engineering sciences which includes modules/subjects on communication

skills, etc. Discretionary study credits range from 0-20 provided the total credits for the complete qualification is not less than a 120 Credits.

#### Knowledge Area Definitions:

> **Natural (Basic) Sciences:** Physics (including mechanics), chemistry, earth sciences and the biological sciences which focus on understanding the physical world, as applicable in each engineering disciplinary context.

> **Complementary Studies:** Cover those disciplines outside of engineering sciences, basic sciences and mathematics which:

(a) Are essential to the practice of engineering, including engineering economics, the impact of technology on society and effective communication.

(b) For NQF Levels 6 and above: Broaden the student's perspective in the humanities or social sciences to support an understanding of the world.

> **Computing and Information Technologies:** Encompasses the use of computers, networking and software to support engineering activity and as an engineering activity in itself as appropriate to the discipline.

> **Engineering Practice:** Embraces in an appropriate mix for the level and target occupation includes design-related, inspection, testing, and maintenance and operations activities.

> **Engineering Sciences:** Have roots in the mathematical and basic sciences, and where applicable, in other basic sciences but extend knowledge and develop models and methods in order to lead to engineering applications and solve engineering problems.

> **Mathematical Sciences:** An umbrella term embracing the techniques of mathematics, numerical analysis, statistics and aspects of computer science cast in an appropriate mathematical formalism.

Designers of specific qualifications may build on this generic base by specifying occupation-related content and specific skills required. The particular occupation may also require other qualifications, learnerships, skills programmes or further learning.

#### **EXIT LEVEL OUTCOMES**

The candidate is declared competent as a Certificated Engineer at stage 1 by demonstrating in an integrated manner, in a workplace context, the following outcomes exhibiting the attributes mainly of broadly defined engineering activities defined in the General Range Statement.

1. Identify, clarify, and analyze broadly defined engineering problems.

> **Range Statement:** Problems include problematic situations in an existing component, system or process involving health and safety and risk assessment. The problem may be operational, a design requirement or an applied research and development requirement. The problem is one amenable to solution by technologies known to the candidate. This outcome is concerned with the understanding of a problem: Outcome 2 is concerned with the solution.

2. Design or develop solutions to broadly defined engineering problems.

> **Range Statement:** The solution may be the design of a component, system or process or a recommendation of the remedy to a problematic situation. Solutions are those enabled by the technologies in the candidate's practice area.

3. Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems or methodologies and those specific to the industry context in which he/she practices.

> Range Statement: Technological knowledge is well established and applicable to the practice area irrespective of location, supplemented by locally relevant knowledge, for example, established properties of local materials. Industry contextual knowledge includes legal and regulatory requirements as well as prescribed codes of practice, specifically H & S legislation. Emerging technologies are adopted from formulations of others. Practice contexts are appropriate to scope of certificate:

- > Mechanical and Electrical in Factory context.
- > Mechanical and Electrical in Mining context.
- > Mining Engineering and Operations.

Specific knowledge and contextual considerations required in each of these practice areas in Range Statements E1, E2 and E3 respectively.

4. Lead and manage part or all of one or more broadly defined engineering activities.

> Range Statement: These management abilities support the effective discharge of responsibilities as a certificated engineer, achieve results through other persons.

5. Recognize and address the foreseeable social, cultural and environmental effects of broadly defined engineering activities generally.

> Range Statement: Impacts considered extend over the lifecycle of the project and include the consequences of the technologies applied.

6. Meet relevant legal and regulatory requirements and protect the health and safety of persons in the course of his or her broadly defined engineering activities.

> Range Statement: Requirements include both explicitly regulated factors and those that arise as a consequence of particular work or activity. Persons whose health and safety are to be protected are those explicitly identified in terms of the applicable health and safety legislation and those outside the workplace who are subject to risks as a consequence of workplace activity. The candidate will be proficient in one of the health and environmental protection contexts:

- > Occupation Health and Safety Act OR
- > Mine Health and Safety Act OR
- > Marine Act; together with other relevant acts and regulations applicable in each case.

Sections E5, E6 and E7 list the principal parts of Acts and Regulation applicable to different contexts.

7. Conduct his or her engineering activities ethically.

> Range Statement: Ethical behaviour is at least that defined by the applicable Code of Conduct.

8. Exercise sound judgment in the course of broadly defined engineering activities.

> Range Statement: Judgment is expected both within the application of the candidate's technologies, in their wider impacts and when dealing with interfaces to other disciplines and technologies.

9. Be responsible for making and executing decisions on part or all of one or more broadly defined engineering activities.

> Range Statement: The candidate is expected to demonstrate adequately discharging responsibility for significant parts of a one or more broadly defined engineering activity.

> Note 1: The candidate in demonstrating responsibility would under supervision of a competent certificated engineer be expected to perform as if he/she is in a responsible position taking actual responsibility for the work due to statutory or other requirements for a practicing Certificated Engineer.

10. Communicate clearly with others in the course of his or her broadly defined engineering activities.

> Range Statement: Material relates to technical aspects and wider impacts of the Certificated Engineer's work. Audience includes peers, other disciplines, client, stakeholder's audiences and Government Departments. Appropriate modes of communication must be selected. While the assessment criteria are similar to those at Stage 1, the Stage 2 Certificated Engineer is expected to perform the communication functions reliably and repeatable.

11. Plan and execute professional development activities.

> Range Statement: In proceeding from Stage 1 to Stage 2, the candidate must bear this competency standard in mind in developing the strategy and activities. A candidate in a structured programme is expected to take ownership of the strategy. Boundaries of practice area linked to technologies used, change by adoption of new technology into current practice.

Critical Cross-Field Outcomes (CCFOs):

This qualification promotes, in particular, the following Critical Cross-Field Outcomes:

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

- > Identifying potential risks in the workplace and implementing appropriate solutions to maintain a safe and secure working environment.
- > Identifying and resolving general client queries and deviations from regulatory requirements.
- > Identifying and pro-actively reporting on non-availability of resources and materials.

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

- > Directing appropriate colleagues to attend to client queries.
- > Understanding the impact of service delivery to the client.
- > Activities involving clients, co-workers and suppliers.
- > Communicating and receiving advice from supervisors.

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

- > Identifying, minimizing and reporting potential occupational health and safety hazards and risks in the workplace.
- > Performing work activities in accordance with industry standard operating procedures.
- > Safety equipment and clothing is selected and prepared in accordance with legislative requirements.

Collecting, analysing, organising and critically evaluating information to better understand and explain by:

- > Carrying out written instructions issued by the clients and supervisors, correctly and efficiently.
- > Interpreting and recording correct client contact details.

Communicating effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion when:

- > Issuing clear verbal instructions to team members, other colleagues and clients.
- > Actively listening to feedback received from team members, other colleagues and clients.
- > Evaluating and reporting problem situations to team members, other colleagues and clients.

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

- > Interpret various gauge settings, readings and recording the impact on the business.

> Understanding and interpreting the various gauge reading equipment.

Demonstrating and understanding of the world as a set of related systems by recognizing that problem-solving contexts do not exist in isolation when:

> Applying the inter-relatedness of the engineering industry as a set of related systems.

> Recognizing the inter-relatedness between the various business units within the organization.

### **ASSOCIATED ASSESSMENT CRITERIA**

#### **Assessment Criteria for Exit Level Outcome 1:**

The candidate is expected to perform a structured analysis of problems typified by the following performances:

1. Interprets and clarifies requirements, leading to an agreed definition of the problem to be addressed.
2. Identifies interested and affected parties and their expectations.
3. Gathers, structures and evaluates a sufficient range of information relating to the problem.
4. Performs structured analysis.
5. Evaluates the result of the analysis and revise or refine as required.
6. Evaluates health and safety risks and perform analyses required by applicable legislation.
7. Documents and reports conveying outcome to the requesting party.

#### **Assessment Criteria for Exit Level Outcome 2:**

This outcome is normally demonstrated after problem analysis as defined in outcome 1. The candidate is expected to work systematically to synthesise a solution to a problem, typified by the following performances:

1. Proposes potential approaches to the solution.
2. Conducts a preliminary synthesis following selected approaches.
3. Evaluates potential solutions against requirements and wider impacts.
4. Presents reasoned technical, economic and contextual arguments for the selected option.
5. Fully develops chosen solution.
6. Evaluates the resulting solution.
7. Documents the solution for approval and implementation.

