



All qualifications and part qualifications registered on the National Qualifications Framework are public property. Thus the only payment that can be made for them is for service and reproduction. It is illegal to sell this material for profit. If the material is reproduced or quoted, the South African Qualifications Authority (SAQA) should be acknowledged as the source.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION:

Bachelor of Diagnostic Radiography

| | | | | |
|---|--|----------------------------------|--------------------------------|------------------------------|
| SAQA QUAL ID | QUALIFICATION TITLE | | | |
| 66949 | Bachelor of Diagnostic Radiography | | | |
| ORIGINATOR | | ORIGINATING PROVIDER | | |
| Task Team - Radiography and Clinical Technology | | | | |
| QUALITY ASSURING BODY | | | | |
| - | | | | |
| QUALIFICATION TYPE | FIELD | SUBFIELD | | |
| National First Degree(Min 480) | Field 09 - Health Sciences and Social Services | Curative Health | | |
| ABET BAND | MINIMUM CREDITS | PRE-2009 NQF LEVEL | NQF LEVEL | QUAL CLASS |
| Undefined | 480 | Level 7 | NQF Level 08 | Regular-ELOAC |
| REGISTRATION STATUS | | SAQA DECISION NUMBER | REGISTRATION START DATE | REGISTRATION END DATE |
| Reregistered | | SAQA 0695/12 | 2012-07-01 | 2015-06-30 |
| LAST DATE FOR ENROLMENT | | LAST DATE FOR ACHIEVEMENT | | |
| 2016-06-30 | | 2019-06-30 | | |

In all of the tables in this document, both the pre-2009 NQF Level and the NQF Level is shown. In the text (purpose statements, qualification rules, etc), any references to NQF Levels are to the pre-2009 levels unless specifically stated otherwise.

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

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The purpose of the qualification is to develop a competent learner who has a thorough grounding in the knowledge and skills required for the Diagnostic Radiography profession and who has gained experience

in applying such knowledge and skills in the appropriate workplace context.

This qualification enables the learner to competently apply an integration of theory, principles, proven techniques, practical experience and appropriate skills to the solution of well-defined and abstract problems in the selected field of Diagnostic Radiography. The learner should become a reflective practitioner and a life-long learner in his or her profession, thereby benefiting the community and society.

Skills in management and research will also be demonstrated allowing the holder of this qualification to work independently and in a supervisory capacity within the health care team.

Successful completion of this qualification will enable the learner to register with the relevant Professional Council as a Specialist Radiographer.

Rationale:

Diagnostic Radiography is one of the identified scarce skills in South Africa. Healthcare is set to change in the future from the curative paradigm of the 20th century to a pre-emptive model. Imaging is central to this model and will drive that change to the benefit of the patient. Medical imaging in general plays a key role in understanding complex biological systems and is dependent on interdisciplinary fields (e.g. physics, human biology, computer sciences) to extract that information.

The Qualification is necessary in both the public and the private sectors as part of a multidisciplinary team providing a holistic health care service in general and a diagnostic radiography service in particular.

This Qualification is recognised by the relevant Professional Health Council as a requirement for registration to practice in the field of Diagnostic Radiography.

The Exit-Level Outcomes for this Qualification describe the foundational, practical and reflexive competencies, which together constitute the applied competence required of Diagnostic Radiography service at this level.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

- Mathematics at NQF Level 4.
- Communication at NQF Level 4.
- Life Sciences at NQF Level 4.

Computer Literacy at NQF Level 3 is strongly recommended.

Recognition of Prior Learning:

This qualification may be achieved in part through the recognition of relevant prior learning and through prior experience as a practitioner in another field of radiography. Providers are required to develop structured and accredited means of the assessment of individual learners against Exit-Level Outcomes of the Qualification on a case-by-case basis. Recognition of Prior Learning will be applied on an individual basis and will be conducted in accordance with the institutions' accredited RPL policy. Such procedures and the assessment of individual cases are subject to moderation by independent assessors.

Access to the Qualification:

Access to the Qualification is open to learners who are in possession of a Senior Certificate or equivalent NQF Level 4 Qualification and who meet the entry requirements of the institution offering the Qualification, as well as the specifications of the relevant Statutory Health Council.

RECOGNISE PREVIOUS LEARNING?

Y

QUALIFICATION RULES

Fundamental and Core Components:

Exit Level Outcomes 1 to 7 constitute the Fundamental and Core Components of the Qualification and together total 440 Credits. They are compulsory for all learners.

Elective Component:

A minimum of 40 credits is required to complete the qualification.

The research Exit Level Outcome (Outcome 8) in which learners may choose any aspect or topic in the field which is relevant to them and for which they are required to produce the outcomes of their research in a manner, format and to a standard acceptable to the institution offering the Qualification. (40 credits minimum).

