2012
PROSPECTUS

PART 7

FACULTY OF SCIENCE

ISSN 0258-7343

TSHWANE UNIVERSITY OF TECHNOLOGY

PARTS OF THE PROSPECTUS

PLEASE NOTE

1. Although the information in this Prospectus has been compiled as accurately as possible, the Council accepts no responsibility for any inaccuracies in this publication. This Prospectus is valid for 2012 only.

2. Life Orientation and an achievement level of 1 in a subject is not considered in the calculation of the Admission Point Score (APS).

3. Prospective students will not be admitted to any qualification without prior evaluation.

4. The indicated non-refundable administration fee and certified copies of your identity document, Senior Certificate/National Senior Certificate and all other relevant documents must accompany the completed application form or online application.

5. The closing date for applications for admission to first-semester and year courses is 15 August of the preceding year, except for certain courses and International applicants of which the closing date is 15 June. The closing date for selected second-semester courses is 15 May of the year concerned.

Important:

TUT admission requirements for entry-level programmes adhere to national legislation and therefore the following are required:

- BEd degrees: at least four subjects at a performance level 4.
- National Diplomas: at least four subjects at performance level 3.

Please verify specific and additional requirements per programme as indicated in the prospectus.

ACCEPTANCE IS SUBJECT TO AVAILABLE CAPACITY ACCORDING TO THE STUDENT ENROLMENT PLAN (SEP)

Alternative and international qualifications (e.g. HIGSCE, IGCSE, NSSC A&O Level, IB Higher and Standard Level, etc) are dealt with in a specific manner:

- While there is a legal imperative to submit the certificate of equivalence (issued by SAQA or the CHE) it is recommended that the application process be initiated while the application for certificate is in process.
- The Tshwane University of Technology cannot obtain this certificate on your behalf.

CONVERSION OF ALTERNATIVE/EQUIVALENT RECOGNISED CERTIFICATES

The following provides a guideline on how the University will evaluate the various certificates that may be offered as equivalent to the National Senior Certificate (SA). Where possible, the University will evaluate the listed qualifications as indicated, however the University retains the right to refer any application to the formal application processes through Senate.

APS	NSC	NC-V	HIGCSE	IGCSE/GCSE/ NSSC O-LEVEL		A-LEVEL	IB-HL	IB-SL	SAT
10						A	7		
9									
8						B	6		
7	7 (80 -100)	Outstanding Competent (80-100%)	1	A		C	5	7	80-100
6	6 (70 -79)	4-Highly Competent (70-79%)	2	B		D	4	6	70-79
5	5 (60-69)	3-Competent (60-69%)	3	C	A	E	3	5	60-69
4	4 (50-59)	3-Competent (50-59%)		D	B		2	4	50-59
3	3 (40-49)	Not yet Competent (40-49%)	4	E	C		1	3	40-49
2	2 (30-39)	Not achieved (0-39%)		F	D/E			2	30-39
1	1 (0-29)			G	F/G			1	0-29

NSC	National Senior Certificate
NC-V	National Certificate (Vocational)
IGCSE	International General Certificate of Secondary Education
HIGCSE	Higher International General Certificate of Secondary Education
SAT	Senior Academic Test/Senior Academic Proficiency Test
NSSC	Namibia Senior Secondary Certificate
A-LEVEL	Advanced level
O-LEVEL	Ordinary level
IB	International Baccalaureate Schools (higher and standard levels)

RECOGNITION OF PRIOR LEARNING, STATUS AND EQUIVALENCE

Candidates may also apply for recognition of prior learning or for admission via the Senate's discretionary route at the Office of the Registrar. The specific relevant documentation will be requested from these applicants, and these cases will be handled on an individual basis (refer to details on these options in the section on RPL in Part 1 of the Prospectus).

ENQUIRIES

Contact Centre
Tel: 086 1102 421 Fax: 012 382 5701

Admission Enquiries
Tel: 012 382 5750

The Registrar
Private Bag X680
PRETORIA 0001
Tel: 012 382 5911 Fax: 012 382 5114

ARCADIA CAMPUS
Private Bag X680 175 Nelson Mandela Drive
PRETORIA 0001 PRETORIA
Tel: 012 382 5911 Fax: 012 382 5114

ARTS CAMPUS
Private Bag X680 Cnr. Du Toit and Edmund streets
PRETORIA 0001 PRETORIA
Tel: 012 382 5911 Fax: 012 382 5114

EMALAHLENI CAMPUS
The Campus Director
PO Box 3211 19 Swartbos Avenue
EMALAHLENI 1035 EMALAHLENI
Tel: 013 653 3100 Fax: 013 653 3101

GA-RANKUWA CAMPUS
Private Bag X680 2827, Zone 2, Botsi Street
PRETORIA 0001 GA-RANKUWA
Tel: 012 382 0500 Fax: 012 382 0814

MBOMBELA CAMPUS (NELSPRUIT CAMPUS)
The Campus Director
Private Bag X11312 Madiba Drive
MBOMBELA 1200 MBOMBELA
Tel: 013 745 3500/3603 Fax: 013 745 3512

POLOKWANE CAMPUS
The Campus Director
Private Bag X9496 Cnr. Market and Excelsior streets
POLOKWANE 0700 POLOKWANE
Tel: 015 287 0700 Fax: 015 297 7609

PRETORIA CAMPUS
Private Bag X680 Staatsartillerie Road
PRETORIA 0001 PRETORIA WEST
Tel: 012 382 5911 Fax: 012 382 5114

SOSHANGUVE CAMPUS
Private Bag X680 2 Aubrey Matlala Road, Block K
PRETORIA 0001 SOSHANGUVE
Tel: 012 382 9000 Fax: 012 382 0966

ENQUIRIES RELATING TO FEES:
The Chief Financial Officer
Private Bag X680
PRETORIA 0001
Tel: 086 1102 422 Fax: 012 382 5701

FACULTY OF SCIENCE

Executive Dean:	Prof PJJG Marais - D Tech (Chemistry) (Tech Pta)
Executive Secretary:	Ms T de Beer
Telephone numbers:	012 382 6208/6207
Office:	Room 1-121B, Building 1, Arcadia Campus
Associate Dean:	Prof P Ngobeni - D Tech (Chemistry) (Tech Pta)
Telephone number:	012 382 6229
Office:	Room 1-121A, Building 1, Arcadia Campus
Assistant Registrar:	Ms L Kruger
Telephone number:	012 382 6319
Office:	Room G18C, Building1, Arcadia Campus

VISION

To be a quality-driven university of technology at the cutting edge of innovation.

MISSION

As a progressive institution of higher education, the Tshwane University of Technology's mission is to contribute innovatively to the socio-economic development of South Africa by –

- offering a portfolio of relevant, recognised and career-focused programmes;
- producing well-rounded graduates who are attuned to the needs of the economy;
- being a research hub responsive to the challenges of the continent;
- acting as an incubator for postgraduate studies in clearly defined areas of strength;
- generating, integrating and applying knowledge to stimulate socio-economic development;
- partnering with communities in sustainable development; and
- being student-centred and quality-driven in everything we do.

CONTENTS

SECTION A: DEPARTMENTS AND QUALIFICATIONS

1. ADELAIDE TAMBO SCHOOL OF NURSING SCIENCE

1.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Acting Head of Department: Mrs SM Tlhapane - MPhil (US)
Telephone number: 012 382 5285

Departmental Administrator: Ms G Lebeko

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms D Botha	Lecturer	B Soc Sc (Hons) (Nursing) (UFS)
Ms ME Chokwe	Lecturer	BA Cur (Unisa)
Ms HC de Swardt	Lecturer	MCur (Unisa)
Ms R du Pokoy	Lecturer	BA Cur (Unisa)
Ms MG Khutone	Lecturer	MCur (PHC) (UP)
Ms EJ Ligthelm	Lecturer	B Soc Sc (Hons) (Nursing) (UFS)
Ms MJ Motshudi	Lecturer	MSc (Nursing) (Wits)
Ms TS Ramukumba	Lecturer	MSc (Nursing) (Wits)
Dr C van Belkum	Senior Lecturer	PhD (Didactics) (US)
Prof SCD Wright	Associate Professor	D Tech (Nursing) (Tech Pta)

1.2 BACCALAUREUS TECHNOLOGIAE: NURSING: COMMUNITY NURSING
Qualification code: BTCN02

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A basic NQF level 7 bachelor's degree or diploma in Nursing from a South African university or nursing college. Registration with the South African Nursing Council as a Professional Nurse, Midwife and Community Health Nurse. Employment in a clinical environment and at least one year of clinical experience after completion of the basic qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Experiential learning:
Will be dealt with throughout the programme on an integrated and applied basis.

h. Purpose of qualification:
This qualification is intended for registered nurses who wish to specialise in community nursing. Candidates who have obtained this qualification will be able to facilitate the development and application of advanced health strategies, technologies and research in communities, and will apply cost-effective management strategies in the provision of a comprehensive community health service.

i. Exit-level outcomes:
- Acts as an agent of change in the delivery of health services to communities.
- Applies scientific nursing skills and technologies in the delivery of comprehensive primary health-care nursing to individuals, groups and communities throughout their lifespan.
- Practises professional nursing within the ethical legal framework of the health and nursing profession.
- Applies managerial strategies and technologies to a community health-care environment.
- Applies the principles of research to community nursing.

j. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
CNG400T	**Community Nursing IV**		
CNG40PT	Community Nursing: Theory IV	(0,175)	
CNG40QT	Community Nursing: Practical IV	(0,175)	
NMG40AT	Nursing Management IVA	(0,075)	
NRH100T	Nursing Research I	(0,150)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,575**	
SECOND YEAR			
COH400T	Community Health IV	(0,350)	Community Nursing IV
NMG40BT	Nursing Management IVB	(0,075)	Nursing Management IVA
TOTAL CREDITS FOR THE SECOND YEAR:		**0,425**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

1.3 BACCALAUREUS TECHNOLOGIAE: NURSING: OCCUPATIONAL HEALTH

Qualification code: BTON02

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A basic NQF level 7 bachelor's degree or diploma in Nursing from a South African university or nursing college. Registration with the South African Nursing Council as a Professional Nurse, employment in a clinical environment and at least one year of clinical experience after completion of the basic qualifications are required.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Experiential learning:
Will be dealt with throughout the programme on an integrated and applied basis.

h. Purpose of qualification:
This qualification is intended for registered nurses who wish to specialise in occupational nursing. A candidate at this level will be able to apply advanced occupational nursing strategies and technologies and management strategies through the cost-effective management of an occupational health service.

i. Exit-level outcomes:
- Applies scientific nursing skills and technologies in the delivery of comprehensive occupational nursing to the employee, the family and the community.
- Practises professional nursing within the ethical legal framework of the health and nursing profession.
- Applies managerial strategies and technologies to an occupational health-care environment.
- Applies the principles of research to occupational nursing.

j. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
NMG40AT	Nursing Management IVA	(0,075)	
NRH100T	Nursing Research I	(0,150)	
OCH400T	Occupational Health IV	(0,350)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,575**	
SECOND YEAR			
OCN400T	**Occupational Health Nursing IV**		
OCN40QT	Occupational Health Nursing: Practical IV	(0,175)	
OCN40PT	Occupational Health Nursing: Theory IV	(0,175)	
NMG40BT	Nursing Management IVB	(0,075)	Nursing Management IVA
TOTAL CREDITS FOR THE SECOND YEAR:		**0,425**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

1.4 BACCALAUREUS TECHNOLOGIAE: NURSING: ONCOLOGY
Qualification code: BTNO02

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A basic NQF level 7 bachelor's degree or diploma in Nursing from a South African university or nursing college. Registration with the South African Nursing Council as a Professional Nurse. Employment in a clinical environment and at least one year of clinical experience after completion of the basic qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Experiential learning:
Will be dealt with throughout the programme on an integrated and applied basis.

h. Purpose of qualification:
This qualification is intended for registered nurses who wish to specialise in oncology nursing. Candidates at this level will be able to apply advanced oncology nursing strategies and technologies and management strategies through the cost-effective management of an oncology health service.

i. Exit-level outcomes:
- Applies scientific nursing skills and technologies in the delivery of comprehensive oncology nursing to the cancer patient, the family and the community.
- Practises professional nursing within the ethical legal framework of the health and nursing profession.
- Applies managerial strategies and technologies to an oncology health-care environment.
- Applies the principle of research to oncology nursing.
- Applies the principles of research to oncology nursing.

j. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
MSN400T	Medical Surgical Nursing (Capita Selecta) IV	(0,350)	
NMG40AT	Nursing Management IVA	(0,075)	
NRH100T	Nursing Research I	(0,150)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,575**	
SECOND YEAR			
NMG40BT	Nursing Management IVB	(0,075)	Nursing Management IVA
ONS400T	**Oncology Nursing Science IV**		
ONS40PT	Oncology Nursing Science: Theory IV	(0,175)	Medical Surgical Nursing (Capita Selecta) IV
ONS40QT	Oncology Nursing Science: Practical IV	(0,175)	Medical Surgical Nursing (Capita Selecta) IV
TOTAL CREDITS FOR THE SECOND YEAR:		**0,425**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

1.5 BACCALAUREUS TECHNOLOGIAE: NURSING SCIENCE
Qualification code: BTNS01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  For 2012: A Senior Certificate or an equivalent qualification with a pass in English and Biology or Physical Science.
  As from 2013: A Senior Certificate or an equivalent qualification with a pass on higher grade in English and Biology or Physical Science.

  Alternative and international qualifications will be assessed on the equivalent issued by the South African Qualifications Authority (SAQA). Please note that the minimum requirements for registration at the South African Nursing Council as a learner nurse is an A-level or a Senior Certificate.

  Selection criteria:
  For 2012: Selection is based on a TUT potential assessment as well as departmental selection.
  As from 2013: Selection is done in accordance with the South African Nursing Council. Candidates who meet the minimum requirements will be considered for admission to the qualification or to the foundation programme and will be invited for an interview with the departmental selection panel. Successful candidates in the interview will then be invited to write an academic placement test in January, which will determent for which programme they will be registered for.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy and 3 for Life Sciences or 3 for Physical Sciences.
  As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics and 4 for Life Sciences or 4 for Physical Sciences.
  As from 2014: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics, 4 for Life Sciences and 4 for Physical Sciences.

  Alternative and international qualifications will be assessed on the equivalent issued by the South African Qualifications Authority (SAQA). Please note that the minimum requirements for registration at the South African Nursing Council as a learner nurse is an A-level or a Senior Certificate.

  Selection criteria:
  For 2012: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).
  As from 2013: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **24**.

Assessment procedures:
Intake for 2012: Selection is done in accordance with the South African Nursing Council.

- Candidates with an APS of 26 and more will be invited for an interview with the departmental selection panel.
- Candidates with an APS of 19 (20 with Mathematical Literacy) to 25 will be invited to write the TUT potential assessment and pending on the results of the assessment, will be invited for an interview.
- Successful candidates in the interview will then be invited to write an academic placement test in January, which will determine for which programme they will be registered for.

Intake as from 2013: Selection is done in accordance with the South African Nursing Council.

- Candidates with an APS of 27 and more will be invited for an interview with the departmental selection panel.
- Candidates with an APS of 24 to 26 will be invited to write the TUT potential assessment, and pending on the results of the assessment, will be invited for an interview.
- Successful candidates in the interview will then be invited to write an academic placement test in January which will determine for which programme they will be registered for.

b. Minimum duration:
Four years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential learning:
Attendance of the allocated experiential learning is compulsory. An absence of more than 12 days (96 hours) from experiential learning, including simulated skills, work-integrated learning and service learning, will exclude the student from proceeding to the next year of study. Students in the third year of study should submit the completed midwifery register to be able to proceed to the fourth year of study. Students who do not meet the minimum required number of experiential learning hours at the end of the fourth academic year will have to re-register to complete the experiential learning.

A student can only be registered with the South African Nursing Council as a nurse (general, psychiatric and community) and midwife once the required number of experiential learning hours are completed.

g. Practicals:
It is compulsory for students to attend 100% of the practicals, and they must pass each practical component of the Nursing Science subjects separately in order to pass the subject.

h. Purpose of qualification:
This qualification is intended for candidates who wish to register as nurses (general, psychiatric, community) and midwives. Independent nursing practitioners and midwives will be able to apply scientific nursing and midwifery skills and technologies in the rendering and management of a comprehensive nursing service, based on research findings.

i. Exit-level outcomes:

- Applies scientific nursing and midwifery skills and technologies in rendering a comprehensive nursing service.
- Maximises the utilisation of resources to improve the quality of health care and services.
- Applies the principles of research in nursing and midwifery practice.

j. Other requirements:
Textbooks and other educational material will be required. A specific uniform, safety wear and equipment are compulsory, and a levy will be charged to enable the Department to purchase the necessary uniforms and equipment for each student.

k. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151. (Deviations approved by the Senate in May 2011.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ABN100T	Applied Biological and Natural Science I	(0,200)*	
ASU100T	Applied Social Science I	(0,200)*	
NDN100T	Nursing Dynamics I	(0,100)*	
NUR100T	**Nursing I**		
NUR10PT	Nursing: Theory I	(0,250)*	
NUR10QT	Nursing: Practical I	(0,250)*	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

ABN200T	Applied Biological and Natural Science II	(0,150)*	Applied Biological and Natural Science I
ASU200T	Applied Social Science II	(0,150)*	Applied Social Science I
MIN200T	**Midwifery Nursing II**		
MIN20PT	Midwifery Nursing: Theory II	(0,100)	Applied Biological and Natural Science I Applied Social Science I Nursing I
MIN20QT	Midwifery Nursing: Practical II	(0,100)	Applied Biological and Natural Science I Applied Social Science I Nursing I
NDN200T	Nursing Dynamics II	(0,100)*	Nursing Dynamics I
NUR200T	**Nursing II**		
NUR20PT	Nursing: Theory II	(0,150)*	Applied Biological and Natural Science I Applied Social Science I Nursing I
NUR20QT	Nursing: Practical II	(0,150)*	Applied Biological and Natural Science I Applied Social Science I Nursing I
PMC110T	Pharmacology I	(0,200)	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR			
MIN300T	**Midwifery Nursing III**		
MIN30PT	Midwifery Nursing: Theory III	(0,250)	Applied Biological and Natural Science II Applied Social Science II Nursing II Nursing Dynamics II Pharmacology I
MIN30QT	Midwifery Nursing: Practical III	(0,250)	Applied Biological and Natural Science II Applied Social Science II Nursing II Nursing Dynamics II Pharmacology I
NDN300T	Nursing Dynamics III	(0,100)*	Nursing Dynamics II
NUR300T	**Nursing III**		
NUR30PT	Nursing: Theory III	(0,200)*	Applied Biological and Natural Science II Applied Social Science II Nursing II Pharmacology I
NUR30QT	Nursing: Practical III	(0,200)*	Applied Biological and Natural Science II Applied Social Science II Nursing II Pharmacology I
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

FOURTH YEAR			
NDN400T	Nursing Dynamics IV	(0,200)*	Nursing Dynamics III
NRH100T	Nursing Research I	(0,200)*	
NUR400T	**Nursing IV**		
NUR40PT	Nursing: Theory IV	(0,300)*	Midwifery Nursing III Nursing III
NUR40QT	Nursing: Practical IV	(0,300)*	Midwifery Nursing III Nursing III
TOTAL CREDITS FOR THE FOURTH YEAR:		**1,000**	

1.6 BACCALAUREUS TECHNOLOGIAE: NURSING SCIENCE (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)

Qualification code: BTNSF0

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification BTNS01.

b. Minimum duration:
Five years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential learning:
Attendance of the allocated experiential learning is compulsory. An absence of more than 12 days (96 hours) from experiential learning, including simulated skills, work-integrated learning and service learning, will exclude the student from proceeding to the next year of study. Students in the third year of study should submit the completed midwifery register to be able to proceed to the fourth year of study. Students who do not meet the minimum required number of experiential learning hours at the end of the fourth academic year will have to re-register to complete the experiential learning.

