BACHELOR OF HEALTH SCIENCE IN MEDICAL LABORATORY SCIENCE

(Qualification type: Professional Bachelor's Degree)

BHSci (Medical Laboratory Science) - NQF Level 8 (538 credits)

Qualification code: BPLS20

SAQA ID: 109456, CHE NUMBER: H/H16/E136CAN

Campus where offered: Arcadia Campus

REMARKS

a. *Admission requirement(s) and selection criteria:*

Please take note that all completed applications received within the published due dates will be ranked. After consideration of the Departmental Student Enrolment Plan, only the top ranking applicants will be selected. Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not register on time. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, www.tut.ac.za.

- **APPLICANTS WHO OBTAINED A NATIONAL DIPLOMA AT NQF LEVEL 6:**

Applicants who completed a relevant national diploma (at NQF Level 6) and who graduated and proceeded to work in industry can apply. Applicants should follow an articulation process in which exemption will be granted for 50% of the credits of the completed (and conferred) national diploma. Detailed information on the process to follow is available at the relevant academic department.

- **APPLICANTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate with a matriculation endorsement or equivalent qualification, with a D symbol at Higher Grade, or C symbol at Standard Grade for: English, Mathematics, Physical Science and Biology.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Point Score (APS) of at least **24**.

- **APPLICANTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE IN OR AFTER 2008:**

Admission requirement(s):
A National Senior Certificate or an equivalent qualification, with a bachelor's degree endorsement, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics or Technical Mathematics, 4 for Physical Sciences or Technical Sciences and 4 for Life Sciences.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Point Score (APS) of at least **24** (excluding Life Orientation).

b. *Assessment procedure(s):*
For 2022: Candidates will be selected based on their relevant APS scores.
As from 2023: Applicants will be invited for a TUT Potential Assessment Test (TUTPTA) and depending on the results will be invited for an interview. Structured panel interviews are conducted by the full-time academic staff in the department, as well as appointed qualified Medical Laboratory Technologist. The number of selected students is dependent on the approval and availability of student medical laboratory scientist posts at the participating and HPCSA-accredited training facilities. The APS will contribute 40%, the TUT Potential Assessment will contribute 20% and the interview will contribute 40% of the final score.

c. *Recognition of Prior Learning (RPL), equivalence and status:*
See Chapter 30 of Students' Rules and Regulations.

d. *Intake for the qualification:*
January only.

e. *Presentation:*
Day classes.

f. *Minimum duration:*
Four years.

g. *Exclusion and readmission:*
See Chapter 2 of Students' Rules and Regulations.

h. *Other requirements:*
Vaccination against Hepatitis B is compulsory.

i. *Practicals:*
100% attendance is compulsory for all practical classes. Students must pass the practical component of a subject to obtain admission to sit for the examination.

j. *Personal protective equipment:*
Specific safety wear is compulsory in the practical laboratories.

k. *Registration as a student medical laboratory scientist:*
- Registration with the Health Professions Council of South Africa (HPCSA) as a student medical laboratory scientist is compulsory.
- International students will be allowed to register at the HPCSA only as student medical laboratory scientist; and for the duration of the relevant qualification. However, they will not be able to register with the HPCSA as a medical laboratory scientist.

l. *Professional registration as a medical laboratory scientist:*
Registration as a qualified medical laboratory scientist takes place four years after registration as a student *medical laboratory scientist*, provided that the candidate completes the four academic years successfully.

CURRICULUM

FIRST YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
11P105X	Communication for Academic Purposes	(5)	(10)	
CPL105X	Computer Literacy	(5)	(10)	
HAN105P	Human Anatomy I	(5)	(18)	
HPY105P	Human Physiology I	(5)	(18)	
MAS105X	Mathematics and Statistics I	(5)	(12)	

FIRST SEMESTER

CHI115P	Chemistry for Health Sciences	(5)	(12)	
FLF125P	Foundation Life Skills (block module)	(5)	(2)	
PHS115P	Physics for Health Sciences I	(5)	(12)	
RPN115P	Research Principles I	(5)	(6)	

SECOND SEMESTER

CBI115P	Cell Biology I	(5)	(12)	Chemistry for Health Sciences I
IMM115P	Immunology I	(5)	(12)	
MLS115P	Medical Laboratory Science I	(5)	(12)	Physics for Health Sciences I

