No. 1304 **22 December 2006**

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

Forensic Science

registered by Organising Field 08, Law, Military Science and Security, 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* 22 *January 2007.*** All correspondence should be marked **Standards Setting – Forensic Science and** addressed to

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SAQA
Attention: Mr. D. Mphuthing
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DR. S. BHIKHA
DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SAQA QUAL ID	QUALIFICATION TITLE		
57977	National Certificate: Forensic Biology		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME]
SGB Forensic Science		8	
QUAL TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD
National Certificate		Law, Military Science and Security	Safety in Society
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUALIFICATION CLASS
Undefined	121	Level 6	Regular-Unit Stds Based

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

This qualification will formalize a learning pathway in the field of forensic biology, and will assist in setting the standard of competence required for entrance into this professional field.

Moreover, it will allow other professions that are linked to forensic science the opportunity to obtain knowledge of this specific field and its multiple sub-fields. The qualification will be a vehicle of transformation within the forensic biology sector.

Qualifying learners will be equipped with the underpinning detailed knowledge in forensic science required to examine forensic exhibit material. This will support the learner to understand the principles required for performing forensic examinations and analyses. They will be able to specialise in fields of forensic science such as performing DNA analyses or entomology or forensic anthropology or hair comparisons. The learners will be equipped to explain findings contested which are based on the underlying principles used in forensic molecular biology.

Qualified learners will be able to apply their skills in a forensic science laboratory in either the public or private sectors. The qualified learner will be able to work as a forensic examiner and operate within a laboratory to analyse forensic evidence in order to determine its evidential value for a specific case. Qualified learners will be able to present specialised forensic evidence in support of the expert evidence in a court of law. The principles of forensic science can **be** applied to the field of law enforcement. In the private and public sectors qualified learners will be able to deliver efficient forensic services by implementing good business practice. Learners accredited with this qualification will also be able to identify, investigate, analyse, justify and implement solutions for problems that traverse the different specialised fields within forensic science.

Qualifying learners will be able to:

> Apply current legislation, regulations, standards and ethics in performing forensic examinations.
> Apply scientific principles in forensic biological examinations.
> Gather and preserve evidence and information in support of forensic examinations.
> Perform forensic examination on exhibit material.

In addition to the above a learner will be able to specialize in one of the following three learning areas:

> DNA analyses.
> Hair Comparisons.
> Facial Reconstruction.
> Entomology.

Rationale:

The challenges of safety in society are multi-levelled and complex, especially in the forensic scientific arena. Forensic science plays an important role in the South African judicial system and therefore has to be developed to its full potential. It has to fulfill its role as a specialized field within the physical sciences and its role within the law enforcement service. However, it is in its role as a scientific instrument to serve the judiciary that forensic science has much to offer South Africa.

The sector of forensic science requires skilled persons to deliver on the increasing demand for competencies within this sector. The forensic science sector is a diverse sector with many areas of specialization. This qualification addresses the demand within the specialization area of forensic biology. Forensic biology is used primarily within the field of law enforcement and also within certain health related environments. The sector demands highly skilled and knowledgeable persons who have extensive knowledge of biology as used within forensic examinations. This theoretical knowledge must be applied within the practical field of forensic science.

Physical evidence collection is of the utmost importance and has an influence on judicial and legal processes. In the field of forensic biology forensic, examiners are required to examine exhibit material and make findings for the judicial process. Biological evidence may exonerate a person thought to be involved in a scene or may place them as being present. This qualification will enable learners to work and function within the forensic biological environment.

A national objective is to develop a competent professional group of personnel to perform forensic science examinations and make findings which will assist the courts of law to exonerate the innocent or successfully prosecute the guilty. The qualification will allow the forensic science fraternity to provide a more effective service that will improve community satisfaction and position them to fulfil their mission of creating a safe and service environment for all who live in South Africa.

RECOGNIZE PREVIOUS LEARNING?

Y

LEARNING ASSUMED TO BE IN PLACE

> Computer Literacy at NQF Level 3.
> 57651: National Certificate: Forensic Science, NQF Level 5 or a BSc in Molecular Biology.

Recognition of Prior Learning:

This qualification may be obtained through the Recognition of Prior Learning. This qualification may therefore be achieved in part or completely through the Recognition of Prior Learning, which includes formal, informal and non-formal learning and work experience.