A student can only be registered with the South African Nursing Council as a nurse (general, psychiatric and community) and midwife once the required number of experiential learning hours are completed.

g. Practicals:
It is compulsory for students to attend 100% of the practicals, and they must pass each practical component of the Nursing Science subjects separately in order to pass the subject.

h. Purpose of qualification:
This qualification is intended for candidates who wish to register as nurses (general, psychiatric, community) and midwives. Independent nursing practitioners and midwives will be able to apply scientific nursing and midwifery skills and technologies in the rendering and management of a comprehensive nursing service, based on research findings.

i. Exit level outcomes:
- Applies scientific nursing and midwifery skills and technologies in rendering a comprehensive nursing service.
- Maximises the utilisation of resources to improve the quality of health care and services. Applies the principle of research in nursing and midwifery practice.

j. Other requirements:
Textbooks and other educational material will be required. A specific uniform, safety wear and equipment are compulsory, and a levy will be charged to enable the Department to purchase the necessary uniforms and equipment for each student.

k. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FPABN01	Foundation Applied Biological and Natural Science	(0,100)	
FPASU01	Foundation Applied Social Science	(0,100)	
FPCSK01	Foundation Computer Skills	(0,100)	
FPENG02	Foundation English	(0,100)	
FPLSK02	Foundation Life Skills	(0,100)	
FPNDN01	Foundation Nursing Dynamics	(0,025)	
FPNUR01	**Foundation Nursing**		
FPNURP0	Foundation Nursing: Theory	(0,100)	
FPNURQ0	Foundation Nursing: Practical	(0,100)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,725**	

SECOND YEAR			
ABN100T	Applied Biological and Natural Science I	(0,150)	
ASU100T	Applied Social Science I	(0,150)	
NDN100T	Nursing Dynamics I	(0,100)	
NUR100T	**Nursing I**		
NUR10PT	Nursing: Theory I	(0,200)	
NUR10QT	Nursing: Practical I	(0,200)	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,800**	

THIRD YEAR			
ABN200T	Applied Biological and Natural Science II	(0,100)	Applied Biological and Natural Science I
ASU200T	Applied Social Science II	(0,100)	Applied Social Science I
MIN200T	**Midwifery Nursing II**		
MIN20PT	Midwifery Nursing: Theory II	(0,100)	
MIN20QT	Midwifery Nursing: Practical II	(0,100)	
NDN200T	Nursing Dynamics II	(0,075)	Nursing Dynamics I
NUR200T	**Nursing II**		
NUR20PT	Nursing: Theory II	(0,150)	
NUR20QT	Nursing: Practical II	(0,150)	
PMC110T	Pharmacology I	(0,100)	
TOTAL CREDITS FOR THE THIRD YEAR:		**0,875**	

FOURTH YEAR			
MIN300T	**Midwifery Nursing III**		
MIN30PT	Midwifery Nursing: Theory III	(0,150)	Midwifery Nursing II
MIN30QT	Midwifery Nursing: Practical III	(0,150)	Midwifery Nursing II
NDN300T	Nursing Dynamics III	(0,100)	Nursing Dynamics II
NUR300T	**Nursing III**		
NUR30PT	Nursing: Theory III	(0,200)	
NUR30QT	Nursing: Practical III	(0,200)	
TOTAL CREDITS FOR THE FOURTH YEAR:		**0,800**	

FIFTH YEAR			
NDN400T	Nursing Dynamics IV	(0,200)	Nursing Dynamics III
NRH100T	Nursing Research I	(0,200)	
NUR400T	**Nursing IV**		
NUR40PT	Nursing: Theory IV	(0,200)	
NUR40QT	Nursing: Practical IV	(0,200)	
TOTAL CREDITS FOR THE FIFTH YEAR:		**0,800**	

1.7 MAGISTER TECHNOLOGIAE: NURSING
Qualification code: MTNG98

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Nursing or an NQF level 7 bachelor's or honours degree in Nursing from a South African university or nursing college, recognised by the South African Nursing Council as the minimum requirement to register as a Professional Nurse.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
NUR510T	Dissertation: Nursing	(1,000)
NUR510R	Dissertation: Nursing (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

1.8 DOCTOR TECHNOLOGIAE: NURSING
Qualification code: DTNG98

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Nursing or a NQF level 8 master's degree in Nursing from a South African university or nursing college.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
NUR700T	Thesis: Nursing	(2,000)
NUR700R	Thesis: Nursing (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

2. DEPARTMENT OF ANIMAL SCIENCES

2.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Prof B Sutherland - PhD (Wits), Pr Sci Nat
Telephone number: 012 382 5334

Departmental Administrator: Ms D Malewa

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr AT Browne	Lecturer	MSc (Agric) (Animal Science) (UP)
Mr CJL du Toit	Lecturer	MSc (Agric) (Animal Nutrition) (UP)
Dr R Gerber	Senior Lecturer	Dr med vet (Zurich)
Mr RG Gibson	Senior Lecturer	MSc (Agric) (UFS)
Mr WH Janse van Rensburg	Principal Lecturer	MSc (Agric) (Animal Nutrition) (UP)
Dr KC Lehloenya	Senior Lecturer	PhD (Agric) (Animal Science) (UFS), Pr Sci Nat
Dr D Luseba	Senior Lecturer	PhD (Animal Science) (UP)
Ms DF Mansfield	Lecturer	B Tech (Eguine Science) (Tech Pta)
Mr JG Mashiya	Lecturer	BInst (Agrar) (Hons) (Economics) (UP)
Prof FK Siebrits	Professor	DSc (Agric) (UP), Pr Sci Nat
Mr JG Nkosi	Technician	B Tech (Animal Production) (TUT)

2.2 NATIONAL DIPLOMA: AGRICULTURE: ANIMAL PRODUCTION
Qualification code: NDAP04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with at least E symbols at the Higher Grade or D symbols at the Standard Grade for English and Mathematics.

Recommended subject(s):
Agriculture subjects. Preference will be given to students with Biology, and/or Physical Science.

Selection criteria:
Students are selected by means of a formula for academic merit, based on scholastic performance.

Formula for determination of academic merit:

SYMBOL	HG VALUE	SG VALUE
A	8	7
B	7	6
C	6	5
D	4	3
E	2	1

Applicants are given two additional points for the following subjects (SG or HG):

Agricultural Economics, Agricultural Science, Agriculture, Biology, Chemistry, Computer Principles, Computer Studies, Field Husbandry, Geography, Mathematics, Physical Science, Physics, Practical Agriculture, Statistics.

For 2012: Applicants who score 20 or more points (for a maximum of six subjects) according to the formula for academic merit determination are accepted. The maximum first-year intake is however, limited by a predetermined number.
As from 2013:

- Candidates with a score of 23 and more, according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20 to 22, according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and November.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Preference will be given to students with Biology, and/or Physical Science.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures*:*
For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered for admission to the National Diploma. The University reserves the right to select the most suitable candidates for the programme.
As from 2013:

- Candidates with a score of 23 and more will be considered for admission.
- Candidates with a score of 20 (19 with mathematics) to 23, will be kept on a waiting list from which the students with the highest APS will be selected. Waiting lists will be cleared at the end of September and November.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
AAP101T	Agricultural Anatomy and Physiology I	(0,125)	
AGS101T	Agricultural Science I	(0,125)	
NPT101T	Natural Pastures I	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,375	

SECOND SEMESTER

ANU201T	Animal Nutrition II	(0,125)	Agricultural Science I
APE101T	Animal Production Economics I	(0,125)	
CVT101T	Cultivated Pastures I	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,375	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,750**	

SECOND YEAR

FIRST SEMESTER

BPD201T	Beefer Production II	(0,125)	Agricultural Anatomy and Physiology I
MPD201T	Milk Production II	(0,125)	Agricultural Anatomy and Physiology I
PFM201T	Pig Production II	(0,125)	Agricultural Anatomy and Physiology I
POD201T	Poultry Production II	(0,125)	Agricultural Anatomy and Physiology I
SSP201T	Small Stock Production II	(0,125)	Agricultural Anatomy and Physiology I
TOTAL CREDITS FOR THE SEMESTER:		0,625	

SECOND SEMESTER

MPM101T	Manpower Management I	(0,124)*	
	plus three of the following subjects:		
BPD301T	Beefer Production III	(0,167)	Beefer Production II
MPD301T	Milk Production III	(0,167)	Milk Production II
PFM301T	Pig Production III	(0,167)	Pig Production II
POD301T	Poultry Production III	(0,167)	Poultry Production II
SSP301T	Small Stock Production III	(0,167)	Small Stock Production II
TOTAL CREDITS FOR THE SEMESTER:		0,625	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,250**	

THIRD YEAR

FIRST OR SECOND SEMESTER
On completion of all the above subjects.

EXP1AAP	Experiential Learning I	(0,500)	
EXP2AAP	Experiential Learning II	(0,500)	Experiential Learning I

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

2.3 BACCALAUREUS TECHNOLOGIAE: AGRICULTURE: ANIMAL PRODUCTION

Qualification code: BTAP03

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Agriculture: Animal Production or an NQF level 6 bachelor's degree in Agriculture from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senex on June 2011.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
ANS400T	Animal Science IV*	(0,250)
DPS400T	Animal Production IV	(0,250)
PJA400T	Animal Science Project IV*	(0,250)
RMD100C	**Research Methodology**	
RMD10PC	Research Methodology: Agriculture	(0,125)
RMD10QC	Research Methodology: Biometry	(0,125)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.4 NATIONAL DIPLOMA: EQUINE SCIENCE
Qualification code: NDEQ04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with at least E symbols at the Higher Grade or D symbols at the Standard Grade for English and Mathematics.

Recommended subject(s):
Biology, Mathematics, Physical Science and agricultural subjects.

Selection criteria:
Students are selected by means of a formula for academic merit, based on scholastic performance.

Formula for determination of academic merit:

SYMBOL	HG VALUE	SG VALUE
A	8	7
B	7	6
C	6	5
D	4	3
E	2	1

Applicants are given two additional points for the following subjects (SG or HG):

Agricultural Economics, Agricultural Science, Agriculture, Biology, Chemistry, Computer Principles, Computer Studies, Field Husbandry, Geography, Mathematics, Physical Science, Physics, Practical Agriculture, Statistics.

For 2012: Applicants who score 20 or more points (for a maximum of six subjects) according to the formula for academic merit determination are accepted. The maximum first-year intake is, however, limited by a predetermined number.

As from 2013:
- Candidates with a score of 23 and more, according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20 to 22, according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and November.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics and 4 for Mathematical Literacy.

Recommended subject(s):
Life Sciences and Physical Sciences.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered for admission to the National Diploma. The University reserves the right to select the most suitable candidates for the programme.
As from 2013:
- Candidates with a score of 23 and more will be considered for admission.
- Candidates with a score of 20 (19 with mathematics) to 23, will be kept on a waiting list from which the students with the highest APS will be selected. Waiting lists will be cleared at the end of September and November.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Prerequisite for awarding of diploma:
A recognised first-aid certificate.

g. Termination of studies:
Should a student become physically disabled during his or her study period and is unable to do practicals, he or she would be obliged to terminate his or her studies until he or she has recovered.

h. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate on August 2005.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
COA101T	Computer Application I*	(0,125)	
EAP101T	Equine Anatomy and Physiology I	(0,125)	
EQB111T	Equine Breeding I	(0,125)	
PSC121T	Pasture Science I	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

EQN111T	Equine Nutrition I	(0,125)	
STB201T	Stable Management II	(0,125)	Equine Breeding I
VTS101T	Veterinary Science I	(0,125)	
ZTN211T	Zootechnology II	(0,125)	Equine Anatomy and Physiology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

AEC101T	Agricultural Production Economics I	(0,125)	
MFM201T	Mare and Foal Management II	(0,125)	Equine Breeding I
SLM201T	Stallion Management II	(0,125)	Equine Breeding I
VTS211T	Veterinary Science II	(0,125)	Veterinary Science I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

DMN211T	Data Management II	(0,125)	Computer Application I
FRY111T	Farriery I	(0,125)	
STB301T	Stable Management III	(0,125)	Stable Management II
ZTN311T	Zootechnology III	(0,125)	Zootechnology II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST OR SECOND SEMESTER
On completion of all the above subjects.

EXP1EQS	Experiential Learning I	(0,500)	
EXP2EQS	Experiential Learning II	(0,500)	Experiential Learning I
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

2.5 BACCALAUREUS TECHNOLOGIAE: EQUINE SCIENCE
Qualification code: BTEQ03

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Equine Science or an NQF6 bachelor's degree in Equine Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
AGC100T	Agricultural Communication I	(0,250)
EQC400T	Equine Science IV	(0,250)
PUU400T	Project Management: Agriculture IV	(0,250)
RMD100H	Research Methodology	(0,250)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.6 MAGISTER TECHNOLOGIAE: AGRICULTURE
Qualification code: MTAP98

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Agriculture: Animal Production or a NQF level 7 bachelor's or honours degree in Agriculture with Animal Production as major subject from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research.

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DPS500T	Dissertation: Agriculture: Animal Production	(1,000)
DPS500R	Dissertation: Agriculture: Animal Production (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

2.7 DOCTOR TECHNOLOGIAE: AGRICULTURE
Qualification code: DTAP98

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Agriculture or an NQF level 8 master's degree in Agriculture from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DPS700T	Thesis: Agriculture: Animal Production	(2,000)
DPS700R	Thesis: Agriculture: Animal Production (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

3. DEPARTMENT OF BIOMEDICAL SCIENCES

3.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Prof D du Toit - BSc (Agric) (Micro) (UP), MMed Sc (UOVS), PhD (UP)
Telephone number: 012 382 6307

Departmental Administrator: Ms A Bronkhorst

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms CI Boshoff	Lecturer	M Tech (Veterinary Technology) (Tech Pta)
Ms A Chauke	Technologist	B Tech (Biomedical Technology) (Tech Pta)
Dr N Falzone	Senior Lecturer	PhD (Reproductive Biology) (UP)
Mr LJ Gerber	Principal Lecturer	MSc (Agric) (UP)
Dr WA Hoffmann	Senior Lecturer	BSc (Hons) (Zoology) (UP), BA (Hons) (Psychology) (UP), MSc (Vet Ethology) (UP), DEd (Psychology of Education) (RAU), Post Grad Dip (International Research Ethics) (UCT)
Ms BB Johnson	Junior Lecturer	B Tech (Radiography) (Diagnostic) (PE Tech)
Ms C Khabo-Mmekoa	Lecturer	MSc (Medical Micro) (Long Island University, New York)
Dr SCKM Motaung	Section Head and Senior Lecturer	D Tech (Biomedical Technology) (TUT)
Prof JJ Pieterse	Associate Professor	MSc (UNIN), M Phil (MI Biol) (Ins. of Biol, London, UK), C Biol (Ins. of Biol. London, UK), D Tech (Agriculture) (Tech Pta)
Ms S Pretorius	Junior Lecturer	B Tech (Biomedical Technology) (Tech Pta)
Dr LJ Shai	Lecturer	PhD (Paraclinical Sciences) (UP)
Ms SR Smit	Lecturer	MRad (Diagnostic) (UP)
Mrs S Steenkamp-Jonker	Technologist	B Tech (Veterinary Technology) (Tech Pta)
Ms JM Swart	Lecturer	B Tech (Clinical Technology) (TUT)
Ms G Tiedt	Lecturer	NH Dip (Biomedical Technology) (Tech Pta), MSc (Health Professions Education) (Univ of Maastricht, Netherlands), DTE (UP)
Dr M van der Watt	Principal Lecturer	BRad (UP), PhD (Instructional Design) (UP)

3.2 NATIONAL DIPLOMA: BIOMEDICAL TECHNOLOGY
Qualification code: NDBM01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification, with English, Mathematics, Physical Science and Biology or Physiology, with C symbols at the Standard Grade or E symbols at the Higher Grade.

Selection criteria:
For 2012: Prospective students will be selected for admission based on a TUT potential assessment, as well as an interview with a departmental selection panel.
As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA). Prospective students will be selected for admission based on their performance in the Senior Certificate (40%), a TUT potential assessment (40%), as well as an interview (20%) with a departmental selection panel. Weight of each process is given in brackets.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics and 3 for Physical Sciences.
As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language),4 for Life Sciences, 4 for Mathematics and 4 for Physical Sciences.

Selection criteria:
For 2012: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19**.
As from 2013: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **22**.

Assessment procedures:
For 2012:
- Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 90% to the final admission score and the interview will contribute 10%.
- Candidates with a score of 19-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the TUT potential assessment and the interview will contribute 60%.

As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA).
- Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 80% to the final admission score and the interview will contribute 20%.
- Candidates with a score of 22-25 will be invited to write the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the potential assessment 40% and the interview will contribute 20%.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. 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.

g. Textbooks:
Textbooks and other educational material will be required.

h. Safety wear:
Specific safety wear is compulsory and must be purchased by the student.

i. Other requirements:
Vaccination against Hepatitis B is compulsory.

j. Registration as a student medical technologist:
Registration with the Health Professions Council of South Africa (HPCSA) as a student medical technologist is compulsory.

