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GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

No. 295 **20 March 2009**

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

Nature Conservation

registered by Organising Field 01 – Agriculture and Nature Conservation, publishes the following Qualification and Unit Standards for public comment.

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

Comment on the Qualification and Unit Standards should reach SAQA at the address below and ***no later than 20 April 2009.*** All correspondence should be marked **Standards Setting – SGB for Nature Conservation** and addressed to

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SAQA
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D. MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
Further Education and Training Certificate: Fisheries Resource Compliance

SAQA QUAL ID	*QUALIFICATION TITLE*		
66149	Further Education and Training Certificate: Fisheries Resource Compliance		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
Further Ed and Training Cert	1 - Agriculture and Nature Conservation	Nature Conservation	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	158	Level 4	Regular-Unit Stds Based

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

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

The qualification is intended for learners who wish to operate as or are presently operating as fisheries officers. The skills and competencies enabled by the qualification will support career path development towards positions of senior fisheries officers, once relevant experience has been obtained in the operational environment. The successful completion of this qualification equips the qualifying learner with the skills needed to perform in the field of fisheries conservation as well as the ability to conduct more advanced law enforcement tasks on a national and regional basis.

In particular, learners qualifying against this qualification will be able to:

> Demonstrate knowledge of marine ecology.
> Perform duties in pursuit of marine conservation objectives.
> Enforce legislation pertaining to marine conservation.
> Demonstrate seamanship appropriate to the functions of a fisheries officer.

The qualification provides learners with the training required to be able to function effectively and efficiently as fisheries officers. It equips learners with knowledge of relevant aspects of marine biology, a thorough knowledge of what constitutes legal compliance (law enforcement) as part of the criminal justice system, communication skills and an understanding of ethics necessary to carry out the functions of a fisheries officer under supervision of more senior staff.

Rationale:

The commercial fishing industry contributes significantly to the country's foreign exchange earnings. However, it exploits a limited resource, and effective monitoring, control and surveillance are crucial to ensure the long-term sustainability of the industry.

The commercial fishing industry is regulated by a substantial body of Acts and Regulations, as well as international treaties and conventions aimed at protecting and regulating marine fisheries. Sustainable utilisation of marine resources depends on scientific knowledge of the

resource as well as on good management of the use of the resource. The executive arm of fisheries management provide the monitoring, control and surveillance function. Fisheries officers who have the responsibility of ensuring that management measures, such as the control of catches and that fisheries legislation, are complied with carry out this function.

The task of the fisheries officer is a complex one. To understand this statement it is necessary to take into account the wide array of duties to be performed and the intimate knowledge of the industry required to perform these duties. The fisheries officer has to act both as an agent of marine conservation law enforcement, and an educator of communities affected by marine conservation legislation.

In the event of violations of marine conservation legislation and regulations, the fisheries officer has to be competent at gathering evidence, presenting it in court and acting as a credible witness. Fisheries officers have extensive powers of search and arrest, comparable to and in some situations exceeding those of other law enforcement officials. The fisheries officer's knowledge base has to include the complete framework of legislation designed to protect marine resources.

The acquisition of recognized skills and abilities is required by the sector to meet legislative and operational requirements. This will increase growth and job opportunities whilst maintaining the objective of the protection and sustainable utilization of our natural resources.

The qualification will able learners to apply for positions as officers employed by Marine and Coastal Management (MCM) as well as other bodies such as Ezemvelo KZN Wildlife, which are responsible for Monitoring, Control and Surveillance (MCS) in South Africa.

Given the close working relationship required for coastline protection between South Africa and its neighbouring countries such as Namibia and Mozambique, this qualification could also be utilised for the training and development of fisheries officers or their counterparts in these countries.

Fisheries officers are in direct contact with the fishing industry and have to fulfil a number of functions, including educating stakeholders about the need for fisheries management as well as encouraging and enforcing compliance.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
It is assumed that learners accessing this qualification are competent in:

> Communication at NQF Level 3.
> Mathematical Literacy at NQF Level 3.

Recognition of Prior Learning:

This Qualification can be achieved wholly or in part through the Recognition of Prior Learning and the Qualification may be granted to learners who have acquired the skills and knowledge without attending formal courses providing they can demonstrate competence in the outcomes of the individual Unit Standards as required by the Fundamental, Core and Elective areas stipulated in the Qualification and by the Exit Level Outcomes.

An RPL process may also be used to credit learners with Unit Standards in which they have developed the necessary competency as a result of workplace and experiential learning.

Learners submitting themselves for RPL should be thoroughly briefed prior to the assessment, and may be required to submit a Portfolio of Evidence in the prescribed format to be assessed for formal recognition. While this is primarily a workplace-based Qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit level outcomes.

Access to the Qualification:

There is open access.

QUALIFICATION RULES

This qualification consists of a minimum of 158 Credits composed of:

Fundamental component:
> All unit standards totalling 56 credits.

Core component:
> All unit standards totalling 94 credits are compulsory.

Elective component:
> A minimum of 8 credits from the Elective component are required.

EXIT LEVEL OUTCOMES

1. Demonstrate knowledge of marine ecology.

2. Perform duties in pursuit of marine conservation objectives.

3. Enforce legislation pertaining to marine conservation.

4. Demonstrate knowledge of seamanship appropriate to the functions of a fisheries officer.

Critical Cross-Field Outcomes:

The qualification addresses the following Critical Cross-Field Outcomes as embedded in the Exit Level Outcomes and Associated Assessment Criteria of the qualification.

Communicate effectively:
> Effective communication is enabled through the maintaining of relevant communication as per organisational requirements.

Identify and solve problems:
> Problems are identified and solved in the application of legislative compliance and the assessment of marine resources.

Collect, analyse, organise, and critically evaluate information:
> Information is collected analysed, organized and evaluated in the performing of available resources monitoring at operational level as well as the application of legislative compliance and the assessment of marine resources.

Work in a team:
> Teamwork is supported in the operational environment and the execution of Fisheries Resources responsibilities.

Maintain effective working relationships:
> The maintaining of effective working relationships is supported in the performing of fisheries officer's duties.

Use of Science and technology:
> The use of Science and Technology is supported by the use of relevant technology employed in the undertaking of resources monitoring and assessment excursions. Science and technology is likewise utilised in the application of relevant seamanship.

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

1.1 Exploitable marine species are accurately identified through the use of scientifically valid methods.
1.2 The interrelationships of living things with one another and with their habitats are identified with a view to furthering marine conservation objectives.
1.3 Measures are implemented to protect ecologically sensitive areas based on knowledge of the coastal zone.

Associated Assessment Criteria for Exit Level Outcome 2:

2.1 Marine conservation legislation and regulations are enforced to comply with legal requirements.
2.2 Stakeholders and the public are educated on marine conservation issues according to conservation programmes.
2.3 Methods to assess marine living resources are applied in accordance with marine population estimation protocols.
2.4 Management plans and procedures are put in place in ways that reflect understanding of fisheries resource management principles.
2.5 Management plans and procedures are implemented so as to support marine conservation objectives.

Associated Assessment Criteria for Exit Level Outcome 3:

3.1 Fisheries related offences are investigated by utilising relevant processes and procedures.
3.2 Relevant evidence is provided in support of prosecutions in a court of law.
3.3 Advanced knowledge of international treaties and agreements are demonstrated as it applies to South African legislation and regulations.
3.4 Input is made in the drafting of proposals for permit conditions in support of legislative compliance.

Associated Assessment Criteria for Exit Level Outcome 4:

4.1 Knowledge is demonstrated of vessel types so as to facilitate comprehensive routine onboard inspections.
4.2 Knowledge of fishing gear and fishing methods is demonstrated so as to enable the enforcement of legislative compliance.
4.3 Skills of navigation and chart work are used to plot the position and progress of a vessel within the context of fisheries compliance activities.

Integrated Assessment:

Assessment practices must be open, transparent, fair, valid, and reliable and must ensure that no learner is disadvantaged in any way whatsoever. For this purpose, an integrated assessment approach is incorporated into the Qualification. Learning, teaching and assessment are inextricably aligned. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the unit standards should be integrated through the practical application of sales and services in a Nature Conservation environment.

Assessment of the communication, language, literacy and numeracy should be conducted in conjunction with other aspects and should use authentic Nature Conservation contexts wherever possible. 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.

The term `Integrated Assessment` implies that theoretical and practical components should be assessed together. During integrated assessments the assessor should make use of formative and summative assessment methods and assess combinations of practical, applied, foundational and reflective competencies. Assessors and moderators should make use of a range of formative and summative assessment methods. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

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. It is required that learners are able to arrange for assessment in an appropriate natural environment.

INTERNATIONAL COMPARABILITY

The main focus for International comparability for the qualification was concluded against qualifications outside of the Southern African/African continent. In particular, North America and Australia were selected for best practices due to the high regard for the developments in these countries relating to Fisheries Resource Management by the South African Fisheries Compliance industry.

In addition, the Southern African Regional Fisheries Resources Management, Control and Surveillance qualification was used for comparability so as to ensure that a National Qualification meets standards and requirements identified as best practice for Southern Africa. In addition, it should be mentioned that relevant SADC input and comparison was concluded during the scoping and development of the qualification through the inclusion of representatives in task teams involved in the European Union/SADC Fisheries Management, Control and Surveillance programmes.