Learners who have met the requirements of any unit standard in this Qualification may be assessed against the assessment criteria and specific outcomes for the relevant unit standard/s. Evidence for Recognition of Prior Learning can be presented in various ways, including international and/or previous local qualifications, products, reports, testimonials mentioning functions performed, work records, portfolios, videos of practice and performance records.

Access to the qualification:

FETC at NQF Level 4 or equivalent.

It is preferable that the learner has completed the National Certificate: Forensic Science at NQF Level 5 or a BSc in Molecular Biology.

Learners with certain physical disabilities, such as colour blindness, may not be able to successfully complete this qualification, because some of the forensic science techniques require the learner to make distinctions between different colours.

QUALIFICATION RULES

Fundamental:

> Learners are required to achieve all 20 credits in the Fundamental Component.

Core:

> Learners are required to achieve all 51 credits in the Core Component.

Elective:

> The Elective unit standard category is open ended to allow the learner to choose the credits associated to the Elective unit standards from any discipline that would add value to the purpose of the qualification or the learners own development on a learning pathway within the sector.
> Learners must achieve at least 50 credits from the Elective Component of the qualification.
> Learners must choose at least one Elective specialization. All unit standards within that specialization must be completed. The remaining credits must be chosen from the set of general Elective standards.

Blood spatter patterns specialization:

> 243245: "Evaluate bloodstain pattern evidence", Level 6, 5 Credits.
> 243243: "Justify the quality of collected bloodstain pattern evidence", Level 6, 10 Credits
> 243257: "Reconstruct events using bloodstain pattern analysis", Level 7, 10 Credits.
> 243246: "Perform blood spatter pattern analysis", Level 6, 5 Credits.

Facial reconstruction specialization:

> 243250: "Perform facial reconstructions", Level 6, 15 Credits.
> 243254: "Perform forensic anthropology examinations", Level 6, 15 Credits.
> 243258: "Perform forensic art", Level 6, 10 Credits.

Forensic Entomology specialization:

> 243248: "Apply entomological principles in forensic investigations", Level 6, 10 Credits.

Hair specialization:

> 243248: "Apply entomological principles in forensic investigations", Level 6, 10 Credits.

DNA specialization:

> 243255: "Demonstrate knowledge of forensic DNA typing", Level 6, 10 Credits.
> 243256: "Isolate DNA, Level 6, 10 Credits.
> 243249: "Quantify DNA Isolates", Level 6, 15 Credits.
> 243244: "Amplify DNA with the polymerase chain reaction", Level 6, 10 Credits.
> 243259: "Separate DNA fragments", Level 6, 13 Credits.
and one of the following:
> 243251: "Evaluate quality of DNA data", Level 6, 5 Credits.
or
> 243252: "Interpret DNA results from a statistical perspective", Level 6, 10 Credits.

EXIT LEVEL OUTCOMES

1. Apply current legislation, regulations, standards and ethics in performing forensic biological examinations.

2. Apply scientific principles in forensic biological examinations.

3. Gather and preserve evidence and information in support of forensic biological examinations.

4. Perform forensic biological examination on exhibit material.

Critical Cross-Field Outcomes:

> Problem solving is covered in that a learner must be able to identify procedures to be followed when performing forensic biological examinations.
> Working in a team is covered in that a learner must recognise that he or she is required to work as part of a team during all phases when performing forensic biology examinations.
> Self management in that the learner is responsible for organising and managing him/herself when carrying out his/her responsibilities in performing forensic biology examinations.
> Learners are required to collect, analyse, organise and critically evaluate information in relation to the collection of information around performing forensic biology examinations.

> Learners are required to communicate with all role players science examination using a variety of communication methods.
> Learners are required to use science and technology through the examination of exhibit material and performing forensic biology examinations.
> Learners are required to see the world as a set of related systems in that, their conduct and decisions whilst performing forensic science examinations have an impact on others in the working environment.
> Contribute to the full personal development of the learner that in order to participate as responsible citizens in the community the learner is mindful of cultural and religious sensitivities in performing forensic biology examinations.