Foreign students will be allowed to register at the HPCSA only as student technologists for the duration of the relevant qualification. They will however not be able to register with the HPCSA as medical technologists.

k. Professional registration as a medical technologist:
Registration as a qualified medical technologist takes place four years after registration as a student medical technologist, provided that the candidate completes the first three academic years successfully. The candidate must also have worked in a laboratory approved by the HPCSA for at least 14 months and must have passed the Board Examination of the Society of Medical Laboratory Technologists of South Africa (SMLTSA).

l. Laboratory Practice III (experiential learning):
No student will be permitted to register for Laboratory Practice III unless he or she has passed all the set subjects of the first five academic semesters. Laboratory Practice III must be undertaken in a laboratory accredited by the Health Professions Council of South Africa.

m. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in April 2010.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
APY141T	Anatomy and Physiology I	(0,200)*	
CAL101T	Calculations and Statistics	(0,100)	
CHE141C	Chemistry IB	(0,125)	
IMT101T	Introduction to Medical Technology	(0,050)	
PHU161C	Physics IB	(0,100)	
TOTAL CREDITS FOR THE SEMESTER:		0,575	

SECOND SEMESTER

BCH221T	Biochemistry II	(0,125)	Chemistry IB
BDT211T	Blood Transfusion Technology	(0,125)	Anatomy and Physiology I
CPG101T	Cellular Pathology I	(0,125)	Anatomy and Physiology I
MBI101T	Microbiology I	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,075**	

SECOND YEAR

FIRST SEMESTER

CPH111T	Chemical Pathology I	(0,125)	Biochemistry II
IML211T	Immunology II	(0,125)	Anatomy and Physiology I
MBI241B	Microbiology II	(0,125)	Microbiology I
PPT201T	Pathophysiology II	(0,125)	Anatomy and Physiology I

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

CPG221T	Cellular Pathology II	(0,125)	Cellular Pathology I
CPH241T	Chemical Pathology II	(0,125)	Chemical Pathology I
CSK101B	Computer Skills I*	(0,050)	
HAT221T	Haematology II	(0,125)	Blood Transfusion Technology

TOTAL CREDITS FOR THE SEMESTER: 0,425

TOTAL CREDITS FOR THE SECOND YEAR: **0,925**

THIRD YEAR

FIRST SEMESTER

CPG301T	Cellular Pathology III	(0,125)	Cellular Pathology II
CPH311T	Chemical Pathology III	(0,125)	Chemical Pathology II
HAT321T	Haematology III	(0,125)	Haematology II
MBI321T	Microbiology III	(0,125)	Microbiology II

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER
Students must pass all the above subjects in order to continue with the following subject:

EXP3LAP	Laboratory Practice III	(0,500)

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

3.3 BACCALAUREUS TECHNOLOGIAE: BIOMEDICAL TECHNOLOGY
Qualification code: BTBM01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Biomedical Technology or an NQF level 6 bachelor's degree in Biomedical Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Evening classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. 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.

h. Textbooks:
Textbooks and other educational material will be required.

i. Safety wear:
Specific safety wear is compulsory and must be purchased by the student.

j. Other requirements:
Vaccination against Hepatitis B is compulsory.

k. Registration as a student medical technologist:
Registration with the Health Professions Council of South Africa (HPCSA) either as a student or a qualified medical technologist is compulsory.

Foreign students will be allowed to register at the HPCSA only as student technologists for the duration of the relevant qualification. They will however not be able to register with the HPCSA as medical technologists.

l. Professional registration as a medical technologist:
Registration as a qualified medical technologist takes place four years after registration as a student medical technologist. The candidate must also have worked in a laboratory approved by the HPCSA for at least 14 months and must have passed the Board Examination of the Society of Medical Laboratory Technologists of South Africa (SMLTSA).

m. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE (2012/2014)

CODE	SUBJECT	CREDIT
MLB400T	Molecular Biology IV	(0,250)
SECOND SEMESTER		
LMG201T	Laboratory Management	(0,125)
TOTAL CREDITS FOR THE YEAR:		**0,375**

ATTENDANCE (2013/2015)

IPP400T	Integrated Pathophysiology IV	(0,500)
SECOND SEMESTER		
RMQ201T	Research Methods and Techniques	(0,125)
TOTAL CREDITS FOR THE YEAR:		**0,625**
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.4 MAGISTER TECHNOLOGIAE: BIOMEDICAL TECHNOLOGY
Qualification code: MTBM96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Biomedical Technology or an NQF level 7 bachelor's or honours degree in Biomedical Sciences/Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year, and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BIT500T	Dissertation: Biomedical Technology	(1,000)
BIT500R	Dissertation: Biomedical Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

3.5 DOCTOR TECHNOLOGIAE: BIOMEDICAL TECHNOLOGY
Qualification code: DTBM96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Biomedical Technology or an NQF level 8 master's degree in Biomedical Sciences/Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BIT700T	Thesis: Biomedical Technology	(2,000)
BIT700R	Thesis: Biomedical Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

3.6 NATIONAL DIPLOMA: CLINICAL TECHNOLOGY
Qualification code: NDCT00

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with English, Mathematics, Physical Science and Biology or Physiology, with C symbols at the Standard Grade or E symbols at the Higher Grade.

Selection criteria:
For 2012: Prospective students will be selected for admission based on a TUT potential assessment, as well as an interview with a departmental selection panel.
As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA). Prospective students will be selected for admission based on their performance in the Senior Certificate (40%), a TUT potential assessment (40%), as well as an interview (20%) with a departmental selection panel. Weight of each process is given in brackets.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics and 3 for Physical Sciences.
As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Life Sciences, 4 for Mathematics and 4 for Physical Sciences.

Selection criteria:
For 2012: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19**.
As from 2013: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **22**.

Assessment procedures:
For 2012:
- Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 90% to the final admission score and the interview will contribute 10%.
- Candidates with a score of 19-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the TUT potential assessment and the interview will contribute 60%.

As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA).
- Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 80% to the final admission score and the interview will contribute 20%.
- Candidates with a score of 22-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the TUT potential assessment 40% and the interview will contribute 20%.

b. Minimum duration:
Three years

c. Presentation:
Four semesters of day classes and two semesters of appropriate clinical training in a clinical unit accredited by the Health Professions Council of South Africa (HPCSA) and approved by the Department.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. 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.

g. Textbooks:
Textbooks and other educational material will be required.

h. Safety wear:
Specific safety wear is compulsory and must be purchased by the student.

i. Other requirements:
Immunisation against Hepatitis B is compulsory. Transport to and from the accredited training venue is the student's own responsibility.

j. Registration as a student clinical technologist:
Registration with the HPCSA as a student clinical technologist is compulsory.

k. Professional registration as a clinical technologist:
A candidate may register as a qualified clinical technologist (under supervision) on the successful completion of the first three academic years.

Foreign students will be allowed to register at the HPCSA only as student technologists for the duration of the relevant qualification. They will however not be able to register with the HPCSA as clinical technologists.

l. Clinical training (third year):
The Head of the Department reserves the right to train students in some of the seven categories, only, after consultation with industry. Students will receive guidance in their second year on the available options for the following year. Clinical training must be completed at an accredited unit. During the training period, the student is also subjected to the jurisdiction of this unit. The duration of the clinical training is one year.

m. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ANA100B	Anatomy I	(0,250)	
PSO100C	Physiology I	(0,250)	
FIRST SEMESTER			
CAL101T	Calculations and Statistics	(0,125)	
CHE141C	Chemistry IB	(0,125)	
PHU161C	Physics IB	(0,125)	

SECOND SEMESTER

COA101C	Computer Applications I	(0,125)	
PDY101T	Psycho-Dynamics I	(0,125)	

TOTAL CREDITS FOR THE FIRST YEAR: **1,125**

SECOND YEAR

BPR200T	Biomedical Apparatus and Procedures II	(0,250)	Anatomy I Physiology I
OSA200T	Organ and System Pathophysiology II	(0,250)	Anatomy I Physiology I
PMC200T	Pharmacology II	(0,125)	Chemistry IB

FIRST SEMESTER

APY211T	Anatomy and Physiology II	(0,250)	Anatomy I Physiology I

TOTAL CREDITS FOR THE SECOND YEAR: **0,875**

THIRD YEAR

One of the following seven options must be taken:

OPTION 1: CARDIOLOGY

CBM300T	Cardiology: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II
EXP3KKP	Cardiology: Clinical Technology Practice III	(0,300)	
KKP300T	Cardiology: Clinical Practice III	(0,350)	Anatomy and Physiology II

OPTION 2: CRITICAL CARE

CBP310T	Critical Care: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II
EXP3KSK	Critical Care: Clinical Technology Practice III	(0,300)	
KSK310T	Critical Care: Clinical Practice III	(0,350)	Anatomy and Physiology II

OPTION 3: NEPHROLOGY

EXP3NRC	Nephrology: Clinical Technology Practice III	(0,300)	
NRB310T	Nephrology: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II
NRC310T	Nephrology: Clinical Practice III	(0,350)	Anatomy and Physiology II

OPTION 4: NEUROPHYSIOLOGY

EXP3NPC	Neurophysiology: Clinical Technology Practice III	(0,300)	
NPB310T	Neurophysiology: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II
NPC310T	Neurophysiology: Clinical Practice III	(0,350)	Anatomy and Physiology II

OPTION 5: PERFUSION

EXP3PFP	Perfusion: Clinical Technology Practice III	(0,300)	
PBD310T	Perfusion: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II
PFP310T	Perfusion: Clinical Practice III	(0,350)	Anatomy and Physiology II

OPTION 6: PULMONOLOGY

EXP3KPU	Pulmonology: Clinical Technology Practice III	(0,300)	
KPU310T	Pulmonology: Clinical Practice III	(0,350)	Anatomy and Physiology II
PBP310T	Pulmonology: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II

OPTION 7: REPRODUCTION* BIOLOGY

EXP3KRE	Reproduction: Clinical Technology Practice III	(0,300)	
KRE310T	Reproduction: Clinical Practice III	(0,350)	Anatomy and Physiology II
RBA310T	Reproduction: Biomedical Apparatus III	(0,350)	Anatomy and Physiology II Biomedical Apparatus and Procedures II

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

3.7 BACCALAUREUS TECHNOLOGIAE: CLINICAL TECHNOLOGY
Qualification code: BTCT01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Clinical Technology or an NQF level 6 bachelor's degree in Clinical Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Evening classes offered over a period of two years.

e. Intake for the qualification:
January only

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *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.

h. *Textbooks:*
Textbooks and other educational material will be required.

i. *Other requirements:*
Immunisation against Hepatitis B is compulsory.

j. *Registration as a student clinical technologist:*
Registration with the Health Professions Council of South Africa (HPCSA) as a qualified clinical technologist (under supervision) is compulsory.

k. *Professional registration as a clinical technologist:*
A candidate may register as a qualified clinical technologist (independent practice) on the successful completion of the required subjects of the Baccalaureus Technologiae.

Foreign students will be allowed to register at the HPCSA only as student technologists for the duration of the relevant qualification. They will however not be able to register with the HPCSA as clinical technologists.

In order to achieve clinical competency in this qualification, all students are required to complete a minimum of 880 clinical hours under direct supervision of a qualified clinical technologist (private practice/independent practice) in their category of specialisation.

l. *Subject credits:*
Subject credits are shown in brackets after each subject.

ATTENDANCE

CODE	SUBJECT	CREDIT
One of the following subjects:		
CRD400T	Cardiology IV	(0,500)
CRD400R	Cardiology IV (re-registration)	(0,000)
CTC400T	Critical Care IV	(0,500)
CTC400R	Critical Care IV (re-registration)	(0,000)
NEP400T	Nephrology IV	(0,500)
NEP400R	Nephrology IV (re-registration)	(0,000)
NPH400T	Neurophysiology IV	(0,500)
NPH400R	Neurophysiology IV (re-registration)	(0,000)
PRF400T	Perfusion IV	(0,500)
PRF400R	Perfusion IV (re-registration)	(0,000)
PUL400T	Pulmonology IV	(0,500)
PUL400R	Pulmonology IV (re-registration)	(0,000)
RBY400T	Reproductive Biology IV	(0,500)
RBY400R	Reproductive Biology IV (re-registration)	(0,000)
FIRST SEMESTER		
RMN201D	Research Methodology: Natural Sciences	(0,250)
SECOND SEMESTER		
PMR101T	Principles of Management I	(0,250)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.8 MAGISTER TECHNOLOGIAE: CLINICAL TECHNOLOGY
Qualification code: MTCT98

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Clinical Technology or an NQF level 7 bachelor's or honours degree in Clinical Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
CCY500T	Dissertation: Clinical Technology	(1,000)
CCY500R	Dissertation: Clinical Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.9 DOCTOR TECHNOLOGIAE: CLINICAL TECHNOLOGY
Qualification code: DTCT98

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Clinical Technology or an NQF level 8 master's degree in Clinical Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
CCY700T	Thesis: Clinical Technology	(2,000)
CCY700R	Thesis: Clinical Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

3.10 NATIONAL DIPLOMA: RADIOGRAPHY: DIAGNOSTIC
Qualification code: NDRG96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with English, Mathematics, Physical Science and Biology or Physiology, with D symbols at the Standard Grade or E symbols at the Higher Grade.

  Selection criteria:
  For 2012: Prospective students will be selected for admission based on a TUT potential assessment, as well as an interview with a departmental selection panel.
  As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA). Prospective students will be selected for admission based on their performance in the Senior Certificate (40%), a TUT potential assessment (40%), as well as an interview (20%) with a departmental selection panel. Weight of each process is given in brackets.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics and 3 for Physical Sciences.
  As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Life Sciences, 4 for Mathematics and 4 for Physical Sciences.

  Selection criteria:
  For 2012: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19**.
  As from 2013: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **22**.

  Assessment procedures:
  For 2012:
  - Candidates with a score of 19 and more will be invited to do the TUT potential assessment. Depending on the outcome of the potential assessment, a candidate might be invited for an interview.
  - The admission process will consist of three phases, Phase 1: Administrative screening (40%), Phase 2: TUT potential assessment (20%) and Phase 3: Interview (40%).

  As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA).
  - Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 80% to the final admission score and the interview will contribute 20%.
  - Candidates with a score of 22-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the potential assessment 40% and the interview will contribute 20%.

b. Minimum duration:
Three years

c. *Presentation:*
Day classes

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Professional registration:*
Compulsory once-off registration with the Health Professions Council of South Africa (HPCSA) as a student radiographer.

g. *Workplace learning:*
Compulsory cooperative learning over three years at HPCSA -accredited clinical training facilities.

h. *Certificates:*
A compulsory first-aid programme and a compulsory computer programme are offered at the University in the first year of study.

i. *Additional expenses:*
- Required uniforms: approximately R1 500.
- Set textbooks: approximately R8 000 per annum.
- Computer skills course: approximately R500 for the first year of study.

j. *Other requirements:*
Immunisation against Hepatitis B, at own cost is compulsory. Students are required to travel at their own cost to the clinical training facilities according to scheduled clinical hours, which may include after hours.

k. *Special qualification rules:*
Special rules apply for this qualification. Students who register for it will receive the rules when they report to the Department. It is the responsibility of students to familiarise themselves with the rules.

l. *Community service:*
As stipulated by the National Department of Health, students must render compulsory community service (twelve months) on completion of the basic learning programme (three years).

m. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

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)	
RSC100T	**Radiation Science I**		
RSC10PT	Radiation Science: Physics and Chemistry I	(0,100)	
RSC10QT	Radiation Science: Image Recording I	(0,100)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR			
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
RSC220T	**Radiation Science II**		
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:		**1,000**	

THIRD YEAR			
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
RSC300T	**Radiation Science III(D)**		
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:		**1,000**	

3.11 BACCALAUREUS TECHNOLOGIAE: RADIOGRAPHY: DIAGNOSTIC
Qualification code: BTRG96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Radiography: Diagnostic: or an NQF level 6 bachelor's degree in Radiography (Diagnostic) from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years on specific contact days.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Professional registration:
Compulsory registration with the Health Professions Council of South Africa as a Diagnostic radiographer.

h. Additional expenses:
Set textbooks: approximately R3 000.

i. Other requirements:
Transport to and from various venues is the student's own responsibility.

j. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
MPP100B	Management Principles and Practice I	(0,100)	
RMQ200C	Research Methods and Techniques	(0,100)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,200**	
SECOND YEAR			
PRP400T	Radiographic Practice IV(D)	(0,800)	Management Principles and Practice I Research Methods and Techniques
TOTAL CREDITS FOR THE SECOND YEAR:		**0,800**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

3.12 MAGISTER TECHNOLOGIAE: RADIOGRAPHY
Qualification code: MTRG97

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Radiography: Diagnostic or an NQF level 7 bachelor's or honours degree in Radiography from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
RGD500T	Dissertation: Radiography	(1,000)
RGD500R	Dissertation: Radiography (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.13 DOCTOR TECHNOLOGIAE: RADIOGRAPHY
Qualification code: DTRG97

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Radiography or an NQF level 8 master's degree in Radiography from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
RGD700T	Thesis: Radiography	(2,000)
RGD700R	Thesis: Radiography (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

3.14 NATIONAL DIPLOMA: VETERINARY TECHNOLOGY
Qualification code: NDVE96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with English, Mathematics, Physical Science and Biology or Physiology, with C symbols at the Standard Grade or E symbols at the Higher Grade.

Selection criteria:
For 2012: Prospective students will be selected for admission based on a TUT potential assessment, as well as an interview with a departmental selection panel.
As from 2013: Prospective students will be selected for admission based on their performance in the Senior Certificate (40%), a TUT potential assessment (40%), as well as an interview (20%) with a departmental selection panel. Weight of each process is given in brackets.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics and 3 for Physical Sciences.

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19**.

  Assessment procedures:
  For 2012:
  - Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 90% to the final admission score and the interview will contribute 10%.
  - Candidates with a score of 19-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the TUT potential assessment and the interview will contribute 60%.

  As from 2013:
  - Candidates with a score of 26 and more will be invited for an interview. The APS will contribute 80% to the final admission score and the interview will contribute 20%.
  - Candidates with a score of 19-25 will be invited to do the TUT potential assessment and an interview. The APS will contribute 40% to the final admission score and the TUT potential assessment 40% and the interview will contribute 20%.

b. *Minimum duration:*
Three years

c. *Presentation:*
Day classes

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Registration as a veterinary technologist:*
Registration in the first year with the South African Veterinary Council (SAVC) as a veterinary technologist is compulsory. Registration must be renewed each year.

g. *Professional registration as a veterinary technologist:*
Candidates must register as qualified veterinary technologists (under supervision), on the successful completion of the first three academic years. On successful completion of the fifth academic year, the candidate must register as a veterinary technologist (independent practice).

h. *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.

i. *Textbooks:*
Textbooks and other educational material will be required.

j. *Safety wear:*
Specific safety wear is compulsory and must be purchased by the student.

k. *Experiential Learning:*
See Chapter 5 of Students' Rules and Regulations.

l. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2007.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CAL101T	Calculations and Statistics	(0,100)	
CHE141C	Chemistry IB	(0,100)	
CSK101B	Computer Skills I	(0,100)	
IVT101T	Introduction to Veterinary Technology*	(0,050)	
PHU161C	Physics IB	(0,100)	
VDA111T	Food Animals Anatomy and Physiology I	(0,050)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

BCH221T	Biochemistry II	(0,125)	Chemistry IB
HTL201T	Histology	(0,125)	Food Animals Anatomy and Physiology I
HVS201T	Haematology: Veterinary Science	(0,125)	Food Animals Anatomy and Physiology I
MBI101T	Microbiology I	(0,125)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

BCH311T	Biochemistry III	(0,125)	Biochemistry II
EAT211T	Experimental Animal Technology II	(0,125)	Food Animals Anatomy and Physiology I
IML211T	Immunology II	(0,125)	Food Animals Anatomy and Physiology I Haematology: Veterinary Science
MBI241B	Microbiology II	(0,125)	Microbiology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

HEM301T	Helminthology III	(0,100)	Microbiology II
PZY301T	Protozoology III	(0,100)	Microbiology II
VIR311T	Virology III	(0,100)	Immunology II
VTE301T	Veterinary Entomology III	(0,100)	Microbiology II
VTM301T	Veterinary Microbiology III	(0,100)	Microbiology II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

On completion of all the above subjects.

FIRST SEMESTER

EXP1VET	Experiential Learning	(0,500)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AVT201T	Applied Veterinary Technology II	(0,500)	Experiential Learning
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

3.15 BACCALAUREUS TECHNOLOGIAE: VETERINARY TECHNOLOGY
Qualification code: BTVE96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Veterinary Technology or an NQF level 6 bachelor's degree in Veterinary Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day, evening and/or block-based classes offered over a period of two years.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Registration as a veterinary technologist:
On the successful completion of the second academic year, the candidate must register as a veterinary technologist (independent practice).

h. 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.

i. Textbooks:
Textbooks and other educational material will be required.

j. Safety wear:
Specific safety wear is compulsory and must be purchased by the student.

k. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST AND SECOND YEAR

Subjects are offered in semesters, as determined by the Head of the Department.

