No. 1401 **29 December 2008**

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 titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification. The full Qualification can be accessed via the SAQA web-site at **www.saqa.org.za**. 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 29 January 2009.*** All correspondence should be marked **Standards Setting** – Task Team for **Radiography and Clinical Technology** and addressed to

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ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Clinical Technology

SAQA QUAL ID	***QUALIFICATION TITLE***		
64969	National Certificate: Clinical Technology		
ORIGINATOR		***PROVIDER***	
TT - Radiography and Clinical Technology			
QUALIFICATION TYPE	***FIELD***	***SUBFIELD***	
National Certificate	9 - Health Sciences and Social Services	Curative Health	
ABET BAND	***MINIMUM CREDITS***	***NQF LEVEL***	***QUAL CLASS***
Undefined	120	Level 5	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 is based on a need in the market for competent electro-cardiographic, electro-encephalograpy and spirometry technologists. It will enable the learners to acquire the necessary knowledge, skills, attitudes and values to practice under the supervision of a Clinical Science Technologist/Graduate Clinical Technologist in one of the following categories:

> Cardiology - as an Assistant ECG Technologist performing basic 12-lead ECGs.
> Neurophysiology - as an Assistant EEG Technologist setting-up and recording routine EEGs.
> Pulmonology - as an Assistant Spirometry Technologist performing basic screening/office spirometry.

These individuals will be able to render assistance to doctors and other health care practitioners. Learners obtaining this qualification can apply for registration with the Health Professions Council of South Africa (HPCSA) as an Assistant ECG Technologist, Assistant EEG Technologist, or Assistant Spirometry Technologist.

Rationale:

The South African Government is committed to providing a framework for a structured national health care system, and to combine the national health plan and human resource development strategy for an effective and efficient system of co-operative governance and management of health care service.

The Department of Health is leading the implementation of a multi-professional team-based approach to health care delivery, where each member of the team has a defined role to ensure there is minimum duplication and overlapping of functions. This process will also ensure that no single member of the team dominates but that different members of the team will lead at different times depending on the services to be rendered.

The Department of Health advocates an Assistant ECG Technologist, Assistant EEG Technologist, and an Assistant Spirometry Technologist, at NQF Level 5, who will perform specified ECG/EEG or Spirometry Technology skills at Health Care facilities under supervision.

The assistant clinical technologist will have the necessary knowledge and skills to create a safe therapeutic environment for the patient and personnel and ensure that the patient receives safe care.

Presently in South Africa, a one-year EEG technician's course is offered and the learners write a Professional Board Examination, consisting of both a theoretical and a practical component. Successful achievement of this Qualification will render the Professional Board Examination unnecessary.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
> Mathematical Literacy at NQF Level 4.
> Communication at NQF Level 4.

Recognition of Prior Learning:

Rules for awarding RPL credits will be in accordance with the policy of the provider institution and in agreement with the relevant ETQA.

Access to the Qualification:

Access to the qualification is open to learners in possession of a National Senior Certificate, a Senior Certificate or equivalent NQF Level 4 qualification.

All learners assessing this qualification are required to be registered as learners with the health professions council of South Africa (HPCSA) for the duration of the period of study.

QUALIFICATION RULES
The qualification structure is as follows:

Fundamental Component (12 credits), compulsory for all learners:

This Component consists of learning related to Foundations of Professional Practice in which the learner will ethically perform and monitor safety, health, environmental and quality assurance procedures in the clinical environment to ensure professional service and the safety of all.

Core Component (100 Credits), compulsory for all learners:

This component consists of scientific knowledge where the learner will apply scientific and technological knowledge in the performance of one of the following categories:

> A 12-lead ECG.
> A routine EEG.
> A screening/office spirometry.

Assistant Clinical Technology Practica (Minimum 400 hours): Based on application of concepts and principles of the relevant disciplines, in order to enable or assist other designated medical professionals in the diagnosis and treatment of various pathophysiological conditions, the learner will perform one of the following in accordance with the selected category:

> A 12 lead ECG;
> A routine EEG;
> A screening/office spirometry.

Elective Component (Minimum of 8 credits required to complete the Qualification):

The Elective Component requires the learner to show competence in at least four of the following procedures, performed within the clinical context of the selected category:

> Basic life support.
> Use of automated external defibrillator.
> Application of oxygen therapy (mask and nasal cannula).
> Non-invasive blood pressure measurement.
> Oral and axillar temperature measurement.
> Radial and femoral pulse measurement.

Clinical Practical:

In order to achieve clinical competency in this qualification, it is the requirement of the relevant Professional Council (HPCSA) that all learners complete a prescribed minimum of 400 clinical under direct mentoring control at an accredited institution.