TOTAL CREDITS FOR THE FIRST YEAR: **136**

SECOND YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
CCI206P	Clinical Chemistry II	(6)	(24)	Cell Biology I
CYT206P	Cytology II	(6)	(18)	Human Anatomy I Human Physiology I
HTY206P	Haematology II	(6)	(24)	Human Anatomy I Human Physiology I
PTS206P	Pathophysiology II	(6)	(18)	Human Anatomy I Human Physiology I

FIRST SEMESTER

MBY216P	Microbiology I	(6)	(12)	Immunology I
MLS216P	Medical Laboratory Science II	(6)	(6)	Medical Laboratory Science I

SECOND SEMESTER

HST216P	Histology II	(6)	(12)	Human Anatomy I Human Physiology I
IHM216P	Immunohaematology II	(6)	(12)	Immunology I
MMI216P	Medical Microbiology II	(6)	(12)	Microbiology I
RPN216P	Research Principles II	(6)	(6)	Research Principles I Mathematics and Statistics I

TOTAL CREDITS FOR THE SECOND YEAR: **144**

THIRD YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
RPN307P	Research Principles III	(7)	(6)	Research Principles II

FIRST SEMESTER

CCI317P	Clinical Chemistry III	(7)	(12)	Clinical Chemistry II
HTY317P	Haematology III	(7)	(12)	Haematology II Immunohaematology II
ICH317P	Integrated Cytology and Histology III	(7)	(12)	Cytology II Histology II
IPY317P	Integrated Pathophysiology III	(7)	(12)	Pathophysiology II
MMI317P	Medical Microbiology III	(7)	(12)	Medical Microbiology II

SECOND SEMESTER

CLR317P	Clinical Laboratory Practice III	(7)	(60)	Clinical Chemistry III Computer Literacy Haematology III Integrated Cytology and Histology III Integrated Pathophysiology III Medical Laboratory Science II Medical Microbiology III

TOTAL CREDITS FOR THE THIRD YEAR: **126**

FOURTH YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
DLG418P	Diagnostic Laboratory Management IV (first-semester module)	(8)	(12)	Clinical Laboratory Practice III
RPN408P	Research Principles IV and Project	(8)	(30)	Research Principles III
	plus one of the following modules:			
CCI408P	Clinical Laboratory Practice IV in: Clinical Chemistry	(8)	(90)	Clinical Laboratory Practice III Research Principles III
CGE408P	Clinical Laboratory Practice IV in: Cytogenetics	(8)	(90)	Clinical Laboratory Practice III Research Principles III
CPH408P	Clinical Laboratory Practice IV in: Clinical Pathology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
CYT408P	Clinical Laboratory Practice IV in: Cytology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
HST408P	Clinical Laboratory Practice IV in: Histology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
HTY408P	Clinical Laboratory Practice IV in: Haematology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
IHM408P	Clinical Laboratory Practice IV in: Immunohaematology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
IMM408P	Clinical Laboratory Practice IV in: Immunology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
MMI408P	Clinical Laboratory Practice IV in: Medical Microbiology	(8)	(90)	Clinical Laboratory Practice III Research Principles III
VIR408P	Clinical Laboratory Practice IV in: Virology	(8)	(90)	Clinical Laboratory Practice III Research Principles III

TOTAL CREDITS FOR THE FOURTH YEAR: **132**

TOTAL CREDITS FOR THE QUALIFICATION: **538**

MODULE 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 module. At time of publication, the syllabus content was defined as follows:

C

CELL BIOLOGY I (CBI115P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to demonstrate an informed understanding of Cell Biology in the field of medical laboratory science. The student will be able to relate his/her knowledge of the organisation of cells, amino acids and proteins, enzymes, carbohydrates, lipids, nucleic acids and reagents, pH and buffers to the field of human biochemistry for the purpose to attain an informed awareness and understanding of core disciplines in medical laboratory science. (Total notional time: 120 hours)

CHEMISTRY FOR HEALTH SCIENCES (CHI115P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Chemistry)

The student will be able to apply his/her knowledge of atomic theory, nomenclature, stoichiometry, chemical equilibrium, organic chemistry and gases and liquids to basic chemistry related problems. Upon completion, the student will be able to discuss fundamental concepts in chemistry and do related calculations. (Total tuition time: not available). (Total notional time: 120 hours)