ASSOCIATED ASSESSMENT CRITERIA

1:
> Information required in forensic biological examinations is communicated to role players within legal prescripts.
> Confidentiality is maintained when communicating in an forensic pathology support environment.
> Laboratory information management systems are utilised to ensure that the integrity of the chain of custody is maintained.
> National Quality Assurance Standards are applied within the forensic biology field.
> Range: Standards refer to the current SA National Accreditation System standards.
> Legal prescripts pertaining to forensic biological examinations is applied in forensic biological examinations.

2:
> Laboratory practices are applied within a forensic biological examination.
> Occupational Health and Safety (OH&S) principles are applied to ensure compliance with legal prescripts.
> Environmental practices are applied in forensic biological examinations.
> The mandate of forensic biological examinations is established within given specifications.
> The result of a finding is justified by verifying the use and maintenance of equipment, the techniques used and the selected procedures followed.

3:
> The integrity of the chain of custody and exhibit material is confirmed for use in the criminal justice process.
> Findings, results and procedures used are reviewed for consistency.

4:
> Biological examinations are performed on exhibit material in order to provide results for interpretation.
> Results from forensic biological examinations are interpreted in order to make a finding for a court of law.
> Processing of evidential material is performed in accordance with legal prescripts.

Integrated assessment:

The applied competence (practical, foundational and reflective) of this qualification will be achieved if a learner is able to achieve all exit level outcomes of the qualification. The identification and solving of known problems, team work, organising self, using of data, implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflective competencies assessment methods and tools to determine the individual development and integration of applied knowledge and skills.

Certain exit level outcomes are measurable and verifiable through assessment criteria assessed in a single assessment. Applicable assessment tool(s) to establish the foundational, reflective and embedded knowledge to problem solving and application of the world as a set of related systems within the Policing environment. Competence will be assessed when conducting formative and summative assessment.

The assessment criteria for formative assessment are described in the various unit standards. Formative assessment takes place during the process of learning and assessors should use a range of assessment methods and tools that support each other to assess total competence.

The assessment methods and/or tools used by the assessor must be fair in a sense that they do not hinder or advantage the learner, valid in a sense that they measure what they intend to measure, reliable in a sense that they are consistent and delivers the same output across a range of learners and practical in a sense that they take into account the available financial resources, facilities, equipment and time.

Summative assessment and terminal assessment are carried out at the end of the learning programme to assess the achievement of the learner. A detailed portfolio of evidence is required to prove the practical,

applied and foundational competencies of the learner.

INTERNATIONAL COMPARABILITY

This qualification was compared to courses presented in Europe, North America, South America and Africa on the basis of their content and the respective aspects or fields addressed. Currently Europe and North America are regarded as the leaders within the field of forensic biology. A comparison was also done with developing continents such as Africa and South America.

> North America:

National Institute of Justice (NIJ) Report:

The NIJ published a report that embodies the best practice, entitled "Education and Training in Forensic Science: A Guide for Forensic Science.

Laboratories, Educational Institutions, and Students", in June 2004. The Technical Working Group for Education and Training in Forensic Science consisted of forty eight **(48)** representatives of "forensic science educators, laboratory directors, forensic science trainers, education professionals, prosecutors, and defence attorneys" from the United States.

The Technical Working Group identified the following professional skills as "essential to an individual's effectiveness as **a** forensic science professional": critical thinking (quantitative reasoning and problem solving), decision making, good laboratory practices, awareness of laboratory safety, observation and attention to detail, computer proficiency, interpersonal skills, public speaking, oral and wriien communication, time management and prioritisation of tasks. In addition the following knowledge, skills and abilities were deemed as essential for pre-employment preparation: quality assurance; ethics; professional standards of behaviour; evidence control: report writing; scientific method, inductive and deductive reasoning; statistics, and safety.

The following core elements were identified for **a** forensic science curriculum: introduction to law/justice system, ethics/professional practice, forensic science specialty overview, evidence identification, collection, and processing, quality assurance, courtroom testimony, technical or scientific writing. Model criteria for training programmes were identified as:

> "Standards of conduct" - includes professional ethics training.
> Safety - includes biological, chemical, and physical hazards.
> Policy - includes such administrative and laboratory policies as standard operating procedures, quality assurance, accreditation, and security.
> Legal - includes expert testimony, depositions, rules of evidence, criminal and civil law and procedures, and evidence authentication.
> Evidence handling - includes interdisciplinary issues; recognition, collection, and preservation of evidence; and chain of custody.
> Communication - includes written, verbal, and nonverbal communication skills; report writing; exhibit and pre-trial preparation; and trial presentation."