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
EPS101T	Entrepreneurial Skills	(0,060)	
PJA401T	Project: Veterinary Technology IV	(0,280)	Research Methodology: Natural Sciences
PJA401R	Project: Veterinary Technology IV (re-registration)	(0,000)	
RMN201B	Research Methodology: Natural Sciences	(0,100)	
	plus two of the following subjects:		
MLB400T	Molecular Biology IV (year subject)	(0,280)	
PRY401T	Parasitology IV	(0,280)	
PTX401T	Pharmacology and Toxicology IV	(0,280)	
RPT401T	Reproduction Technology IV	(0,280)	
VIR401T	Virology IV	(0,280)	
VTB401T	Veterinary Bacteriology IV	(0,280)	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

3.16 MAGISTER TECHNOLOGIAE: VETERINARY TECHNOLOGY
Qualification code: MTVE96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Veterinary Technology or an NQF level 7 bachelor's or honours degree in Veterinary Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
VTY500T	Dissertation: Veterinary Technology	(1,000)
VTY500R	Dissertation: Veterinary Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

3.17 DOCTOR TECHNOLOGIAE: VETERINARY TECHNOLOGY
Qualification code: DTVE96

Campus where offered: Arcadia Campus

REMARKS

a. *Admission requirement(s):*
A Magister Technologiae: Veterinary Technology or an NQF level 8 master's degree in Veterinary Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
VTY700T	Thesis: Veterinary Technology	(2,000)
VTY700R	Thesis: Veterinary Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

4. DEPARTMENT OF BIOTECHNOLOGY AND FOOD TECHNOLOGY

4.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Acting Head of Department: Mrs E Jordaan - M Tech (Biotechnology) (Tech Pta)
Telephone number: 012 382 6241

Departmental Administrators: Ms C Briel and Mrs M Visser

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Dr J Badenhorst	Senior Lecturer	PhD (Microbiology) (UFS)
Ms EM Beukes	Lecturer	MSc (Agric) (Food Science and Technology) (UP)
Ms LS da Silva	Lecturer	MSc (Agric) (Food Science and Technology) (UP)
Ms DM Dimpe	Lecturer	BSc (Hons) (Microbiology) (UP), Minst (Agrar) (Environmental Management) (UP)
Prof PJ Jooste	Professor	PhD (Microbiology) (UFS)
Ms E Mogale	Technician	B Tech (Biotechnology) (TUT), B Tech (Pharmaceutical Sciences) (TUT)
Prof MP Roux van der Merwe	Associate Professor	PhD (Microbiology) (UFS)
Ms B van der Merwe	Lecturer	MSc (Agric) (Food Science and Technology) (UP)
Mr CF van Rooi	Technologist	B Tech (Food Technology) (Tech Pta)

4.2 NATIONAL DIPLOMA: BIOTECHNOLOGY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)

Qualification code: NDBTF1

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
For 2012: A Senior Certificate or an equivalent qualification, with E symbols at the Higher Grade or E Symbols at the Standard Grade for English, Mathematics and Physical Sciences.
As from 2013: A Senior Certificate or an equivalent qualification, with E symbols at the Higher Grade or D Symbols at the Standard Grade for English, Mathematics and Physical Sciences.

Recommended subject(s):
Biology

Selection criteria:
For 2012: Candidates who meet the minimum requirements will be considered for admission. Prospective students currently in Grade 12 will be provisionally selected according to the Grade 11 results.
As from 2013: Candidates who meet the minimum requirements will be invited to write an academic proficiency test. A candidate's performance in the Senior Certificate will contribute 80% to the final admission score and the academic proficiency test, 20%.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

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

  Recommended subject(s):
  Life Sciences

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

  Assessment procedures:
  For 2012: Candidates who meet the minimum requirements will be considered for admission.
  As from 2013:
  - Candidates with a score of 24 and more will be considered for admission.
  - Candidates with a score of 21 to 23 will be invited to write an academic proficiency test. The APS will contribute 80% to the final admission score and the academic proficiency test, 20%.

b. *Minimum duration:*
Four years

c. *Presentation:*
Day classes

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Recognition:*
Students who were registered for qualification NDBTF0 and who are still in the process of completing it will be channeled (re-registered) to this programme. Recognition will be granted for all subjects passed.

g. *Practicals:*
It is compulsory to attend 100% of the practical classes. Students must pass the practical component of a subject to obtain permission to sit for the examination.

h. *Textbooks:*
Textbooks and other educational material will be required.

i. *Safety wear:*
Specific safety wear is compulsory where applicable.

j. *Projects and assignments:*
Students will be expected to undertake projects and assignments in some of the subjects.

k. *Experiential Learning I and II:*
See Chapter 5 of Students' Rules and Regulations.

l. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FPCLS01	Foundation Chemistry: Life Sciences	(0,170)	
FPMLS01	Foundation Mathematics: Life Sciences	(0,140)	
FPPLS01	Foundation Physics: Life Sciences	(0,150)	
FIRST SEMESTER			
FPBIO01	Foundation Biology	(0,070)	
FPENG02	Foundation English	(0,070)	
SECOND SEMESTER			
MBI101T	Microbiology I	(0,148)	Foundation Biology
FPLSK02	Foundation Life Skills	(0,070)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,818**	

SECOND YEAR

FIRST SEMESTER

MBI241T	Microbiology II	(0,125)	Microbiology I
PTM101T	**Process Technology and Management I**		
PTM10YT	Process Technology and Management: Computer Skills I	(0,040)	Foundation Life Skills
SSH101T	Sanitation, Safety and Hygiene I	(0,090)	
TOTAL CREDITS FOR THE SEMESTER:		0,255	

SECOND SEMESTER

ACI201T	Analytical Chemistry: Biological II	(0,125)	Foundation Chemistry: Life Sciences
BCH221B	Biochemistry II	(0,125)	Foundation Chemistry: Life Sciences
PTM101T	**Process Technology and Management I**		
PTM10XT	Process Technology and Management: Theory I	(0,070)	Foundation Mathematics: Life Sciences Foundation Physics: Life Sciences
TOTAL CREDITS FOR THE SEMESTER:		0,320	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,575**	

THIRD YEAR

FIRST SEMESTER

DIR201T	Disease and Immune Response II	(0,125)	Microbiology I
FMT201T	Fermentation Technology II	(0,125)	Microbiology I
MBB301T	Microbial Biochemistry III	(0,125)	Biochemistry II
TOTAL CREDITS FOR THE SEMESTER:		0,375	

SECOND SEMESTER

ALB301T	Analytical Biochemistry III	(0,125)	Analytical Chemistry: Biological II
BPS301T	Bioprocessing III	(0,125)	Fermentation Technology II
FMB311T	Food Microbiology III	(0,125)	Microbiology II
MBG301T	Microbiology: Biological III	(0,125)	Microbiology II

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE THIRD YEAR: **0,875**

FOURTH YEAR

On completion of all the above subjects. If a student has one outstanding subject, such a case will be reviewed and permission might be granted in collaboration with the specific employer.

FIRST OR SECOND SEMESTER

EXP1BIO	Experiential Learning I	(0,366)	
EXP2BIO	Experiential Learning II	(0,366)	Experiential Learning I

TOTAL CREDITS FOR THE FOURTH YEAR: **0,732**

4.3 BACCALAUREUS TECHNOLOGIAE: BIOTECHNOLOGY
Qualification code: BTBT01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Biotechnology or an NQF level 6 bachelor's degree in Biotechnology or Microbiology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes over a period of one or two years.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

- **SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.**
- **SUBJECTS ARE OFFERED IN SEMESTERS, AS DETERMINED BY THE DEPARTMENT.**

FIRST SEMESTER

CODE	SUBJECT	CREDIT
EMB401T	Environmental Biotechnology IV	(0,125)
EPS101T	Entrepreneurial Skills	(0,100)
IBI401T	Industrial Biotechnology IV	(0,125)
MBT401T	Medical Biotechnology IV	(0,125)
RSP401T	Research Project IV (offered in both semesters)	(0,300)
RSP401R	Research Project IV (re-registration)	(0,000)
TOTAL CREDITS FOR THE SEMESTER:		0,775

SECOND SEMESTER

RDT401T	Recombinant DNA Technology IV	(0,125)
RMN201B	**Research Methodology: Natural Sciences**	
RMN20XB	Research Methodology: Natural Sciences: Biotechnology	(0,050)
RMN20YB	Research Methodology: Natural Sciences: Statistics	(0,050)
TOTAL CREDITS FOR THE SEMESTER:		0,225
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

4.4 MAGISTER TECHNOLOGIAE: BIOTECHNOLOGY
Qualification code: MTBT96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Biotechnology or an NQF level 7 bachelor's or honours degree in Biotechnology or Microbiology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BTY500T	Dissertation: Biotechnology	(1,000)
BTY500R	Dissertation: Biotechnology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

4.5 DOCTOR TECHNOLOGIAE: BIOTECHNOLOGY
Qualification code: DTBT96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Biotechnology or an NQF level 8 master's degree in Biotechnology or Microbiology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
BTY700T	Thesis: Biotechnology	(2,000)
BTY700R	Thesis: Biotechnology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

4.6 NATIONAL DIPLOMA: FOOD TECHNOLOGY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)
Qualification code: NDFTF1

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
For 2012: A Senior Certificate or an equivalent qualification, with E symbols at the Higher Grade or E Symbols at the Standard Grade for English, Mathematics and Physical Sciences.
As from 2013: A Senior Certificate or an equivalent qualification, with E symbols at the Higher Grade or D Symbols at the Standard Grade for English, Mathematics and Physical Sciences.

Recommended subject(s):
Biology

Selection criteria:
For 2012: Candidates who meet the minimum requirements will be considered for admission. Prospective students currently in Grade 12 will be provisionally selected according to the Grade 11 results.
As from 2013: Candidates who meet the minimum requirements will be invited to do an academic proficiency test. A candidate's performance in the Senior Certificate will contribute 80% to the final admission score and the academic proficiency test, 20%.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

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

  Recommended subject(s):
  Life Sciences

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

  Assessment procedures:
  For 2012: Candidates who meet the minimum requirements will be considered for admission.
  As from 2013:
  - Candidates with a score of 24 and more will be considered for admission.
  - Candidates with a score of 21 to 23 will be invited to do an academic proficiency test. The APS will contribute 80% to the final admission score and the academic proficiency test, 20%.

b. *Minimum duration:*
Four years

c. *Presentation:*
Day classes

d. *Intake for the qualification:*
January only

e. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

f. *Recognition:*
Students who were registered for qualification NDBTF0 and who are still in the process of completing it will be channeled (re-registered) to this programme. Recognition will be granted for all subjects passed.

g. *Practicals:*
It is compulsory to attend 100% of the practical classes. Students must pass the practical component of a subject to obtain permission to sit for the examination.

h. *Textbooks:*
Textbooks and other educational material may be required.

i. *Safety wear:*
Specific safety wear is compulsory where applicable.

j. *Projects and assignments:*
Students will be expected to undertake projects and assignments in some of the subjects.

k. *Experiential Learning I and II:*
See Chapter 5 of Students' Rules and Regulations.

l. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
FPCLS01	Foundation Chemistry: Life Sciences	(0,170)	
FPMLS01	Foundation Mathematics: Life Sciences	(0,140)	
FPPLS01	Foundation Physics: Life Sciences	(0,150)	
FIRST SEMESTER			
FPBIO01	Foundation Biology	(0,088)	
FPENG02	Foundation English	(0,087)	
SECOND SEMESTER			
FTN111T	Food Technology I	(0,150)	
FPLSK02	Foundation Life Skills	(0,070)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,855**	
SECOND YEAR			
FIRST SEMESTER			
FPE101T	**Food Process Engineering I**		
FPE10YT	Food Process Engineering: Computer Skills I	(0,075)	Foundation Life Skills
FQA101T	Food Quality Assurance I	(0,100)	Food Technology I
FTN211T	Food Technology II	(0,125)	Food Technology I Foundation English
TOTAL CREDITS FOR THE SEMESTER:		0,300	
SECOND SEMESTER			
ACI201T	Analytical Chemistry: Biological II	(0,125)	Foundation Chemistry: Life Sciences
BCH221B	Biochemistry II	(0,125)	Foundation Chemistry: Life Sciences
MBI101T	Microbiology I	(0,148)	Foundation Biology
TOTAL CREDITS FOR THE SEMESTER:		0,398	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,698**	
THIRD YEAR			
FIRST SEMESTER			
FBI301T	Food Biochemistry III	(0,125)	Biochemistry II
FTN301T	Food Technology III	(0,140)	Food Technology II
MBI241T	Microbiology II	(0,125)	Microbiology I
TOTAL CREDITS FOR THE SEMESTER:		0,390	

SECOND SEMESTER

FDC301T	Food Production III	(0,125)	Food Biochemistry III Food Technology II Microbiology II
FMB311T	Food Microbiology III	(0,125)	Microbiology II
FPE101T	**Food Process Engineering I**		
FPE10XT	Food Process Engineering: Food Engineering I	(0,075)	Foundation Mathematics: Life Sciences Foundation Physics: Life Sciences

TOTAL CREDITS FOR THE SEMESTER: 0,325

TOTAL CREDITS FOR THE THIRD YEAR: **0,715**

FOURTH YEAR

FIRST OR SECOND SEMESTER
On completion of all the above subjects. If a student has one outstanding subject, such a case will be reviewed and permission might be granted in collaboration with the specific employer

EXP1FDT	Experiential Learning I	(0,366)	
EXP2FDT	Experiential Learning II	(0,366)	Experiential Learning I

TOTAL CREDITS FOR THE FOURTH YEAR: **0,732**

4.7 BACCALAUREUS TECHNOLOGIAE: FOOD TECHNOLOGY
Qualification code: BTFT02

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Food Technology or an NQF level 6 bachelor's degree in Food Technology or Food Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151. (Deviations approved by the Senate in August 2005.)

ATTENDANCE (2012/2014)

FIRST SEMESTER

CODE	SUBJECT	CREDIT
FDC401T	Food Production IV	(0,168)
FMA401T	Food Microbial Assurance IV	(0,168)
FPJ401T	Food Project IV (offered in both semesters)	(0,168)
FPJ401R	Food Project IV (re-registration)	(0,000)

SECOND SEMESTER

FTN411T	Food Technology IV	(0,168)

TOTAL CREDITS FOR THE YEAR: **0,672**

ATTENDANCE (2013/2015)

FIRST SEMESTER

VPO401T	Food Product Development IV	(0,160)*

SECOND SEMESTER

FCP401T	Food Components IV	(0,168)

TOTAL CREDITS FOR THE YEAR: **0,328**

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

4.8 MAGISTER TECHNOLOGIAE: FOOD TECHNOLOGY
Qualification code: MTFT96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Food Technology or an NQF level 7 bachelor's or honours degree in Food Technology or Food Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualification from the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
FTN500T	Dissertation: Food Technology	(1,000)
FTN500R	Dissertation: Food Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

4.9 DOCTOR TECHNOLOGIAE: FOOD TECHNOLOGY
Qualification code: DTFT96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Food Technology or an NQF level 8 master's degree in Food Technology or Food Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
FTN700T	Thesis: Food Technology	(2,000)
FTN700R	Thesis: Food Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

5. DEPARTMENT OF CHEMISTRY

5.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Dr CM Nkambule - PhD (Chemistry) (Univ of Pittsburgh, USA)
Telephone number: 012 382 6382

Departmental Administrator: Ms S Boshoff

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms WA Augustyn	Lecturer	MSc (Biochem) (Medunsa)
Prof BM Botha	Associate Professor	D Tech (Chemistry) (Tech Pta)
Dr LM Cele	Senior Lecturer	PhD (Chemistry) (UJ)
Prof S Combrinck	Associate Professor	D Tech (Chemistry) (TUT)
Prof F Dakora	Professor, DST Chair	PhD (Botany) (Univ of Western Australia)
Mr CT Dontache	Lecturer	B Tech (Post-School Education) (Tech Pta), BSc (Univ of Fort Hare)
Dr O Gheevarghese	Senior Lecturer	PhD (Chemistry) (Saugar Univ, India), BEd (Science Education) (Annamalai Univ, India)
Mr GJ Greeff	Senior Lecturer	Dip (Tertiary Education) (UP), MSc (Chemisty) (US)
Prof J Heveling	Associate Professor	Dr Rer Nat (RWTH Aachen, Germany)
Mrs MM Hlongwane	Technician	B Tech (Chemistry) (TUT)
Mr G Joseph	Lecturer	M Tech (Chemistry) (TUT)
Prof DA Katskov	Professor	DSc (Russian Academy of Science, Russia)
Ms GE Khanye	Technologist	B Tech (Chemistry) (Tech Pta)
Mr MK Khanye	Senior Lecturer	MS (Chemistry) (Mississippi State Univ, USA)
Mr LDR Koape	Senior Lecturer	MSc (Chemistry) (Flor A&M Univ, USA)
Mr SP Lepule	Technician	B Tech (Chemistry) (TNG)
Mr JH Linde	Junior Lecturer	B Tech (Chemistry) (TUT), B Tech (Laboratory Management) (TUT)
Dr KL Mandiwana	Senior Lecturer	D Tech (Chemistry) (TUT)
Dr AF Marais	Lecturer	B Tech (Chemistry) (TUT), D Tech (Education) (TUT)
Ms MF Mashigo	Technologist	M Tech (Chemistry) (TUT)
Ms KM Matlaila	Junior Lecturer	N Dip (Analytical Chemistry) (TNW)
Prof RI McCrindle	Professor	PhD (Chemistry) (UP)
Mrs FA Melato	Lecturer	MSc (Chemistry) (UWC)
Dr NS Mokgalaka-Matlala	Senior Lecturer	D Tech (Chemistry) (TUT)
Mr RO Molatlhegi	Lecturer	M Tech (Chemistry) (TUT)
Mrs R Mphahlele	Lecturer	M Tech (Pharmaceutical Sciences) (TUT)
Ms NA Mputumana	Lecturer	MSc (Chemistry) (Unisa)
Dr PP Ndibewu	Senior Lecturer	D Tech (Chemistry) (UNMMU)
Prof P Ngobeni	Associate Professor	D Tech (Chemistry) (Tech Pta)

Mr MG Nokwequ	Section Head and Lecturer	MSc (Chemistry) (UNIN)
Dr N Panichev	Lecturer	PhD (Chemistry) (St. Petersburg State Univ, Russia)
Dr TJC Regnier	Senior Technologist	PhD (Plant Physiology) (University of Montpellier-II, France)
Mr R Schwarzer	Senior Lecturer	M Dip Tech (Chemistry) (Tech Pta), NH Dip (Post-School Ed) (Tech Pta)
Mrs JJ Smit	Technician	BSc (Hons) (PU for CHE), Dip (Purchasing and supply) (Unisa)
Ms A Vogel	Lecturer	MSc (Analytical Chemistry) (Univ of Port Elizabeth)

5.2 NATIONAL DIPLOMA: ANALYTICAL CHEMISTRY
Qualification code: NDAC03

Campus where offered: Arcadia Campus

REMARKS

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

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification, with E symbols at the Higher Grade or D symbols at the Standard Grade for English, Mathematics and Physical Science.