The following qualifications are thus presented in support of International Comparability:

> The Boarding Officer Course (Marine Coast Guard) North America.
> The NQF Level 4 in Fisheries Compliance Administration - Australian Qualifications Framework.
> The Fisheries Management, Control and Surveillance programme - European Union/SADC.

The Boarding Officer Course (Marine Coast Guard) North America:

The programme consists of a five-day course for a boarding officer. Although level descriptors and credit values could not be allocated to the programme, a substantial similarity is clearly discernible when comparing the main focus areas with those of the envisaged qualification.

The programme includes the following focus areas:

> Application of Laws and Regulations.
> Identify Fishing Vessels and Gear.
> Enforce Closed Areas and Closed Seasons.
> Execute Marine Protected Species Boarding.
> Conduct Uninspected Passenger Vessel and Commercial Fishing Vessel Safety Inspections.
> Inspect Permits.

> Identify Regulated Species.
> Inspect Turtle Excluder Devices.
> Inspect Bycatch Reduction Devices.
> Inspect Traps.
> Execute Enforcement Options.
> Prepare/Process Case Packages.

The following focus areas in the envisaged qualifications compares favourably:

> Demonstrate knowledge of national and international fisheries legislation (Relates to: Application of Laws and Regulations).
> Apply Legislation and regulations on marine resources and the powers of fisheries officers (Relates to: Enforce Closed Areas and Closed Seasons, Execute Marine Protected Species Boarding, Inspect Permits, Conduct Un-inspected Passenger and Commercial Fishing Vessel Inspections).
> Report on Fish Catches (Relates to: Inspect Permits, Execute enforcement options, Identify regulated species, inspect by-catch and turtle catches).
> Demonstrate knowledge of fishing vessels and fishing gear (Relates to: Identify Fishing vessels and Gear).
> Comply with investigation and prosecution requirements in the Fisheries environment (Relates to Execute enforcement options and Prepare/process case packages).

The South African qualification, being longer in duration, distinguishes itself through its specific focus on Resources Management and the inclusion of the following standards:

> Promote Conservation Awareness.
> Integrated Coastal Zone Management.
> Fisheries Resource Management.
> Navigational and chart-work skills.

This is possibly resultant from a strong Conservation approach, the necessity to educate fisheries resource users (public and commercial) due to recent access to fisheries resources, and the necessity to enable navigational and chart-work skills associated with the marine environment in support of the execution of responsibilities where individuals were previously excluded from the industry in the capacity of resources management and compliance enforcement. Albeit not part of the core component of the qualification, the inclusion of communication skills and a strong emphasis on conservation ethics likewise contribute to the usefulness of the qualification both from an employment and conservation perspective.

The NQF Level 4 in Fisheries Compliance Administration - Australian Qualifications Framework:

The above qualification enabled comparison with a qualification that is outcomes and unit standard based so as to compare the envisaged unit standard based qualification with a similar qualification in the operational environment.

The following main focus areas are identified:

> Fisheries Acts and regulations.
> Investigative procedures.
> Apprehension skills.
> Court procedures.
> Monitoring Fish catches for legal compliance.
> Office procedures.
> Elements of Shipboard safety.
> Radio telephone.
> Safety in fishing operations.

> Outboard Motor Operations and Maintenance for operators.
> Fishing technology.
> Work team communications.
> Computer operations.

Optional:

> Motorbike operations.
> 4 Wheel driving instruction.
> Dealing with Conflict.
> Occupational Health and Safety.

The envisaged qualification compares well in terms of the following standards:

> Demonstrate knowledge of national and international fisheries legislation (Relates to: Fisheries Acts and Regulations).
> Apply Legislation and regulations on marine resources and the powers of fisheries officers (Relates to: Investigative procedures, apprehension skills, Monitoring fish catches for legal compliance, Court procedures).
> Report on Fish Catches (Relates to: Monitoring fish catches for legal compliance).
> Demonstrate knowledge of fishing vessels and fishing gear (Relates to: Safety in fishing operations and Fishing technology).
> Comply with investigation and prosecution requirements in the Fisheries environment (Relates to Investigative procedures).

As with the previous comparison the following standards included in the South African qualification is not included in the Australian qualification:

> Promote Conservation Awareness.
> Integrated Coastal Zone Management.
> Fisheries Resource Management.
> Navigational and chart-work skills.

In addition, the South African qualification does not include computer literacy, outboard motor maintenance and specific focus on communication devices such as radiotelephones. Communication is included in the fundamental component and additional non-marine specific transportation is not included in the South African qualification. The differences mainly support the stronger conservation approach followed in the envisaged qualification and the developing of ethics and promotion of conservation awareness yet again provides for contextualisation in the South African industry.

The Fisheries Management, Control and Surveillance programme - European Union/SADC:

Due to the strong involvement of individuals familiar with the above qualification, this qualification possibly had the most influence on the envisaged qualification in terms of best practices alignment.

The following focus areas and relation to standards included in the envisaged qualification are evident from the programme:

> Unit 1: Survey Fishing activities at Sea (Relates to requirements of identification and knowledge about Fishing vessels and fishing gear for identification).
> Unit 2: Survey Fishing activities from the Air [Relates to requirements of identification of vessels).
> Unit 3: Communication.

> Unit 4: Perform Shore Patrols (Relates to compliance with investigation and prosecution requirements).
> Unit 5: Perform Coastal Patrols (Relates to compliance with investigation and prosecution requirements and integrated coastal zone management).
> Unit 6: Perform inspections at places of trade and off loading (Relates to checking of legality of catches and meeting of permit and conservation requirements, species composition and reporting of fish catches as well as knowledge of international and national fisheries legislation).
> Unit 7: Offload fish catches (Relates to Fish catches, apply legislation and regulations on marine resources and the powers of fisheries officers).
> Unit 8: Observe fishing activities on commercial vessels (Relates to identification and knowledge about vessels and gear, legislative requirements of international and national fisheries legislation).
> Unit 9: Administration / reporting (Relates to report on fish catches).
> Unit 10: Collect research samples and data (Relates to conservation awareness, and fisheries resource management as well as compliance with investigation and prosecution requirements).
> Unit 11: Take action regarding regulation infringements and suspected irregularities (Relates to apply legislation and regulations and the powers of fisheries officers as well as comply with investigation and prosecution requirements in the Fisheries Environment).
> Unit 12: Clear a vessel (Relates to apply legislation and regulations and the powers of fisheries officers).
> Unit 13: Organise Patrols and Inspections (Relates to Fisheries Resource Management).
> Unit 14: First Aid (Presently not included due to the requirement to renew first aid certificates on an annual basis in terms of currency - It is a component to be addressed in the workplace).
> Unit 15: Adhere to personal safety precautions (Included as an outcome in relevant unit standards).
> Unit 16: Adhere to vessel safety requirements (Relates to navigation and chart-work).

Comparison should indicate a clear alignment to what is presently regarded as European Union and SADC best practices in terms of the qualification.

Conclusion:

Comparisons, in terms of the North American, Australian and European Union/SADC programmes, effectively support alignment of the envisaged qualification to recognised best practices in the international fisheries resource management environment.

The inclusion of specific focus areas including ethics, resource management and conservation awareness, is supported specifically by the approach followed in the European Union/SADC programme.

First aid is however presently excluded for the Fisheries Resource Management qualification due to the approach in South Africa where first aid certification needs to be updated on an annual basis. It was thus concluded by employer organisations, users of the qualification that first aid will be addressed as a workplace requirement rather than a qualification component.

It is concluded that comparison supports the meeting a similar approach and content in terms of training and development internationally.

Impact of International Comparability on the Qualification:

Consideration was taken in particular of the European Union/SADC programmes in the identification of international standards and content. The involvement of representatives very familiar with the qualification and its content ensured effective alignment of the South African qualification with industry standards presently perceived to be best practices in the SADC region. Favourable comparison with North American and Australian qualifications simply act as confirmation of the meeting of international best practice.

ARTICULATION OPTIONS
This Qualification provides the following articulation opportunities:

Horizontal articulation:

> ID 63109; Further Education and Training Certificate: Nature Conservation: Natural Resource Guardianship Terrestrial, NQF Level 4.

Vertical articulation:

> National Certificate: Nature Conservation, NQF Level 5.
> National Higher Certificate: Nature Conservation, NQF Level 5.

Fisheries officers, who wish to extend their field of expertise into other areas of nature conservation guardianship, or conservation management, will find this relatively easy to achieve.

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

> Any institution offering learning that may 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 the relevant ETQA.

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

> Moderation must include both internal and external moderation of assessments at all 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 the integrated competence described in the Exit Level Outcomes of the Qualification.

> Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
Anyone assessing a learner, against this Qualification must be registered as an assessor with the relevant ETQA, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

For an applicant to register as an assessor or moderator of this Qualification the applicant needs:

> To be declared competent in all the outcomes of the National Assessor Unit Standards.
> To be competent in the outcomes of this Qualification.