The above guidelines represent international best practice in the field of forensic science education and training. All of the above aspects are extensively addressed in the proposed National Certificate: Forensic Science Qualification (NQF5) in separate unit standards. The proposed National Certificate: Forensic Biology (NQF6) builds on the core elements, at higher levels of competency, of the above forensic science curriculum by integrating them in various unit standards to ensure that these competencies support the specialized forensic science examinations.

Furthermore, after the above criteria are addressed, training/ learning programmes then focus on specialized examinations of forensic science. The elective component *of* the proposed National Certificate: Forensic Biology (NQF6) addresses the specialized forensic examinations.

In addition to the NIJ report twenty-seven (27) forensic science qualifications from seventeen **(17)** education and training providers were compared to the qualification. The qualification compares well with qualifications from North America in terms of the scope and depth of the qualification. Aspects included in the core of the qualification were also identified as essential in qualifications from this continent.

> Europe:

Qualifications from the following countries were compared: United Kingdom and British Isles, Turkey, Italy, India, Switzerland, Germany and Poland. Europe and the United States are regarded as the world leaders

of forensic science training and education. Twenty-two (22) forensic science qualifications and sixteen (16) unit standards from thirteen (13) education and training providers were compared to the qualification. The qualification is in line with the level of training and education of this continent, and address the common core and elective components of qualifications in this region. The electives components of the National Certificate: Forensic Biology level 6 such as the DNA elective unit standard cluster reflects most of the competencies fond in Europe as the unit standards reflect internationally accepted standards, techniques and equipment.

> South America:

Chile has the most comparable infrastructure and socio-economic development levels to that of South Africa. It is thus an excellent benchmark for this qualification in terms of the development of specialised services and the training of specialised forensic science officers. As in this qualification, the training programmes in Chile also address the formative and holistic development of the learner (such as conduct research and presenting evidence in a court). The training programmes in Chile compare well with the qualification, and both address formative aspects, developmental aspects, as well as specialised courses (i.e. the electives of the qualification) for specialised examinations.

> Africa:

No formal forensic science education and training currently exists on the continent. Twenty three (23) universities from sixteen (16) African countries were investigated for forensic science training programmes. In 2004 an African Forensic Sciences Service Workshop was hosted by South Africa, and representatives from the following countries attended: Botswana, Kenya, Lesotho, Malawi, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The meeting determined that no forensic science education and training programs existed in Africa. All the countries in attendance indicated a need for a qualification in forensic biology. The National Certificate Forensic Biology qualification could therefore be used as a benchmark for entry level Forensic Science qualifications and the proposed National Diploma Forensic Science qualification (NQF6) for specialization in the field of forensic science and as chosen by the learner from the electives.

The proposed qualification was consulted at a session held at the 1st African Forensic Science Conference. The qualification features internationally articulation at the first degree level or as a post graduate diploma or at some countries elements thereof are addressed in a Master of Science degree together with a research dissertation.

ARTICULATION OPTIONS

This qualification articulates horizontally with:

> BSc Degree: Molecular Biology.

This qualification articulates vertically with:

> BSc Honours Degree: Molecular Biology.
> BTech: Biology.

MODERATION OPTIONS

> Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with an appropriate Education, Training, and Quality Assurance (ETQA) Body or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

> Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant ETQA or with an ETQA that has a Memorandum of Understanding with the relevant ETQA. Moderation of assessment will be overseen by the relevant ETQA or by an ETQA that has a Memorandum *of* Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

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

CRITERIA FOR THE REGISTRATION OF ASSESSORS

For an applicant to register as an assessor, the applicant needs:

> Well-developed interpersonal skills, subject matter and assessment experience.
> To be competent in the planning and conducting assessment of learning outcomes as described in the unit standards Conduct Outcomes-based assessment at NQF Level 5.
> Well-developed subject matter expertise within forensic biology.
> Competent in the exit level outcomes of this qualification.
> To be registered with the relevant Education and Training Quality Assurance Body.
> Detailed documentary proof of educational qualification, practical training undergone, and experience gained by the applicant must be provided (Portfolio of Evidence).