#### **Assessment Criteria for Exit Level Outcome 3:**

This outcome is normally demonstrated in the course of design, investigation or operations. The candidate typically:

1. Displays mastery of understanding of current and emerging technologies in the practice area.
2. Applies general and underpinning engineering knowledge to support activities of certificated engineers.
3. Displays working knowledge of areas that interact with the practice area.
4. Applies related knowledge: financial, statutory, safety, management.

#### **Assessment Criteria for Exit Level Outcome 4:**

The candidate is expected to display personal and work process management abilities when doing the following activities:

1. Manages self.
2. Envisions and plans strategically to fulfil company goals.

3. Establishes understanding and acceptance of goals and plans in other.
4. Leads and works effectively in a team environment, energizing individuals and teams to realize goals.
5. Manages people, works priorities and resources, asserting authority and control over affairs, systems, processes and people.
6. Establishes and maintains professional and business relationships.
7. Provides leadership in technology and health and safety.

**Assessment Criteria for Exit Level Outcome 5:**

This outcome is normally displayed in the course of analysis and solution of problems. The candidate typically;

1. Identifies interested and affected parties and their expectations.
2. Identifies environmental impacts of the engineering activity.
3. Proposes measures to mitigate negative effects of engineering activity.
4. Communicates with stakeholders.
5. Determines or develops work processes to be used as required by health and safety legislation.

**Assessment Criteria for Exit Level Outcome 6:**

The candidate is expected to:

1. Demonstrate knowledge and understanding of applicable Health and Safety legislation.
2. Identify and ensure compliance with applicable legal, regulatory and health and safety requirements for the operational and engineering activity.
3. Identify hazards, assess and manage risk, applying defined, widely accepted risk management strategies.
4. Select safe and sustainable materials, components and systems.
5. Ensure that required records on health and safety matters are kept.

**Assessment Criteria for Exit Level Outcome 7:**

The candidate is expected to be sensitive to ethical issues and adopt a systematic approach to resolving these issues typically when the candidate:

1. Identifies the central ethical problem.
2. Identifies affected parties and their interests.
3. Searches for possible solutions for the dilemma.
4. Evaluates each solution using the interests of those involved, accorded suitable priority.
5. Selects and justifies solution that best resolves the dilemma.

**Assessment Criteria for Exit Level Outcome 8:**

A candidate typically exhibits judgment by:

1. Considering several factors, some of which may not be well defined.
2. Considering the interdependence, interactions and relative importance of factors.
3. Foreseeing consequences of actions.
4. Evaluating a situation in the absence of full evidence.
5. Drawing on experience and knowledge.

**Assessment Criteria for Exit Level Outcome 9:**

The candidate displays responsibility by performance when he/she:

1. Demonstrates a professional approach at all times.
2. Has due regard to technical social, environmental and sustainable development considerations.
3. Takes advice from a responsible authority on any matter considered to be outside area of competence.
4. Makes decisions and takes responsibility for work output.

Assessment Criteria for Exit Level Outcome 10:

The candidates demonstrate effective communication when they:

1. Write clear, concise, effective, technically, legally and editorially correct reports using a structure and style, which meets communication objectives and user/audience requirements.
2. Read and evaluate technical and legal matter relevant to the function of the practicing Certificated Engineer.
3. Ensure correct interpretation of received instructions.
4. Issue clear instructions to subordinates using appropriate language and communication aids, ensuring that language and other communication barriers are overcome.
5. Make oral presentations using structure, style, language, visual aids and supporting documents appropriate to the audience and purpose.

Assessment Criteria for Exit Level Outcome 11:

The candidate demonstrates the ability to manage his or her own professional development toward the Stage 2 Certificate when he/she:

1. Plans and executes own professional development strategy.
2. Selects appropriate professional development activities.
3. Keeps record of professional development strategy and activities.
4. Displays independent learning ability.

General Assessment Criteria:

Professional level competence is more than satisfying a set of attributes individually. Rather, professional level competence must be assessed holistically.

Demonstration of competence must take place in a typical work context of a Certificated Engineer and involve different types of work. Competence statements accommodate different types of technical work, engineering management and in all cases have occupational health and safety considerations.

Work involves the supervision, management and leadership of different levels of workforce who must work effectively and safely.

Note on Associated Assessment Criteria:

Overlap exists between performances specified for different outcomes. The same evidence may be used toward assessing competence under different outcomes.

Integrated Assessment:

The applied competence (practical, foundational and reflective competencies) of this qualification will be achieved if a learner is able to achieve the Exit Level Outcomes of the qualification as per the rules specified. Applicable Critical Cross-Field Outcomes must be assessed during any combination of practical, foundational and reflexive 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 tools to assess the foundational, reflective and practical competencies within the regulatory environment.

A detailed portfolio of evidence is required of the practical, foundational and reflective competencies of the learner. Assessors and moderators should develop and conduct integrated assessment by making use of a range of formative and summative methods.

Assessors should assess and give credit for the evidence of learning that has already been acquired (RPL) through any form of learning. Unit standards associated with this qualification must be used to assess Specific and Critical Cross-Field Outcomes.

During integrated assessment, the assessor should make use of formative and summative assessment methods and should assess combinations of practical, foundational and reflective competencies. Because assessment practices must be open, transparent, fair, valid, and reliable and ensure that no learner is disadvantaged in any way whatsoever, the qualification applies in an integrated assessment approach.

Learning, teaching and assessment are inextricably linked. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the unit standards should be integrated. Assessment of the fundamental unit standards should be conducted in conjunction with the core and elective unit standards where applicable.

A variety of methods must be used in assessment, and tools and activities must be appropriate to the context in which the learner is working. Where it is not possible to assess the learner in the workplace or on-the-job, simulations, case studies, role-plays and other similar techniques should be used to provide a context appropriate to the assessment.

Assessors and moderators should use 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. Assessment should ensure that all specific outcomes, embedded knowledge and critical cross-field outcomes are evaluated.

The assessment of the critical cross-field outcomes should be integrated with the assessment of specific outcomes and embedded knowledge.

#### Formative Assessment:

Assessment criteria for formative assessment will typically take place during training and serves to guide the learner towards full competence and is described in the various unit standards. Formative assessment takes place during the process of learning and assessors can use a range of appropriate assessment methods and tools or in any agreed-upon method of assessment of the knowledge required to perform the various competencies in a holistic manner. To be allowed access to the final qualifying assessment, a learner must show that he/she has reached a level of overall integrated competence.

The methods of assessment could include but not limited to the following:

- > On-the-job Observations.
- > Role-play and/or Simulations.
- > Knowledge tests, exams, case studies, projects, logbooks, workbooks.
- > Verbal report backs (presentations).



- > Portfolios of Evidence (RPL).
- > Working in teams (360 degrees evaluations).
- > Scenario sketching Incident reports.

The assessment tools and methods used by the assessor must be:

- > Fair, not to hinder or disadvantage the learner in any way.
- > Valid, to measure what is intended to measure.
- > Reliable, consistent and delivers the same output across a range of learners and assessors.

Summative Assessment:

For the learner to be certified competent against the qualification, he/she must prove overall competence through the integration of the competencies expressed in the unit standards. The elements of importance here are overall abilities, problem-solving capability and safe working. In addition, assessors should be satisfied that the learner has achieved a level of competence to be able to take charge of any aspect of the regulatory operations.

The learner's ability to demonstrate competence against a particular unit standard, under real-life working conditions and in the presence of an assessor, will be assessed. The summative assessment can also be used as a diagnostic assessment tool aimed at identifying the learner's skills gaps.

Workplace Assessment:

Workplaces can be used for assessment purposes provided that the appropriate facilities, tools, equipment, and support systems are available and accessible to both the assessor and the learner. The regulatory operations industry agreed on the following requirements for workplace assessment:

- > Assessment needs to occur in a familiar environment at the time of assessment.
- > Assessment needs to take place at a time and venue mutually agreed to by the assessor and the learner.

Methods of Assessment:

The following methods of assessment have been identified as the preferred measurement and assessment of learner competence in the assessment criteria:

- > Portfolio of Evidence.
- > Written tests.
- > Practical tests.
- > Oral Assessment methods.
- > In-situ (on-the-job) observations.
- > Simulation.
- > Structured classroom discussions and oral tests.

These methods will be selected carefully based on the purpose of the assessment. For example, the written method will be used to assess knowledge and on-the-job demonstration for practical competence. The assessment must integrate a number of different methods (no less than two of those detailed above) in order to give the assessor reliable and valid proof of competence and evidence of required attitudes.