CLINICAL CHEMISTRY II (CCI206P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to apply detailed knowledge of Clinical Chemistry in the field of medical laboratory science. The student will be able to apply his/her knowledge of specimen handling, laboratory automation and analytical techniques, electrolytes, minerals, vitamins, trace elements, blood gas systems, amino acids and proteins, body fluids, enzymes, the kidney and tests of renal function and the liver and tests of hepatic function as related to pathobiochemistry. (Total notional time: 240 hours)

CLINICAL CHEMISTRY III (CCI317P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to integrate knowledge of Clinical Chemistry in the field of medical laboratory science. The student will be able to apply his/her knowledge of endocrinology, carbohydrates, lipids, tumour markers and pharmacology to the field of pathobiochemistry to attain practical and professional competence in the workplace. (Total notional time: 120 hours)

CLINICAL LABORATORY PRACTICE III (CLR317P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to integrated, apply and evaluate knowledge of Clinical Chemistry, Cytology, Haematology, Histology and Medical Microbiology and related disciplines in the field of medical laboratory science. The student will be able to select, perform, interpret and integrate diagnostic laboratory tests in and across specific medical disciplines in accordance with statutory requirements within a real-world setting. Furthermore, through the integration of the theoretical and practical component of this module, the student will acquire knowledge, skills, and values in clinical laboratory practice to manage him/herself on an elevated professional level, as well as the awareness to take responsibility for the learning of others in a professional career environment, contributing to highly skilled scientists in laboratory medicine. (Total notional time: 600 hours)

CLINICAL LABORATORY PRACTICE IV IN: CLINICAL CHEMISTRY (CCI408P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to demonstrate forefront knowledge of Clinical Chemistry in the field of medical laboratory science. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing and organ-specific function testing for chemical pathology. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: CLINICAL PATHOLOGY (CPH408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to be able to demonstrate forefront knowledge and the application of Clinical Chemistry, Haematology and Medical Microbiology and related disciplines in the field of medical laboratory medicine. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing in the combined disciplinary knowledge for applied clinical pathology to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: CYTOGENETICS (CGE408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
The student will be able to demonstrate clinical competency of principles and procedures of molecular genetics for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: CYTOLOGY (CYT408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge and the ability to recognize and evaluate cellular morphology of the cervical, vaginal, respiratory, urinary, gastro-intestinal tract, serous cavities, central nervous system, breast, thyroid and lymph node and to apply specialised knowledge to differentiate between different cells and cellular changes, including benign and malignant changes. The student will be able to apply his/her knowledge of cytological techniques to evaluate and diagnose the cellular changes viewed on the cytological smears. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: HAEMATOLOGY (HTY408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge of Haematology in the field of medical laboratory medicine. The student will be able to demonstrate clinical competency of performing routine as well as specialised investigations in Haematology and to interpret the results obtained efficiently for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: HISTOLOGY (HST408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
The student will be able to apply and evaluate the safe practices and instrumentation used in the routine histology laboratory and provides forefront knowledge and skills in histological techniques of tissue collection, accessing, grossing, decalcification, fixation, processing, embedding, microtomy, staining and mounting. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: IMMUNOHAEMATOLOGY (IHM408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge of Immunohaematology in the field of medical laboratory medicine. The student will be able to demonstrate clinical competency of laboratory regulations, ethics, equipment, quality assurance, blood donation, blood testing and the risks that are associated with transfusions, efficiently for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: IMMUNOLOGY (IMM408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge of Immunology in the field of medical laboratory medicine. The student will be able to apply and evaluate his/her knowledge of principles and procedures in the scientific study of the immune response related to the diagnosis of primary immunodeficiency and autoimmune disease; allergic responses and transplantation/immunogenetics. Interpretation and assessment through complete comprehension of the principles of diagnostic methods and techniques applied in the laboratory setting for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: MEDICAL MICROBIOLOGY (MMI408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge of medical microbiology in the field of medical laboratory medicine. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing and organ-specific function testing for medical microbiology for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

CLINICAL LABORATORY PRACTICE IV IN: VIROLOGY (VIR408P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate forefront knowledge of virology in the field of medical laboratory medicine. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing and organ-specific function testing for virology for the purpose to attain practical and professional competence in the workplace. (Total notional time: 900 hours)