NOTES

NIA

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

	UNIT STANDARD ID AND TITLE	LEVEL	CREDITS	STATUS
Core	**114301** Optimise laboratory activities	Level 5	16	Registered
Core	**117434** Conduct research	Level 7	15	Registered
Core	**117435** Provide expert evidence in court	Level 7	15	Registered
Core	**243260** Audit and review forensic findings	Level 7	5	Draft - Prep for P Comment
Elective	**243243** Justify the quality of collected bloodstain pattern evidence	Level 6	10	Draft - Prep for P Comment
Elective	**243244** Amplify DNA *with* the polymerase chain reaction	Level 6	10	Draft - Prep for P Comment
Elective	**243245** Evaluate bloodstain pattern evidence	Level 6	5	Draft - Prep for P Comment
'Elecbve	**243246** Perform blood spatter pattern analysis	Level 6	5	Draft - Prep for P Comment
Elective	**243247** Perform forensic microscopic identification and individualisation of hair	Level 6	20	Draft - Prep for P Comment
Elective	**243248** Apply entomological principles in forensic investgabons	Level 6	10	Draft - Prep for P Comment
Elective	**243249** Quantify DNA Isolates	Level 6	15	Draft - Prep for P Comment
Elective	**243250** Perform facial reconstructions	Level 6	15	Draft - Prep for P Comment
[Elective	**243251** Evaluate quality of DNA data	Level 6	5	Draft - Prep for P Comment
/Elective	**243252** Interpret DNA results from a statistical perspective	Level 6	10	Draft - Prep for P Comment
Elective	**243254** Perform forensic anthropology examinations	Level 6	15	Draft - Prep for P Comment
Electve	**243255** Demonstrate knowledge of forensic DNA typing	Level 6	10	Draft - Prep for P Comment
Elective	**243256** Isolate DNA	Level 6	10	Draft - Prep for P Comment
/Elective	**243258** Perform forensic art	Level 6	10	Draft - Prep for P Comment
Elective	**243259** Separate DNA fragments	Level 6	13	Draft - Prep for P Comment
Elective	**243257** Reconstruct events using bloodstain pattern analysts	Level 7	10	Draft - Prep for P Comment
/Fundamental	**243253** Reconstruct an incident scene	Level 6	20	Draft - Prep for P Comment

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 1

SAQA US ID	*UNIT STANDARD TITLE*		
243243	Justify the quality of collected bloodstain pattern evidence		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Evaluate the role of photographs when analysing bloodstain patterns.

SPECIFIC OUTCOME 2

Sketch the relative position of a bloodstain pattern.

SPECIFIC OUTCOME 3

Interpret the location and nature of bloodstain pattern evidence.

SPECIFIC OUTCOME 4

Collate physical bloodstain evidence for identification purposes.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 2

SAQA US ID	***UNIT STANDARD TITLE***		
243244	Amplify DNA with the polymerase chain reaction		
SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Forensic Science		a	
UNIT STANDARD TYPE		***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Prepare the master mix.

SPECIFIC OUTCOME 2

Prepare the final reaction mix for amplification.

SPECIFIC OUTCOME 3

Amplify DNA using the polymerase chain reaction.

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SAQA US ID	***UNIT STANDARD TITLE***		
243245	Evaluate bloodstain pattern evidence		
SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Forensic Science		***8***	
UNIT STANDARD TYPE		***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	5	Level 6	Regular

SPECIFIC OUTCOME 1

Analyse the bloodstain pattern evidence in a given incident scene.

SPECIFIC OUTCOME 2

Determine the exact position of each identified well-formed bloodstain.

SPECIFIC OUTCOME 3

Classify bloodstain pattern evidence.

SPECIFIC OUTCOME 4

Determine the causing mechanism *of* the bloodstain pattern.

SPECIFIC OUTCOME 5

Evaluate the dynamics *of* blood droplets during flight and impact.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 4

Perform blood spatter pattern analysis

SAQA US ID	*UNIT STANDARD TITLE*		
243246	Perform blood spatter pattern analysis		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	5	Level 6	Regular

SPECIFIC OUTCOME 1

Explain the physiological characteristics of blood in terms of their influence on bloodstain pattern analysis.