  Selection criteria:
  Candidates who meet these minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in the Senior Certificate as well as in an academic placement test written in January as part of the Faculty's orientation programme will determine whether they will be registered to the National Diploma or to the National Diploma (Extended Curriculum).

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

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

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

  Assessment procedures:
  Candidates who meet the minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an National Senior Certificate, as well as in an academic placement test written in January as part of the Faculty's orientation programme will determine whether they will be registered to the National Diploma or to the National Diploma (Extended Curriculum).

b. *Minimum duration:*
Three years

c. *Presentation:*
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Practicals:
It is compulsory for students to attend 100% of the practical classes. Students must pass the practical component of a subject to be admitted to sit for the examination.

g. Textbooks:
Textbooks and other educational material will be required.

h. Safety wear:
Specific safety wear is compulsory (where applicable), and students must purchase it themselves.

i. Experiential Learning:
See Chapter 5 of Students' Rules and Regulations.

j. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

SUBJECTS ARE OFFERED IN BOTH SEMESTERS.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ANC101T	Analytical Chemistry I	(0,125)	
CHE141B	Chemistry IA	(0,125)	
CSK101B	Computer Skills I	(0,083)	
MAT171T	Mathematics I	(0,083)	
PHU161B	Physics IA	(0,084)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AHP201T	Analytical Chemistry: Practical II	(0,100)	Analytical Chemistry I Chemistry IA
ANC251T	Analytical Chemistry II	(0,100)	Analytical Chemistry I Chemistry IA
ICH231T	Inorganic Chemistry II	(0,100)	Chemistry IA
OCH221T	Organic Chemistry II	(0,100)	Chemistry IA
PCB221T	Physical Chemistry II	(0,100)	Chemistry IA
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

ENC201T	Environmental Chemistry II	(0,083)*	Chemistry IA
ICH321T	Inorganic Chemistry III	(0,139)	Inorganic Chemistry II
OCH321T	Organic Chemistry III	(0,139)	Organic Chemistry II
PCB321T	Physical Chemistry III	(0,139)	Physical Chemistry II
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AHP311T	Analytical Chemistry: Practical III	(0,200)	Analytical Chemistry II Analytical Chemistry: Practical II
ANC321T	Analytical Chemistry III	(0,200)	Analytical Chemistry II
CQA201T	Chemical Quality Assurance	(0,100)	Analytical Chemistry II Analytical Chemistry: Practical II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

One of the following options:

Option 1

ENC301T	Environmental Chemistry III	(0,100)	Environmental Chemistry II
EPS101B	Entrepreneurial Skills	(0,100)	
EXP1ACH	Experiential Learning (this subject may not be taken with any other subject during the same semester, except with the permission of the Head of the Department)	(0,500)	Analytical Chemistry III Analytical Chemistry: Practical III
IBA201T	Industrial Chemical Analysis	(0,100)	Analytical Chemistry II
MAT271T	Mathematics II	(0,100)	Mathematics I
PHU201T	Physics II	(0,100)	Physics IA

Option 2

EXP1ACH	Experiential Learning (this subject and Chemistry Project III may not be taken during the same semester, except with the permission of the Head of the Department)	(0,500)	Analytical Chemistry III Analytical Chemistry: Practical III
CPJ311T	Chemistry Project III	(0,500)	Analytical Chemistry III Analytical Chemistry: Practical III
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

5.3 NATIONAL DIPLOMA: ANALYTICAL CHEMISTRY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)
Qualification code: NDACF1

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDAC03.

b. Minimum duration:
Four years

c. Presentation:
Day classes

d. Intake for this qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Recognition:
Students who were registered for qualification NDACF0 and who are still in the process of completing it will be channeled (re-registered) to this programme. Recognition will be granted for all subjects passed.

g. Practicals:
It is compulsory for students to attend 100% of the practical classes, and the student must pass the practical component of a subject to be admitted to the examination.

h. Textbooks:
Textbooks and other educational material will be required.

i. Safety wear:
Specific safety wear is compulsory (where applicable), and students must purchase it themselves.

j. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SEMESTER SUBJECTS ARE OFFERED IN BOTH SEMESTERS.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FPCHE04	Foundation Chemistry	(0,200)	
FPMAT06	Foundation Mathematics	(0,183)	
FPPHU05	Foundation Physics	(0,184)	
FIRST SEMESTER			
FPENG02	Foundation English	(0,100)	
FPLSK02	Foundation Life Skills	(0,100)	

SECOND SEMESTER

ANC101T	Analytical Chemistry I	(0,100)	
CSK101B	Computer Skills I	(0,083)	

TOTAL CREDITS FOR THE FIRST YEAR: **0,950**

SECOND YEAR

FIRST SEMESTER

AHP201T	Analytical Chemistry: Practical II	(0,100)	Analytical Chemistry I Computer Skills I Foundation Chemistry Foundation Mathematics
ANC251T	Analytical Chemistry II	(0,100)	Analytical Chemistry I Computer Skills I Foundation Chemistry Foundation Mathematics
ICH231T	Inorganic Chemistry II	(0,100)	Foundation Chemistry Foundation English
OCH221T	Organic Chemistry II	(0,100)	Foundation Chemistry Foundation English Foundation Mathematics
PCB221T	Physical Chemistry II	(0,100)	Foundation Chemistry Foundation English

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

ENC201T	Environmental Chemistry II	(0,100)	Foundation Chemistry Foundation Life Skills Inorganic Chemistry II
ICH321T	Inorganic Chemistry III	(0,100)	Computer Skills I Foundation Life Skills Inorganic Chemistry II
OCH321T	Organic Chemistry III	(0,100)	Computer Skills I Foundation Life Skills Organic Chemistry II
PCB321T	Physical Chemistry III	(0,100)	Computer Skills I Foundation Life Skills Physical Chemistry II

TOTAL CREDITS FOR THE SEMESTER: 0,400

TOTAL CREDITS FOR THE SECOND YEAR: **0,900**

THIRD YEAR

FIRST SEMESTER

AHP311T	Analytical Chemistry: Practical III	(0,150)	Analytical Chemistry II Analytical Chemistry: Practical II
ANC321T	Analytical Chemistry III	(0,100)	Analytical Chemistry II
CQA201T	Chemical Quality Assurance	(0,100)	Analytical Chemistry II Analytical Chemistry: Practical II

TOTAL CREDITS FOR THE SEMESTER: 0,350

SECOND SEMESTER
One of the following options:

Option 1

ENC301T	Environmental Chemistry III	(0,100)	Environmental Chemistry II
EPS101B	Entrepreneurial Skills	(0,100)	
IBA201T	Industrial Chemical Analysis	(0,100)	Analytical Chemistry I
MAT271T	Mathematics II	(0,100)	Foundation Mathematics
PHU201T	Physics II	(0,100)	Foundation Physics

Option 2

EXP1ACH	Experiential Learning (this subject and Chemistry Project III may not be taken during the same semester, except with the permission of the Head of the Department)	(0,300)	Analytical Chemistry III Analytical Chemistry: Practical III

TOTAL CREDITS FOR OPTION 1: **0,850**

TOTAL CREDITS FOR OPTION 2: **0,650**

FOURTH YEAR

FIRST SEMESTER
One of the following options:

Option 1

EXP1ACH	Experiential Learning (this subject may not be taken with any other subject during the same semester, except with the permission of the Head of the Department)	(0,300)	Analytical Chemistry III Analytical Chemistry: Practical III

Option 2

CPJ311T	Chemistry Project III	(0,500)	Analytical Chemistry III Analytical Chemistry: Practical III

TOTAL CREDITS FOR OPTION 1: **0,300**

TOTAL CREDITS FOR OPTION 2: **0,500**

TOTAL CREDITS FOR THE QUALIFICATION: **3,000**

5.4 BACCALAUREUS TECHNOLOGIAE: CHEMISTRY
Qualification code: BTCH02

Campus where offered: Arcadia Campus

REMARKS

a. *Admission requirement(s):*
A National Diploma: Analytical Chemistry with Physics II and Mathematics II or an NQF level 6 bachelor's degree in Chemistry from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation:*
Day and block-based classes offered over a period of two years.

e. *Intake for the qualification:*
January and July

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *Practicals:*
It is compulsory for students to attend 100% of the practical classes. Students must pass the practical component of a subject to be admitted to sit for the examination.

h. *Textbooks:*
Textbooks and other educational material will be required.

i. *Safety wear:*
Specific safety wear is compulsory (where applicable), and students must purchase it themselves.

j. *Subject credits:*
Subject credits are shown in brackets after each subject.

FIRST SEMESTER

CODE	SUBJECT	CREDIT
ANC411T	Analytical Chemistry IV	(0,200)
CPJ401T	Chemistry Project IV (offered in both semesters)	(0,200)
CPJ401R	Chemistry Project IV (re-registration)	(0,000)
OCH421T	Organic Chemistry IV	(0,200)
TOTAL CREDITS FOR THE SEMESTER:		0,600

SECOND SEMESTER

ICH421T	Inorganic Chemistry IV	(0,200)
PCB421T	Physical Chemistry IV	(0,200)
TOTAL CREDITS FOR THE SEMESTER:		0,400
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

5.5 MAGISTER TECHNOLOGIAE: CHEMISTRY
Qualification code: MTCH95

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Chemistry or an NQF level 7 bachelor's or honours degree in Chemistry from any South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty of Science reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
CHE500T	Dissertation: Chemistry	(1,000)
CHE500R	Dissertation: Chemistry (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

5.6 DOCTOR TECHNOLOGIAE: CHEMISTRY
Qualification code: DTCH96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Chemistry or an NQF level 8 master's degree in Chemistry from any South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty of Science reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
CHE700T	Thesis: Chemistry	(2,000)
CHE700R	Thesis: Chemistry (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

5.7 BACCALAUREUS TECHNOLOGIAE: LABORATORY MANAGEMENT
Qualification code: BTLA01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
Any relevant NQF 6 level bachelor's degree or diploma in Science, Engineering or Technology from any South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty of Science reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January and July

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Textbooks:
Textbooks and other educational material will be required.

h. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST OR SECOND SEMESTER

Subjects are offered in semesters, as determined by the Department.

CODE	SUBJECT	CREDIT
GEL401T	General Laboratory Management IV	(0,200)
LBM401T	Laboratory Personnel Management IV	(0,200)
LFM401T	Laboratory Financial Management IV	(0,200)
LMP401T	Laboratory Management Project IV	(0,200)
LMP401R	Laboratory Management Project IV (re-registration)	(0,000)
QAP401T	Quality and Productivity IV	(0,200)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

6. DEPARTMENT OF CROP SCIENCES

6.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Acting Head of Department: Mr SS Letsoalo - M (Agric) (Extension) (LU), M Tech (Education) (TUT)
Telephone number: 012 382 5309

Departmental Administrator: Ms S Knott

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Dr M de Lange	Principal Lecturer	MSc (Entomology) (UP), DEd (TUT)
Prof PJ Jansen van Vuuren	Professor	DSc (Agric) (UP)
Mr F Joubert	Lecturer	BSc (Agric) (UP)
Dr LA Metho	Senior Lecturer	PhD (Plant Production) (UP)
Mr DD Mfolo	Farm Manager	B Tech (Crop Production) (TUT)
Mr MJ Raboshakga	Technician	B Tech (Crop Production) (TUT)
Prof D Sivakumar	Associate Professor	PhD (Post Harvest of Fresh Produce) (Colombo University)
Dr R Slabbert	Senior Lecturer	PhD (Botany) (PU for CHE)
Mr M Sosibo	Technologist	B Tech (Crop Production) (TUT)
Mr MI Tshiame	Lecturer	MSA (Agricbusiness Managment) (UFS)
Mr I Tsotetsi	Lecturer	MSA (Agricbusiness Management) (UFS)
Prof W van Averbeke	Professor	DSc (Agric) (Crop Science) (UFH)

6.2 NATIONAL DIPLOMA: AGRICULTURE: CROP PRODUCTION*
Qualification code: NDAR04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D Symbols at the Standard Grade for English and Mathematics.

Recommended subject(s):
Agricultural subjects. Preference will be given to students with Biology and or Physical Science.

Selection criteria:
Prospective students are assessed by means of the following formula for academic merit, based on scholastic performance:

SYMBOL	HG VALUE	SG VALUE
A	8	7
B	7	6
C	6	5
D	4	3
E	2	1

Applicants earn two additional points for the following subjects (for SG or HG):

Agricultural Economics, Agricultural Science, Agriculture, Biology, Chemistry, Computer Principles, Computer Studies, Field Husbandry, Geography, Mathematics, Physical Science, Physics, Practical Agriculture, Statistics.

For 2012: Applicants who score 20 or more points (for a maximum of six subjects) according to the formula for academic merit determination are accepted. The maximum first-year intake is, however, limited by a predetermined number.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20-22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language) and 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Agricultural subjects. Preference will be given to students with Biology and or Physical Science.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) and **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered until the programme complement is full.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20 (19 with Mathematics) to 22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. General:
The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries. It is recommended that students take out insurance. Further information is obtainable during registration.

f. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

g. Readmission:
See Chapter 3 of Students' Rules and Regulations.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2007.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
AAP101T	Agricultural Anatomy and Physiology I	(0,100)*	
AGA111T	Agricultural Calculations I	(0,100)*	
AGB101T	Agricultural Botany I	(0,100)*	
AGH101T	Agricultural Mechanisation I	(0,100)*	
SSC111T	Soil Science I	(0,100)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AEX101C	Agricultural Extension I	(0,100)*	
AGE111T	Agricultural Economics I	(0,100)*	
CRO101T	Crop Production I	(0,100)*	
OBS101T	Crop Protection I	(0,100)*	
SSV201T	Soil Surveys II	(0,100)*	Soil Science I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

AGN201T	Agronomy II	(0,100)*	Crop Production I
AGR201T	Agricultural Marketing II	(0,100)*	Agricultural Economics I
FPR201T	Fruit Production II	(0,100)*	Crop Production I
OBS201T	Crop Protection II	(0,100)*	Crop Protection I
SSC301T	Soil Science III	(0,100)*	Soil Surveys II
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AGN301T	Agronomy III	(0,100)*	Agronomy II
APN301T	Agricultural Production Management III	(0,100)*	Agricultural Marketing II
FPR301T	Fruit Production III	(0,100)*	Fruit Production II
OBS301T	Crop Protection III	(0,100)*	Crop Protection II
VEG101T	Vegetable Production I	(0,100)*	

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

On completion of all the above subjects.

FIRST OR SECOND SEMESTER

EXP1AGR	Experiential Learning I	(0,500)	
EXP2AGR	Experiential Learning II	(0,500)	Experiential Learning I

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

6.3 BACCALAUREUS TECHNOLOGIAE: AGRICULTURE: CROP PRODUCTION*

Qualification code: BTAR05

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Agriculture: Crop Production or an NQF level 6 bachelor's degree in Agriculture from a South African university with Agronomy at level III.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of this qualification. Foreign students will be required to submit an evaluation of their qualifications from the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate on May 2007 and Senex on June 2011.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
FVP400T	Fruit and Vegetable Production IV*	(0,250)
CRO400T	Crop Production IV	(0,250)
PJG400F	Crop Science Project IV*	(0,250)
RMD100C	**Research Methodology**	
RMD10PC	Research Methodology: Agriculture*	(0,125)
RMD10QC	Research Methodology: Biometry*	(0,125)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

6.4 NATIONAL DIPLOMA: AGRICULTURE: COMMERCIAL MIXED FARMING*
Qualification code: NDMX04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D Symbols at the Standard Grade for English and Mathematics.

Recommended subject(s):
Agricultural subjects. Preference will be given to students with Biology and or Physical Science.

Selection criteria:
Prospective students are assessed by means of the following formula for academic merit, based on scholastic performance:

SYMBOL	HG VALUE	SG VALUE
A	8	7
B	7	6
C	6	5
D	4	3
E	2	1

Applicants earn two additional points for the following subjects (SG or HG):

Agricultural Economics, Agricultural Science, Agriculture, Biology, Chemistry, Computer Principles, Computer Studies, Field Husbandry, Geography, Mathematics, Physical Science, Physics, Practical Agriculture, Statistics.

For 2012: Applicants who score 20 or more points (for a maximum of six subjects) according to the formula for academic merit determination are accepted. The maximum first-year intake is, however, limited by a predetermined number.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20-22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language) and 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Agricultural subjects. Preference will be given to students with Biology and or Physical Science.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) and **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered until the programme complement is full.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20 (19 with Mathematics) to 22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Choice of subjects:
Where a choice must be made between subjects, the subject chosen depends on the successful completion of the indicated prerequisite subject.

g. General:
The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries. It is recommended that students take out insurance. Further information is obtainable during registration.

h. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151. (Deviations approved by the Senate in May 2007.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
AAP101T	Agricultural Anatomy and Physiology I	(0,100)*	
AGA111T	Agricultural Calculations I	(0,100)*	
AGB101T	Agricultural Botany I	(0,100)*	
AGH101T	Agricultural Mechanisation I	(0,100)*	
SSC111T	Soil Science I	(0,100)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AEX101C	Agricultural Extension I	(0,100)*	
AGE111T	Agricultural Economics I	(0,100)*	
CRO101T	Crop Production I	(0,100)*	
OBS101T	Crop Protection I	(0,100)*	
SSV201T	Soil Surveys II	(0,100)*	Soil Science I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

AGR201T	Agricultural Marketing II	(0,100)*	Agricultural Economics I
NPT101T	Natural Pastures I	(0,100)*	
	plus one of the following subjects:		
AGN201T	Agronomy II	(0,100)*	Crop Production I
FPR201T	Fruit Production II	(0,100)*	Crop Production I
	plus one of the following subjects:		
BPD201T	Beefer Production II	(0,100)*	Agricultural Anatomy and Physiology I
SSP201T	Small Stock Production II	(0,100)*	Agricultural Anatomy and Physiology I
	plus one of the following subjects:		
OBS201T	Crop Protection II	(0,100)*	Crop Protection I
SSC301T	Soil Science III	(0,100)*	Soil Surveys II
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

APN301T	Agricultural Production Management III	(0,100)*	Agricultural Marketing II
FMP101T	Farm Planning I	(0,100)*	
VEG101T	Vegetable Production I	(0,100)*	
	plus one of the following subjects:		
AGN301T	Agronomy III	(0,100)*	Agronomy II
FPR301T	Fruit Production III	(0,100)*	Fruit Production II
	plus one of the following subjects:		
BPD301T	Beefer Production III	(0,100)*	Beefer Production II
SSP301T	Small Stock Production III	(0,100)*	Small Stock Production II

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

On completion of all the above subjects.

FIRST OR SECOND SEMESTER

EXP1AGR	Experiential Learning I	(0,500)	
EXP2AGR	Experiential Learning II	(0,500)	Experiential Learning I

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

6.5 NATIONAL DIPLOMA: AGRICULTURE: DEVELOPMENT AND EXTENSION*

Qualification code: NDDX04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D Symbols at the Standard Grade for English and Mathematics.

  Recommended subject(s):
  Biology, Physical Science, Agricultural and Accounting subjects.