COMMUNICATION FOR ACADEMIC PURPOSES (11P105X) 1 X 3-HOUR PAPER
(Module custodian: Office of the Executive Dean)
A workable knowledge of English is an essential skill for any graduate who is required to conduct themselves successfully in a professional working environment. This module will equip students with the competencies required to compose a selection of written texts related to communicating both internally and externally within a professional environment. In addition, the module includes strategies that are essential for the effective communication in various situations, including small groups to avoid unproductive conflict, a multicultural context, etc. (Total notional time: 100 hours)

COMPUTER LITERACY (CPL105X) CONTINUOUS ASSESSMENT
(Module custodian: End User Computing Unit)
This module provides students with foundational knowledge in computing fundamentals, essential digital skills in key applications based on MS Office Suite and network basics (i.e. MS Outlook and Internet). Online exams are mapped with End-User Computing: SAQA 49077 (61591) Core Element as well as Internet and Computing Core Certification (IC3). (Total notional time: 100 hours)

CYTOLOGY II (CYT206P) 1 X 3-HOUR PAPER
(Module custodian: Department of Biomedical Sciences)
This module prepares the student to demonstrate the ability to recognise and evaluate cellular morphology of cervical, vaginal, respiratory and urinary cytology and how to apply this knowledge to differentiate between different cells and cellular changes. The student will be able to apply his/her knowledge of cytological techniques to evaluate and identify the cellular changes viewed on the cytological smears. (Total notional time: 180 hours)

D

DIAGNOSTIC LABORATORY MANAGEMENT IV (DLG418P) 1 X 3-HOUR PAPER
(Module custodian: Directorate of Biomedical Sciences)
This module prepares the student to apply fundamental and specialised knowledge of managing a diagnostic laboratory in the field of medical laboratory science. The student will be able to apply his/her knowledge of general laboratory management, including financial and human resource management. Supported by method evaluation and control of compliance and regulatory matters pertaining to the bio-analytical environment. (Total notional time: 120 hours)

F

FOUNDATION LIFE SKILLS (FLF125P) CONTINUOUS ASSESSMENT
(Module custodian: Directorate of Student Development and Support)
Personal, socio-emotional and academic skills development for students in higher education. This module includes 1. Intra- and interpersonal skills (e.g. emotional intelligence, relationships, and conflict management); 2. General study skills (e.g. time management, goal setting, learning styles); 3. Health and wellness (e.g. HIV/AIDS, GBV issues, substance abuse); 4. Student life and adjustment (e.g. identity development, adjusting to a higher education environment); and 5. Financial management. (Total notional time: 20 hours)

H

HAEMATOLOGY II (HTY206P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to apply fundamental and specialised knowledge of Haematology in the field of medical laboratory science. The student will be able to apply his/her knowledge of normal and diseased erythrocytes, leucocytes and haemostasis as well as the analytical techniques to determine these parameters to the field of medical laboratory science. The student should also be able to identify and solve some clinical and diagnostic problems. (Total notional time: 240 hours)

HAEMATOLOGY III (HTY317P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to acquire detailed knowledge of Immunohaematology in the field of medical laboratory science. The student will be able to apply his/her knowledge of laboratory equipment, quality assurance, blood donation, systems related to blood transfusion, blood testing and the risks associated with transfusion to the field of medical laboratory science. (Total notional time: 120 hours)

HISTOLOGY II (HST216P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module introduces the student to the fundamental safety practices and instrumentation used in the routine histology laboratory and provides knowledge and skills in histological techniques of tissue collection, accessing, grossing, decalcification, fixation, processing, embedding, microtomy, staining and mounting. The student will be able to apply his/her knowledge of histological techniques to process patient samples until obtaining stained microscope slides for diagnostic purposes. (Total notional time: 120 hours)

HUMAN ANATOMY I (HAN105P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to enter the medical profession. The student will be able to understand and apply his/her knowledge of cellular components, tissue and organ systems to and overall perspective of a healthy human necessary in the medical community. Upon completion, the student will be able to understand important cellular concepts, identify all bones, muscles, nerves and have a sound basis of each organ system. Students will also have mastered the practical skills to be confident in all human body structures and location. (Total notional time: 180 hours)

HUMAN PHYSIOLOGY I (HPY105P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module builds on prior knowledge of human anatomy and physiology. Upon completion, the student will be able to apply his/her knowledge of cellular components, tissue and organ systems to and overall perspective of a healthy human necessary in the medical community. Upon completion, the student will be able to understand important cellular concepts, identify all bones, muscles, nerves and have a sound basis of each organ system which includes the embryological development of each system. Students will also have mastered the practical skills to be confident in identifying all human body structures and location. (Total notional time: 180 hours)