## **INTERNATIONAL COMPARABILITY**

Introduction:

International Comparability of this qualification is based on the combination of the Level 5 and Level 6 Engineering qualifications that would typically precede a programme leading to this particular engineering certificate course. The combination of these qualifications is comparable with the Washington, Dublin and Sydney Accord degrees, diplomas and certificates in Canada, USA, Ireland, Australia, UK and New Zealand of two - four years duration with no work-integrated learning.

International comparability of this qualification and standards was done against qualifications that are offered in various countries and particularly to those that are signatories to the various international agreements, like the Washington, Sydney and Dublin Accords. These 3 International Accords places recognition of the equivalence of Accredited Engineering Education Programmes which articulates to the Engineering Degrees, Diplomas, and Certificates and beyond. It is an essential quality assurance process and is based on world best practice. Hence, these standards are comparable with those for professionally-oriented certificates' and diplomas in engineering in countries having comparable engineering education systems to South Africa. The combination of these qualifications is comparable with certificates and diplomas in Canada, USA, Ireland, UK and New Zealand of two years duration with no work-integrated learning.

Hence, there are six international agreements governing mutual recognition of engineering qualifications and professional competence. In each of these agreements countries/economies who wish to participate may apply for membership, and if accepted become members or signatories to the agreement. In broad principle, each country/economy must meet its own costs, and the body making application must verify that it is the appropriate representative body for that country/economy.

#### Agreements covering tertiary qualifications in Engineering:

There are three agreements covering mutual recognition in respect of tertiary-level qualifications and standards in engineering:

##### The Washington Accord:

> Signed in 1989 was the first and it recognises substantial equivalence in the accreditation of qualifications in professional engineering, normally of four years duration. It recognizes the substantial equivalency of programmes accredited by those bodies and recommends that graduates of programs accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering.

##### The Sydney Accord:

> Commenced in 2001 and recognises substantial equivalence in the accreditation of qualifications in engineering technology, normally of three years duration. Flowing from the Washington Accord, a similar Agreement was developed for Engineering Technologists or Incorporated Engineers, called the Sydney Accord (SA), which was signed in June 2001. It also recognizes the substantial equivalency of programmes accredited by those bodies and recommends that graduates of programmes accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering.

##### The Dublin Accord:

> Is an agreement for substantial equivalence in the accreditation of tertiary qualifications in technician engineering, normally of two years duration and it commenced in 2002. The Dublin Accord is an agreement for the international recognition of Engineering Technician qualifications and in May 2002 the national engineering organisations of the United Kingdom, Republic of Ireland, South Africa and Canada signed an agreement mutually recognising the qualifications which underpin the granting of Engineering Technician titles in the four countries. Since then, two further economies have attained provisional membership, and are working towards signatory status. They are New Zealand and the United States.

Agreements covering competence standards and qualifications for practising engineers.

The other three agreements cover recognition of equivalence at the practising engineer level i.e. it is individual people, not qualifications that are seen to meet the comparable and benchmark standard. The concept of these agreements is that a person recognised in one country as reaching the agreed international standard of competence should only be minimally assessed (primarily for local knowledge) prior to obtaining registration in another country that is party to the agreement.

The oldest such agreement is the Asia-Pacific Economic Cooperation (APEC) APEC Engineer agreement: which commenced in 1999:

> This has Government support in the participating APEC economies. The representative organization in each economy creates a "register" of those engineers wishing to be recognised as meeting the generic international standard. Other economies should give credit when such an engineer seeks to have his or her competence recognised. The Agreement is largely administered between engineering bodies, but there can be Government representation and substantive changes need to be signed off at governmental APEC Agreement level.

The Engineers Mobility Forum (EMF) agreement:

> Commenced in 2001. It operates the same competence standard as the APEC Engineer agreement but any country/economy may join. The parties to the recognition of the qualification and standards agreement are largely engineering bodies and there are intentions to draw EMF and APEC closer together.

The Engineering Technologist Mobility Forum agreement was signed by participating economies/countries in 2003. The parties to the Agreement have agreed to commence establishing a mutual qualification and standards recognition scheme for engineering technologists.

Australia:

The Australian Qualifications Framework has Engineering Diploma and Certificate courses that are similar which prepares candidates for both employment and further education and training according to the Commonwealth Engineers Council (CEC) and Engineers Australia (EA), formerly as the Institution of Engineers. These qualifications in the Australian context may be gained through a wide range of pathways, including: Australian Apprenticeships (including traineeships); work-based and/or school/institution-based training; recognition of prior learning (which may include training programmes or an accumulation of short courses).

Ireland:

The National Qualifications Authority of Ireland and the Irish FET Awards Council has qualifications and standards awards in Engineering Skills, Engineering Technology and General Engineering Operations at a South African Engineering comparable level. These qualifications enable holders to undertake further training and develop new skills within a structured and managed environment and will arm them with qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility as required by the World Federation of Engineering Organizations (WFEO).

United Kingdom:

The UK Business and Technology Education Council (BTEC) HNC has one year engineering qualifications and standards that are quality assured and underwritten through the Engineering Council of the United Kingdom (ECUK). The requirements of these qualifications and standards are fundamental to the engineering courses and comprises modules or subjects such as

Analytical Methods and Engineering Science which have fundamental components that are comparable to the South African qualifications context.

#### New Zealand:

The New Zealand National Qualifications Framework has National Certificates and Diploma at NZ NQF Level 7, which is quality assured and underwritten by the Institution of Professional Engineers New Zealand (IPENZ). All these courses are focused on particular disciplines or engineering occupations which prepare candidates for both employment and further education and training. These National Certificates in Engineering recognise skills and knowledge that meet nationally endorsed standards.

#### SADC Nations:

International Comparability with qualifications of countries within the SADC region proved to be difficult, as in most SADC Countries no similar qualifications could be found and thus they use the Engineering Council of South Africa (ECSA) qualifications as a point of comparing standards. Only Namibia, who has previously been a part of South Africa, has similar qualifications, but does not necessarily practice exactly the same standards as in South Africa.

South African companies also have a strong and respected tradition of training in engineering. Prior to the development of this qualification, training has been company based, in-house and on-the-job, but to international standards, using internationally recognized American or British generated materials. South African companies provide training to other African countries such as Botswana and Zambia, as well as further-a-field in a range of other countries, including the Middle East.

In the early 2000's the South African engineering industries identified a need to develop qualifications that align with the principles of the National Qualifications Framework. Such qualifications would provide a national standard for training and would support the need to maintain and improve standards of safety and quality in this important industry sector. There was also considerable pressure from industry stakeholders for quality learning to be developed and implemented.

#### Emerging Economies:

In an attempt to do a comparison with countries with an emerging economy, the following websites were searched:

[www.lan.gov.my](http://www.lan.gov.my)

This site directs searches to the Malaysian Accreditation Body: Lenbaga Akreditasi Negara, but does not give any details of any engineering qualifications that could be compared, although there is an Institution of Engineers in Malaysia (IEM) and a Board of Engineers in Malaysia (BEM).

[www.naac-india.com](http://www.naac-india.com)

This site directs searches to the National Assessment and Accreditation Council (India), but does not give any details of any engineering qualifications that could be compared, although there is an Institution of Engineers in India (IEI) and a National Board of Accreditation of All India Council for Technical Education (NBA-AICTE).

[www.nigeria.com](http://www.nigeria.com)

Provides links and access to the Federal Ministry of Education in Nigeria, but does not give any details of any engineering qualifications that could be compared with those in South Africa.

#### Conclusion:

South African companies also have a strong and respected tradition of training in engineering. Prior to the development of this qualification, training has been company based, in-house and on-the-job, but to international standards, using internationally recognized American or British generated materials.

South African companies provide training to other African countries such as Botswana and Zambia, as well as further-a-field in a range of other countries, including the Middle East.

In the early 2000's the South African engineering industries identified a need to develop qualifications that align with the principles of the National Qualifications Framework. Such qualifications would provide a national standard for training and would support the need to maintain and improve standards of safety and quality in this important industry sector. There was also considerable pressure from industry stakeholders for quality learning to be developed and implemented.

However, this qualification has generic competencies equivalent to a Professional Engineering Technologist, industry-specific contextual knowledge and practices and knowledge of South African health and safety legislation relevant to the particular industry. The generic competencies are compared and benchmarked by ECSA against those of international signatories to the Washington, Dublin and Sydney Accords and the Engineering Technologist Mobility Forum. Engineering Industry specific practices and standards are internationally compared and benchmarked by the various employers to these international accords and forums.