EXIT LEVEL OUTCOMES

1. Perform and assist with infection control procedures.

2. Apply scientific and technological knowledge in the performance of either a 12-lead ECG, a routine EEG or a screening/office spirometry, in order to assist medical professionals in the diagnosis and treatment of various patho-physiological conditions.

3. Manage self, time and resources efficiently in order to ensure professional and ethical service delivery based on the principles of human rights and medical law.

4. Apply Communication and Psycho-social skills for personal and professional development in the clinical technology context.

Critical Cross-Field Outcomes:

> Identify and solve problems in the field of clinical technology in which responses display that responsible decisions using critical and creative thinking have been made.
> Work effectively in collaboration with other health care professionals as members of a team.
> Organise and manage oneself and one's activities responsibly and effectively.
> Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.
> Collect, analyze organize and critically evaluate information in a 12 lead ECG, a routine EEG or a screening/office spirometry.
> Communicate effectively in the learning and health care environment.
> Use technology effectively by transferring and sharing information among health care workers and other stakeholders to deliver quality patient care and facilitate management processes.
> Demonstrate an understanding of clinical therapy principles by recognizing that problem solving contexts do not exist in isolation.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria For Exit Level Outcome 1:

1.1 Apply relevant aspects of the current legislation pertaining to occupation health and safety.
1.2 Adhere to safety measures for specified procedures performed in compliance manufacturer specifications and occupational health and safety.
1.3 Describe procedures to be followed in the event of fire and emergency situations.

1.4 Recognise problems related to malfunctioning of equipment that effect procedures and results and take appropriate action to rectify the situation.
1.5 Explain principles of effective control procedures in context.
1.6 Compare test results to the norm and take corrective action in the event of any discrepancies.
1.7 Apply procedures to manage high risk patients.
1.8 Explain preventive procedures to be followed for alleviating needle-stick injury to patient and self.
1.9 Apply knowledge of infection control principles including, principles of sterilization, disinfection and health care risk waste management to ensure the health and safety of all, as well as of the environment.
1.10 Perform all activities ethically with due regard to patient rights and own responsibilities.

Associated Assessment Criteria For Exit Level Outcome 2:

2.1 Apply knowledge of anatomy and physiology in a chosen clinical context.
2.2 Explain pathophysiological conditions in context with examples.
2.3 Describe patho-physiological conditions which might affect screening results.
2.4 Explain basic biophysical principles by which different electrocardiography, electroencephalography or spirometry equipment functions and which ensure the effectiveness of the procedures.
2.5 Explain the electrocardiography, electroencephalography or spirometry procedures which ensure patient safety.
2.6 Perform principles, methods and application of electrocardiography, electroencephalography or spirometry procedures according to protocol to ensure accuracy of readings and effective monitoring of the processes.
2.7 Prepare the patient and equipment according to protocol.
2.8 Evaluate results and make recommendations to supervisors on abnormal electrocardiography, electroencephalography or spirometry findings for the benefit of the patient management.
2.9 Use computers and associated software for recording and retrieval of information related to patients and/or the testing institution or medical practice.

Associated Assessment Criteria For Exit Level Outcome 3:

3.1 Apply the relevant Professional Council Code of Conduct and Scope of Practice.
3.2 Explain the functions of the different medical professional bodies.
> Range: Include but are not limited to HPCSA, Professional Board South Africa Society of Clinical Technology (SASCT).
3.3 Execute administrative duties systematically and with due regard to patient confidentiality.
3.4 Adhere to manufacturer specifications in the use and storage of consumables in line with the principles of occupational health and safety.

Associated Assessment Criteria For Exit Level Outcome 4:

4.1 Use verbal and non-verbal communication skills in a clinical context e.g. writing of reports or giving explanations of procedure results.
4.2 Disseminate information via retrieval systems (electronic and non-electronic).
4.3 Apply proper academic referencing procedures e.g. Harvard system, to avoid plagiarism when doing research or writing reports.
4.4 Compile clinical reports concisely, comprehensively and clearly and store these appropriately.

Integrated Assessment:

Integrated assessment takes the form of an appropriate variety of assessment methods for example, written and oral examinations, problem-solving assignments, projects, presentations, case studies, portfolios, log books, clinical reports, and assessment of clinical competence through simulated clinical assessments in situ.

The qualification will be awarded to a learner who has provided evidence to the satisfaction of the assessors that the qualification, as detailed in the stated outcomes, has been achieved.

The integrated assessment needs to have the following characteristics:

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

Clinical Competence:

Clinical competence is ensured through close supervision by clinical staff during the period of training. Learners need to complete a clinical work record based on integrated work experience, with a specified minimum of 250 cases, to be recorded in a logbook. A minimum of 300 working hours needs to be spent by the learner in the Clinical Technology environment under the supervision of a graduate clinical technologist in Cardiology, Neurophysiology or Pulmonology.