This may be assessed in an integrated way with Exit Level Outcomes 1 to 7 or be incorporated into the research project.

The application of theoretical knowledge and skills in one of the chosen fields as listed below:

- Contrast media administration.
- Advances in Computed Tomography Technology.
- Advances in Magnetic Resonance Imaging.
- Interventional radiology.
- Advanced pattern recognition (this may be in any speciality or system and is at the discretion of the provider).
- Fusion Imaging.
- Small and medium business enterprises.

EXIT LEVEL OUTCOMES

1. Perform routine and specialized radiographic procedures to produce images of diagnostic quality.
2. Access, organize and present information applicable to the radiography context in order to record, retrieve and communicate patient data.
3. Evaluate the quality of routine and specialised radiographic images and perform image interpretation to identify normal and abnormal appearances.
4. Plan, develop and apply total quality management appropriate to the diagnostic radiography context.
5. Perform safe and effective patient care in accordance with the patient's needs and departmental protocol to provide a quality service and to maintain the welfare of the patient.
6. Apply the principles of human rights, ethics and relevant medical law which ensure the well-being of the patient.
7. Apply the principles, specific knowledge, skills and values related to one of the the chosen electives as listed.
8. Conduct research.

Critical Cross-Field Outcomes:

The qualification addresses the Critical Cross-Field Outcomes in the following manner:

- Identify health problems in the context of diagnostic radiography and suggest and implement a solution or plan of action in order to solve the problem professionally will be promoted through effective

and safe patient care practices in accordance with the patient's needs by taking into consideration ethical principles as well as human rights and medical law requirements.

- Perform professional duties with confidence in collaboration with other health care professionals and where appropriate assume leadership in tasks or projects in order to promote efficient and effective service delivery and total quality management in the radiography profession as well as the healthcare service in general.
- Keep up with the current trends and changing needs of Diagnostic Radiography service on a regional, national and international level by undertaking research or fostering a research climate within the radiography profession.
- Contribute towards and facilitate continuing professional development of Diagnostic Radiography staff by either engaging in research or fostering the research environment and encouraging teamwork among radiographers and other healthcare professionals.
- Communicate effectively in the learning and health care environment by demonstrating competency and skills necessary for use of technology and associated accessories necessary for transfer or sharing of information among healthcare workers and other stakeholders so as to deliver quality patient care and facilitate management processes.
- Use science and technology in order to improve Diagnostic Radiography practice through efficient organizational and management skills for both patient's information and any other information necessary to efficient healthcare service delivery.
- Demonstrate an understanding of Diagnostic Radiography principles in order to solve practical problems within radiography will be promoted by the competent performance of routine and specialised radiographic procedures.

ASSOCIATED ASSESSMENT CRITERIA

Associated Assessment Criteria for Exit Level Outcome 1:

- 1.1 Request form is interpreted for validity and knowledge of relevant radiographic terminology, anatomy, physiology and pathology to help in selecting appropriate techniques for the production of images necessary for providing diagnostic information to assist in patient management.
- 1.2 Accessory equipment and imaging systems are selected and appropriately utilized to specific positioning techniques to ensure optimal exposure factors are selected and adapted to produce images of diagnostic quality.
- 1.3 Radiation protection and safety measures are effectively applied to each radiographic technique and procedure.
- 1.4 Routine and specialized radiographic techniques and procedures with and without contrast media are prepared for, and performed competently.
- 1.5 Aseptic techniques are demonstrated for routine and specialised examinations.

Associated Assessment Criteria for Exit Level Outcome 2:

- 2.1 Information technology skills are demonstrated to record, retrieve and communicate patient data.
- 2.2 Data is compiled and information is scientifically presented.
- 2.3 Information technology is effectively communicated within the radiographic context.
- 2.4 Relevant information is selected and critically evaluated.

Associated Assessment Criteria for Exit Level Outcome: 3

- 3.1 Radiographic images are evaluated for diagnostic quality according to relevant evaluation criteria and also to ensure that the images conform to the medico-legal requirements.
- 3.2 Images are evaluated for normal and abnormal radiographic appearances by applying integrated knowledge of anatomy, physiology and pathology.

- 3.3 Corrective measures to the radiographic techniques are applied where necessary.
- 3.4 Radiographic appearances are communicated to the referring health care professional to enable further patient management.
- 3.5 Independent judgement and discretion in the performance of additional radiographic views are exercised where justified.

Associated Assessment Criteria for Exit Level Outcome 4:

- 4.1 Principles of quality assurance and quality control are demonstrated in the development of departmental protocols.
- 4.2 Equipment and accessories are selected, ordered and maintained within an available budget to provide an efficient and cost-effective service.
- 4.3 Communication and co-operation between all role players is effectively developed and maintained in order to provide an optimal service.
- 4.4 Performance management strategies are developed in a manner which shows an understanding of management principles and current relevant legislation.
- 4.5 Departmental records and statistics are accurately maintained in accordance with the departmental and professional council requirements.
- 4.6 Integrated knowledge of management, technology and legislation is demonstrated in the ability to design and equip a new, or alter an existing, diagnostic facility.