#### **ARTICULATION OPTIONS**

Routes for articulation and progression to this qualification are detailed in ECSA's guideline under "Framework for Progression Certificated Engineer." Having obtained this qualification, the holder is able to progress through continuing professional development activities. This qualification provides for both horizontal and vertical articulation.

Horizontal Articulation is possible with:

> ID 48694: Bachelor of Science: Engineering, NQF Level 7.

Vertical Articulation:

> ID 19635: Master of Engineering Science, NQF Level 8 and above.

#### **MODERATION OPTIONS**

It is likely that candidates will offer a single body of work-based evidence for assessment against the eleven outcomes. Assessors must therefore examine the evidence holistically, recognizing that a given body of work-based evidence may demonstrate performance against several outcomes.

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

> Moderation of assessment will be overseen by the relevant ETQA or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the relevant ETQA's policies and guidelines for assessment and moderation.

- > A learner wishing to be assessed for this qualification can only be assessed through an accredited assessment provider/centre.
- > 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 as well as in the Exit Level Outcomes described in the Qualification.

### **CRITERIA FOR THE REGISTRATION OF ASSESSORS**

Assessors must be Professional Certificated Engineers registered with ECSA and fully trained in the methods of assessment.

The assessor for this qualification must be:

- > Have a similar qualification or that is at least one level higher than this qualification.
- > Meet the requirements of National Assessor Unit Standards.
- > Registered as an assessor with the relevant ETQA or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.
- > Have at least a minimum of 1 year on the job relevant experience.

### **NOTES**

Definitions:

- > Engineering Operations and Support Occupation: A narrowly specified occupation that relies on technical knowledge and skills to perform specific technical or supervisory functions in engineering activity.
- > Specified categories: Means a category of registration created for persons who must be licensed through the Engineering Profession Act or a combination of the Engineering Profession Act and external legislation as having specific competencies related to an identified need to protect the public safety, health and interest or the environment, in relation to an engineering activity, ECSA definition.

Well defined specific Engineering problems:

- > Are largely defined but may require refinement.
- > Are routine or unfamiliar but in familiar context.
- > Are encompassed by standards, codes and documented procedures.

General Range Statement:

Practice Area:

Each certificated engineer, by the time of reaching the point of assessment against this standard, will have followed a programme of education, training and experience that may conform to an established pattern or may be distinctive. Each individual therefore develops an area of knowledge and expertise that, in addition to the common elements listed below, may be distinctive. This pattern of knowledge and expertise is termed the individual's practice area. A practice area falls in a particular industry context, for example factories or mines.

A. Broadly-defined Engineering Activities (BDEA): Are characterized by several or all of:

- > Activities involve one or more of: Design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; engineering operations; project

management; research, development and commercialisation. It specifically includes operations, plant maintenance, application of company policy, procedures and best practice subject to applicable health and safety legislation.

- > Boundaries of practice area linked to technologies used, change by adoption of new technology and legal requirements into current practice. Advances health and safety beyond minimum legal baseline; applies best practice; advances operational engineering practice; adapts to changing technologies, business environment and new safety hazards.
- > Practice area is located within a wider and complex context, requires teamwork and has interfaces to other parties and disciplines.
- > Involve the use of diverse resources (including people, money, equipment, materials, technologies), dealing with risks in practice area, including evaluation of immediate H&S risks, and perform analyses required by applicable laws.
- > Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues.
- > Constrained by time, finance, infrastructure, resources, facilities, standards & codes, applicable laws. Work is significantly regulated by H&S legislation best practice (standards and codes) applicable in plant or mine contexts.

B. Broadly defined Engineering Problems (BDEP): are characterized by several or all of:

- > Requires underpinning knowledge and skills in the technology area.
- > May encompass systems within complex engineering systems.
- > Ill posed, unpredictable, under or over specified problems requiring identification and interpretation into practice area.
- > Information from sources interfacing with practice area is complex and possibly incomplete, requires analysis and compilation into information base.
- > Can be solved by structured analysis techniques.
- > Involves a variety of factors which may impose conflicting constraints.
- > Belong to families of problems which are solved in well-accepted and innovative ways although infrequent unfamiliar problems are encountered.
- > Problems may be partially outside standards and codes; operate outside with justification.
- > Involves several groups of interested and affected parties with differing and occasionally conflicting needs.
- > Have significant consequences which are important in the practice area, but may extend more widely.
- > Requires judgment in decision making, in the practice area, considering interfaces with other areas.

C. Skills required by Certificated Engineer in order to undertake Broadly-defined Engineering activities and solving broadly defined Engineering Problems: are characterized by several or all of:

- > Skills are intellectual and practical.
- > Thinking focuses on creatively applying technology its impact within entire process or project including optimising resources and health and safety aspects within the operational boundaries requiring occasional lateral and divergent thinking.
- > Range of specific skills related to plant or another or mine relevant workplace.
- > Teamwork and multidisciplinary work, leadership of technological aspects including the leadership of health & safety aspects.
- > Deal with changing work requirements, human and industrial relations and evolving technologies.
- > Select or extend processes to suit operational and resource requirements taking cognisance of health and safety legislation.
- > Communicate professional work to peers, other disciplines, client, interested and affected parties, and selecting appropriate modes of communication in order to optimise plant or mine operations.

D. Responsibility for Broadly defined Engineering Activities: Are characterized by several or all of the following:

- > Responsibility within broad parameters for functions in practice area and full responsibility for occupational health and safety risks, preventive action, and plant/mine engineering.
- > As required by specific health and safety legislation, by code of conduct and company policies.
- > Fully accountable for personal contribution, to the team, and for adding value to the operational requirements including health and safety within their work activity.
- > Responsible for assessing immediate and long-term impacts of technology and interaction areas within and beyond boundaries of plant/mine.
- > Work within value system for assurance of health and safety, enterprise objectives and effective application of technology.
- > Work strategically, focusing on time, in-specification completion of deliverables with occasional strategically focus on operational matters.
- > Work outcomes are subject to review by experienced Certificated Engineer.
- > Full personal responsibility and accountability for own Continuing Professional Development.

E. Contextual knowledge:

E.1. Electrical and Mechanical Engineering: Factories:

Competence must be demonstrated in the context of the following plant, equipment, practices and processes at factories with emphasis on the general design, lay out, production capacity, reticulation, energy requirements, motion characteristics, economic operation, efficiency testing, commissioning, maintenance, safety precautions and safety devices:

- > Project Engineering including planning (Gantt Charts), management (critical path scheduling), commissioning and development of a planned maintenance scheme; Loss control management, incident investigations and corrective actions.
- > Electrical Plant and Equipment including generation, transforming, rectification, control and measurement; Testing and repairing of electric motors; Phasing and synchronizing a.c. motors operating in tandem; Fault detection in electric systems; Emergency electric plant; Explosion proof equipment.
- > Hydraulics including hydrostatic drives-classification and characteristics, hydraulic pumps, actuators and circuits for sequence operation; General properties of lubricants and additives to lubricants (oil and grease).
- > Pressure equipment and plant including boiler, super heater and economizer efficiencies, vessels under pressure inspection and testing, steam ancillary equipment and pipe systems; Maintenance and fault diagnosis of compressors, refrigeration compressor and systems; Pumps, pump stations and fluid mechanics; Gas fuel system maintenance and safety.
- > Factory equipment and plant including lifting and conveying machinery, ie lifts, belt conveyors, aerial ropeways, lift trucks, steel rope, chains and connections, welders, heat treatment plant, lathes, drills, the maintenance, inspection and testing and repairs of all typical machinery used in factories; Flammable and hazardous substance environments, machinery and equipment.
- > Strengths and structures of plant including steel structures (stresses), beams, mechanical properties of fabrication materials, heat treatment and application of steel alloys and man made products (i.e. nylons), abrasion and protection of structures (steel and other materials). Utilization of concrete, reinforcement, composite beams, curing, chemical protection and wear.
- > Environmental engineering including ventilation systems, air-conditioning systems, dust suppression, emission control of diesel engines, occupational noise originated by machines and hearing protection, illumination types, effects and efficiencies.
- > Safety equipment and systems includes machine guarding, automatic control systems, detection systems, safety precautions and safety devices as found and used on all types of machines; Fire prevention equipment and systems, flammable and hazardous substance plants and continuous plant.