NOTES
N/A

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	8968	Accommodate audience and context needs in oral communication	Level 3	5
Fundamental	8969	Interpret and use information from texts	Level 3	5
Fundamental	8973	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	8970	Write texts for a range of communicative contexts	Level 3	5
Fundamental	12154	Apply comprehension skills to engage oral texts in a business environment	Level 4	5
Fundamental	9015	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6
Fundamental	119462	Engage in sustained oral/signed communication and evaluate spoken/signed texts	Level 4	5
Fundamental	119469	Read/view, analyse and respond to a variety of texts	Level 4	5
Fundamental	9016	Represent analyse and calculate shape and motion in 2- and 3-dimensional space in different contexts	Level 4	4
Fundamental	7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6
Fundamental	119459	Write/present/sign for a wide range of contexts	Level 4	5
Core	263294	Apply knowledge of fishing vessels and fishing gear in a fisheries compliance environment	Level 4	10
Core	263314	Apply national and international fisheries legislation in the marine resources conservation environment	Level 4	10
Core	263285	Apply the principles of fisheries resource management	Level 4	10
Core	263290	Demonstrate knowledge of practical offshore navigation and chartwork	Level 4	10
Core	263286	Investigate fish catches in support of fisheries compliance	Level 4	8
Core	263289	Promote Conservation Awareness	Level 4	12
Core	263291	Apply integrated coastal zone management	Level 5	8
Core	263292	Comply with Investigation and prosecution requirements in the fisheriers environment	Level 5	12
Core	253968	Develop and apply conservation ethics	Level 5	4
Core	263293	Inspect Marine Resources Conservation	Level 5	10
Elective	263288	Demonstrate knowledge of physical oceanography and meteorology	Level 3	6
Elective	263295	Demonstrate an understanding of the effects of natural phenomena and human activities on marine ecosystems	Level 4	8
Elective	263287	Gather data on important marine mammal, reptile and bird species	Level 4	15
Elective	252034	Monitor and evaluate team members against performance standards	Level 5	8

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply the principles of fisheries resource management

SAQA US ID	*UNIT STANDARD TITLE*		
263285	Apply the principles of fisheries resource management		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

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

SPECIFIC OUTCOME 1
Describe the methods used to assess marine living resources.

SPECIFIC OUTCOME 2
Use biological fundamentals within the context of fisheries resource management.

SPECIFIC OUTCOME 3
Apply the principles of fisheries resource management in an operational environment.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Investigate fish catches in support of fisheries compliance

SAQA US ID	*UNIT STANDARD TITLE*		
263286	Investigate fish catches in support of fisheries compliance		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

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

SPECIFIC OUTCOME 1
Select sub-samples from a fish catch through the use of approved scientific methods.

SPECIFIC OUTCOME 2
Assess the size and species composition of a catch on a fishing vessel.

SPECIFIC OUTCOME 3
Report on fishing and post harvest practices as they apply to fisheries compliance requirements.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	*66149*	*Further Education and Training Certificate: Fisheries Resource Compliance*	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Gather data on important marine mammal, reptile and bird species

SAQA US ID	*UNIT STANDARD TITLE*		
263287	Gather data on important marine mammal, reptile and bird species		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	15

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

SPECIFIC OUTCOME 1
Use field guides and other aids to accurately identify the major pelagic bird species.

SPECIFIC OUTCOME 2
Identify the important marine mammal and reptile species that occur within an Exclusive Economic Zone.

SPECIFIC OUTCOME 3
Determine the status of incidental mortality of marine mammal, reptile and bird species in an area of operation.

SPECIFIC OUTCOME 4
Gather data on marine mammal, reptile and bird species in relation to fishing operations.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate knowledge of physical oceanography and meteorology

SAQA US ID	*UNIT STANDARD TITLE*		
263288	Demonstrate knowledge of physical oceanography and meteorology		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

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

SPECIFIC OUTCOME 1
Identify the main physical features governing the oceanographic environment around South Africa.

SPECIFIC OUTCOME 2
Explain the impact of practical meteorology as it applies to the area of operation.

SPECIFIC OUTCOME 3
Explain coastal processes impacting on an operational environment.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Promote Conservation Awareness

SAQA US ID	***UNIT STANDARD TITLE***		
263289	Promote Conservation Awareness		
ORIGINATOR		***PROVIDER***	
SGB Nature Conservation			
FIELD		***SUBFIELD***	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	***UNIT STANDARD TYPE***	***NQF LEVEL***	***CREDITS***
Undefined	Regular	Level 4	12

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

SPECIFIC OUTCOME 1
Identify the purpose of the promotion of conservation awareness as it applies to the marine environment.

SPECIFIC OUTCOME 2
Identify Conservation awareness intervention requirements in an area of operation.

SPECIFIC OUTCOME 3
Promote conservation awareness in an area of operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate knowledge of practical offshore navigation and chartwork

SAQA US ID	*UNIT STANDARD TITLE*		
263290	Demonstrate knowledge of practical offshore navigation and chartwork		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
110017	Demonstrate knowledge of practical offshore navigation and chartwork	Level 5	8	Will occur as soon as 263290 is registered

SPECIFIC OUTCOME 1
Demonstrate the use navigational aids in an operational environment.

SPECIFIC OUTCOME 2
Use nautical charts to plot the position of a vessel at sea.

SPECIFIC OUTCOME 3
Use navigational aids to determine the position of a vessel at sea.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply integrated coastal zone management

SAQA US ID	*UNIT STANDARD TITLE*		
263291	Apply integrated coastal zone management		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
12398	Apply integrated coastal zone management	Level 5	6	Will occur as soon as 263291 is registered

SPECIFIC OUTCOME 1
Explain the rationale for integrated coastal management.

SPECIFIC OUTCOME 2
Use legislation and public awareness to protect ecologically sensitive areas.

SPECIFIC OUTCOME 3
Monitor and control driving on beaches.

SPECIFIC OUTCOME 4
Support the day-to-day implementation of integrated coastal zone management strategies.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Comply with Investigation and prosecution requirements in the fisheries environment

SAQA US ID	*UNIT STANDARD TITLE*		
263292	Comply with Investigation and prosecution requirements in the fisheries environment		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
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
Exercise the powers conferred on fisheries inspectors.

SPECIFIC OUTCOME 2
Follow procedures for gathering and processing evidence for prosecuting offenders.

SPECIFIC OUTCOME 3
Prepare a case docket in accordance with prosecution requirements.

SPECIFIC OUTCOME 4
Present exhibits in support of a prosecution process.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Inspect Marine Resources Conservation

SAQA US ID	*UNIT STANDARD TITLE*		
263293	Inspect Marine Resources Conservation		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	10

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

SPECIFIC OUTCOME 1
Provide an overview of the powers conferred on fisheries officers as they apply to legislation specific to fisheries compliance.

SPECIFIC OUTCOME 2
Define offences specific to fisheries compliance as described in the legislative framework.

SPECIFIC OUTCOME 3
Exercise the powers conferred on fisheries inspectors.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply knowledge of fishing vessels and fishing gear in a fisheries compliance environment

SAQA US ID	*UNIT STANDARD TITLE*		
263294	Apply knowledge of fishing vessels and fishing gear in a fisheries compliance environment		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

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

SPECIFIC OUTCOME 1
Distinguish between various types of fishing vessels used in the main fisheries.

SPECIFIC OUTCOME 2
Identify commonly used types of fishing gear.

SPECIFIC OUTCOME 3
Identify the deck gear used in association with the fishing gear used in commercial fishing.

SPECIFIC OUTCOME 4
Take appropriate action in response to observed infringements.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate an understanding of the effects of natural phenomena and human activities on marine ecosystems

SAQA US ID	*UNIT STANDARD TITLE*		
263295	Demonstrate an understanding of the effects of natural phenomena and human activities on marine ecosystems		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	8

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

SPECIFIC OUTCOME 1
Demonstrate an understanding of the interaction and inter-dependence of species in relation to the conserving of species in the marine environment.

SPECIFIC OUTCOME 2
Explain the impact of physical processes on fish stocks.

SPECIFIC OUTCOME 3
Explain the effects of excessive predation from a natural and human perspective.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply national and international fisheries legislation in the marine resources conservation environment

SAQA US ID	*UNIT STANDARD TITLE*		
263314	Apply national and international fisheries legislation in the marine resources conservation environment		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 4	10

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

SPECIFIC OUTCOME 1
Determine the impact of national and international legislation on fisheries resources protection and conservation.

SPECIFIC OUTCOME 2
Institute legal proceedings and prosecutions on operational level.

SPECIFIC OUTCOME 3
Draft a report on legal findings according to operational requirements.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	66149	Further Education and Training Certificate: Fisheries Resource Compliance	Level 4

No. 296 **20 March 2009**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

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

Nature Conservation

registered by Organising Field 01 – Agriculture and Nature Conservation, publishes the following Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the Unit Standards. The full Unit Standards can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate for 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 20 April 2009.*** All correspondence should be marked **Standards Setting – Nature Conservation** addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. E. Brown
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 431-5144
e-mail: ebrown@saqa.org.za

D. MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Supervise the implementation of a community development programme

SAQA US ID	*UNIT STANDARD TITLE*		
263354	Supervise the implementation of a community development programme		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14612	Supervise the implementation of a community development programme	Level 5	12	Will occur as soon as 263354 is registered

SPECIFIC OUTCOME 1
Determine programme supervision requirements for a community development project.

SPECIFIC OUTCOME 2
Manage stakeholder expectations relating to a community development project.

SPECIFIC OUTCOME 3
Supervise the implementation of a community development project.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Develop a community in a nature conservation project

SAQA US ID	*UNIT STANDARD TITLE*		
263355	Develop a community in a nature conservation project		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	15

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

SPECIFIC OUTCOME 1
Describe the role of community development as it applies to social transformation.