Associated Assessment Criteria for Exit Level Outcome 5:

- 5.1 Patient is assessed relevant to presenting clinical condition and appropriate action taken.
- 5.2 The cultural and psychological diversity of patients are respected to ensure a quality service is provided.
- 5.3 A simple but professional explanation of the radiographic procedures is given to the patient before, during and after the procedure to ensure the co-operation of the patient.
- 5.4 Optimal patient care is applied before, during and after the procedure.
- 5.5 Effective written, verbal and non-verbal communication skills during interaction with patients and health care team members are demonstrated.
- 5.6 Skills and knowledge of first aid are demonstrated as and when applicable.
- 5.7 Signs and symptoms of contrast media reaction are recognised, appropriate action taken and assistance in emergency medicine following such reactions is demonstrated.

Associated Assessment Criteria for Exit Level Outcome 6:

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

Assessment criteria for Exit Level Outcome 7:

- 7.1 Apply and integrate the principles and/or philosophy of the subject into related activities.
- 7.2 Apply the specialised techniques required to achieve the contextual objective.
- 7.3 Apply quality assurance principles to ensure optimal results within the context of the subject.

Associated Assessment criteria for Exit Level Outcome 8:

- 8.1 Research principles and methodology in the field of Diagnostic Radiography research are demonstrated in the form of a research proposal and project.
- 8.2 Relevance of the research is in line with national needs and biomedical ethical policies and procedures.
- 8.3 Suitable resources are critically evaluated and used to facilitate the research project.
- 8.4 Findings and conclusions are presented in oral and written formats in accordance with established research practice.

Integrated Assessment:

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

The qualification will be awarded to a learner who has provided evidence to the satisfaction of the assessors that the stated competence of the Qualification, as detailed in the stated outcomes, has been achieved, either through Education and Training in a single provider's learning programme or through experience that complies with the stated specific outcomes i.e. Recognition Prior Learning (RPL) is recognised.

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

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

INTERNATIONAL COMPARABILITY

The primary reason for designing this Qualification was to meet the needs of the South African community as identified by the National Department of Health. To ensure that this Qualification is compatible with the international standards. To evaluate the degree to which this Qualification is in line with international best practice it was compared to similar qualifications offered around the world. For this report, qualifications from Nigeria and Australia were selected.

Nigeria as an African Country is on par with South Africa economically. Determining the comparability of this Qualification against one from Nigeria provided some indication of the possible employability of the qualifying students within the African continent. Nigeria offers Diagnostic Radiography qualifications which range from Certificates to Professional Degrees as well as Post Graduate courses such as Computed Tomography.

University of Nigeria, Enugu campus offers a five year Bachelor of Science degree in Medical Radiography. This is a full-time course and no part-time registration is allowed. The period of training is divided into three stages. The first year of study is the preliminary stage and focuses on Biological and Physical Sciences. The second year of study is the pre-clinical stage and focuses on Patient Care and General Hospital Practice. Learners are exposed to clinical training from the third to the fifth year of study. This last stage incorporates the clinical and professional training. All courses offered for this degree are compulsory except the Principles of Management and Histology/Histopathology (practical) courses. To be awarded the degree, the learner must pass all subjects.

Entrance requirements:

Appropriate level pass of the Joint Admission and Matriculation Board examinations with English, Mathematics, Physics, Biology and Chemistry. These requirements compare favourably with the South African Qualification except that, English does not form part of the requirements due to the language policies of some institutions. Chemistry is not a prerequisite to study Radiography but may be an advantage.

Scope:

The curriculum at undergraduate level covers mainly Diagnostic Radiography, with an introduction to Medical Ultrasound, Radiotherapy, Nuclear Medicine and Computed Tomography. This scope is also

similar to the way Diagnostic Radiography is offered in South Africa, except that Computed Tomography is not taught as an additional course, but forms part of the course. Advances in Computed Tomography have also been identified as an elective for the South African qualification.

Stress areas or major subjects:

- Medical Radiographic Physics.
- Medical Radiographic Equipment Engineering.
- Medical Radiographic Photography.
- Imaging Processing and Optics.
- Clinical Radiographic Procedures.
- Hospital Practice and Healthcare System.
- Medical Radiographic Anatomy and Physiology.
- Other Medical Imaging Modalities.
- Radiation Therapy Techniques.
- Medical Radiographic Pathology.
- Research Methodology.