  Selection criteria:
  Prospective students are assessed by means of the following formula for academic merit, based on scholastic performance:

SYMBOL	HG VALUE	SG VALUE
A	8	7
B	7	6
C	6	5
D	4	3
E	2	1

Applicants earn two additional points for the following subjects (SG or HG):

Agricultural Economics, Agricultural Science, Agriculture, Biology, Chemistry, Computer Principles, Computer Studies, Field Husbandry, Geography, Mathematics, Physical Science, Physics, Practical Agriculture, Statistics.

For 2012: Applicants who score 20 or more points (for a maximum of six subjects) according to the formula for academic merit determination are accepted. The maximum first-year intake is, however, limited by a predetermined number.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20-22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language) and 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Life Sciences and Physical Science.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) and **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered until the programme complement is full.
As from 2013:
- Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
- Candidates with a score of 20 (19 with Mathematics) to 22 for according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Choice of subjects:
Where a choice must be made between subjects, the subject chosen depends on the successful completion of the indicated prerequisite subject.

f. General:
The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries. It is recommended that students take out insurance. Further information is obtainable during registration.

g. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

h. Readmission:
See Chapter 3 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2007.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
AAP101T	Agricultural Anatomy and Physiology I	(0,100)*	
AGA111T	Agricultural Calculations I	(0,100)*	
AGB101T	Agricultural Botany I	(0,100)*	
AGH101T	Agricultural Mechanisation I	(0,100)*	
SSC111T	Soil Science I	(0,100)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AEX101C	Agricultural Extension I	(0,100)*	
AGE111T	Agricultural Economics I	(0,100)*	
CRO101T	Crop Production I	(0,100)*	
OBS101T	Crop Protection I	(0,100)*	
SSV201T	Soil Surveys II	(0,100)*	Soil Science I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

AEX201C	Agricultural Extension II	(0,100)*	Agricultural Extension I
AGR201T	Agricultural Marketing II	(0,100)*	Agricultural Economics I
NPT101T	Natural Pastures I	(0,100)*	
	plus one of the following subjects:		
AGN201T	Agronomy II	(0,100)*	Crop Production I
FPR201T	Fruit Production II	(0,100)*	Crop Production I

	plus one of the following subjects:		
BPD201T	Beefer Production II	(0,100)*	Agricultural Anatomy and Physiology I
SSP201T	Small Stock Production II	(0,100)*	Agricultural Anatomy and Physiology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AEX301C	Agricultural Extension III	(0,100)*	Agricultural Extension II
FMP101T	Farm Planning I	(0,100)*	
VEG101T	Vegetable Production I	(0,100)*	
	plus one of the following subjects:		
AGN301T	Agronomy III	(0,100)*	Agronomy II
FPR301T	Fruit Production III	(0,100)*	Fruit Production II
	plus one of the following subjects:		
BPD301T	Beefer Production III	(0,100)*	Beefer Production II
SSP301T	Small Stock Production III	(0,100)*	Small Stock Production II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

On completion of all the above subjects.

FIRST OR SECOND SEMESTER

EXP1AGR	Experiential Learning I	(0,500)	
EXP2AGR	Experiential Learning II	(0,500)	Experiential Learning I
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

6.6 BACCALAUREUS TECHNOLOGIAE: AGRICULTURE: DEVELOPMENT AND EXTENSION*

Qualification code: BTDX05

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Agriculture: Development and Extension or an NQF level 6 bachelor's degree in Agricultural Extension from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2007.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
AEX400T	Agricultural Extension IV	(0,250)
AGC100T	Agricultural Communication I	(0,250)
RMD100C	**Research Methodology**	
RMD10PC	Research Methodology: Agriculture*	(0,125)
RMD10QC	Research Methodology: Biometry*	(0,125)
	plus one of the following subjects:	
CRO400T	Crop Production IV	(0,250)
DPS400T	Animal Production IV	(0,250)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

6.7 BACCALAUREUS TECHNOLOGIAE: AGRICULTURE: AGRICULTURAL MANAGEMENT
Qualification code: BTAM05

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Agriculture or an NQF level 6 bachelor's degree with specialisation in Crop Production, Mixed Farming or Development and Extension.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation:*
Block-based classes

e. *Intake for the qualification:*
January only

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
FBL400T	Financial Management: Agriculture IV	(0,250)
LDV200T	Leadership Development II	(0,250)
SBL400T	Strategic Management: Agriculture IV	(0,250)
	plus one of the following subjects:	
CRO400T	Crop Production IV	(0,250)
DPS400T	Animal Production IV	(0,250)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

6.8 MAGISTER TECHNOLOGIAE: AGRICULTURE
Qualification code: MTAL98

Campus where offered: Pretoria Campus

REMARKS

a. *Admission requirement(s):*
A Baccalaureus Technologiae: Agriculture or an NQF level 7 bachelor's or honours degree in Agriculture from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, the prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
PPC500T	Dissertation: Agriculture: Crop Production	(1,000)
PPC500R	Dissertation: Agriculture: Crop Production (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

6.9 DOCTOR TECHNOLOGIAE: AGRICULTURE
Qualification code: DTAL98

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Agriculture or an NQF level 8 master's degree in Agriculture obtained from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	**SUBJECT**	**CREDIT**
PPC700T	Thesis: Agriculture: Crop Production	(2,000)
PPC700R	Thesis: Agriculture: Crop Production (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

7. DEPARTMENT OF ENVIRONMENTAL HEALTH

7.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Mrs I Mokgobu - MSc (Medical Immunology) (UP)
Telephone number: 012 382 5281

Departmental Administrator: Ms P van Rooyen

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr JL Bekker	Principal Lecturer	M Tech (Environmental Health) (Tech Pta)
Dr JC Engelbrecht	Principal Lecturer	D Tech (Environmental Health) (TUT)
Mr JL Harmse	Principal Lecturer	M Tech (Environmental Health) (TUT)
Mr DDJ Jacobs	Lecturer	NH Dip (Public Health) (TWW)
Mr TJ Morodi	Senior Lecturer	B Tech (Environmental Health) (TNG), MPhil (Environmental Ethics) (US)
Ms LS Mudau	Lecturer	M (Public Health) (Univen)
Mr PHS Nel	Lecturer	NH Dip (Public Health), MA (Admin) (PU for CHE)
Ms MJ Shirinde	Lecturer	M (Public Health) (UP)

7.2 NATIONAL DIPLOMA: ENVIRONMENTAL HEALTH
Qualification code: NDEH95

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D symbols at the Standard Grade for English, Biology, Mathematics and Physical Science.

Recommended subject(s):
Geography and Agricultural Science.

Selection criteria:
Selection is done in accordance with the Health Professional Council of South Africa (HPCSA). Students are assessed by means of a formula for academic merit, based on scholastic performance.

Formula for academic merit:

SYMBOL	HG	SG
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0

The subjects Biology, English, Mathematics and Physical Science will be used to assess the application.

One additional point will be added if the applicant has passed Agricultural Science and/or Geography.

Applicants who score six or more points according to the formula for academic merit are accepted.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics or 4 for Mathematical Literacy and 3 for Physical Sciences.

  Recommended subject(s):
  None

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) and **20** (with Mathematical Literacy).

  Assessment procedures:
  For 2012: No further assessment will be done. Candidates who achieve the minimum APS will be considered until the programme complement is full.
  As from 2013: Selection is done in accordance with the Health Professional Council of South Africa (HPCSA).
  - Candidates with a score of 23 and more according to the formula for academic merit determination will be considered for admission.
  - Candidates with a score of 21 (19 with Mathematics) to 23 according to the formula for academic merit determination will be kept on a waiting list from which the students with the highest scores will be selected. Waiting lists will be cleared at the end of September and the end of November.

b. Minimum duration:
Three years

c. Presentation:
Day classes: formal and cooperative training.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Professional registration:
Compulsory, once-off, students have to register in the first year with the Health Professions Council of South Africa (HPCSA). HPCSA requires students to complete community service for a period of one year on successful completion of the National Diploma: Environmental Health or the Baccalaureus Technologiae: Environmental Health.

g. Special rules and regulations:
Unless otherwise stipulated, special rules and regulations, as published in the programme guide, apply to students who register for this qualification. Students should familiarise themselves with those rules and regulations. Students undergo cooperative training and take study tours. They have to purchase protective clothing for the subjects, Food and Meat Hygiene II and III.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
APY140T	Anatomy and Physiology I	(0,200)	
COD100T	Community Development I	(0,200)	
EPN100T	Environmental Planning I	(0,200)	
MBI110T	Microbiology I	(0,200)	
FIRST SEMESTER			
PCQ100T	**Physics and Chemistry I**		
PCQ10XT	Physics and Chemistry: Physics I	(0,100)	
SECOND SEMESTER			
PCQ100T	**Physics and Chemistry I**		
PCQ10YT	Physics and Chemistry: Chemistry I	(0,100)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	
SECOND YEAR			
COD200T	Community Development II	(0,200)	Community Development I
EPI210T	Epidemiology II	(0,200)	Microbiology I
EPW200T	Environmental Pollution: Waste and Water II	(0,200)	Environmental Planning I
OHS200T	Occupational Health and Safety II	(0,200)	Anatomy and Physiology I Physics and Chemistry I
VVH200T	Food and Meat Hygiene II	(0,200)	Microbiology I
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	
THIRD YEAR			
EPA300T	Environmental Pollution: Air and Noise III	(0,200)	Environmental Pollution: Waste and Water II
EPI300T	Epidemiology III	(0,200)	Epidemiology II
MPT300T	Management Practice III	(0,200)	Community Development II
OHS300T	Occupational Health and Safety III	(0,200)	Occupational Health and Safety II
VVH300T	Food and Meat Hygiene III	(0,200)	Food and Meat Hygiene II
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

7.3 BACCALAUREUS TECHNOLOGIAE: ENVIRONMENTAL HEALTH
Qualification code: BTEH95

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Environmental/Public Health or an NQF level 6 bachelor's degree in Environmental/Public Health from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Special rules and regulations:
Unless otherwise stipulated, special rules and regulations apply to students who register for this qualification. Students should familiarise themselves with those rules and regulations.

h. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
MPT400B	Management Practice IV	(0,220)
RMD100F	Research Methodology	(0,180)
	plus two of the following subjects	
AIP400T	Air Pollution IV	(0,300)
ENP400T	Environmental Epidemiology	(0,300)
FHY410T	Food Hygiene IV	(0,300)
OHS400T	Occupational Health and Safety IV	(0,300)
WMG400T	Waste Management IV	(0,300)
WQM400T	Water Quality Management IV	(0,300)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

7.4 MAGISTER TECHNOLOGIAE: ENVIRONMENTAL HEALTH
Qualification code: MTEH95

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Environmental Health or an NQF level 7 bachelor's or honours degree in Environmental or Public Health from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, the prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
EHT500T	Dissertation: Environmental Health	(1,000)
EHT500R	Dissertation: Environmental Health (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

7.5 DOCTOR TECHNOLOGIAE: ENVIRONMENTAL HEALTH
Qualification code: DTEH96

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Environmental Health or an NQF level 8 master's degree in Environmental or Public Health from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during his or her personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
EHT700T	Thesis: Environmental Health	(2,000)
EHT700R	Thesis: Environmental Health (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

8. DEPARTMENT OF ENVIRONMENTAL, WATER AND EARTH SCIENCES

8.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Prof R Jansen - PhD (Ornithology and Zoology) (UCT)
Telephone number: 012 382 6347

Departmental Administrators: Ms R Gerber, Ms S Galebies and Ms Z Joubert

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms MAA Coetzee	Senior Lecturer	MSc (Water Utilisation) (UP), TED (UP)
Ms C Coni	Lecturer	BLC & LLB (P), MInst (Agrar) (Env Man) (UP)
Dr CJS Fourie	Senior Lecturer	PhD (Exploration Geophysics) (UP)
Mr C Kambewa	Lecturer	MSc (Mineral Exploration) (ITC Delft, Netherlands)
Mr PA Kotze	Senior Lecturer	NH Dip (Water Care) (Tech Pta)
Dr M Lupankwa	Senior Lecturer	DPhil (Geology) (Univ of Zimbabwe)
Ms BBJ Mankazana	Lecturer	MSc (Agric) (Florida A&M Univ, USA)
Prof J Maree	Rand Water Chair in Water Utilisation	PhD (Chem Eng) (North-West Univ), PhD (Chem) (UFS)
Prof M Momba	Professor	PhD (Microbiology) (UP)
Ms L Monyatsi	Lecturer	M Tech (Water Care) (TUT)
Ms MJ Nesengani	Lecturer	MEng (Water Resources Management) (Unisa)
Prof OJ Okonkwo	Professor	PhD (Industrial/Environmental Chemistry) (Brunel University, UK)
Mr R Robbertze	Technican	B Tech (Environmental Science) (TUT)
Mr S Sibeko	Junior Lecturer	B Tech (Geology) (TUT)
Mrs MLM Sikhosana	Technologist	B Tech (Water Care) (TUT)

8.2 NATIONAL DIPLOMA: ENVIRONMENTAL SCIENCES
Qualification code: NDEV02

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with D symbols at the Standard Grade or E symbols at the Higher Grade for English, Mathematics and Physical Science.

Recommended subject(s):
Biology and Geography

Selection criteria:
For 2012: Candidates who meet the minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an academic proficiency test written in January as part of the Faculty's orientation programme will determine whether they will be channeled to the National Diploma or to the National Diploma (Extended Curriculum).

As from 2013: Candidates who meet the minimum requirements will be invited to do an academic proficiency test. The students' performance in the Senior Certificate will contribute 80% to the final admission score and the academic proficiency test 20%.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

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

  Recommended subject(s):
  Geography and Life Sciences

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

  Assessment procedures:
  For 2012: Candidates who meet the minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an academic proficiency test written in January as part of the Faculty's orientation programme will determine whether they will be channeled to the National Diploma or to the National Diploma (Extended Curriculum).
  As from 2013:
  - Candidates with a score of 24 and more will be considered for admission.
  - Candidates with a score of 21 to 23 will be invited to do an academic proficiency test. The APS will contribute 80% to the final admission score and the academic proficiency test, 20%.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Practical:
It is compulsory for students to attend 100% of practical classes. Students must pass the practical component of a subject to be admitted to the examination.

g. Textbooks:
Textbooks and other educational material may be required.

h. Safety wear:
Specific safety wear is compulsory (where applicable), and students must purchase it themselves.

i. Projects and assignments:
Students will be expected to undertake projects and assignments in some of the subjects.

j. Industrial Environmental Practice III (experiential learning):
See Chapter 5 of Students' Rules and Regulations.

k. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CHE141B	Chemistry IA	(0,100)	
COS101T	Communication Skills I	(0,050)	
EMG101T	**Environmental Management I**		
EMG10XT	Environmental Management: General I	(0,075)	
ERS101T	**Environmental Resources I**		
ERS10XT	Environmental Resources: Ecosystem Ecology I	(0,075)	
GEO141T	Geology I	(0,100)	
MAT171T	Mathematics I	(0,100)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

AGL111T	Applied Geology I	(0,100)	Geology I
CSK101B	Computer Skills I	(0,050)	
EMG101T	**Environmental Management I**		
EMG10YT	Environmental Management: Applied I	(0,075)	Environmental Management: General I
EPS111T	Entrepreneurial Skills	(0,050)	
ERS101T	**Environmental Resources I**		
ERS10YT	Environmental Resources: Population Ecology I	(0,075)	Environmental Resources: Ecosystem Ecology I
GTH101T	Geotechnology I	(0,100)	Geology I
MBI101T	Microbiology I	(0,100)	
TOTAL CREDITS FOR THE SEMESTER:		0,550	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,050**	

SECOND YEAR

FIRST SEMESTER

AGL211B	Applied Geology II	(0,100)	Applied Geology I
ELE201T	Environmental Legislation	(0,100)	
EMG201T	Environmental Management II	(0,100)	Environmental Management I
ENC201T	Environmental Chemistry II	(0,100)	Chemistry IA
GTH201B	Geotechnology II	(0,100)	Geotechnology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

EEC201T	Environmental Economy	(0,100)	
EGE201T	Environmental Geology II	(0,100)	Applied Geology II
EMB201T	Environmental Biotechnology II	(0,100)	Microbiology I
EMS201T	Environmental Management Systems	(0,100)	Environmental Management II
ERS201T	Environmental Resources II	(0,100)	Environmental Resources I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

EMG301T	Environmental Management III	(0,150)	Environmental Management II
ENV301T	Environmental Geohydrology III	(0,150)	Environmental Geology II
ERS301T	Environmental Resources III	(0,150)	Environmental Resources II
	plus two of the following subjects:		
EGE301T	Environmental Geology III	(0,150)	Environmental Geology II
ENC301T	Environmental Chemistry III	(0,150)	Environmental Chemistry II
GTH301T	Geotechnology III	(0,150)	Geotechnology II
IPO301T	Industrial Processes III	(0,150)	

TOTAL CREDITS FOR THE SEMESTER: 0,750

SECOND SEMESTER
On completion of all the subjects in the first and second year.

INV301T	Industrial Environmental Practice III (offered in both semesters)	(0,200)

TOTAL CREDITS FOR THE SEMESTER: 0,200

TOTAL CREDITS FOR THE THIRD YEAR: **0,950**

8.3 BACCALAUREUS TECHNOLOGIAE: ENVIRONMENTAL SCIENCES
Qualification code: BTEV02

Campus where offered: Arcadia Campus

REMARKS

a. *Admission requirement(s):*
A National Diploma: Environmental Sciences or an NQF level 6 bachelor's degree in Environmental Sciences from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation:*
Block-based classes. This qualification is presented as a package. The Department reserves the right to limit or alter the selection and clustering of subjects; for example, in the case of uneconomical class groups.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Re-registration:
A student must register for the project within the above time and will be allowed to re-register for it only once.

h. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
PJN410T	Project: Environmental Technology IV	(0,200)
PJN410R	Project: Environmental Technology IV (re-registration)	(0,000)
	plus four of the following subjects:	
EMG400T	Environmental Management IV	(0,200)
ENC400T	Environmental Chemistry IV	(0,200)
ENV400T	Environmental Geohydrology IV	(0,200)
ERE400T	Environmental Rehabilitation IV	(0,200)
ERS410T	Environmental Resources IV	(0,200)
GTH400T	Geotechnology IV	(0,200)
IMA401T	Integrated Catchment Management IV (second semester subject)	(0,200)
WQM411T	Water Quality Management IV (first semester subject)	(0,200)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.4 MAGISTER TECHNOLOGIAE: ENVIRONMENTAL MANAGEMENT (Structured)
Qualification code: MTEVS0

Campus where offered: Arcadia Campus

REMARKS
Please note: A moratorium was placed on new intakes as from 2008 until further notice.

a. Admission requirement(s):
Any relevant four-year tertiary qualification. A student has to apply in advance for status to be granted or an equivalent qualification to be recognised. Depending on the nature of such equivalent qualification, completion of certain additional subjects may be required.

In addition, the student should successfully complete Research Methodology in the first year of study if it was not taken for a previous qualification.