SPECIFIC OUTCOME 2
Identify community development requirements in the area of operation.

SPECIFIC OUTCOME 3
Plan and implement a basic community development project/initiative in own area of operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate an understanding of wilderness conservation

SAQA US ID	*UNIT STANDARD TITLE*		
263357	Demonstrate an understanding of wilderness conservation		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	7

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

SPECIFIC OUTCOME 1
Describe the concepts of both the Wilderness Experience and Wilderness as applied to the Southern African context.

SPECIFIC OUTCOME 2
Demonstrate knowledge of wilderness in Southern Africa.

SPECIFIC OUTCOME 3
Describe the need for the management and use of wilderness areas.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate an Understanding of Heritage Conservation

SAQA US ID	*UNIT STANDARD TITLE*		
263358	Demonstrate an Understanding of Heritage Conservation		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
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
Describe the processes and factors involved in the shaping of the concept of heritage.

SPECIFIC OUTCOME 2
Identify aspects of heritage in own area of operation.

SPECIFIC OUTCOME 3
Explain the role of conservation as it applies to heritage.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate an understanding of and monitor community development Issues

SAQA US ID	*UNIT STANDARD TITLE*		
263359	Demonstrate an understanding of and monitor community development issues		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
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
Describe the profile of a community identified for development projects.

SPECIFIC OUTCOME 2
Identify community development needs in an operational area.

SPECIFIC OUTCOME 3
Monitor community development projects.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Implement and evaluate an environmental learning programme

SAQA US ID	*UNIT STANDARD TITLE*		
263360	Implement and evaluate an environmental learning programme		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	15

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
13635	Implement and evaluate an environmental learning programme	Level 5	6	Will occur as soon as 263360 is registered

SPECIFIC OUTCOME 1
Select and plan an environmental learning programme.

SPECIFIC OUTCOME 2
Implement an environmental learning programme.

SPECIFIC OUTCOME 3
Evaluate an environmental learning programme.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Analyse community and conservation issues

SAQA US ID	*UNIT STANDARD TITLE*		
263361	Analyse community and conservation issues		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14600	Analyse community and conservation issues	Level 5	12	Will occur as soon as 263361 is registered

SPECIFIC OUTCOME 1
Survey existing resources and utilisation patterns in an area of operation.

SPECIFIC OUTCOME 2
Investigate suitable technologies and livelihood practices for sustainable resource utilization.

SPECIFIC OUTCOME 3
Recommend and motivate alternative resource utilization in a community.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Apply wilderness management principles and practice

SAQA US ID	*UNIT STANDARD TITLE*		
263362	Apply wilderness management principles and practice		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
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
Explain how environmental considerations describe the designation and purpose of wilderness areas.

SPECIFIC OUTCOME 2
Evaluate wilderness conservation/preservation.

SPECIFIC OUTCOME 3
Contribute to the development of a wilderness conservation / preservation management plan.

SPECIFIC OUTCOME 4
Apply conservation management principles to a wilderness area and its surrounds.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate an understanding of sociological issues in nature conservation

SAQA US ID	*UNIT STANDARD TITLE*		
263363	Demonstrate an understanding of sociological issues in nature conservation		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
14595	Demonstrate an understanding of sociological issues	Level 5	12	Will occur as soon as 263363 is registered

SPECIFIC OUTCOME 1
Identify and interpret key sociological features in area of operation.

SPECIFIC OUTCOME 2
Describe the impact of the sociological features on the environment.

SPECIFIC OUTCOME 3
Describe the impact of the environment on the social features of the community within area of operation.

SPECIFIC OUTCOME 4
Demonstrate understanding of integrated sociological principles within area of operation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Facilitate a Wilderness experience

SAQA US ID	*UNIT STANDARD TITLE*		
263364	Facilitate a Wilderness experience		
ORIGINATOR		*PROVIDER*	
SGB Nature Conservation			
FIELD		*SUBFIELD*	
1 - Agriculture and Nature Conservation		Nature Conservation	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 5	15

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

SPECIFIC OUTCOME 1
Define the values and benefits of wilderness conservation for diverse communities and towards sustainable development in South Africa.

SPECIFIC OUTCOME 2
Describe the principles and ethics required for optimal wilderness management.

SPECIFIC OUTCOME 3
Facilitate and evaluate a wilderness experience.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

No. 297 **20 March 2009**

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

Vehicle Maintenance

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

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

Comment on the Qualification and Unit Standards should reach SAQA at the address below and ***no later than 20 April 2009.*** All correspondence should be marked **Standards Setting** – SGB for **Vehicle Maintenance** and addressed to

The Director: Standards Setting and Development
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Private Bag X06
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D. MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Automotive Manufacturing and Assembly

SAQA QUAL ID	*QUALIFICATION TITLE*		
65809	National Certificate: Automotive Manufacturing and Assembly		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	135	Level 2	Regular-Unit Stds Based

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 provide learners, training providers and employers with the standards and the range of learning required to work effectively in the automotive manufacturing environment and manufacture vehicles to the international standards required by purchasers of new vehicles.

The primary skill that is recognised in this qualification is the ability to apply the theory behind automotive manufacturing to achieve a flexible operator in the motor industry who is able to work as part of a team to assemble a new vehicle on a production line.

This qualification has been designed to accommodate learners from various areas of vehicle manufacturing and to include skills relevant to different automotive manufacturers. This qualification has a generic core section and provides an avenue for learners to specialise in one of the following 4 specialisation areas:

> Body Construction.
> Paint Operations.
> Vehicle Assembly.
> Engine Machining.

Training and assessment will be contextualised to the specialisation area of the learner, and the learner will be required to prove competence in the specialisation area enrolled in. Additional skills required in Logistics, Administration, Quality Assurance and Technical Non-Production areas are not included in this qualification, but these skills could be covered through generic qualifications and/or unit standards that are already in existence.

This qualification is the foundational qualification for a vehicle manufacturer and learners will be able to build on this qualification to achieve higher levels of vehicle manufacturing in the specialisation area selected.

After achieving this qualification learners will be able to:

> Demonstrate understanding of how a vehicle is assembled.
> Communicate with peers and supervisors in an automotive manufacturing context.
> Use and maintain automotive workshop tools and equipment.
> Add value to the production of a motor vehicle in a specialised area.

Rationale:

The Automotive Manufacturing Industry Certificate (AMIC) has been the benchmark for vehicle manufacturers in South Africa for many years, but this certificate has not been aligned to unit standards. This has meant that learners who have gone through the learning process have achieved valuable skills, but have not received any form of recognition for these skills. Various interventions have been entered into over the years to try and align the AMIC programme with SAQA unit standards and qualifications, but it was found that the AMIC programme was more complex than a SAQA qualification and covered various unrelated areas. This difficulty has been addressed by focusing achievement of this qualification on the essential elements of vehicle manufacturing and allowing manufacturers to choose additional existing courses for their learners in more generic areas such as logistics, administration, quality assurance and technical non-production. This means that a qualification can now be developed to give recognition for all people who work in a vehicle manufacturing plant in any of the areas identified as a specialisation for this qualification.

This qualification recognises the skills, knowledge and values relevant in the workplace and will cater for learners who:

> Have attended courses and need to apply the knowledge gained to activities in the workplace.
> Are already workers and have acquired skills and knowledge without having attended formal training.
> Are part of a learnership programme which integrates structured learning and operational experience.

This is the first qualification that provides recognition for vehicle manufacturers who work as part of the vehicle production line, and candidates may continue learning to a higher level within the selected specialisation area. People who have achieved the skills and knowledge outlined in this qualification are normally employed in one of the following areas in vehicle manufacturing:

> Body Construction.
> Paint Operations.
> Vehicle Assembly.
> Engine Machining.

It also provides learners who have gained relevant experience in the workplace with an opportunity to obtain credits through an RPL process.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
Learners registering for this qualification should already have achieved a General Education and Training Certificate at NQF Level 1or equivalent.

If the learner does not already have such a qualification, learning in preparation for this qualification should include:

> Literacy and communication at NQF Level 1.
> Mathematical Literacy at NQF Level 1.

Recognition of Prior Learning:

The structure of this qualification makes the Recognition of Prior Learning possible if the learner is able to demonstrate competence in the knowledge, skills, values and attitudes implicit in this Qualification. Recognition of Prior Learning will be done by means of an Integrated Assessment as mentioned in the previous paragraph.

This Recognition of Prior Learning may allow:

> For accelerated access to further learning.
> Gaining of credits towards any of the Exit Level Outcomes or unit standards in this qualification.

All recognition of Prior Learning is subject to quality assurance by the relevant accredited Education and Training Quality Assurance Body (ETQA) and must be conducted by a registered workplace assessor. Identified outcomes may have been acquired in a range of economic sectors and these will be considered as appropriate where the candidate provides evidence of the applicability of that learning to this qualification.

Access to the Qualification:

This qualification is open for anyone who wishes to pursue a career in vehicle manufacturing, but prior achievement of the "Learning Assumed to be in Place" would facilitate an easier progression into learning programmes to address the outcomes of this qualification.