I

IMMUNOLOGY I (IMM115P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares learning to acquire knowledge and understanding of the structure and function of the immune system, innate and acquired immunity, and laboratory techniques involving the interaction of antigens with antibodies required in the medical laboratory environment. The student will master the ability to demonstrate and apply his/her knowledge and understanding of the fundamental principles and concepts of Immunology, as well as how knowledge of the biological mechanisms evolved and manifest in the pathogenesis of other related diseases in the human body. (Total notional time: 120 hours)

IMMUNOHAEMATOLOGY II (IHM216P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to acquire detailed knowledge of Immunohaematology in the field of medical laboratory science. The student will be able to apply his/her knowledge of laboratory equipment, quality assurance, blood donation, systems related to blood transfusion, blood testing and the risks associated with transfusion to the field of medical laboratory science. (Total notional time: 120 hours)

INTEGRATED CYTOLOGY AND HISTOLOGY III (ICH317P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to demonstrate the ability to recognize and evaluate cellular morphology of the gastro-intestinal tract, serous cavities, central nervous system, breast, thyroid and lymph node and how to apply this knowledge to differentiate between different cells and cellular changes. The student will be able to apply his/her knowledge of cytological techniques to evaluate and identify the cellular changes viewed on the cytological smears. (Total notional time: 120 hours)

INTEGRATED PATHOPHYSIOLOGY III (IPY317P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to have integrated knowledge, apply problem-solving skills, as well as produce and communicate information in the field of pathophysiology. The student will be able to apply his/her knowledge of Clinical Chemistry, Haematology/Immunohaematology, Medical Microbiology, and Cytology/Histology to the disordered anatomical and physiological processes associated with disease or injury. This module will prepare the student to develop to apply their knowledge of pathophysiology in a laboratory setting real world environment. This module will also prepare the student to develop deeper knowledge in the field of pathophysiology in their elective module of Clinical Laboratory Practice on an NQF level 7. (Total notional time: 120 hours)

M

MATHEMATICS AND STATISTICS I (MAS105X) **1 X 3-HOUR PAPER**

(Module custodian: Department of Mathematics and Statistics)

Numerical computations, mensuration, equations, functions, descriptive statistics, linear regression and curve fitting. (Total notional time: 120 hours)

MEDICAL LABORATORY SCIENCE I (MLS115P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to acquire an informed understanding of the basic principles of medical laboratory medicine as related to knowledge of the professional role of the medical laboratory scientist, ethics, medical law and human rights, relevant laboratory instrumentation and techniques and laboratory safety to the field of laboratory sciences. The student will be able to demonstrate the ability to advice on the professional role of the medical laboratory scientist within the sphere of medical laboratory science and as part of a health-care team. Select and contrast laboratory instrumentation and techniques in the medical laboratory science environment. Apply laboratory safety and evaluate medical ethics and human rights in the discipline of medical laboratory science. (Total notional time: 120 hours)

MEDICAL LABORATORY SCIENCE II (MLS216P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to apply detailed knowledge of the concepts and principles of medical laboratory medicine as related to phlebotomy, quality assurance and the professional role of the medical laboratory scientist in the field of ethics, medical law and human rights. The student will be able to classify and explain detailed knowledge on phlebotomy and specimen processing, advice on the concepts of quality assurance and explain medical ethics, medical law and human rights applicable to laboratory medicine. (Total notional time: 60 hours)

MEDICAL MICROBIOLOGY II (MMI216P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to be able to apply detailed knowledge of medical microbiology preparing students to be knowledgeable in the field of medical laboratory science. The student will be able to apply and evaluate his/her knowledge of principles, procedures and correlation for diagnostic testing and organ-specific function testing for medical microbiology for the purpose to attain practical and professional competence in the workplace. Furthermore, through the integration of the theoretical and practical component of this module, the student will acquire knowledge, skills, and values in clinical laboratory practice to manage him/herself on an elevated professional level, as well as the awareness to take responsibility for the learning of others in a professional career environment, contributing to highly skilled scientists in laboratory medicine. (Total notional time: 120 hours)