Even though this qualification does not specify which subjects or modules form part of the fundamental, core or electives, the distribution compares well with what has been proposed for the Bachelor of Diagnostic Radiography in South Africa, since they are both full time courses, students need to pass all subjects to be awarded a degree and that clinical training is compulsory.

The major difference is the duration of study, learner exposure to the clinical environment and the subjects offered in the first year of study. The fact that completion of the research project is compulsory makes both qualifications comparable, professional degrees, after which the successful student may proceed to the Masters degree.

Registration requirements: Qualified Radiographers register with the Radiographers Registration Board of Nigeria. The board participates in the development of Radiography curricula as offered by the various Education Institutions in Nigeria. This is similar to the South African situation where qualifications are developed through the participation of the Education Institutions and the members of the Professional Board for Radiography and Clinical Technology under the Health Professions Council of South Africa. Other institutions in Nigeria offer courses which may be at a level lower than that of the professional degrees.

Federal School of Radiography, in Lagos Nigeria offers a three year Certificate. The course covers Natural Sciences, Anatomy and Physiology as well as Radiographic Equipment, Techniques, Principles of Radiotherapy and Radiographic Photography. This Qualification does not compare well with the three year National Diploma or Bachelors degree as currently offered in South Africa. It compares well with the one year supplementary Diagnostic Radiography, which has since been discontinued by the Health Professions Council of South Africa (HPCSA).

Post Graduate Certificate courses such as Computer Tomography are offered by the Institute of Radiography of Nigeria. The examinations for this Certificate course are conducted by the Institute of Radiography in conjunction with the Association of Radiographers of Nigeria. This course is registered with the Radiography Board of Nigeria.

These courses compare well with additional courses offered by the various Education Institutions in South Africa and registered with the HPCSA. The Education Institutions are required to apply for accreditation by the HPCSA before they can offer these additional courses. These Certificate courses registered with HPCSA are listed as electives for the Bachelor of Radiography degree.

Australia offers a four year Bachelor of Science (Medical Imaging) Degree at the Curtin University of Technology. This degree is similar to the Bachelor's degree designed for South Africa in that both are full time and the learner must pass all courses in order to graduate. The difference lies in the course content. The programme offered at the Curtin University of Technology has a major Mathematical content, offered in first and fourth years of study. From the program, there is no evidence of learners being introduced to

research principles.

The Curtin University of Technology has an Honours programme which offers successful learners the chance to do Research Methodology in one of the three speciality areas, namely; Ultrasound, Nuclear Medicine or Diagnostic Radiography. This means that for learners to do research in Radiography, they will have to extend their study programme from four to five years. Extensive clinical training is done in the third and fourth year of study. This is not necessarily the situation with South African programmes; clinical training is scheduled to commence as early as the first year. The learners who successfully complete the study program for the Bachelor of Science (Medical Imaging) in Australia are awarded a professional status through the registration with the Australian Institute of Radiography.

Conclusion:

Most of the other African countries offer two to three year qualifications. These countries do not have their own examining or accreditation bodies. Most of the courses offered are either accredited by the United Kingdom or American organisations. Since Nigeria is a country that is well established with its own regulatory authorities it has proven to be a good example for comparison with the proposed Bachelors Degree in Diagnostic Radiography for South Africa. It is therefore shown that the South African Qualification complies with international standards.

ARTICULATION OPTIONS

Vertical articulation:

- ID 66229: Master of Radiography, NQF Level 8.

Horizontal articulation:

- ID 66951: Bachelor of Radiation Therapy, NQF Level 7.
- ID 66950: Bachelor of Nuclear Medicine Technology, NQF Level 7.
- ID 63449: Bachelor of Radiography: Diagnostic Ultrasound, NQF Level 7.

MODERATION OPTIONS

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

NOTES

As per the SAQA decision, after consultation with the Quality Councils, to re-register all qualifications and part qualifications on the National Qualifications Framework that meet the criteria for re-registration, this qualification has been re-registered from 1 July 2012.

All learners for this Qualification are required to be registered as learners by the relevant Professional Council for the duration of the period of study in an accredited clinical training centre with accredited mentorship.

Registration of Assessors:

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

A practicing Practitioner, registered with the relevant Statutory Health Council, with a Bachelor of Diagnostic Radiography, or equivalent, or higher, or appropriate research/teaching/academic/clinical experience in the category is appointed.

UNIT STANDARDS:

This qualification is not based on Unit Standards.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION:

NONE

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS QUALIFICATION:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Quality Assuring Bodies have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Quality Assuring Body should be notified if a record appears to be missing from here.

NONE

All qualifications and part qualifications registered on the National Qualifications Framework are public property. Thus the only payment that can be made for them is for service and reproduction. It is illegal to sell this material for profit. If the material is reproduced or quoted, the South African Qualifications Authority (SAQA) should be acknowledged as the source.