QUALIFICATION RULES
The core unit standards identified are applicable across the entire range of specialisation areas applicable to this qualification. Specific unit standards that are required for certain specialisation areas have been identified and listed below. Rules of combination for this qualification are as follows:

> All Fundamental unit standards are compulsory (36 Credits).
> All Core unit standards are compulsory (73 Credits).
> Learners specialising in Body Construction are required to select a minimum of 26 credits from the following list of elective unit standards:
> ID 119753: Perform basic welding/joining of metals; NQF Level 2; 8 Credits.
> ID 262709: Fit and remove doors and panels to a body shell; NQF Level 2; 6 Credits.
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 15123: Select and use vehicle lifting equipment; NQF Level 2; NQF Level 3 Credits.
> ID 262711: Prepare metal panels for finishing; NQF Level 3; 12 Credits.
> ID 12481: Sling loads; NQF Level 2; 4 Credits.
> ID 262714: Test welded joints; NQF Level 3; 6 Credits.

Total = 43.

> Learners specialising in Paint Operations are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 260159: Polish automotive painted panels; NQF Level 2; 6 Credits.
> ID 119740: Identify the various types of paint, primers, material and their uses; NQF Level 2; 4 Credits.
> ID 119734: Perform surface preparation on a body panel; NQF Level 2; 8 Credits.
> ID 119742: Perform masking and de-masking on a vehicle; NQF Level 2; 8 Credits.
> ID 119737: Perform basic spray painting; NQF Level 2; 10 Credits.
> ID 260160: Maintain spray painting equipment; NQF Level 2; 4 Credits.

> ID 262733: Remove and fit automobile components; NQF Level 2; 12 Credits.
> ID 244110: Conduct paintless dent removal; NQF Level 3; 9 Credits.

Total = 65 Credits.

> Learners specialising in Vehicle Assembly are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 253440: Assemble mechanical components; NQF Level 2; 12 Credits.
> ID 9877: Assemble components; NQF Level 2; 12 Credits.
> ID 262733: Remove and fit automobile components; NQF Level 2; 12 Credits.
> ID 12211: Build basic auto electrical circuits; NQF Level 2; 16 Credits.
> ID 15123: Select and use vehicle lifting equipment; NQF Level 2; NQF Level 3 Credits.
> ID 244056: Understand the fundamentals of engine technology; NQF Level 3; 4 Credits.
> ID 260158: Apply sealers and cavity fillers on vehicles; NQF Level 2; 4 Credits.
> ID 244686: Demonstrate understanding of the principles of fluid power; NQF Level 2; 6 Credits.
> ID 13219: Maintain static seals in machines and/or equipment; NQF Level 2; 4 Credits.
> ID 262716: Operate fluid filling machines; NQF Level 2 Credits.
> ID 262725: Test vehicle for compliance to manufacturer specifications; NQF Level 3; 4 Credits.

Total = 79 Credits.

> Learners specialising in Engine Machining are required to select a minimum of 26 credits from the following list of available unit standards:
> ID 243014: Operate and monitor computerised numerically controlled (CNC) machining equipment; NQF Level 2; 16 Credits.
> ID 244056: Understand the fundamentals of engine technology; NQF Level 3; 4 Credits.
> ID 13219: Maintain static seals in machines and/or equipment; NQF Level 2; 4 Credits.
> ID 12219: Select, use and care for engineering power tools; NQF Level 2; 6 Credits.
> ID 9878: Complete post-production and finishing operations; NQF Level 2; 12 Credits.
> ID 244338: Operate a production process; NQF Level 2; 15 Credits.

Total = 57 Credits.

EXIT LEVEL OUTCOMES

1. Demonstrate understanding of how a vehicle is manufactured.

2. Communicate with peers and supervisors in an automotive manufacturing context.

3. Use and maintain automotive workshop tools and equipment.

4. Add value to the production of a motor vehicle in a specialised area.

Critical Cross-Field Outcomes:

This qualification addresses the following critical cross-field outcomes, as detailed in the unit standards:

Identify and solve problems and make decisions using critical and creative thinking.

Note:

> The ability of the candidate to identify the type of production line alterations required.

Work effectively with others as a member of a team, group, organisation or community.

Note:

> The ability of the candidate to communicate with peers and supervisors.

Organise and manage themselves and their activities responsibly and effectively.

Note:

> The ability of the candidate to adhere to workplace timeframes and procedures.

Collect, analyse, organise and critically evaluate information.

Note:

> The ability of the candidate to identify potential production problems and act appropriately.

Communicate effectively, using visual, mathematical and/or language skills in the modes of oral and/or written presentations.

Note:

> The ability of the candidate to report on work conducted.

Use science and technology effectively and critically, showing responsibility towards the environment and health of others.

Note:

> The ability of the candidate to use the correct tools and equipment to carry specific work functions.

Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

Note:

> The ability of the candidate to support the entire production process.

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

1.1 The process of manufacture is described for the entire vehicle in accordance with specific manufacturer processes.
1.2 The operation of a production line is described in terms of the process of completing specific functions.
1.3 Differences in vehicles that can be incorporated on the same production line are identified and explained in terms of system changes required.
1.4 The benefits of working on a production line are contrasted to manufacturing vehicles one-by-one.
1.5 The importance of ensuring adequate supply of raw materials for production is described in terms of the consequences to production if resources are depleted.
1.6 The process for checking quality of workmanship is described in accordance with manufacturer specifications.

Associated Assessment Criteria for Exit Level Outcome 2:

2.1 Oral communication is maintained and adapted as required to promote effective interaction in the work context.
2.2 Terminology used is appropriate to the situation and in accordance with normal workplace usage.
2.3 Information related to work tasks is accessed and interpreted from a range of written and oral sources to ensure that work requirements are understood.
2.4 Communication is clear and unambiguous and at an appropriate level for designated target audiences.
2.5 Information communicated is accurate and conveyed in accordance with acceptable timeframes.
2.6 Communication is effective, regular and ongoing.

Associated Assessment Criteria for Exit Level Outcome 3:

3.1 Tools and equipment are selected and used in accordance with their design and are appropriate for the task at hand.
3.2 Tools and equipment required for the scope of work are sourced from available supplies.
3.3 Tools and equipment are checked for condition prior to use.
3.4 Faulty tools are identified and corrective action is taken in accordance with workplace procedures.
Range:
> Corrective action includes replacing, repairing or reporting.
3.5 Tools and equipment are used according to manufacturer operating guidelines.

Associated Assessment Criteria for Exit Level Outcome 4:

4.1 The functions performed within a specialised area are described in accordance with manufacturer operating requirements.
4.2 Specific functions are performed in accordance with workplace requirements.
4.3 Consequences of not completing specific functions to acceptable quality and within agreed timeframes are explained in terms of the impact on the production line.
4.4 Tools, equipment and machinery are used according to manufacturer operating guidelines.
4.5 Potential problems in production are recognised and responded to in a manner that ensures optimal production.
4.6 Minor adjustments to production systems are made according to workplace and manufacturer requirements.
4.7 Work is conducted with due consideration for other team members and overall productivity.
4.8 Work conducted is reported on in accordance with workplace procedures.

Integrated Assessment:

Because assessment practices must be open, transparent, fair, valid, and reliable and ensure that no learner is disadvantaged in any way whatsoever, an integrated assessment approach is incorporated into the Qualification. Learning, teaching and assessment are inextricably linked. Whenever possible, the assessment of knowledge, skills, attitudes and values shown in the exit level outcomes should be integrated.

A variety of methods must be used in assessment 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.

The term 'Integrated Assessment' implies that theoretical and practical components should be assessed together. During integrated assessments the assessor should make use of formative and summative assessment methods and assess combinations of practical, applied, foundational and reflective competencies. 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 outcomes, embedded knowledge and critical cross-field outcomes are assessed. The assessment of the critical cross-field outcomes should be integrated with the assessment of specific outcomes and embedded knowledge.

INTERNATIONAL COMPARABILITY

This qualification has been designed to specifically cater for the unique needs of the South African vehicle manufacturers and is at a level below that which most other countries provide training at. The countries looked at for international comparability include Japan, Germany, Thailand, England, Spain, Mexico, Turkey, United States of America and Brazil.

South Africa has adopted a much more labour intensive approach to manufacturing vehicles in order to provide jobs and meet economic requirements. Each of the above countries use skilled artisans to manufacture vehicles, and focus on advanced technology and robotics more than the South African manufacturers. These countries also only employ qualified people in the manufacturing plant, whereas South Africa employs unskilled labour that can be trained to this qualification in a manner that integrates learning and work. Where additional training is required in the other countries, training is conducted off the production line, whereas the training in South Africa is conducted in the plant.

Elements of the Institute of Motor Industry (IMI) in the UK have been used in benchmarking best practice procedures in some of the unit standards used in this qualification. The NVQ qualifications offered in the UK cover all the same objectives of this qualification but at a higher level of complexity. The qualifications are offered as an internship wherein the learner enrols with a college or training centre for the theoretical component, and achieves the practical component in-house. The qualifications are all based on specific levels of performance, and lead to progressive levels of complexity, but are identified as separate qualifications. The learning towards these qualifications is offered through long-term learner-employer relationships, with short-term stints at a training centre. Qualification titles in the UK include:

> Vehicle Mechanical and Electronic Systems, Maintenance and Repair: Level 3: (Q1015916).
> Vehicle Refinishing: Level 3: (Q1017590).
> Vehicle Body Fitting: Level 2: (Q1015913).
> Vehicle Mechanical and Electronic Systems, unit Replacement: Level 2: (Q1015914).