## E.2. Electrical and Mechanical Engineering: Mines:

Competence must be demonstrated in the context of the following plant and equipment on surface and underground with basic knowledge in:

- > Project management, critical path analysis, time and cost control, commissioning.
- > Maintenance management, life cycle costs, efficiency testing, testing for design conformance, maintenance of warning symbols and machine guards, vibration measurements, nett present value calculations, interpretation of mine plans, mechanical drawings and electrical diagrams.
- > Design requirements, intrinsically safe and explosion protected designs, provision of symbols, machine guarding.
- > Operational requirements, production capacity, motion characteristics.
- > Mine Health and Safety Act and Regulations, Risk Assessment, Code of Practices, Guidelines.

### Inspector Guidance Notes:

#### Plant and equipment:

##### 1. All types of winding plant and ancillary equipment:

- > Control systems, signalling - and protection devices, cycle times.
- > Wire ropes and attachments.
- > Sheave wheels, - shafts, -bearings.
- > Cages, skips and other types of conveyances.
- > Shafts - guides, shaft steelwork, vertical and incline.
- > Loading and unloading arrangements for persons, material and mineral.
- > Headgears - bins and loading chutes.
- > Brakes, drums, gears, shafts, bearings.
- > Elevators, multi-rope applications.

##### 2. Electrical plant and equipment for non-fiery and fiery mines with measuring - and protection devices:

- > AC and DC calculations, waveforms, networks.
- > Distribution networks - transformers, overhead lines, switchgear, power factor improvement equipment, fault discrimination, cables.
- > Motors and generators - AC and DC motors, synchronous motors and generators, starting arrangements, speed control systems.
- > Surge arrestors - types, lightning protection, high frequency transients.
- > Power costs, maximum demand calculations, load factors, emergency power supplies.

##### 3. All types of air compressors and ancillary equipment with measuring and protection devices:

- > Intercoolers, after coolers, air receivers, pressure vessels.
- > Water treatment, cooling characteristics.
- > Distribution and transmission of compressed air.
- > Compressed air motors.

##### 4. Environmental requirements with personal protection equipment:

- > Ventilation, evaporative cooling, acclimatization, humidity, fans.
- > Dust, fumes, noxious gasses from engines and fires.
- > Refrigeration, air conditioning.

- > Occupational noise.
  - > Lighting - types, illumination, installations.
  - > Water, mine run-off, potable.
  - > Waste disposal, household waste, hazardous waste.
5. Plant for the loading, conveying and unloading of men, material and mineral:
- > Belt conveyers, aerial ropeways, endless rope haulages, chairlifts and capstan winches.
  - > Locomotives, hoppers, carriages, track bound loaders.
  - > Trackless mobile machines, trucks, draglines with associated equipment.
  - > Winches, scrapers, shakers.
6. Plant for the handling of water and slurry with measuring and protection devices:
- > Clear water pumps, pump stations, settling systems, storage dams.
  - > Slurry pumps, solids to water ratios, storage dams.
  - > Pipe characteristics, orifices, launders.
7. Plant for the generation and utilization of steam with measuring and protection devices:
- > Boilers, fuel, super heaters, condensers, autoclaves, steam vessels, water treatment, cooling towers, and chimneys.
  - > Piping systems, steam traps, reducing valves, throttling.
  - > Steam turbines, heat exchangers.
8. Plant for drilling, cutting and boring of rock and coal:
- > Rotary and percussion drills, mobile cutters, coal cutters.
  - > Drills and cutters - sharpening, heat treatment, transportation.
9. Plant for the use of hydraulic power with measuring and protection devices:
- > Hydraulic pumps and motors, control systems, filters, accumulators, water turbines.
  - > Hydrostatic drives and ancillary equipment.
10. Plant for the storing and processing of mineral:
- > Shaker and rotary screens, filters, crushers, milling, classifiers, thickeners, settlers, silos, bins, chutes, cyclones, furnaces.
  - > Slimes dams, waste rock dumps.
11. Utilization of concrete:
- > Reinforced concrete, composite beams, stresses, bending moments.
  - > Concrete hardening, shuttering support, waterproofing.
  - > Protection against chemical attack and wear.
12. Application of steels and alloys:
- > Application of alloys, mechanical properties, temperature behaviour, wear properties, corrosion, protection of steel.
  - > Composite beams, stresses, crack detection.
13. Fire prevention and the handling of hazardous chemicals:

- > Types of fire extinguishers, effectiveness of chemical warning signs.
- > Flammable and hazardous substances, warning signs.

#### 14. Lifting equipment:

- > Overhead cranes, mobile cranes, truck mounted cranes.
- > Chain blocks, lever hoists, rope hoists.
- > Lifting ropes, chains, shackles.

#### 15. Mechanical components and members:

- > Bearings - journal, roller, ball, tapered.
- > Gears, clutches, brakes, flywheels.
- > Chain drives, V-belt drives, rope pulleys.
- > Transmission shafts - bending moments, torsion, power transfer, critical speeds, couplings.
- > Fasteners - bolts and screws, rivets, welded joints.
- > Springs - leaf - and helical springs.
- > Lubrication: Properties of oils and greases, detergent additives, extreme pressure additives, anti-oxidants.

#### E3. Mining:

Competence must be demonstrated in the context of a mine or section of a mine. The mine may be of various types: hard rock, underground coal, surface large quarry or mine. Knowledge of the following must be demonstrated with an acceptable balance between topics of depth and appreciation:

- > Working knowledge enabling interaction with related professionals: electrical and mechanical engineers, geologists and surveyors.
- > Mining operation and practice: setting up a mine, accessing and exploiting the ore body, support, transport, disposal of waste.
- > Managing risks both in terms of relevant legislation and in general, ensuring health and safety and sustainable operations are maintained.
- > Managing people, materials, money; plan, organize lead and control.
- > Technical services (including rock engineering, environmental engineering, mineral resource management, mine economics).
- > Special conditions and considerations for the particular type of mine.

As noted previously, there is no present definition of Stage 2 functions.

#### E4. Occupational Health and Safety (Mechanical/Electrical):

Competence must be demonstrated in applying in and interpreting into the technical or work context the Occupational Health and Safety Act, 1993 (No. 85 of 1993), definitions, Regulations promulgated in terms of section 43 of the Act, standards referenced by the Regulations, Notices, Chief Inspector's Instructions, and any subsequent amendments to the Act and Regulations. Applicable regulations include:

1. The "General Administrative Regulations" (Notice No. R. 929 of 25 June 2003).
2. The "Electrical Installation Regulations" (Notice No. R. 2920 of 23 October 1992).
3. The "General Safety Regulations" (Notice No. R. 1031 of 30 May 1986).
4. The "Asbestos Regulations" (Notice No. R. 155 of 10 February 2002).
5. The "Environment Regulations for Workplaces" (Notice No. R. 2281 of 16 October 1987).
6. The "Driven Machinery Regulations" (Notice No. R. 295 of 26 February 1988).
7. The "General Machinery Regulations" (Notice No. R. 1521 of 5 August 1998).

8. The "Electrical Machinery Regulations" (Notice No. R. 1593 of 12 August 1988).
9. The "Facility Regulations" (Notice No. R. 2362 of 5 October 1990).
10. The "Lead Regulations" (Notice No. R. 236 of 28 February 2002).
11. The "Vessels Under Pressure Regulations" (Notice No. R. 1591 of 4 October 1996).
12. The "Lift, Escalators and Passenger Conveyor Regulations" (Notice No. R. 797 of 29 April 1994).
13. The "Hazardous Chemical Substances Regulations" (Notice No. R. 1179 of 25 August 1995).
14. The "Major Hazard Installation Regulations" (Notice No. R. 692 of 30 July 2001).
15. The "Regulations for Hazardous Biological Agents" (Notice No. R. 1390 of 27 December 2001).
16. The "Explosive Regulations" (Notice No. R. 109 of 17 February 2003).
17. The "Construction Regulations" (Notice No. 1010 of 18 July 2003).
18. The "Diving Regulations" (Notice No. 10 of 11 January 2002).
19. The "Noise-Induced Hearing Loss Regulations" (Notice No. 307 of 7 March 2003).

#### E.5. Mine Health and Safety Act (Mechanical / Electrical):

Competence must be demonstrated in applying in the work context relevant sections of:

1. The Mine Health and Safety Act (No. 29 of 1996), definitions.
2. Regulations under the Mine Health and Safety Act.
3. Regulations under the Minerals Act Regulations.
4. Amendments to the Act and Regulations. Applicable regulations include:
  - > Machinery guidelines issued in terms of Section 9 (3) of the Mine Health and Safety Act.
  - > SANS referenced in Regulations and Guidelines.