MEDICAL MICROBIOLOGY III (MMI317P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to be able to select methods that will assist to examine and illustrate integrated knowledge and understanding of the isolation of clinical and diagnostic problems through critical and innovative thinking being responsible and independent in decision-making and application of basic and advanced scientific methods within the medical laboratory set-up. (Total notional time: 120 hours)

MICROBIOLOGY I (MBY216P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biotechnology and Food Technology)

This module prepares the student to understand the role of microorganisms and their importance in the field of Microbiology. It is therefore suitable for continuing specialisation by reiterating general microbiology concepts and a systematic understanding of the diversity of microorganisms in terms of their morphology, physiology and their behaviour as they interact with the components of their habitats. This module will contribute to the preparation of technologists to perform microbiological techniques applicable to, water, food, soil and the medical fields. (Total notional time: 120 hours)

P

PATHOPHYSIOLOGY II (PTS206P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to obtain detailed knowledge, apply problem-solving skills, as well as to produce and communicate information in the field of pathophysiology. The student will be able to apply his/her knowledge of Anatomy and Physiology to the disordered anatomical and physiological processes associated with disease or injury. This module will prepare the student to develop deeper knowledge and understanding of the pathophysiological processes to be followed on an NQF level. (Total notional time: 180 hours)

PHYSICS FOR HEALTH SCIENCES I (PHS115P) **1 X 3-HOUR PAPER**

(Module custodian: Department of Physics)

This module is aimed at enhancing student knowledge in fundamental concepts in mechanics, mechanical properties of fluids, thermal properties of matter, general and geometrical properties of waves, static electricity and electric circuits and their applications thereof. (Total notional time: 120 hours)

R

RESEARCH PRINCIPLES I (RPN115P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to acquire an informed understanding of the basic principles of research and academic writing to include definitions, characteristics, as well as the concepts of scholarly writing, scholarly literature, the methodologies and designs. The student will be able to demonstrate the ability to select and apply the correct academic writing principles, citation methods, and procedures in order to avoid any form of plagiarism. Through this module, students will obtain the ability to integrate aspects of research principles and methodology in their field of study. Relevance of research is in line with national needs and biomedical ethical policies and procedures, and suitable resources need to be critically evaluated and used to facilitate the research project on postgraduate level. (Total notional time: 60 hours)

RESEARCH PRINCIPLES II (RPN216P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to demonstrate detailed understanding and knowledge of the main areas of research principles and the ability to apply concepts, principles and theories related to the framework of a research proposal, the different research methodologies and designs, as well as data collection principles, analysis, reliability, validity, rigour, trustworthiness, budget and funding. Through this module, the student will demonstrate understanding of the research problem and objectives within the context of a particular research methodology, as well as the ability to evaluate, select and apply the optimal sampling procedures, data collection principles relevant to a research methodology and design. Knowledge and the ability to analyse, synthesise, and evaluate information from different sources of scholarly academic information, including definitions, criteria, purposes, questionnaire designs, data collection principles and methods for the application during the research process will be obtained in preparation to the next level of research principles and procedures to follow. (Total notional time: 60 hours)

RESEARCH PRINCIPLES III (RPN307P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module prepares the student to demonstrate integrated knowledge of the central and crucial areas of research principles and methodologies including the ability to apply concepts, principles and theories necessary for the compilation of a research proposal in the context of an academic and/or health science related environment. Through this module, students will gain understanding of the roles and responsibilities pertaining to the research supervisor and the researcher. Students will learn to differentiate between research methods and their suitability and ability to resolve specific research enquiries, act ethically and professionally with dignity and integrity, as well as to manage the processing of gathered data through advanced bio-statistical methods. (Total notional time: 60 hours)

RESEARCH PRINCIPLES IV AND PROJECT (RPN408P) **CONTINUOUS ASSESSMENT**

(Module custodian: Department of Biomedical Sciences)

This module which prepares the student to demonstrate knowledge of and engagement in the advanced aspects of research principles and techniques at the forefront related to a particular medical field of study or specialisation. Students should further be able to demonstrate understanding of the analysis and interpretation of research results, the structure and composition of a research report, as well as publications and presentations Students will gain knowledge in the use of specialised skills to identify, analyse and address abstract problems related to a research project in a field of study or specialisation, as well as to incorporate body of knowledge and methods during the problem-solving process. On completion of this module, students should show their ability to present and communicate scientific research results to a range of audiences in the format of a research article for a given journal, poster design, as well as in the form of a verbal and visual research presentation. (Total notional time: 300 hours)