The qualifications offered in Germany are also vocational qualifications with theoretical components being achieved through a specified period at a training centre. The qualifications are aimed at achieving complete competence in all aspects of vehicle manufacturing through a progressive series of qualifications and includes mechanical, electrical and coach works. The training programmes are progressive qualifications of one-year duration each and include ongoing training through workbooks in which the trainee is required to complete evidence of understanding for each month of the registered year of learning. Germany has a requirement that competent people be licensed to operate under the meister (master craftsman) programme, and this licence is valid for a period of two years. The qualification titles offered in Germany include:

> Auto Fachman: Level 1.
> Auto Fachman: Level 2.
> Auto Fachman: Level 3.
> Auto Fachman: Meister.

America uses a system of specialisation areas, with a master technician being identified as a person who is competent in all areas and will be able to assemble any part of a vehicle. The learning is conducted through apprenticeships and has specialisation areas for engine technicians, transmission technicians, steering and suspension technicians, brake technicians, electrical system technicians, heating and air-conditioning technicians, driveability and performance technicians and lubrication technicians.

Other African countries do not have full manufacturing plants, but import semi knocked down units that are then assembled by trained operators without a formal qualification. It is anticipated that this qualification will have a strong appeal within the African market and will provide qualifications for people that would otherwise be unrecognised for their skills and knowledge.

Conclusion:

This qualification focuses on the specific requirements of the South African job market and provides recognition for skills and knowledge at a basic level for learners who have entered into the workforce and are able to assist in the automotive manufacturing and assembly process.

ARTICULATION OPTIONS
This Qualification lends itself to both vertical and horizontal articulation possibilities.

Horizontal articulation is possible with any of the specialisation areas within this qualification and also with the following Qualifications:

> ID 22858: National Certificate: Autotronics, NQF Level 2.
> ID 22770: National Certificate: Mechatronics, NQF Level 2.
> ID 64410: National Certificate: Automotive Spray Painting, NQF Level 2.
> ID 64810: National Certificate: Automotive Maintenance and Repair, NQF Level 2.
> ID : National Certificate: Automotive component manufacturing and assembly, NQF Level 2.

Vertical articulation is possible with the following qualifications:

> ID 22859: National Certificate: Autotronics, NQF Level 3.
> ID 22771: National Certificate: Mechatronics, NQF Level 3.
> ID 64409: National Certificate: Automotive Spray Painting, NQF Level 3.
> ID 64809: National Certificate: Automotive Maintenance and Repair, NQF Level 3.
> ID : National Certificate: Automotive component manufacturing and assembly, NQF Level 3.

It is also anticipated that a new qualification for Automotive Manufacturing and Assembly will be developed at NQF level 3.

MODERATION OPTIONS
> Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant Education and Training Quality Assurance Body (ETQA).

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

> Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation, in terms of agreements reached around assessment and moderation between ETQAs (including professional bodies).

> 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 in the ELOs of the Qualification and will include integration of skills relevant to the economic sector.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors must be registered in terms of the requirements of SAQA and the relevant ETQA. In addition, assessors should have:

> A minimum of 3 (three) years' practical, relevant occupational experience.
> A relevant Qualification at NQF Level 3 or higher.
> The ability to meet the outcomes of this qualification.

NOTES

This qualification will be achieved in any one of the specialisation areas identified. Learners may achieve more unit standards, and thereby more credits, than the minimum 130 that have been identified. The additional credits may be made up from any of the other specialisation areas.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119463	Access and use information from texts	Level 2	5
Fundamental	9009	Apply basic knowledge of statistics and probability to influence the use of data and procedures in order to investigate life related problems	Level 2	3
Fundamental	7480	Demonstrate understanding of rational and irrational numbers and number systems	Level 2	3
Fundamental	9008	Identify, describe, compare, classify, explore shape and motion in 2-and 3-dimensional shapes in different contexts	Level 2	3
Fundamental	119454	Maintain and adapt oral/signed communication	Level 2	5
Fundamental	119460	Use language and communication in occupational learning programmes	Level 2	5
Fundamental	7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	Level 2	2
Fundamental	9007	Work with a range of patterns and functions and solve problems	Level 2	5
Fundamental	119456	Write/present for a defined context	Level 2	5
Core	117902	Use generic functions in a Graphical User Interface (GUI)-environment	Level 1	4
Core	243705	Demonstrate an understanding of quality procedures and practices	Level 2	10
Core	262706	Demonstrate understanding of production systems and production management	Level 2	8
Core	13220	Keep the work area safe and productive	Level 2	8
Core	9876	Operate and monitor machinery	Level 2	12
Core	13221	*Perform routine maintenance*	Level 2	8
Core	9882	Read and interpret basic engineering drawings	Level 2	8
Core	119744	Select, use and care for engineering hand tools	Level 2	8
Core	12476	Select, use and care for engineering measuring equipment	Level 2	4
Core	12667	*Supply raw and processed material to production line*	Level 2	3
Elective	260158	Apply sealers and cavity fillers on vehicles	Level 2	4
Elective	9877	Assemble components	Level 2	12
Elective	253440	Assemble mechanical components	Level 2	12
Elective	12211	Build basic auto electrical circuits	Level 2	16
Elective	9878	Complete post-production and finishing operations	Level 2	12
Elective	244686	Demonstrate understanding of the principles of fluid power	Level 2	6
Elective	12466	Explain the individual's role within business	Level 2	4
Elective	262709	Fit and remove doors and panels to a body shell	Level 2	6
Elective	119740	Identify the various types of paint, primers, material and their uses	Level 2	4
Elective	260160	Maintain spray painting equipment	Level 2	4
Elective	13219	Maintain static seals in machines and / or equipment	Level 2	4
Elective	9268	Manage basic personal finance	Level 2	6

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Elective	262716	Operate a fluid filling machine	Level 2	2
Elective	244338	Operate a production process	Level 2	15
Elective	243014	Operate and monitor computerised numerically controlled (CNC) machining equipment	Level 2	16
Elective	119737	Perform basic Spray Painting	Level 2	10
Elective	119753	Perform basic welding/joining of metals	Level 2	8
Elective	119742	Perform masking and de-masking on a vehicle	Level 2	8
Elective	119734	Perform surface preparation on a body panel	Level 2	8
Elective	260159	Polish automotive painted panels	Level 2	6
Elective	262733	Remove and fit automobile components	Level 2	12
Elective	15123	Select and use vehicle lifting equipment	Level 2	3
Elective	12219	Select, use and care for engineering power tools	Level 2	6
Elective	12481	Sling loads	Level 2	4
Elective	244110	Conduct paintless dent removal	Level 3	9
Elective	262711	Prepare metal panels for finishing	Level 3	12
Elective	262725	Test vehicle for compliance to manufacturer specifications	Level 3	4
Elective	262714	Test welded joints	Level 3	6
Elective	244056	Understand the fundamentals of engine technology	Level 3	4

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Demonstrate understanding of production systems and production management

SAQA US ID	*UNIT STANDARD TITLE*		
262706	Demonstrate understanding of production systems and production management		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
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
Demonstrate understanding of production and production systems.

SPECIFIC OUTCOME 2
Demonstrate knowledge of basic managerial tasks.

SPECIFIC OUTCOME 3
Demonstrate knowledge of additional production management tasks.

SPECIFIC OUTCOME 4
Demonstrate knowledge of the process of setting production goals and objectives.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Core	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Fit and remove doors and panels to a body shell

SAQA US ID	***UNIT STANDARD TITLE***		
262709	Fit and remove doors and panels to a body shell		
ORIGINATOR		***PROVIDER***	
SGB Vehicle Maintenance			
FIELD		***SUBFIELD***	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	***UNIT STANDARD TYPE***	***NQF LEVEL***	***CREDITS***
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
Demonstrate knowledge of the removal and fitment process.

SPECIFIC OUTCOME 2
Remove doors and body panels.

SPECIFIC OUTCOME 3
Fit doors and body panels.

SPECIFIC OUTCOME 4
Restore work area, complete and process documentation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Prepare metal panels for finishing

SAQA US ID	*UNIT STANDARD TITLE*		
262711	Prepare metal panels for finishing		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	12

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

SPECIFIC OUTCOME 1
Inspect panels for metal forming defects.

SPECIFIC OUTCOME 2
Repair identified defects.

SPECIFIC OUTCOME 3
Clean metal panels.

SPECIFIC OUTCOME 4
Confirm status of panel and report to relevant personnel.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Test welded joints

SAQA US ID	*UNIT STANDARD TITLE*		
262714	Test welded joints		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

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

SPECIFIC OUTCOME 1
Demonstrate knowledge of different types of welds.

SPECIFIC OUTCOME 2
Test strength of welds.

SPECIFIC OUTCOME 3
Understand safety requirements.

SPECIFIC OUTCOME 4
Report on tests.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	66809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate a fluid filling machine

SAQA US ID	***UNIT STANDARD TITLE***		
262716	Operate a fluid filling machine		
ORIGINATOR		***PROVIDER***	
SGB Vehicle Maintenance			
FIELD		***SUBFIELD***	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	***UNIT STANDARD TYPE***	***NQF LEVEL***	***CREDITS***
Undefined	Regular	Level 2	2

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

SPECIFIC OUTCOME 1
Start machine for filling operations.