Please note: This qualification is recommended for students with a relevant four-year tertiary qualification, other than the Baccalaureus Technologiae: Environmental Management or the Baccalaureus Technologiae: Environmental Sciences.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. These procedures will be fully explained to each prospective student at his or her personal interview.

c. Recommended subjects:
It is highly recommended that the student should have passed relevant environmental subjects during undergraduate studies and/or completed an environmental-related short learning programme beforehand.

d. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

e. Presentation:
Block-based classes

f. Structure:
This programme consists of subjects offered on a block-basis and a research project in the form of a mini-dissertation (research report). In order to obtain a structured magister technologiae, the student has to pass all the relevant subjects and the mini-dissertation (research report) has to be accepted. The student has to present a colloquium before submitting the dissertation.

g. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
ELE500T	Environmental Legislation V	(0,125)
EMG500T	Environmental Management V	(0,125)
EMG501T	Research Report: Environmental Management V	(0,500)
EMG501R	Research Report: Environmental Management V (re-registration)	(0,000)
	plus two of the following subjects:	
ECC500T	Environmental Accounting V	(0,125)
ENC500T	Environmental Chemistry V	(0,125)
ERA500T	Environmental Risk Assessment V	(0,125)
GEH500T	Geohydrology V	(0,125)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.5 MAGISTER TECHNOLOGIAE: ENVIRONMENTAL MANAGEMENT
Qualification code: MTEV99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Environmental Sciences or Environmental Management or an NQF level 7 bachelor's or honours degree in Environmental Sciences, Environmental Management, Chemistry, Biotechnology, Ecology, Botany or Zoology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, the prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
EMG510T	Dissertation: Environmental Management	(1,000)
EMG510R	Dissertation: Environmental Management (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.6 DOCTOR TECHNOLOGIAE: ENVIRONMENTAL MANAGEMENT
Qualification code: DTEV99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Environmental Sciences or Environmental Management or an NQF level 8 Master's degree in Environmental Sciences, Environmental Management, Chemistry, Biotechnology, Ecology, Botany or Zoology, from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
EMG700T	Thesis: Environmental Management	(2,000)
EMG700R	Thesis: Environmental Management (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

8.7 NATIONAL DIPLOMA: GEOLOGY
Qualification code: NDGE04

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with D symbols at the Standard Grade or E symbols at the Higher Grade for Mathematics and Physical Science, and a pass in English.

Recommended subject(s):
Geography

Selection criteria:
For 2012: Candidates who meet these minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an academic proficiency test written in January as part of the Faculty's orientation programme will determine whether they will be channelled to the National Diploma or to the National Diploma (Extended Curriculum).
As from 2013: Candidates who meet these minimum requirements will be invited to write an academic proficiency test. The Students performance in the Senior Certificate will contribute 80% to the final admission score and the academic proficiency test 20%.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

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

Recommended subject(s):
Computer Applications Technology, Geography and Information Technology.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

Assessment procedures:
For 2012: Candidates who meet these minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an academic proficiency test written in January as part of the Faculty's orientation programme will determine whether they will be channeled to the National Diploma or to the National Diploma (Extended Curriculum).
As from 2013:
- Candidates with a score of 24 and more will be considered for admission.
- Candidates with a score of 21 to 23 will be invited to write an academic proficiency test. The APS will contribute 80% to the final admission score and the academic proficiency test, 20%.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Practicals:
It is compulsory for students to attend 100% of the practical classes. Students must pass the practical component of a subject to be admitted to the examination.

g. Textbooks:
Textbooks and other educational material may be required.

h. Safety wear:
Specific safety wear is compulsory (where applicable), and students must purchase it themselves.

i. Projects and assignments:
Students will be expected to undertake projects and assignments in some of the subjects.

j. *Industrial Geology (experiential learning):*
See Chapter 5 of Students' Rules and Regulations.

k. *Subject credits:*
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CHE141B	Chemistry IA	(0,100)	
CSK101B	Computer Skills I	(0,050)	
GEO151T	Geology I	(0,100)	
MAT171T	Mathematics I	(0,100)	
PHU161B	Physics IA	(0,100)	
TOTAL CREDITS FOR THE SEMESTER:		0,450	

SECOND SEMESTER

AGL111T	Applied Geology I	(0,100)	Geology I
GET111T	Geotechniques I	(0,100)	Geology I
MRL101T	Mineralogy I	(0,100)	Geology I
SGE101T	Structural Geology I	(0,100)	Geology I
STA111B	Statistics I	(0,075)	
	plus one of the following subjects:		
EPS131T	Entrepreneurial Skills I	(0,075)	
MAT271T	Mathematics II	(0,075)	Mathematics I
TOTAL CREDITS FOR THE SEMESTER:		0,550	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

AGL211T	Applied Geology II	(0,100)	Applied Geology I
GEO251T	Geology II	(0,100)	Geology I Structural Geology I
GET211T	Geotechniques II	(0,100)	Geotechniques I
GPH211T	Geophysics II	(0,100)	Applied Geology I
PET211T	Petrology II	(0,100)	Mineralogy I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

GTH201T	Geotechnology II	(0,500)	Applied Geology II Geology II Geophysics II Geotechniques II Petrology II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

IGE101T	Industrial Geology I (offered in both semesters)	(0,500)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

ENG301T	Engineering Geology III	(0,125)	Geotechnology II
GPH311T	Geophysics III	(0,125)	Geophysics II Geotechnology II
HGE301T	Hydrogeology III	(0,125)	Geotechnology II
MEG301T	Mining and Exploration Geology III	(0,125)	Geotechnology II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

8.8 BACCALAUREUS TECHNOLOGIAE: GEOLOGY
Qualification code: BTGE03

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Geology or an NQF level 6 bachelor's degree in Geology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes. This qualification is presented as a package. The Department reserves the right to limit or alter the selection and clustering of subjects; for example, in the case of uneconomical class groups.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST SEMESTER		
CODE	**SUBJECT**	**CREDIT**
ENG401T	Engineering Geology IV	(0,175)
HGE401T	Hydrogeology IV	(0,175)
TOTAL CREDITS FOR THE SEMESTER:		0,350
SECOND SEMESTER		
BMN121C	Business Management I	(0,175)
GTH401T	Geotechnology IV (offered in both semesters)	(0,300)
GTH401R	Geotechnology IV (re-registration) (offered in both semesters)	(0,000)
MEG401T	Mining and Exploration Geology IV	(0,175)
TOTAL CREDITS FOR THE SEMESTER:		0,650
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.9 MAGISTER TECHNOLOGIAE: GEOLOGY
Qualification code: MTGE96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Geology or an NQF level 7 bachelor's or honours degree in Geology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
GEO500T	Dissertation: Geology	(1,000)
GEO500R	Dissertation: Geology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.10 DOCTOR TECHNOLOGIAE: GEOLOGY
Qualification code: DTGE96

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Geology or an NQF level 8 master's degree in Geology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
GEO700T	Thesis: Geology	(2,000)
GEO700R	Thesis: Geology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

8.11 NATIONAL DIPLOMA: WATER CARE (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)
Qualification code: NDWCF0

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification, with a pass in English and a minimum D symbol (Standard Grade) or an E symbol (Higher Grade) for Mathematics and Physical Science. An N3 Certificate with two languages (including English) and a pass mark of 50% for Mathematics N3 and Engineering Science N3 may also be considered.

Recommended subject(s):
Biology and Geography

Selection criteria:
For 2012: Admission is subject to evaluation and applicants will have to take the Potential Assessment Battery test, and an additional entrance examination.
As from 2013: Candidates who meet the minimum requirements will be invited to write an academic proficiency test. The students' performance in the Senior Certificate will contribute 80% to the final admission score and the academic proficiency test 20%.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINC 2008:**

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

Recommended subject(s):
Geography and Life Sciences

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **21**.

Assessment procedures:
For 2012: Candidates who meet these minimum requirements will be considered for admission to the National Diploma or the National Diploma (Extended Curriculum). A candidate's performance in an academic proficiency test written in January as part of the Faculty's orientation programme will determine whether they will be channeled to the National Diploma or to the National Diploma (Extended Curriculum).

As from 2013:

- Candidates with a score of 24 and more will be considered for admission.
- Candidates with a score of 21 to 23 will be invited to write an academic proficiency test. The APS will contribute 80% to the final admission score and the academic proficiency test, 20%.

b. Minimum duration:
Four years

c. Presentation:
Day classes

d. Intake for this qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Practicals:
It is compulsory for students to attend 100% of the practical classes, and the student must pass the practical component of a subject to be admitted to the examination (where applicable).

g. Textbooks:
Textbooks and other educational material will be required.

h. Safety wear:
Specific safety wear is compulsory, where applicable, and students must purchase it themselves.

i. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
FPCHE01	**Foundation Chemistry IC**		
FPCHEP0	Foundation Chemistry: Theory IC	(0,080)	
FPCHEQ0	Foundation Chemistry: Practical IC	(0,080)	
FPCOS02	Foundation Communication Skills I	(0,100)	
FPCOW01	Foundation Computations: Water I	(0,160)	
FPPHU04	Foundation Physics IB	(0,160)	
FPWCT01	Foundation Water Care Technology I	(0,160)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,740**	

SECOND YEAR

PWA201T	**Potable Water Analysis II**		
PWA20PT	Potable Water Analysis: Practical II	(0,067)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I

FIRST SEMESTER

CSK101B	Computer Skills I	(0,100)	
FPBIO01	Foundation Biology	(0,090)	
LGA201T	Legal Aspects: Water II	(0,133)	Foundation Communication Skills I Foundation Water Care Technology I
PWA201T	**Potable Water Analysis II**		
PWA20XT	Potable Water Analysis: Theory II	(0,066)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I

SECOND SEMESTER

GRW201T	Groundwater II	(0,100)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I
MBI101B	**Microbiology I**		
MBI10XB	Microbiology: Theory I	(0,050)	
MBI10YB	Microbiology: Practical I	(0,020)	
PMW101T	Principles of Management: Water I	(0,100)	
PTN201T	Potable Water Purification II	(0,134)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I

TOTAL CREDITS FOR THE SECOND YEAR: **0,860**

THIRD YEAR

WSA201T	**Wastewater Analysis II**		
WSA20PT	Wastewater Analysis: Practical II	(0,066)	Foundation Chemistry IC Foundation Computations: Water Foundation Water Care Technology I Potable Water Analysis II

FIRST SEMESTER

WBI201T	Water Biology II	(0,100)	Foundation Water Care Technology I Microbiology I
WSA201T	**Wastewater Analysis II**		
WSA20XT	Wastewater Analysis: Theory II	(0,067)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I Potable Water Analysis II
WTR201T	Wastewater Treatment II	(0,134)	Foundation Chemistry IC Foundation Computations: Water I Foundation Water Care Technology I Microbiology I

SECOND SEMESTER

RMN201T	**Research Methodology: Natural Sciences**		
RMN20XT	Research Methodology: Natural Sciences: Water Care	(0,050)	Computer Skills I Foundation Chemistry IC Foundation Communication Skills I Foundation Computations: Water I Foundation Physics IB Foundation Water Care Technology I Microbiology I
RMN20YT	Research Methodology: Natural Sciences: Statistics	(0,050)	Computer Skills I Foundation Chemistry IC Foundation Communication Skills I Foundation Computations: Water I Foundation Physics IB Foundation Water Care Technology I Microbiology I
WHY201T	Water Hydraulics II	(0,133)	Foundation Computations: Water I Foundation Physics IB Foundation Water Care Technology I
WTN301T	Water Treatment III	(0,117)	Computer Skills I Potable Water Analysis II Potable Water Purification II
TOTAL CREDITS FOR THE THIRD YEAR:		**0,717**	

FOURTH YEAR

FIRST SEMESTER

INE301T	Industrial Effluents III	(0,116)	Legal Aspects: Water II Potable Water Purification II Wastewater Treatment II
WTI201T	Water Treatment: Investigations II	(0,117)	Potable Water Purification II Wastewater Analysis II Wastewater Treatment II
WTR301T	Wastewater Treatment III	(0,117)	Computer Skills I Wastewater Analysis II Wastewater Treatment II
TOTAL CREDITS FOR THE SEMESTER:		0,350	

SECOND SEMESTER

CBW301T	Cooling and Boiler Water Technology III	(0,116)	Computer Skills I Potable Water Analysis II Potable Water Purification II
WIP201T	Water Industry: Practical II	(0,100)	Potable Water Purification II Wastewater Analysis II Wastewater Treatment II
WPL201T	Water Plant II	(0,117)	Foundation Chemistry IC Foundation Computations: Water I Foundation Physics IB Foundation Water Care Technology I
TOTAL CREDITS FOR THE SEMESTER:		0,333	
TOTAL CREDITS FOR THE FOURTH YEAR:		**0,683**	

8.12 BACCALAUREUS TECHNOLOGIAE: WATER CARE
Qualification code: BTWC10

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Water Care or an NQF level 6 bachelor's degree in Water Sciences from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of one and a half years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks:
* Information does not correspond to information in Report 151. (Deviations approved by the Senate in May 2009.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT
RMN201T	**Research Methodology: Natural Sciences***	
RMN20XT	Research Methodology: Natural Sciences: Water Care	(0,050)
WQM401T	Water Quality Management IV	(0,100)*
WUM201T	Water Utility Management II	(0,150)*
TOTAL CREDITS FOR THE SEMESTER:		0,300

SECOND SEMESTER

BWT401T	Biological Water Treatment IV	(0,175)*
ICM401T	Integrated Catchment Management IV	(0,100)*
PMN401T	Practice of Management IV	(0,100)*

TOTAL CREDITS FOR THE SEMESTER: 0,375

SECOND YEAR

FIRST SEMESTER

CWT401T	Chemical/Physical Water Treatment IV	(0,175)*
RMN201T	**Research Methodology: Natural Sciences***	
RMN20YT	Research Methodology: Natural Sciences: Statistics	(0,050)
WTO401T	Water Treatment: Project IV	(0,100)*

TOTAL CREDITS FOR THE SEMESTER: 0,325

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

8.13 MAGISTER TECHNOLOGIAE: WATER CARE
Qualification code: MTWC99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Water Care, Chemistry, Biotechnology or Chemical Engineering or an NQF level 7 bachelor's or honours' degree in Water Utilisation/Sciences, Chemistry, Microbiology, Biotechnology, Biochemistry or Chemical Engineering from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
WCT500T	Dissertation: Water Care	(1,000)
WCT500R	Dissertation: Water Care (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

8.14 DOCTOR TECHNOLOGIAE: WATER CARE
Qualification code: DTWC99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Water Care, Chemistry, Biotechnology or Chemical Engineering or an NQF level 8 Master's degree in Water Utilisation, Chemistry, Microbiology, Biotechnology, Biochemistry or Chemical Engineering from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
WCT700T	Thesis: Water Care	(2,000)
WCT700R	Thesis: Water Care (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

9. DEPARTMENT OF HORTICULTURE

9.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Acting Head of Department: Mr AJ Botha - MInst (Agrar) (UP)
Telephone number: 012 382 5336

Departmental Administrator: Ms B Dippenaar-Nel

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms MM Coetzee	Junior Lecturer	B Tech (Horticulture) (TUT)
Dr B Matsiliza-Mlathi	Senior Lecturer	PhD (Botany/Science) (RU)
Ms K Prinsloo	Lecturer	B Tech (Landscape Technology) (TUT), M Tech (Horticulture) (TUT)
Mr L F Whitcomb	Lecturer	NH Dip (Agriculture) (Tech Pta)

9.2 NATIONAL DIPLOMA: HORTICULTURE
Qualification code: NDHO04

Campus where offered: Pretoria Campus

Description of qualifications:
Anyone with a passion for the cultivation, propagation and maintenance of ornamental plants fruits, vegetables, flowers and nursery crops) would find a qualification in Horticulture fulfilling. The Horticulture course combines academic and practical training in the field of growing ornamental plants for urban landscape use, as well as for the uplifting of public areas. Students entering the diploma or degree will be exposed to the theory and the practical application on how to propagate, grow and manage ornamental plants.

Career opportunities:
Opportunities exist as horticulturists at the municipalities (local government), industrial plant growers, garden centres, retail nurseries and/or whole sale nurseries. Horticulturists could, however, also work at landscape companies as maintenance managers, site managers or as grounds superintendents. Opportunities also exist in the research field as researchers (developing new cultivars or solving problems) and in the academic world of teaching, learning and education.

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D symbols at the Standard Grade for English, Mathematics, Physical Science or Biology.

  Recommended subjects:
  Agricultural Sciences and Geography

  Selection criteria:
  For 2012: All applications are subject to a selection process based on academic potential. Applicants will be invited to sit for a series of tests to determine their potential for horticultural studies. The results of these tests will determine whether candidates will be accepted for the National Diploma.

As from 2013: Assessment is based on the normal M score with a weighted Swedish scale.

SYMBOL	HG VALUE	SG VALUE
A	6	5
B	5	4
C	4	3
D	3	2
E	2	1

A minimum of 24 points are required with bonus points for Biology, Geography, Agriculture, etc. A maximum of six bonus points can be awarded, and two bonus points can also be awarded for prior experience.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy, and 3 for Life Sciences or 3 for Physical Sciences.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: Candidates who achieve the minimum APS will be considered for admission. Candidates may be required to write an admission test and attend an interview with a departmental panel.
As from 2013:
- Candidates with a score of 24 and more will be considered for admission.
- Candidates with a score of 20 (19 with mathematics) to 23, will be invited for the TUT potential assessment. The TUT assessment result will contribute 40% and the APS 60% to the total score.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential Learning:
See Chapter 5 of Students' Rules and Regulations.

Two options are available – Structured Experiential Learning programme at the Booysens Training Centre and Experiential Learning with an accredited employer. Further details are available at the academic department.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ERT111T	Environmental Studies I	(0,090)	
GMT101T	Growth Media Technology I	(0,070)	
HOR111T	Horticulture I	(0,090)	
PLR101T	Plant Material Studies I	(0,090)	
SMN101T	Supervisory Management I	(0,090)	
TEB101T	Site Planning I	(0,070)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

HMH101T	Horticultural Mechanisation I	(0,070)	
HMN211T	Horticultural Management II	(0,133)	Supervisory Management I
HOR211T	Horticulture II	(0,133)	Horticulture I
PLR201T	Plant Material Studies II	(0,094)*	Plant Material Studies I
TGC101T	Turfgrass Culture I	(0,070)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

ERT200T	Environmental Studies II	(0,125)	Environmental Studies I
HOR310T	Horticulture III	(0,300)	Horticulture II
HPM300T	Horticultural Production Management III	(0,300)	Horticultural Management II
PEC210T	Plant Protection II	(0,125)	
PLR300T	Plant Material Studies III	(0,150)	Plant Material Studies II
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

One of the following:

EXP1HOR	Experiential Learning I (Industry)	(0,500)
EXB1HOR	Experiential Learning I (Booysens)	(0,500)
TOTAL CREDITS FOR THE SEMESTER:		0,500

SECOND SEMESTER

One of the following:

EXP2HOR	Experiential Learning II (Industry)	(0,500)
EXB2HOR	Experiential Learning II (Booysens)	(0,500)
TOTAL CREDITS FOR THE SEMESTER:		0,500
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**

9.3 BACCALAUREUS TECHNOLOGIAE: HORTICULTURE
Qualification code: BTHO11

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Horticulture or an NQF level 6 bachelor's degree in Horticulture from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation and registration:
Block-based classes offered over a period of two years. Students who were registered before 2011 and who have not interrupted their studies, will use qualification code BTLT02.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE (2012/2014)

CODE	SUBJECT	CREDIT
HPM40QT	Horticultural Production Management IVB	(0,200)
HPT40QT	Horticultural Production Technology IVB	(0,200)
	plus one of the following subjects:	
RMD10AK	Research Methodology A	(0,100)
RMD10BK	Research Methodology B	(0,100)
TOTAL CREDITS FOR THE YEAR:		**0,500**

ATTENDANCE (2013/2015)

HPM40PT	Horticultural Production Management IVA	(0,200)
HPT40PT	Horticultural Production Technology IVA	(0,200)

plus one of the following subjects:

RMD10AK	Research Methodology A	(0,100)
RMD10BK	Research Methodology B	(0,100)

TOTAL CREDITS FOR THE YEAR: **0,500**

TOTAL CREDITS FOR THE QUALIFICATION **1,000**

9.4 MAGISTER TECHNOLOGIAE: HORTICULTURE
Qualification code: MTHO97

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Horticulture, Landscape Technology or Turfgrass Management or an NQF level 7 bachelor's or honours degree in Horticulture or Botany from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
HOR500T	Dissertation: Horticulture	(1,000)
HOR500R	Dissertation: Horticulture (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

9.5 DOCTOR TECHNOLOGIAE: HORTICULTURE
Qualification code: DTHO97

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Horticulture or an NQF level 8 master's degree in Horticulture or Botany from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
HOR700T	Thesis: Horticulture	(2,000)
HOR700R	Thesis: Horticulture (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

9.6 NATIONAL DIPLOMA: LANDSCAPE TECHNOLOGY
Qualification code: NDLT04

Campus where offered: Pretoria Campus

Description of qualifications:
Landscape Technology is for those who love the outdoors and are creative and would strive to beautify urban and public areas. Landscape Technology is the practical application of knowledge in a design orientated manner. The landscape course will assist students to implement, manage and design landscape projects. It also prepares students to participate in larger scale projects such as golf course design and corporate designs.