SPECIFIC OUTCOME 2

Explain the physical factors of blood which influence bloodstain pattern analysis.

SPECIFIC OUTCOME 3

Apply mathematical principles in order to determine area of origin.

SPECIFIC OUTCOME 4

Apply principles of physics with regard *to* bloodstain pattern analysis.

SOUTH AFRICAN QUALIFICATIQNS AUTHORITY

UNIT STANDARD: **5**

Perform forensic microscopic identification and individualisation of hair

SAQA US ID	*UNIT STANDARD TITLE*		
243247	Perform forensic microscopic identification and individualisation of hair		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		a	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	**20**	Level ***6***	Regular

SPECIFIC OUTCOME 1

Apply microscopic principles on hair comparisons.

SPECIFIC OUTCOME 2

Select and evaluate hair samples for microscopic examination.

SPECIFIC OUTCOME 3

Explain hair morphology.

SPECIFIC OUTCOME 4

Identify animal hair.

SPECIFIC OUTCOME 5

Individualise human hair.

SPECIFIC OUTCOME 6

Make forensic findings on hair comparison examinations.

SAQA

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UNIT STANDARD: *6*

Apply entomological principles in forensic investigations

SAQA US ID	*UNIT STANDARD TITLE*		
243248	Apply entomological principles in forensic investigations		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Provide forensic entomology information at **a** scene of death.

SPECIFIC OUTCOME 2

Assess the scene of death to collate entomological findings in **a** given situation.

SPECIFIC OUTCOME 3

Collect insects for forensic examinations purposes.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **7**

Quantify DNA Isolates

SAQA US ID	*UNIT STANDARD TITLE*
243249	Quantify DNA Isolates

SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	15	Level 6	Regular

SPECIFIC OUTCOME 1

Prepare reagents and DNA isolates for quantification purposes.

SPECIFIC OUTCOME 2

Verify the operational status of equipment **for DNA** analysis.

SPECIFIC OUTCOME 3

Perform quantification on **DNA** isolates.

SPECIFIC OUTCOME 4

Evaluate disposition of samples.

SPECIFIC OUTCOME 5

Evaluate quantification results.

SAQA

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **8**

Perform facial reconstructions

SAQA US ID	*UNIT STANDARD TITLE*		
243250	Perform facial reconstructions		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	15	Level 6	Regular

SPECIFIC OUTCOME 1

Reconstruct the skull.

SPECIFIC OUTCOME 2

Compare images of an individual with their skeletal remains.

SPECIFIC OUTCOME 3

Demonstrate an understanding of the role of forensic art within forensic examinations.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **9**

Evaluate quality of DNA data

SAQA US ID	*UNIT STANDARD TITLE*		
243251	Evaluate quality of DNA data		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	5	Level 6	Regular

SPECIFIC OUTCOME 1

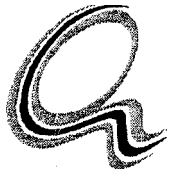
Evaluate the operating principles of specialised software.

SPECIFIC OUTCOME 2

Analyse raw **DNA** data processing using specialised systems.

SPECIFIC OUTCOME 3

Evaluate processed **DNA** data generated by specialised systems.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

SAQA US ID	*UNIT STANDARD TITLE*		
243252	Interpret DNA results from a statistical perspective		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		**8**	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level *6*	Regular

SPECIFIC OUTCOME 1

Explain underlying principles of population genetics in forensic examinations.

SPECIFIC OUTCOME 2

Demonstrate knowledge of concepts in population databases.

SPECIFIC OUTCOME 3

Calculate match probability of DNA profiles in paternity casework.

SPECIFIC OUTCOME 4

Justify DNA statistical findings.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 11

Reconstruct an incident scene

SAQA US ID	*UNIT STANDARD TITLE*		
243253	Reconstruct an incident scene		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	20	Level 6	Regular

SPECIFIC OUTCOME 1

Analyse the incident scene for the purpose of reconstructing the scene.

SPECIFIC OUTCOME 2

Collate tangible physical evidence.