SPECIFIC OUTCOME 2
Demonstrate knowledge of fluids used in vehicles.

SPECIFIC OUTCOME 3
Fill vehicle systems.

SPECIFIC OUTCOME 4
Identify and rectify filling faults.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Test vehicle for compliance to manufacturer specifications

SAQA US ID	*UNIT STANDARD TITLE*		
262725	Test vehicle for compliance to manufacturer specifications		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
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
Demonstrate knowledge of the importance of testing vehicles.

SPECIFIC OUTCOME 2
Test functionality of vehicle systems and components in static conditions.

SPECIFIC OUTCOME 3
Test for water leaks.

SPECIFIC OUTCOME 4
Test functionality of vehicle systems and components in dynamic conditions.

SPECIFIC OUTCOME 5
Restore the work area.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Remove and fit automobile components

SAQA US ID	*UNIT STANDARD TITLE*		
262733	Remove and fit automobile components		
ORIGINATOR		*PROVIDER*	
SGB Vehicle Maintenance			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 2	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
12214	Remove and fit automobile mechanical and electrical components	Level 2	12	Will occur as soon as 262733 is registered
119738	Remove automotive components	Level 2	4	Will occur as soon as 262733 is registered
119748	Install Automotive components	Level 2	6	Will occur as soon as 262733 is registered

SPECIFIC OUTCOME 1
Prepare to remove or fit components.

SPECIFIC OUTCOME 2
Remove and fit components.

SPECIFIC OUTCOME 3
Inspect and test fitted components.

SPECIFIC OUTCOME 4
Apply safety procedures during the removal and fitting process.

SPECIFIC OUTCOME 5
Restore work area, complete and process documentation.

QUALIFICATIONS UTILISING THIS UNIT STANDARD

	ID	QUALIFICATION TITLE	LEVEL
Elective	65809	National Certificate: Automotive Manufacturing and Assembly	Level 2

No. 298 **20 March 2009**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Task Team 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 title, field, sub-field, NQF level, credits, and purpose of the Qualification. The full Qualification can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification should reach SAQA at the address below and ***no later than 20 April 2009.*** All correspondence should be marked **Standards Setting – Task Team for Radiography and Clinical Technology** and addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. E. Brown
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 431-5144
e-mail: ebrown@saqa.org.za

D. MPHUTHING
ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
Master of Radiography

SAQA QUAL ID	*QUALIFICATION TITLE*		
66229	Master of Radiography		
ORIGINATOR		*PROVIDER*	
TT - Radiography and Clinical Technology			
QUALIFICATION TYPE	*FIELD*	*SUBFIELD*	
Masters Degree	9 - Health Sciences and Social Services	Curative Health	
ABET BAND	*MINIMUM CREDITS*	*NQF LEVEL*	*QUAL CLASS*
Undefined	180	Level 8 and above	Regular-ELOAC

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

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

This qualification will enable successful learners to make a contribution to a chosen field of radiography through independent research, using advanced problem-solving skills and critical, reflective thinking. The learner will report the findings in a manner that meets accepted criteria and ethical principles of the profession. The research problem, its justification, process and outcome will be reported in a dissertation that complies with the generally accepted norms for research at a Master's level. In this way the learner will make a contribution to the existing body of knowledge for radiography ranging from fundamental concepts to advanced theoretical or applied knowledge that will develop and advance the Radiography profession.

Rationale:

The South African Government has expressed a need for both specialised radiographers who can operate independently at an advanced level in radiography departments, as well as those who will make a contribution, through independent research in a chosen field. This Qualification has been structured to meet the latter need and provide for research within radiography through the inclusion of a research dissertation that complies with the accepted norms, criteria and ethical principles for research at that level. Learners obtaining this qualification will be able to conduct research within the field of radiography and present their findings at local and international conferences/seminars as well as publish them in accredited publications. This is in keeping with the Government's need for education to develop the area of science and technology.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
> Successful completion of a Professional Degree in Radiography, or recognised equivalent.
> Knowledge of the fundamental principles and concepts of research and statistical methods.

Recognition of Prior Learning:

Recognition of Prior Learning (RPL) is awarded on application by the learner for RPL to the accredited educational institution. RPL is awarded at the discretion of the educational institution and in agreement with the relevant Education and Training Quality Assurance body.

Access to the Qualification:

Access to the Qualification is open to learners who meet the entry requirements of the institution offering the Qualification as well as the specifications of the Registering Statutory Professional Council.

QUALIFICATION RULES
This Qualification may be obtained in one of two ways:

> Research only resulting in the production and presentation of a dissertation at the required level.
> Research resulting in the production and presentation of a dissertation and/or report(s) at the required level to the value of at least 50% of the total credits of the Qualification, plus additional course work at the level of the Qualification to make up the balance of the required credits.

EXIT LEVEL OUTCOMES
1. Demonstrate advanced application of concepts, methods, ethics, theories and analytical processes in relation to a chosen focus area of radiography and associated fields.

2. Access, analyse and critically evaluate existing knowledge in radiography.

3. Access, process, produce and communicate information to colleagues and other groups.

4. Engage in independent research, selecting appropriate research designs, methods, techniques and technologies in the chosen focus area and produce findings in the form of a research report.

5. Demonstrate an in-depth understanding of own position in relation to major debates within the chosen field of radiography.

6. Demonstrate specialist forefront knowledge and expertise in the chosen field of radiography and the competency to apply these creatively within the chosen field.

7. Critically analyse and evaluate the outcomes of radiography interventions, techniques, strategies, or processes in the chosen field.

Critical Cross-Field Outcomes:

> Identifying, analysing and solving problems in the professional, individual and societal environments creatively are demonstrated through the process of writing up of a research proposal and dissertation and if a course work module is incorporated, though critical thinking and applying reflective skills.
> Working effectively with others as a member of a team, group, organisation and community in the health care and educational environment will be achieved by communicating the research findings to peers, stakeholders and through publication and presentations and skills gained through advanced study of specialised technologies.
> Organising and managing oneself and one's activities responsibly and effectively is demonstrated by the learner's ability to independently source information and logically present a proposal and finally a dissertation or research report(s) in liaison with a mentor and supervisor.
> Collecting, analysing, organising and critically evaluating information, enables the learner to develop a research proposal and follow the accepted research steps to achieve the completion of a dissertation or report(s).

> Communicating effectively within the health care and educational environment, using visual, mathematical and/or language skills in the modes of oral and or written presentation are demonstrated in the acquisition of research material which is presented to peers.
> Using science and technology effectively and critically, showing responsibility towards the environment and health of others is demonstrated in the design, acquisition of material and presentation of the research project.
> Demonstrating an understanding of the world as a set of related systems by recognising that the problem solving contexts do not exist in isolation is achieved in the research methodology and achievement of research outcomes.

> In order to contribute to the full personal development of each student and the social and economic development of the society at large it must be the intention underlying any programme of learning to make an individual aware of the importance of:
> Reflecting on and exploring a variety of strategies to learn more effectively.
> Participating as responsible citizens in the life of local, national and global communities.
> Being culturally and aesthetically sensitive across a range of social contexts.
> Exploring education and career opportunities.
> Developing entrepreneurial opportunities.

Medical and research ethics and legal issues pertinent to research in technology are critically reflected on, included in the proposal and adhered to during the research process:

> Data is gathered using the selected methodology.
> Data is analysed using the relevant statistical or other tools.
> Research results are critically analysed, evaluated and discussed.
> The dissertation is written up and presented according to specified criteria.
> Findings are communicated to a professional audience through oral/poster presentations and/or institutional seminars and/or publications.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

1.1 Discussions reflect a clear understanding of the context (including policy, legislation and global issues), appropriate concepts, methods, ethics, theories and analytical processes in the chosen field.
1.2 Presentations reflect the appropriate application of the relevant concepts, methods, ethics, theories and analytical processes in the chosen field.
1.3 Written work on the chosen field displays critical analyses and intellectual independence.

Associated Assessment Criteria for Exit Level Outcome 2:

2.1 Current literature and research are accessed, analysed and evaluated systematically in the chosen focus area.
2.2 Evaluations demonstrate clear evidence of effective application of the principles of radiography research practice.
2.3 Conclusions and recommendations are justified by the use of appropriate evidence and arguments.

Associated Assessment Criteria for Exit Level Outcome 3:

3.1 Discussions reflect the ability to obtain process and communicate information effectively to colleagues and other groups.
3.2 Presentations display analytical skills and a degree of intellectual independence.
3.3 Written and oral communication conveys and appropriately highlight the information to specific target groups.

Associated Assessment Criteria for Exit Level Outcome 4:

4.1 The research inquiry is planned and conducted on the basis of a range of appropriate research designs, methods, techniques and technologies for the specific research problem.
4.2 Research themes are appropriately identified and demarcated.
4.3 Analyses of the selected research theme include a comprehensive and critical review of current literature and investigations.
4.4 Selected research methods, techniques and technologies are based on a clear understanding of radiography research theory and practice.
4.5 Research reports critically and coherently describe theoretical arguments, the research process, methodology, results, conclusions and recommendations.
4.6 Research reports display skill in extrapolating key findings, justifiable conclusions and making feasible recommendations.