#### E.6. Mine Health and Safety Act (Mining):

Competence must be demonstrated in applying in the work context relevant sections of:

1. Mine Health and Safety Act, No 29 of 1996.
2. Regulations made or deemed to have been made under the Mine Health and Safety Act (previously under the Minerals Act) that relate to health and Safety issues.
3. Mines and Works Act, 1956 Definition and Section 9 of the Mines and Works Act, which was not repealed by the Minerals Act 1991.
4. Act No 72 of 1997: Mine Health and Safety Amendment Act, 1997.

#### **UNIT STANDARDS**

***This qualification is not based on Unit Standards.***

#### **LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION**

***None***

No. 876

22 August 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

**Generic Manufacturing, Engineering and Technology**

registered by Organising Field 06 – Manufacturing, Engineering and Technology, publishes the following Unit Standards for public comment.

This notice contains the title, field, sub-field, NQF level, credit, and purpose of the Unit Standards. The full Unit Standard can be accessed via the SAQA web-site at [www.saqqa.org.za](http://www.saqqa.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 Unit Standards should reach SAQA at the address below and **no later than 22 September 2008**. All correspondence should be marked **Standards Setting – SGB for Generic Manufacturing, Engineering and Technology** and addressed to

The Director: Standards Setting and Development  
SAQA

Attention: Mr. D. Mphuthing

Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to 012 – 431-5144

e-mail: [dmphuthing@saqa.org.za](mailto:dmphuthing@saqa.org.za)

**DR. S. BHIKHA**  
**DIRECTOR: STANDARDS SETTING AND DEVELOPMENT**



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### UNIT STANDARD:

#### *Sling material and equipment in a shaft*

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258195	Sling material and equipment in a shaft		
<b>ORIGINATOR</b>			<b>PROVIDER</b>
SGB Generic Manufacturing, Engineering & Technology			
<b>FIELD</b>			<b>SUBFIELD</b>
6 - Manufacturing, Engineering and Technology			Fabrication and Extraction
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	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 slinging material and equipment in a shaft.

#### **SPECIFIC OUTCOME 2**

Prepare to and sling material and equipment in a shaft.

#### **SPECIFIC OUTCOME 3**

Complete the slinging process and prepare for operation and/or production.

#### **QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None



## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**UNIT STANDARD:*****Replace ropes on a dragline***

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>		
258196	Replace ropes on a dragline		
<b>ORIGINATOR</b>	<b>PROVIDER</b>		
SGB Generic Manufacturing, Engineering & Technology			
<b>FIELD</b>	<b>SUBFIELD</b>		
6 - Manufacturing, Engineering and Technology	Fabrication and Extraction		
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular	Level 3	3

***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 replacing ropes on a dragline.

**SPECIFIC OUTCOME 2**

Prepare to and replace the ropes.

**SPECIFIC OUTCOME 3**

Test the ropes and prepare for operation and/or production.

**QUALIFICATIONS UTILISING THIS UNIT STANDARD**

None

No. 877

22 August 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

**Radiography and Clinical Technology**

registered by Organising Field 09 – Health Sciences and Social Services, publishes the following Qualification for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification. The full Qualification can be accessed via the SAQA web-site at [www.saqa.org.za](http://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 should reach SAQA at the address below and **no later than 22 September 2008**. All correspondence should be marked **Standards Setting – Radiography and Clinical Technology** and addressed to

The Director: Standards Setting and Development  
SAQA

*Attention: Mr. D. Mphuthing*

Postnet Suite 248

Private Bag X06

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0145

or faxed to 012 – 431-5144

e-mail: [dmphuthing@saqa.org.za](mailto:dmphuthing@saqa.org.za)

DR. S. BHIKHA

DIRECTOR: STANDARDS SETTING AND DEVELOPMENT





## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**QUALIFICATION:**  
***Bachelor of Radiography: Ultrasound***

SAQA QUAL ID	QUALIFICATION TITLE		
63449	Bachelor of Radiography: Ultrasound		
ORIGINATOR	PROVIDER		
TT - Radiography and Clinical Technology			
QUALIFICATION TYPE	FIELD	SUBFIELD	
National First Degree	9 - Health Sciences and Social Services	Curative Health	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
Undefined	480	Level 7	Regular-ELOAC

***This qualification does not replace any other qualification and is not replaced by another qualification.***

**PURPOSE AND RATIONALE OF THE QUALIFICATION**

**Purpose:**

The purpose of the qualification is to develop a professional competent in the knowledge and skills required for the profession of Sonography, a professional who has gained experience in applying such knowledge and skills in the appropriate workplace context. Skills in management, problem solving and research will also be demonstrated allowing the holder of this qualification to work independently and in a supervisory capacity within the health care team.

Successful completion of this qualification will enable the learner to be registered by the relevant Statutory Health Council as a graduate in the field of Diagnostic Ultrasound. The outcomes achieved will allow the learner to practice his/her skills to the benefit of the community and to share their skills and knowledge with other learners and peers. Registration will be assurance to the community and society that the professional will practice at all times within the relevant scope as determined by the Statutory Health Council.

**Rationale:**

There is a national shortage of qualified sonographers to operate Ultrasound equipment in order to provide a safe and accessible service to the public. Many hospitals and clinics, especially in the Government sector, have ultrasound machines but lack operators with the necessary skills to provide a safe and meaningful service or are using personnel to operate these units who have not undergone formal training and assessment. The field of Medical Imaging is undergoing rapid advancement in both the technology and in the areas in which it can be applied. As more emphasis is placed on preventive rather than curative medicine, Ultrasound is a cost effective means of screening for, and determining a wide range of disorders at a relatively early stage, thus helping improve the treatment and prognosis. There is scope for use at all health care levels, especially in Primary Health Care, where it is particularly useful in the assessment of the pregnant patient and foetal well-being.

The qualification carries a minimum of 480 credits and, once registered with the relevant Professional Board, allows the holder to practise in both the public and private sectors and in private practice.

The Exit-Level Outcomes of this qualification describe the foundational, practical and reflexive competencies, which constitute the applied competencies required to provide a safe diagnostic sonographic service to the public. The holder of the Bachelors Degree may register for a Masters Degree and may then proceed to a Doctoral qualification. Horizontal articulation may be into a Bachelors degree in another radiographic discipline.

All learners for this qualification are required to be registered as learners by the relevant Statutory Health Council for the duration of the period of study in an accredited clinical training centre.

### **RECOGNIZE PREVIOUS LEARNING?**

Y

### **LEARNING ASSUMED IN PLACE**

This qualification is based on the specific knowledge from the Natural and Biomedical Sciences as well as Social Sciences. Knowledge of human anatomy, communication, information technology and sciences at NQF Level 4 is assumed. In order to enter this programme the learner should have the competencies of either:

- > Grade 12 certificate with exemption/National senior certificate for degree purposes.
- > Communication at NQF Level 4.
- > Life Sciences at NQF Level 4.
- > Physical Sciences at NQF Level 4.
- > Mathematics Literacy at NQF Level 4.
- > Life orientation at NQF Level 4.

RPL (e.g. a radiography qualification in another category) would be recognized on submission of a portfolio as evidence in accordance with the Institutions RPL policy.

### **Recognition of Prior Learning:**

This qualification may be achieved in part through the recognition of relevant prior learning and/or through prior experience as a practitioner in another field of radiography. Providers are required to develop structured and accredited means of the assessment of learners against exit level outcomes of the qualification on an individual basis and in accordance with the institutions' accredited RPL policy. Such procedures and the assessment of individual cases are subject to moderation by independent assessors.

### **Access to the Qualification:**

Access to this qualification is dependent on successful completion of a grade 12 education in line with the National Senior Certificate for degree purposes.

### **QUALIFICATION RULES**

This qualification is competency based. Notional hours will include theory and clinical components in order to achieve competency.

The qualification has been structured as follows:

#### **Fundamental (156):**

- > Demonstrate knowledge of natural and life sciences and pathology at a level suitable for application in the clinical field (80).
- > Assess and perform patient care in a manner which ensures that the patient's welfare is maintained (60).

> Apply the principles of human rights, ethics and medical law which ensure the well-being of the patient (26).

Core (300):

> Foundations of Professional Practice:

> Apply the ultrasound specific measures which ensure that the health and safety of patients, self and colleagues is maintained (40).

> Plan, develop and apply total quality management appropriate to the sonographic context (40).

