

# NATIONAL DIPLOMA: RADIOGRAPHY: DIAGNOSTIC

Qualification code: NDRG96 - NQF Level 6

Campus where offered: Arcadia Campus (day classes)

Last year of new intake: 2019

Teach-out (phase-out) date: 31 December 2023

Students registered for this qualification should complete their studies according to the teach-out date prescribed for the qualification, subject to the stipulations of Regulation 3.1.11 and 3.1.13 in the Students' Rules and Regulations.

Information on phased-out programmes can be obtained from the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

## CURRICULUM

Consult the 2019 Faculty Prospectus for the full contents of the qualification.

### FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ANA100T	Anatomy I	(0,150)	
CRP100T	Clinical Radiographic Practice I	(0,200)	
PPM100T	Psycho-Dynamics of Patient Management I	(0,100)	
PSO100B	Physiology I	(0,150)	
RPR100T	Radiographic Practice I	(0,200)	
<b>RSC100T</b>	<b>Radiation Science I</b>		
RSC10PT	Radiation Science: Physics and Chemistry I	(0,100)	
RSC10QT	Radiation Science: Image Recording I	(0,100)	
TOTAL CREDITS FOR THE FIRST YEAR:		<b>1,000</b>	

### SECOND YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CRP200T	Clinical Radiographic Practice II(D)	(0,200)	Clinical Radiographic Practice I Radiographic Practice I
RGP200T	Radiographic Pathology II	(0,200)	Anatomy I Physiology I
RPR200T	Radiographic Practice II	(0,250)	Clinical Radiographic Practice I Radiographic Practice I
<b>RSC220T</b>	<b>Radiation Science II</b>		
RSC22PT	Radiation Science: Radiation Physics and Protection and Equipment II	(0,175)	Radiation Science I
RSC22QT	Radiation Science: Image Recording, Ultrasound and Radiobiology II	(0,175)	Radiation Science I
TOTAL CREDITS FOR THE SECOND YEAR:		<b>1,000</b>	

### THIRD YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CRP300T	Clinical Radiographic Practice III(D)	(0,300)	Clinical Radiographic Practice II(D) Radiographic Practice II
RGM300T	Radiographic Management III(D)	(0,100)	Clinical Radiographic Practice II(D) Radiographic Practice II
RPR300T	Radiographic Practice III(D)	(0,350)	Clinical Radiographic Practice II(D) Radiographic Practice II



<b>RSC300T</b>	<b>Radiation Science III(D)</b>		
RSC30PT	Radiation Science: Specialised Equipment III(D)	(0,125)	Radiation Science II
RSC30QT	Radiation Science: Image Recording III(D)	(0,125)	Radiation Science II
TOTAL CREDITS FOR THE THIRD YEAR:		<b>1,000</b>	
TOTAL CREDITS FOR THE QUALIFICATION:		<b>3,000</b>	

## SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular subject. At time of publication, the syllabus content was defined as follows:

### A

#### **ANATOMY I (ANA100T) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Biomedical Sciences)**

An integrated study of the human body systems. (Total tuition time: ± 153 hours)

### C

#### **CLINICAL RADIOGRAPHIC PRACTICE I (CRP100T) PRACTICAL EXAMINATION**

**(Subject custodian: Department of Biomedical Sciences)**

Application of Radiographic Practice I in the imaging department. Work-integrated learning and continuous clinical assessment are conducted in Health Professions Council of South Africa (HPCSA), approved clinical settings. (Total tuition time: ± 204 hours, continuous)

#### **CLINICAL RADIOGRAPHIC PRACTICE II(D) (CRP200T) PRACTICAL EXAMINATION**

**(Subject custodian: Department of Biomedical Sciences)**

Application of Radiographic Practice II in the imaging department. Work-integrated learning and continuous clinical assessment are conducted in Health Professions Council of South Africa (HPCSA), approved clinical settings. (Total tuition time: ± 117 hours, continuous)

#### **CLINICAL RADIOGRAPHIC PRACTICE III(D) (CRP300T) PRACTICAL EXAMINATION**

**(Subject custodian: Department of Biomedical Sciences)**

Application of Radiographic Practice III in the imaging department. Work-integrated learning and continuous clinical assessment are conducted in Health Professions Council of South Africa (HPCSA), approved clinical settings. (Total tuition time: ± 224 hours, continuous)