Associated Assessment Criteria for Exit Level Outcome 5:

5.1 Motivations of own position to specific debates are based on a sound integration of relevant theory, practice, research and a degree of independent, creative thinking.
5.2 Discussions demonstrate understanding of own position and its feasibility in relation to major debates.
5.3 Written and oral formats clearly and cogently communicate explanations of own position.

Associated Assessment Criteria for Exit Level Outcome 6:

6.1 Analyses of the problems and issues reflect a purposeful and critical application of advanced theory, current knowledge and expertise in the focus area.
6.2 Interventions and/or recommendations reflect purposeful and creative plans to seek solutions based on theory and proven methods in the chosen field.
6.3 Discussions and/or interventions reflect advanced application of appropriate skills, strategies and techniques in accordance with corresponding theoretical assumptions in the chosen field.
6.4 Research and/or interventions include the appropriate and creative use of radiography tools and/or data relevant to the chosen field.

Associated Assessment Criteria for Exit Level Outcome 7:

7.1 Evaluations comprehensively describe outcomes of interventions, techniques, strategies or processes in relation to the stated goals and in accordance with corresponding theoretical assumptions.
7.2 Evaluations critically analyse outcomes in accordance with the identified needs and issues within the chosen focus area.
7.3 Evaluations are purposefully used as the basis for planning, implementation and recommendations.

Integrated Assessment:

Learners work is assessed in terms of the procedures of the provider institution.

INTERNATIONAL COMPARABILITY

The South African Government has expressed a need for both a specialised radiographer who can operate independently at an advanced level in radiography departments as well as a radiographer who will make a contribution, through independent research in a chosen field. The developed Qualification should further be comparable with qualifications offered else where in the world. This will ensure that South Africa is on par with international trends and that the learners who graduate with this Qualification will have employment opportunities both nationally and internationally. In trying to determine the comparability of this Masters programme for radiography, Australia and Hong Kong qualifications were used for comparison.

As a first-world country, Australia has proven to be advanced in the field of radiography as one of the first world countries. Hong Kong is among the developing countries and, as such, is more closer to the South African situation.

Master of Medical Imaging Science is offered by the Curtin University of Technology in Perth, Australia. This course is offered over a two year period on a full time basis.

Course entry requirements:

Learners wishing to enrol for this course should be in possession of a degree in health sciences and have knowledge of human biology, pathology and physics. Recognition of Prior Learning is considered on individual bases for professionals from other healthcare professions who wish to enter the field of medical imaging science.

Course organisation, assessment and accreditation:

Learners who enrol for this course should be ready to participate in full laboratory practical sessions where assessments are at levels higher than those applied in undergraduate programmes will be conducted. Successful learners receive a Statement of Accreditation from the Australian Institute of Radiography. This entitles them for employment in Australia and other internationally aligned states.

The course is designed to empower learners to develop higher levels of knowledge and skills in the field of medical imaging. Some of the subjects included are:

> Medical physics.
> Imaging anatomy.
> Medical imaging science.
> Clinical medical imaging science.
> Medical imaging instrumentation.
> Comparative imaging.
> Image interpretation.

From the list provided, there seems to be no research module undertaken or any research project competed by the learners in this programme. A further point of difference about this qualification is that it is designed for diagnostic radiographers only.

A Master of Diagnostic Radiography or Nuclear Medicine or Radiation Therapy is offered by the University of Sydney. These programmes are delivered as separate streams each as full-time study over a period of two years. Accreditation for the Diagnostic Radiography and Radiation Therapy is granted by the Australian Institute of Radiography while Nuclear Medicine is accredited by the Australian and New Zeeland Society of Nuclear Medicine. To be allowed to practice in Australia after completing any of these courses, successful learners are expected to complete an internship for a period of one year.

Course structure and delivery:

This takes the form of inquiry-based study and involves a blend of research-led teaching and self-directed learning. The common subjects among the three streams include:

Core:

> Medical radiation science, 1, 2 and 3.
> Foundations of Healthcare practice.
> Research studies 1 and 2.

> Integrated imaging and treatment.

Electives available (learners choose any one of these):

> Body function for health professionals.
> Clinical orientated musculo-skeletal anatomy.
> Evidence based healthcare.
> Function and dysfunction of body systems.
> Sociology for health professionals.
> Introduction to epidemiology.
> Occupational health.
> Patient/practitioner communication.
> Psychology for graduate students.

For each of the speciality courses, the learner must also complete professional practice 1, 2, 3 and 4 as well as the associated clinical studies one to four.

The masters programme offered at Sydney University compares relatively well to the course work masters programme developed for South Africa. One of the differences between the two qualifications is the wide selection of electives provided by the University of Sydney. The other difference is that the South African qualification is designed to encompass all four radiography disciplines whereas the Sydney University programme accommodates only three of the disciplines.

Masters in Health Science (Medical Sonography) at the University of Sydney requires that learners, to be accepted into this study programme, one should have one of the following qualifications:

> Degree or diploma in medical radiation sciences.
> Degree or diploma in a relevant area such as nursing. Candidates would be advised to make up for the deficiencies in physics and medical imaging modules.
> Associated diploma or certificate in Nuclear medicine.
> Any other qualification which will meet the approval of the Head of Discipline is sufficient merit for a learner to be granted admission to the programme.
> A candidate without ultrasound background would be expected to work in the ultrasound department for the duration of study.

A Master of Science in Health Technology (Medical Imaging and Radiation Therapy) is offered by the Polytechnic University in Hong Kong. This course is offered for professionals in medical imaging and radiation therapy with the aim of developing specialists to enhance their career paths. This course is further aimed at encouraging professionals in the field of imaging and radiation therapy to develop critical analytical skills for self evaluation of professional practices. The inclusion of the research project is aimed at equipping the learners with the necessary skills in research so that they can perform evidence-based practice in the delivery of healthcare services and industry.

Entrance requirements:

A bachelor's degree or equivalent in radiography or a related health sciences discipline from a recognised institution. A bachelor's degree offered at Polytechnic University runs for three years and an honours programme runs for a year; both are full time courses. There is neither a research project nor an introduction to research in either the undergraduate or honours programmes.

Course content, assessment and accreditation.

There are compulsory, weekly evening contact sessions over a period of 14 weeks. Subjects are grouped as follows:

> Research methods and Biostatics (compulsory).
> 9 other subjects may be chosen form speciality areas such as radiation therapy.

To be awarded the degree in full (30 credits), the learner should complete the following:

> Compulsory subject.
> Four core specialisation subjects.
> Two elective subjects (from any subjects in the Scheme).
> Research based dissertation or three other subjects form the Scheme.

Learners, who successfully complete the required 30 credits with fewer than the required four core specialisation subjects, are awarded a generic MSc without a specialisation field.

Learners who successfully complete 18 credits and decide to discontinue their studies at that point, may request to be awarded a postgraduate diploma, within their field of specialisation.

The learners may select from the following list of core subjects:

> Advanced technology and clinical application in computed tomography.
> Advanced technology and clinical application in magnetic resonance imaging.
> Radiotherapy planning and dosimetry.
> Multiplanar anatomy.
> Advanced ultrasonography.
> Independent study.
> Health services management.

The courses described above compare fairly well with the South African Masters in Radiography, in that they are all focused on enhancing the knowledge and skills of radiographers, as well as ensuring that radiographers develop research skills to evaluate the quality of services they deliver to the community. The entrance requirements and assessment processes also compare. This is specifically true for the course work masters programme.

The Hong Kong qualification is focused only on diagnostic radiography and radiation therapy while the Australian qualification extends into ultrasound and nuclear medicine. This means that in Hong Kong, ultrasound is not offered as a separate course but as part of diagnostic radiography. On this point, it appears that the Australian qualification is more in line with the South African qualification in as far as the demarcation of the four radiography categories is concerned.

The qualification from Hong Kong, in the various options provided for the awarding of the degree in full, without specialisation or even as post graduate diploma, compares fairly with the certificate courses which are offered by most of the institutions of higher learning in South Africa. The radiographers in South Africa have the option of enrolling either for the full masters programme with specialisation in the electives listed in the bachelor's degree, or enrol for post graduate courses. The courses that have been currently accredited by the relevant Professional Council for this purpose are:

> Mammography.
> Computed tomography.
> Magnetic resonance imaging.
> Radiobiology.

Neither of the two foreign qualifications discussed has a full research component for the masters degree as has the one developed in South Africa. The full masters' qualification is in line with other qualifications in the healthcare professions offered in South Africa and is in line with the Department of education's expectation for the research component of a master's degree. There is a need for South African learners to conduct applied research in an attempt to improve the knowledge base of the professions and thereby contribute to high quality service delivery and the needs of the country.

Conclusion:

This qualification has been structured to meet the needs of the South African society and provide for research within radiography through the inclusion of a research dissertation that complies with the accepted norms, criteria and ethical principles for research. This allows for the preparation of successful candidates to conduct research at the doctoral level. The developed Qualification compares fairly well with the international landscape.

ARTICULATION OPTIONS
> This Qualification articulates vertically with the Doctoral Degree in Radiography or other related qualifications.
> This Qualification articulates horizontally with like degrees in the field of radiography or other related fields.

MODERATION OPTIONS
> Assessment and moderation will be conducted by specifically appointed internal/external assessors/moderators at an equivalent or higher qualification in accordance with institutional policy and procedures and the requirements of the relevant ETQAs.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
N/A

NOTES
N/A

UNIT STANDARDS
This qualification is not based on Unit Standards.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None