> Scientific knowledge:

> Demonstrate research skills and foster a research climate in Ultrasound imaging (40).

> Ultrasound practice:

> Perform the sonographic protocols and procedures to produce optimum quality images in the specified areas of diagnostic ultrasound (100).

> Critically assess the sonographic images and apply pattern recognition to determine aberrant appearances in keeping with pathology (80).

Electives (24 credits):

Electives offered are at the discretion of the provider. The student must select one or more of the electives according to the credits allocated to the specific elective.

> Possible electives:

> Advanced computer skills.

> Didactics/Education Principles.

> Obstetric management.

> Applied Psychology.

> Small and medium business enterprises.

### **EXIT LEVEL OUTCOMES**

1. Demonstrate knowledge of natural and life sciences and pathology at a level suitable for application in the clinical field.

2. Assess and perform patient care in a manner which ensures that the patient's welfare is maintained.

3. Apply the principles of human rights, ethics and medical law which ensure the well-being of the patient.

4. Perform the sonographic protocols and procedures to produce optimum quality images in the specified areas of diagnostic ultrasound.

5. Critically assess the sonographic images and apply pattern recognition to determine aberrant appearances in keeping with pathology.

6. Apply the ultrasound specific measures which ensure that the health and safety of patients, self and colleagues is maintained.

7. Plan, develop and apply total quality management appropriate to the sonographic context.

8. Demonstrate research skills and foster a research climate in Ultrasound imaging.

Electives:

- Electives offered are at the discretion of the provider. The student must select one or more of the electives according to the credits allocated to the specific elective.

Possible electives:

- > Advanced computer skills.
- > Didactics/Education Principles.
- > Obstetric management.
- > Applied Psychology.
- > Small and medium business enterprises.

The qualification promotes the critical cross-field outcomes in the following manner:

- > Identifying and solving problems in which the responses display that responsible decisions, are made within the health care context using creative and critical thinking will be evident in the way that the patient's welfare is maintained.
- > Information literacy which includes the resourcing, organising and critical evaluation of data with particular emphasis on health issues through the development, planning and application of quality management principles.
- > Working effectively with all levels of co-workers in the health care team and educational environment for the well being of the patients and the society.
- > Evaluating and implementing strategies for effective learning in the academic or clinical environment, through the utilisation of natural and life sciences as well as pathology necessary to provide quality ultrasound service.
- > Responsible self management and development for the provision of life long learning through research in the field of ultrasound and healthcare in general.
- > Effective communication through verbal, non-verbal and technological equipment to ensure a collaborative and effective healthcare service delivery for the benefit of patients.
- > Knowledge and use of advanced science and technology in the health care environment will contribute to effective communication among healthcare workers and ensure that ultrasound services can be provided to communities through the use of teleradiology and other technological advancements.
- > Identify health problems in the context of ultrasound, suggest and implement a solution or plan of action in order to solve the problem professionally will be promoted through effective and safe patient care practices in accordance with the patient's needs by taking into consideration ethical principles as well as human rights and medical law requirements.

### **ASSOCIATED ASSESSMENT CRITERIA**

Associated Assessment Criteria for Exit Level Outcome 1:

- > Knowledge of natural and life sciences and pathology supports the range of routine and advanced techniques utilised in the clinical context.
- > Knowledge of natural sciences helps the learners build knowledge and skills necessary for the choice of equipment and manipulation of controls necessary for patient management and healthcare service delivery.

Associated Assessment Criteria for Exit Level Outcome 2:

- > Relevant patient care is identified and correctly applied before, during and after the examination in a manner which ensures that patient well-being and needs are met.
- > Procedures and requirements are communicated effectively to allow informed consent to be given either verbally or in writing as appropriate.
- > Decision-making and accountability demonstrates an understanding of the ethical requirements of a professional medical environment.

Associated Assessment Criteria for Exit Level Outcome 3:

- > Psychological, cultural and ethical considerations of the patient and their families are recognized and acted upon in a professional manner.
- > Rights of the patient, as entrenched in the Human Rights Bill, the Patients Charter and medical law are protected and confidentiality maintained.

#### Associated Assessment Criteria for Exit Level Outcome 4:

- > The merits of each technique can be evaluated, in relation to other diagnostic procedures.
- > Images demonstrate the anatomy, pathology and measurements relevant to the sonographic protocol.
- > The choice of equipment and control settings demonstrates the knowledge of ultrasound physics and Doppler required for quality image production.
- > Advanced recording and imaging principles are understood in order to be applied appropriately in the clinical context
- > Image artefacts are recognized and minimized, where possible, to avoid misdiagnosis.
- > Relevant clinical information is understood and utilised to allow for the correct interpretation of the images.
- > Understanding of the clinical information and pathology which influence and modify scanning protocols is demonstrated theoretically and practically.
- > Appreciation of the role of ultrasound in the holistic management of the patient is demonstrated in the practical context when other investigations may be required.
- > Invasive procedures are performed with the assistance of the sonographer/medical practitioner.

#### Associated Assessment Criteria for Exit Level Outcome 5:

- > Correct scanning planes for each organ are demonstrated to ensure an optimal examination is performed.
- > Images show the correct patient and technical information to comply with medico-legal requirements.
- > Required technical information is demonstrated to aid in the interpretation of the image.
- > Appropriate modifications made during the examination show that technical problems are correctly identified.
- > Normal sonographic appearances of each specified examination are recognized.
- > Variations to the above are recognized which allows for the detection of abnormalities.
- > Normal and abnormal appearances are accurately described (verbally and in written format) and the information acted upon to the benefit of the patient.
- > Information is made available to the relevant personnel to allow for diagnosis and improved patient management.

#### Associated Assessment Criteria for Exit Level Outcome 6:

- > Relevant legislature is known for general health and safety principles to be applied in the working environment.
- > Knowledge of ultrasound bio-effects and their potential for harm is demonstrated in the performance of scanning protocols in keeping with the ALARA principle.
- > Manipulation of the safety indices shows a knowledge of their relevance.
- > A hygienic and neat work environment is maintained in order to eliminate the possibility of cross infection.
- > Knowledge of the special precautions required in specific examinations is demonstrated which ensures the safety of patients, colleagues and self.
- > Equipment is maintained in order to comply with national and international safety standards.

#### Associated Assessment Criteria for Exit Level Outcome 7:

- > Principles of quality assurance and quality control are demonstrated in the development of departmental protocols.
- > Equipment and accessories are selected, purchased and maintained within an available budget to provide a cost-effective service.
- > Communication and co-operation between all role players is effectively developed and maintained in order to provide an optimal service.
- > Performance management strategies are developed in a manner which shows an understanding of management principles and current legislation.
- > Departmental records and statistics are accurately maintained in accordance with the departmental and Statutory Health Council requirements.
- > Integrated knowledge of management, technology and legislation is demonstrated in the ability to design and equip a new, or alter an existing, ultrasound facility.

#### Associated Assessment Criteria for Exit Level Outcome 8:

- > Research principles and methodology in the field of Ultrasound research are demonstrated in the form of a research proposal and project.
- > Relevance of the research is in line with national needs and ethical policies and procedures.
- > Suitable resources are critically evaluated and used to facilitate the research project.
- > Information is critically assessed in order to be presented in a professional manner.
- > Written work submitted reflects a knowledge and appropriate use of information sources.
- > Computer literacy of an adequate knowledge and use is demonstrated.

#### Integrated Assessment:

Integrated assessment takes the form of an appropriate variety of assessments methods for example: written and oral examinations, problem-solving assignments, projects, presentations, case studies, portfolios, log books, clinical reports, assessment of clinical competence through simulated and clinical assessment in situ, objective structure clinical examinations (OSCE) and the successful completion of a mini-dissertation.

The qualification will be awarded to a learner who has provided evidence, to the satisfaction of the assessors, that the competence of the qualification, as detailed in the stated outcomes, has been achieved, either through education and training in a single provider's learning programme or through experience that complies with the stated specific outcomes i.e. RPL is recognized.

However, the integrated assessment needs to have the following characteristics:

- > It should assess the extent to which learners can practice competently, effectively and safely in any clinical context nationally and internationally.
- > It should measure the extent to which learners have integrated the professional roles, knowledge and skills delivered through the different outcomes reflected in the relevant programme.
- > It should provide opportunities for reflection-in-action and reflection-on-action to develop reflexive competence.

#### **INTERNATIONAL COMPARABILITY**

The primary objective of designing these qualifications was to meet the needs of the SA community as identified by the National Department of Health and also to be compatible with international standards. The proposed qualifications have been compared with the qualifications from various international states, commencing with those which are leaders in the field of Ultrasound.