### P

#### **PHYSIOLOGY I (PSO100B) 1 X 3-HOUR PAPER**

**(Subject custodian: Department of Biomedical Sciences)**

Introduction to homeostasis. Cytology (cell membrane, membrane transport mechanisms, organelles). Nervous system (neural tissue, action potentials, synapses, neurotransmitters, spinal cord functions, brain area functions, cranial and spinal nerves, cerebrospinal fluid. Sensory system (sensory concepts, skin-based receptors, pain perception, gustation, olfaction, hearing, equilibrium, vision). Endocrinology (hypothalamus, pituitary gland, thyroid gland, parathyroid glands, adrenal cortex, adrenal medulla, pancreas, bone growth, ossification mechanisms, healing of fractures). Male reproductive system (spermatogenesis, hormonal control). Female reproductive system (oogenesis, menstrual cycle, fertilisation, implantation, hormonal changes during pregnancy, menopause). Cardiovascular system (cardiac conduction system, chronotropic effects, vascular blood flow, blood pressure, physiological shock, lymph flow, hemopoiesis, ABO blood groups, hemostasis). Immunology (inflammation, lymphocytes). Respiratory system (ventilation, external respiration, gaseous transport, internal respiration, neural control of ventilation). Urinary system (renal circulation, urine formation, water balance, micturition). Digestive system (gastrointestinal tract wall, digestion and absorption of nutrients). (Total tuition time: ± 100 hours)



**PSYCHO-DYNAMICS OF PATIENT MANAGEMENT I (PPM100T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

Professionalism, ethics, developmental psychology and applied psychology. (Total tuition time: ± 102 hours)

**R****RADIATION SCIENCE: IMAGE RECORDING I (RSC10QT)****1 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

Basic theory of the facets of the imaging process in a conventional and digital radiographic environment. (Total tuition time: ± 102 hours)

**RADIATION SCIENCE: IMAGE RECORDING III(D) (RSC30QT)****1 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

More advanced theory and practice of image recording and its application to diagnostic radiography, such as duplication, photographic subtraction, macroradiography, quality assurance, fluoroscopy, photofluorography, digital radiography, wet and dry laser printer. (Total tuition time: ± 94 hours)

**RADIATION SCIENCE: IMAGE RECORDING, ULTRASOUND AND RADIOBIOLOGY II (RSC22QT)****2 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

More advanced theory and practice of image recording in diagnostic radiography, such as sensitometry, luminescence exposure factors. Basic principles of ultrasound and the introduction to radiobiology. (Total tuition time: ± 155 hours)

**RADIATION SCIENCE: PHYSICS AND CHEMISTRY I (RSC10PT)****1 X 3-HOUR PAPER****(Subject custodian: Department of Physics)**

Principles of mechanics, heat, optics and electricity that form a basis for Radiation Science II and Radiation Science III(D). Basic introduction to chemistry and concepts of the structure of matter. (Total tuition time: ± 102 hours)

**RADIATION SCIENCE: RADIATION PHYSICS AND PROTECTION AND EQUIPMENT II (RSC22PT)****2 X 3-HOUR PAPER****(Subject custodian: Department of Physics)**

Electricity supply to X-ray machines, X-ray tube designs, including X-ray circuitry and imaging components. The atomic structure and electromagnetic rays. The excitation of X-rays, attenuation and interaction of radiation with matter, radiation risks and radiation protection in all X-ray departments. (Total tuition time: ± 155 hours)

**RADIATION SCIENCE: SPECIALISED EQUIPMENT III(D) (RSC30PT)****1 X 3-HOUR PAPER****(Subject custodian: Department of Physics)**

Specialised X-ray tubes and utility purposes. Specialised equipment for dentistry, mammography, fluoroscopic, tomographic, magnetic resonance imaging. Digital equipment as applicable to conventional radiography and tomography. Principles of quality control. (Total tuition time: ± 94 hours)

**RADIOGRAPHIC MANAGEMENT III(D) (RGM300T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Management and Entrepreneurship)**

The principles of management and administration of a diagnostic imaging department, stock control and planning. Basic managerial skills and techniques. (Total tuition time: ± 75 hours)

**RADIOGRAPHIC PATHOLOGY II (RGP200T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

A study of disease processes in the different body systems, with special emphasis on the radiographic appearance of diseases. (Total tuition time: ± 177 hours)

**RADIOGRAPHIC PRACTICE I (RPR100T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Biomedical Sciences)**

Basic principles of diagnostic radiographic technique, including routine projections of structures of the body. Introduction to radiation oncology, nuclear medicine and ultrasound. The general responsibility of a radiographer towards the patient. (Total tuition time: ± 204 hours)



**RADIOGRAPHIC PRACTICE II (RPR200T)**

**1 X 3-HOUR PAPER**

***(Subject custodian: Department of Biomedical Sciences)***

Specialised radiographic technique for the demonstration of specific anatomical structures and pathology, including fluoroscopic technique as well as adaptations for emergency patients. (Total tuition time: ± 221 hours)

**RADIOGRAPHIC PRACTICE III(D) (RPR300T)**

**1 X 3-HOUR PAPER**

***(Subject custodian: Department of Biomedical Sciences)***

Advanced integrated radiographic technique, including specialised imaging modalities, procedures and application of basic pattern recognition skills. (Total tuition time: ± 262 hours)