SPECIFIC OUTCOME 3

Review the quality of reconstruction scenes in a given situation.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **12**

Perform forensic anthropology examinations

SAQA US ID	***UNIT STANDARD TITLE***		
243254	Perform forensic anthropology examinations		
SGB NAME		***ORGANISING FIELD ID***	***PROVIDER NAME***
SGB Forensic Science		***8***	
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	***CREDITS***	***NQF LEVEL***	***UNIT STANDARD TYPE***
Undefined	***15***	Level ***6***	Regular

SPECIFIC OUTCOME 1

Explain principles of osteology which relate to forensic anthropology examinations.

SPECIFIC OUTCOME 2

Conduct the exhumation of human skeletal remains within a given incident scene.

SPECIFIC OUTCOME 3

Estimate time since death.

SPECIFIC OUTCOME 4

Explain the identification processes of skeletal remains.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 13

Demonstrate knowledge of forensic DNA typing

SAQA US ID	*UNIT STANDARD TITLE*		
243255	Demonstrate knowledge of forensic DNA typing		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Assess forensic DNA typing applications.

SPECIFIC OUTCOME 2

Evaluate Short Tandem Repeats.

SPECIFIC OUTCOME 3

Apply DNA intelligence screening in forensic investigations.

SAQA

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **14**

Isolate DNA

SAQA US ID	*UNIT STANDARD TITLE*
243256	Isolate DNA

SGB NAME	*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science	8	
UNIT STANDARD TYPE	***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular	Law, Military Science and Security	Safety in Society

ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Prepare reagents for isolation purposes.

SPECIFIC OUTCOME 2

Prepare samples for DNA isolation.

SPECIFIC OUTCOME 3

Assess equipment used in DNA isolation.

SPECIFIC OUTCOME 4

Perform DNA isolation on samples.

SPECIFIC OUTCOME 5

Handle samples and isolated DNA.

SAQA

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 15

Reconstruct events using bloodstain pattern analysis

SAQA US ID	*UNIT STANDARD TITLE*		
243257	Reconstruct events using bloodstain pattern analysis		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	10	Level 7	Regular

SPECIFIC OUTCOME 1

Analyse methods used to reconstruct events.

SPECIFIC OUTCOME 2

Reconstruct the event with the aid of stringing.

SPECIFIC OUTCOME 3

Reconstruct an event using scientific methods.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 16

Perform forensic art

SAQA US ID	UNIT STANDARD TITLE		
243258	Perform forensic art		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Forensic Science		8	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	10	Level 6	Regular

SPECIFIC OUTCOME 1

Use and apply facial anatomy constructs in forensic art.

SPECIFIC OUTCOME 2

Sketch and reconstruct a human face for the purpose of identification.

SPECIFIC OUTCOME 3

Sketch a postmortem facial drawing.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: **17**

Separate DNA fragments

SAQA US ID	*UNIT STANDARD TITLE*
243259	Separate DNA fragments

SGB NAME	*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science	8	
UNIT STANDARD TYPE	***ORGANISING FIELD DESCRIPTION***	***SUBFIELD DESCRIPTION***
Regular	Law, Military Science and Security	Safety in Society

ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	13	Level 6	Regular

SPECIFIC OUTCOME 1

Explain electrophoresis principles.

SPECIFIC OUTCOME 2

Inspect equipment for fragment separation use.

SPECIFIC OUTCOME 3

Perform fragment separation by running samples in the separation medium.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD: 18

Audit and review forensic findings

SAQA US ID	*UNIT STANDARD TITLE*		
243260	Audit and review forensic findings		
SGB NAME		*ORGANISING FIELD ID*	*PROVIDER NAME*
SGB Forensic Science		8	
UNIT STANDARD TYPE		*ORGANISING FIELD DESCRIPTION*	*SUBFIELD DESCRIPTION*
Regular		Law, Military Science and Security	Safety in Society
ABET BAND	*CREDITS*	*NQF LEVEL*	*UNIT STANDARD TYPE*
Undefined	5	Level 7	Regular

SPECIFIC OUTCOME 1

Evaluate the evidential recovery process.

SPECIFIC OUTCOME 2

Evaluate the examination and interpretation of forensic findings.

SPECIFIC OUTCOME 3

Verify statistical conclusions in a given situation.