#### Introduction:

Ultrasound qualifications in South Africa are currently registered as a National Diploma and B Tech with Health Professions Council of South Africa. The B Tech may be obtained as a vertical qualification from the National Diploma or as a second category qualification from a National Diploma in another radiographic qualification. The restructuring of both the education and healthcare systems has identified the need to have both a professional degree and a post graduate qualification to provide services in different healthcare situations according to requirements. There is also at the need to bring ultrasound education and training on par with international standards. In comparing this professional degree with other international states/countries, most offer Ultrasound as an additional qualification. In investigating international comparability for an ultrasound qualification the following countries have a "stand alone" ultrasound qualification in some format resembling that of South Africa.

USA:

It should be borne in mind when assessing qualifications from the USA that the registration of competencies is different to those of South Africa. Here we have a more holistic qualification which encompasses echocardiography, vascular Sonography and musculo-skeletal sonography within the proposed 480 credit qualification, hence the need for 4 years of study. In the USA these are separate qualifications and can be studied separately via shorter courses.

St Louis Community College in Missouri:

The college offers a 16month ultrasound program which is offered at Forest park campus only. Successful completion of the course is awarded with the Certificate in Diagnostic medical Imaging. The course is made of the theoretical and practical components. For the practical component, the student is expected to complete 1300 hours. This qualification compares fairly with the SA one in terms of how it is offered, theory and practice as well as stipulated hours. The St Louis Community College program is however too short as compared to the 480 credit proposed for SA. Even the qualification that is awarded at the end, SA will award the successful candidate with the professional degree which will allow the students to enrol for the masters program. The college on the other hand only awards certificates.

Entrance requirements:

Graduation with the minimum of an associate degree will ensure acceptance into the Ultrasound program. Accreditation of the program is through the Commission for Accreditation of Allied Health Education programs. Successful completion of the Medical Sonography program allows the candidates to challenge the American Registry of Diagnostic Medical Sonographers Examinations. The fact that this course needs accreditation relates well to the SA requirements as stipulated by the HPCSA. The only major difference is course duration and the entrance requirements. For the SA qualification, those who have completed the required secondary certificate at grade 12 with Maths, Physical Science or Biology and the pre-requisite M-score or APS score may apply to study for the four year degree in ultrasound. St Louis Community has the following addition entrance requirements on top of the associate degree:

- > BIO 207: Anatomy and Physiology 1.
- > BIO 280: Anatomy and Physiology 11.
- > PHY 111: College Physics.
- > MTH 160: College Algebra or higher.
- > ENG 101: College Comprehension.
- > COM 101: Oral Communication.
- > IS 205: Medical Terminology.

Learners who apply to study at St Louis Community College are expected to have a valid certificate in CPR healthcare provider level certificate and they should keep this current

throughout their study years. A First Aid Certificate is also a pre-requisite to qualification in the SA context.

Clinical training facilities requirement evidence or background check for criminal records as well as drug dependency. These specific requirements are not stipulated for the SA qualification. In case of the CPR or First Aid training, most education institutions organise these for their learners and it is a requirement that every learner completes this successfully before they can be awarded their qualifications. In SA, learners registering for the course are required to register with HPCSA for the duration of their studies as well as after completion. Registration after completion of studies confers to each practitioner, the professional status and the right to practice within the scope for which they received education and training.

The other requirement for entry into the Diagnostic Medical Sonography program at St Louis Community college is evidence of experience or observation of what sonographers do, as well as an overview of the tasks performed. Learners should submit a form which has been completed by a sonographer as evidence of their visit and exposure to the sonography environment. This has been a requirement for most education institutions in SA as well.

Course content:

The course is spread over a three year period as followed:

1st year: Medical Ultrasound option:

- > Clinical foundations of Ultrasound.
- > Medical Ethics and Professional issues 1.
- > Ultrasound Physics and Instrumentation, 1, 2 and 3.
- > Medical sonography 1, 2, 3 and 4.
- > Medical sonography scanning techniques.
- > Medical Sonography practical's 1, 2, 3 and 4.

2nd year: Cardiac Sonography Option:

- > Clinical foundation of Ultrasound.
- > Medical Ethics and professional issues 2.
- > Ultrasound physics and Instrumentation 1, 2 and 3.
- > Cardiac Sonography 1, 2, 3 and 4.
- > Cardiac sonography techniques.
- > Cardiac sonography practical 1, 2, 3 and 4.
- > Cardiac sonography clinical application 1, 2 and 3.

3rd Year: Vascular Technology Option:

- > Clinical foundation of Ultrasound.
- > Medical Ethics and professional issues.
- > Ultrasound physics and Instrumentation 1, 2 and 3.
- > Vascular technology 1, 2, 3 and 4.
- > Vascular technology scanning technique 1, 2, 3 and 4.
- > Vascular technology clinical application 1, 2 and 3.
- > Vascular technology practical 1, 2 and 3.

The way the course content is structured and distributed over the 3 years is in line with the way the SA qualification has been developed. In radiography or specifically ultrasound, learners are introduced to concepts at the lower level and they tend to grow or venture into more complex practices as the course progresses. The fact that a subjects medical ethics and professional



issues is offered over a three year period, is in line with the new requirements of the relevant Statutory Health Council.

Canada:

Michener Institute offers an Ultrasound Graduate diploma which is offered as a full-time study over a period of 18 months. The course is offered to registered healthcare professionals with a minimum of three years degree or diploma. There was no other qualification from Canada which had a close resemblance to the four year Bachelors degree proposed for SA.

Uganda:

The education and training that is taking place in Africa as far as ultrasound is concerned is limited, with SA emerging as the leader in this field. Prof Michael Kawooya, from Makerere University in Kampala has a post course training for sonographers. Makerere University in Uganda is offering a two year post degree qualification for radiography practitioners as well as other healthcare professionals interested in the course. Due to the population increase and shortage of skilled practitioners or radiologists to provide reports on ultrasound examinations, the institution has initiated a role extension program for registered sonographers.

This could be viewed as an extension of the current programs where sonographers are given the opportunity to gain additional skills and take on the role of reporting. The radiographers are trained in producing reports which would contribute to the management of the patient. Report writing as it is taught in Makerere, takes place in four steps, namely:

- > Observation.
- > Analysis.
- > Interpretation.
- > Report writing.

How do the international qualifications compare with the SA qualification?

Comparing this with the course that is currently offered in SA (two year post graduate or three year diplomas at other institutions) and the newly developed four year professional degree, sonographers are taught to report on their images as part of their training. This has also been formalized in the HPCSA register that sonographers write reports on what they have observed while performing the examinations. Uganda might be on the way of extending the study years for their ultrasound practitioners, only time will tell. This only confirms that the proposed professional degree in ultrasound is essential in ensuring that the community will be served by fully qualified practitioners capable of safely performing examinations on any part of the body and for various clinical conditions.

Conclusion:

Based on the information presented from the various states, SA maybe the first state to offer a full four year programme in Ultrasound. This however is not totally new as USA has a three year programme already. The major difference between the USA three year programme and the proposed four programme in SA, is the research component. SA qualification has included the need for the learners to complete a mini research project before they can be awarded a professional degree. Based on the specific needs of the SA society and the transformation both in the education and healthcare setting, this four year professional degree together with the 120 post course certificates, with adequately address the needs of both the SA public and the practitioners who enter the ultrasound profession.

### **ARTICULATION OPTIONS**

Vertical articulation:

> Masters Degree in Diagnostic Ultrasound.

Horizontal articulation:

> Articulation with other qualifications in the field of Radiography or other related qualifications.

#### **MODERATION OPTIONS**

Internal and external moderation of learner achievement should be undertaken by those who have qualifications at or above the level of qualification.

#### **CRITERIA FOR THE REGISTRATION OF ASSESSORS**

Assessments are conducted by one or more internal assessors/examiners employed by the relevant provider as well as an external moderator appointed from industry/other academic institution.

Practising practitioner, registered with the relevant Statutory Health Council, with a Bachelor of Diagnostic Ultrasound, or equivalent, or higher, or appropriate research/teaching/academic/clinical experience in the category is appointed.

#### **NOTES**

Evaluation of Programme:

> The provider will be evaluated by members of ETQA at their discretion, during which time the facilities and programmes are accredited.

#### **UNIT STANDARDS**

*This qualification is not based on Unit Standards.*

#### **LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION**

**None**