Learners' progress is assessed by appropriate appointed assessors and relayed to learners and educators. The learner must demonstrate competency in performing an ECG, EEG or basic spirometry procedure on actual patients and recognize common abnormalities. This must be undertaken at an accredited training facility and mentored by a registered practitioner.

On completion all learners will be required to successfully complete a competency-based test (CBT) in order to register with the relevant Professional Council as an Assistant ECG Technologist, Assistant EEG Technologist or Assistant Spirometry Technologist.

INTERNATIONAL COMPARABILITY
Introduction:

The primary reason for designing this Qualification was to meet the needs of the South African community as identified by the National Department of Health and also to ensure that it is compatible with the international standards. This qualification was compared to similar qualifications in first world countries, such as the United Kingdom, United States of America, New Zealand, Australia and Canada. No similar courses are currently offered in any other country with an economy similar to that of South Africa, nor anywhere else in Africa.

United Kingdom (UK):

The UK offers a 4-year degree in Clinical Physiology (Cardiology, Cardiovascular Perfusion or Neurophysiology). The degree can be done full time at university, or, for trainee physiologists already working in a cardiac unit/theatre, study opportunities are available with day or block release attendance at college. Trainee clinical technologists currently follow a two-year, mainly in-service, programme.

United States of America (USA):

In the USA the electro-neurodiagnostic course is offered at colleges and learners obtain an associate degree on completion of the course. All electroneurodiagnostic technologists register with the American Society of Electroneurodiagnostic Technologists (ASET). Currently there are 12 centres in USA that offer this programme. The Clinical Neurophysiology Technology Programme is accredited by the Commission on Accreditation of Allied Health Education Programmes upon the recommendation of the Committee on Institutions offering the END Technology Programme in the Nursing and Allied Health Sectors accreditation for education in Electroneurodiagnostic Technology.

Canada:

Formal Neurophysiology training programmes in Canada can be found in community colleges, technical schools, private school, and hospitals. Programmes last from 12-24 months and successful learners are awarded a diploma, certificate or associate degree. There are only 12 accredited END schools in the United States. The curriculum includes electronics, neuro-anatomy, neuropathology, computer skills, instrumentation, clinical science, neuro-pharmacology, neurophysiology, psychology, and clinical practicum. Qualified Electro-neurodiagnostic Technologists register with the American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET) who, in turn, award the credentials of "Registered EEG Technologist" and "Registered Evoked Potential Technologist".

Australia:

Currently, learner Neurophysiology Technologists in Australia enrol in the 3-year Diploma in Clinical Neurophysiology at the RMIT University in Victoria. This programme is offered by distance education. As the course has a large component of "on the job" training, students must be employed in a Clinical Neurophysiology Department or clinic. Once qualified, they are known as Neurophysiology Technologists.

New Zealand:

In New Zealand Neurophysiology technicians undertake four years of practical and theoretical training. The first part of the training is fully supervised by a qualified technician. In New Zealand neurophysiology technicians study by correspondence to obtain an Advanced Diploma in Health Sciences, majoring in clinical neurophysiology.

Auckland is the main training centre. Smaller centers are less likely to take on trainees due to commitment requirements in terms of expense and supervisory time.
The New Zealand Society of Neurophysiology? Technologists (NZSNPT) is looking at setting up a registration system, but the small workforce in NZ makes this difficult.

Joint American and European Thoracic and Respiratory Societies recommend personnel qualifications as completion of secondary education and at least 2 years of college education as well as a recommended frequency of refresher courses every 3-5 years. According to the Committee on Accreditation for Respiratory therapists there are 327 registered respiratory therapist programmes and 134 certified respiratory therapist programmes. In most programmes, the last 2 years lead to an associate degree. Some are 4-year Bachelor degree programmes, which qualify the successful learner for a supervisory or managerial position. High school learners should have courses in health, biology, mathematics, chemistry and physics. Respiratory therapy programmes include human anatomy and physiology, chemistry, physics, microbiology and mathematics. Technical courses deal with procedures, equipment and clinical tests.

Conclusion:

This Qualification makes provision for qualified and competent individuals who may be registered with the HPCSA and who are able to conduct procedures ethically and safely for the patient. It covers all the learning offered in internationally similar qualifications.

ARTICULATION OPTIONS
Vertical articulation is possible with the Bachelor: Clinical Science, or an equivalent degree.

MODERATION OPTIONS
Assessments are conducted by one or more internal assessors/examiners employed by the relevant provider as well as an external moderator appointed from industry or other academic institution, according to the requirements of the relevant ETQA. Assessors are to be accredited as assessors by the relevant Professional Council and/or relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS
Qualifications required:

> A relevant qualification at least one level above that of this Qualification, in the specialist category.

Career experience:

> A minimum of 5 years research/teaching/academic/clinical experience in the appointed discipline.

NOTES
N/A

UNIT STANDARDS
This qualification is not based on Unit Standards.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION
None