Career opportunities:
Those who obtain a qualification in Landscape Technology could find themselves working as landscape consultants, landscape designers or landscape contractors. Qualified students could also find a career as site managers, maintenance managers and in the horticultural field as nursery managers. Opportunities also exist in the research field as researchers (developing new cultivars or solving problems) as well as in the academic world of teaching, learning and education.

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with E symbols at the Higher Grade or D symbols at the Standard Grade for English, Mathematics, Physical Science or Biology.

  Selection criteria:
  For 2012: All applications are subject to a selection process based on academic potential. Applicants will be invited to sit for a series of tests to determine their potential for horticultural studies. The results of these tests will determine whether candidates will be accepted for the National Diploma.
  As from 2013: Assessment is based on the normal M score with a weighted Swedish scale.

SYMBOL	HG VALUE	SG VALUE
A	6	5
B	5	4
C	4	3
D	3	2
E	2	1

  A minimum of 24 points are required with bonus points for Biology, Geography, Agriculture, etc. A maximum of six bonus points can be awarded, and two bonus points can also be awarded for prior experience.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy, and 3 for Life Sciences or 3 for Physical Sciences.

  Recommended subjects:
  Agricultural Sciences, Art, Geography and Technical Drawing.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
For 2012: Candidates who achieve the minimum APS will be considered for admission. Candidates may be required to write an admission test and attend an interview with a departmental panel.
As from 2013:
- Candidates with a score of 24 and more will be considered for admission.
- Candidates with a score of 20 (19 with mathematics) to 23, will be invited for the TUT potential assessment. The TUT assessment result will contribute 40% and the APS 60% to the total score.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Experiential Learning:
See Chapter 5 of Students' Rules and Regulations.

Two options are available – Structured Experiential Learning programme at the Booysens Training Centre and Experiential Learning with an accredited employer. Further details are available at the academic department.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ERT111T	Environmental Studies I	(0,090)	
GMT101T	Growth Media Technology I	(0,070)	
LTE101T	Landscape Technology I	(0,090)	
PLR101T	Plant Material Studies I	(0,090)	
SMN101T	Supervisory Management I	(0,090)	
TEB101T	Site Planning I	(0,070)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

HMH101T	Horticultural Mechanisation I	(0,070)	
LTE201T	Landscape Technology II	(0,133)	Landscape Technology I
LTM211T	Landscape Technology Management II	(0,133)	Supervisory Management I
PLR201T	Plant Material Studies II	(0,094)*	Plant Material Studies I
TGC101T	Turfgrass Culture I	(0,070)	

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE FIRST YEAR: **1,000**

SECOND YEAR

ERT200T	Environmental Studies II	(0,125)	Environmental Studies I
LTE300T	Landscape Technology III	(0,300)	Landscape Technology II
LTM300T	Landscape Technology Management III	(0,300)	Landscape Technology Management II
PEC210T	Plant Protection II	(0,125)	
PLR300T	Plant Material Studies III	(0,150)	Plant Material Studies II

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

FIRST SEMESTER

One of the following:

EXP1LST	Experiential Learning I (Industry)	(0,500)
EXB1LST	Experiential Learning I (Booysens)	(0,500)

TOTAL CREDITS FOR THE SEMESTER: **0,500**

SECOND SEMESTER

One of the following:

EXP2LST	Experiential Learning II (Industry)	(0,500)
EXB2LST	Experiential Learning II (Booysens)	(0,500)

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

9.7 BACCALAUREUS TECHNOLOGIAE: LANDSCAPE TECHNOLOGY
Qualification code: BTLT11

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Landscape Technology or an NQF level 6 bachelor's degree in Landscape Technology from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation and registration:*
Block-based classes offered over a period of two years. Students who were registered before 2011 and who have not interrupted their studies, will use qualification code BTLT02.

e. *Intake for the qualification:*
January only

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

ATTENDANCE (2012/2014)

CODE	SUBJECT	CREDIT
LTE40QT	Landscape Technology IVB	(0,200)
LTM40QT	Landscape Technology Management IVB	(0,200)
	plus one of the following subjects:	
RMD10AK	Research Methodology A	(0,100)
RMD10BK	Research Methodology B	(0,100)
TOTAL CREDITS FOR THE YEAR:		**0,500**

ATTENDANCE (2013/2015)

LTE40PT	Landscape Technology IVA	(0,200)
LTM40PT	Landscape Technology Management IVA	(0,200)
	plus one of the following subjects:	
RMD10AK	Research Methodology A	(0,100)
RMD10BK	Research Methodology B	(0,100)
TOTAL CREDITS FOR THE YEAR:		**0,500**
TOTAL CREDITS FOR THE QUALIFICATION		**1,000**

9.8 BACCALAUREUS TECHNOLOGIAE: TURFGRASS MANAGEMENT
Qualification code: BTTG03

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Turfgrass Management or an NQF level 6 bachelor's degree in Turfgrass Management from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE

CODE	SUBJECT	CREDIT
RMD10AK	Research Methodology A	(0,100)
RMD10BK	Research Methodology B	(0,100)
TGC400T	Turfgrass Culture IV	(0,400)
TGM400T	Turfgrass Management IV	(0,400)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

10. DEPARTMENT OF MATHEMATICS AND STATISTICS

10.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Dr CE Coetzee - D Tech (Mathematical Technology) (TUT), HED (Unisa)
Telephone number: 012 382 6358

Departmental Administrator: Ms B Chauke

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms M Aphane	Lecturer	MSc (Mathematics) (Unisa)
Ms JNM Bidie	Junior Lecturer	BSc (Hons) (Mathematics) (Fort Hare), HED (Unisa)
Prof I Fedotov	Senior Lecturer	PhD (Mathematics) (Univ of Moscow, Russia)
Prof JC Greeff	Associate Professor	D Tech (Mathematical Technology) (TUT), TED (UP)
Mr JP Jordaan	Senior Lecturer	BCom (Hons) (Business Economics) (UP)
Ms J Joseph	Senior Lecturer	NH Dip (Quality Assurance) (Tech Pta), BEd (University of Kerala, India), MSc (Applied Statistics) (Sheffield Hallam University UK)
Prof SV Joubert	Professor	DSc (Mathematics) (UP)
Mr MC Kekana	Lecturer	MSc (Applied Mathematics) (UL)
Dr PH Kloppers	Principal Lecturer	D Tech (Mathematical Technology) (TUT)
Mr ME Khunoana	Lecturer	BSc (Hons) (Stats), UED (UNIBO)
Dr CJ Louw	Senior Lecturer	BA (Ed) (Mathematics and History) (UP), PhD (Quality Assurance in Education) (UP)
Mr AC Mkolesia	Junior Lecturer	B Tech (Information Technology) (Tech Pta)
Mr JP Motsei	Lecturer	M Tech (Mathematical Technology) (TUT), HED (UNIN)
Mr KA Motsepe	Lecturer	M Tech (Mathematical Technology) (TUT), SSTD (Hebron)
Ms SA Mouton	Lecturer	B Tech (Quality) (TUT)
Mr M Naidoo	Lecturer	MSc (Mathematics) (UKZN)
Mr CN Ncube	Senior Lecturer	MSc (Mathematics) (Unisa)
Ms M Nyakale	Lecturer	MSc (Statistics) (UFS)
Mr A Peck	Technologist	MS (Mathematical Technology) (University of Southern Mississippi, USA)
Mr AN Pete	Senior Lecturer	M Tech (Mathematical Technology) (TUT)
Ms WE Pretorius	Lecturer	M Tech (Mathematical Technology) (TUT), HED (UP)
Ms MP Skhosana	Junior Lecturer	BSc (Hons) (Mathematics) (Wits), SPTD (Kanyamazane)
Ms SD Steyn	Senior Lecturer	MS (Mathematical Technology) (University of Southern Mississippi, USA), BEd (Hons) (Educational Psychology and Mathematical Didactics) (US)
Mr JJ Verlinde	Senior Lecturer	BSc (Hons) (Mathematics) (UP), HED (UP)
Dr EL Voges	Section Head: Mathematics	D Tech (Mathematical Technology) (TUT), BEd (PU for CHE)

10.2 BACCALAUREUS TECHNOLOGIAE: QUALITY
Qualification code: BTQU02

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
Any relevant NQF level 6 bachelor's degree or diploma from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Recommended subject(s):
Computer Skills I (with demonstrated competence in Excel, Word and PowerPoint) and any of the following subjects: Mathematics I, Qualitative Techniques I, Quantitative Techniques I and Statistics I.

d. Minimum duration:
One year

e. Presentation:
Block-based classes offered over a period of two years.

f. Intake for the qualification:
January only

g. Readmission:
See Chapter 3 of Students' Rules and Regulations.

h. Structure:
This qualification consists of six subjects in which lectures are attended plus a research project, Project IV (seventh subject). Before the project is accepted for assessment, the student must submit an article, based on the research and approved by the supervisor, to be considered for publication in a journal. A draft of the article must be submitted with Project IV.

i. Subject credits:
Subject credits are shown in brackets after each subject.

FIRST AND SECOND YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
PJT400T	Project IV	(0,250)	
PJT400R	Project IV (re-registration)	(0,000)	

FIRST AND SECOND SEMESTER
Students may register for a maximum of any two subjects in each semester, and may only register for the project in the first semester of an academic year.

CQI401T	Continual Quality Improvement IV	(0,125)	
SQT301T	Statistical Quality Techniques III	(0,125)	
QAQ401T	Quality Auditing Techniques IV	(0,125)	Quality Management Systems III
QMS301T	Quality Management Systems III	(0,125)	
QPI401T	Quality Planning and Implementation IV	(0,125)	
QTS401T	Quality Techniques IV	(0,125)	Statistical Quality Techniques III

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

10.3 MAGISTER TECHNOLOGIAE: QUALITY
Qualification code: MTQU99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Quality or an equivalent qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
QAS510T	Dissertation: Quality	(1,000)
QAS510R	Dissertation: Quality (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

10.4 DOCTOR TECHNOLOGIAE: QUALITY
Qualification code: DTQU99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Quality or an equivalent qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
QAS700T	Thesis: Quality	(2,000)
QAS700R	Thesis: Quality (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

10.5 MAGISTER TECHNOLOGIAE: MATHEMATICAL TECHNOLOGY (Structured)
Qualification code: MTMNST

Campus where offered: Arcadia Campus

REMARKS

a. *Admission requirement(s):*
Any NQF level 7 bachelor's degree with a subject in Mathematical Sciences at level IV from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. *Selection criteria:*
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. *Recommended subjects:*
It is highly recommended that the student should have passed relevant mathematical subjects during undergraduate studies and/or completed a mathematical-related short learning programme beforehand.

d. *Duration:*
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

e. *Presentation:*
Block-based classes as arranged by the department.

f. *Structure:*
This programme consists of subjects offered on a block basis and a research project in the form of a mini-dissertation (research report). In order to obtain a structured magister technologiae, the student has to pass all the relevant subjects and the mini-dissertation (research report) has to be accepted. The student has to present a colloquium before submitting the dissertation.

Please note: Before the research report will be accepted for assessment, a draft scientific paper, based on the research and approved by the supervisor, has to be ready for submission to a peer-reviewed journal (preferably accredited). Research findings should have been presented at a regional symposium or conference.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
Two of the following subjects:			
NAS500T	Numerical Analysis V	(0,040)	
NLA500T	Numerical Linear Algebra V	(0,040)	
ONL500T	Ordinary Nonlinear Differential Equations V	(0,040)	
PDQ500T	Partial Differential Equations V	(0,040)	
Plus:			
LABORATORY			
MTP50AT	Mathematical Technology: Laboratory Project (A) V	(0,130)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,210**	
SECOND YEAR			
Two of the following subjects (excluding those taken in the first year):			
NAS500T	Numerical Analysis V	(0,040)	
NLA500T	Numerical Linear Algebra V	(0,040)	
ONL500T	Ordinary Nonlinear Differential Equations V	(0,040)	
PDQ500T	Partial Differential Equations V	(0,040)	
Plus:			
LABORATORY			
MTP50BT	Mathematical Technology: Laboratory Project (B) V	(0,130)	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,210**	
THIRD YEAR			
CQM500T	Colloquium V	(0,040)	Numerical Analysis V Numerical Linear Algebra V Ordinary Nonlinear Differential Equations V Partial Differential Equations V
ILM500T	Industrial Mathematics V	(0,040)	
RESEARCH			
MAY501T	Research Report: Mathematical Technology V	(0,500)	Mathematical Technology: Laboratory Project (A) V Mathematical Technology: Laboratory Project (B) V Numerical Analysis V Numerical Linear Algebra V Ordinary Nonlinear Differential Equations V Partial Differential Equations V
MAY501R	Research Report: Mathematical Technology V (re-registration)	(0,000)	
TOTAL CREDITS FOR THE THIRD YEAR:		**0,580**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

10.6 MAGISTER TECHNOLOGIAE: MATHEMATICAL TECHNOLOGY
Qualification code: MTMN00

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
Any NQF level 7 bachelor's or honours' degree in Mathematical Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
MAY500T	Dissertation: Mathematical Technology	(1,000)
MAY500R	Dissertation: Mathematical Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

10.7 DOCTOR TECHNOLOGIAE: MATHEMATICAL TECHNOLOGY
Qualification code: DTMN00

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Mathematical Technology or an NQF level 8 master's degree in any one of the Mathematical Sciences from a South African university or a Master of Science degree from the University of Southern Mississippi.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
MAY700T	Thesis: Mathematical Technology	(2,000)
MAY700R	Thesis: Mathematical Technology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

11. DEPARTMENT OF NATURE CONSERVATION

11.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Mr AJ Botha - MInst (Agrar) (UP)
Telephone numbers: 012 382 5336/5306

Departmental Administrator: Ms H Joubert

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr AA Biko'o	Lecturer	M Tech (Nature Conservation) (TUT)
Dr EP de Crom	Senior Lecturer	PhD (Environmental History - Transdisciplinary) (NWU)
Mr XN Funda	Lecturer	MEM (Environmental Management) (UFS)
Dr PJ Funston	Senior Lecturer	PhD (Zoology) (UP)
Mr JJ Kotze	Lecturer	MSc (Zoology) (PU for CHE)
Mr DJ Krynauw	Senior Lecturer	MSA (Sustainable Agriculture) (UFS)
Mr AV Lowry	Lecturer	BSc (Hons) (Wildlife Management) (UP)
Prof G Malan	Associate Professor	PhD (Zoology) (UCT)
Dr WJ Myburgh	Senior Lecturer	PhD (Plant Ecology) (UP)
Ms CL Ogilvie	Lecturer	M Tech (Nature Conservation) (TUT)
Mr MD Panagos	Lecturer	MSc (Agric) (Natal Univ)
Prof BK Reilly	Associate Professor	PhD (Nature Conservation) (US)
Ms N Seoraj-Pillai	Lecturer	MSc (Biological Sciences) (Animal Behaviour) (UKZN)
Mr JJ Viljoen	Senior Lecturer	BCom (UP) MInst (Agrar) (Agricultural Economics) (UP), HED (Postgraduate) (UP)

11.2 NATIONAL DIPLOMA: ECOTOURISM MANAGEMENT
Qualification code: NDEK01

Campus where offered: Pretoria Campus

THIS QUALIFICATION IS OFFERED BY THE FACULTY OF SCIENCE AND THE FACULTY OF MANAGEMENT SCIENCES.

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with Biology and English, with at least a D symbol at the Higher Grade.

  Recommended subject(s):
  Hospitality Management, Hotel and Tourism.

Selection criteria:
Prospective students will not be admitted without prior selection. Applications must reach the Department before 15 August of the preceding year.

Selection is based on the allocation of points (Swedish formula) for school subjects passed (Higher, Standard or Lower Grade and symbols obtained).

Formula for determining academic merit:

(%)	HG VALUE	SG VALUE	LG VALUE
90 -100%	9	8	7
80 - 89%	8	7	6
70 - 79%	7	6	5
60 - 69%	6	5	4
50 - 59%	5	4	3
40 - 49%	4	3	2
30 - 39%	3	2	1
20 - 29%	2	1	0

Applicants with 28 points will be accepted, those with 26 to 27 points will be interviewed, and those with 25 points and less will not be accepted.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or Mathematical Literacy.

Recommended subject(s):
None

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18**.

Assessment procedures:
Candidates with a final APS of 22 and more will be admitted to the programme. Candidates with a score of 18 to 21 will be invited to write the TUT potential assessment.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Training excursions, field trips and practicals:
Training excursions, field trips and practical classes are compulsory and involve additional expenses, over and above the class fees. Basic camping equipment is also required. Students will be provided with further details at registration.

g. General:
It is compulsory to wear the required uniform during certain practical classes. Uniforms may also be worn to class and practicals. Students will be provided with details about uniforms at registration.

The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries, it is recommended that students take out insurance. More information will be available at registration.

h. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ECD100T	Ecotourism Development I	(0,166)*	
ECK100T	Ecotourism Marketing I	(0,100)	
ECQ100T	Ecotourism Management I	(0,167)	
ECR100T	Ecotourism Practice I	(0,100)	
FIRST SEMESTER			
ECB10AT	Ecotourism: Biology IA	(0,083)	
ECI101T	Ecotourism Interpretation I	(0,100)	
	Field Trip 1 - Local Nature Reserve: Pretoria region		
SECOND SEMESTER			
ECB10BT	Ecotourism: Biology IB	(0,084)	
ECI201T	Ecotourism Interpretation II	(0,100)	Ecotourism Interpretation I
WIM101T	Wildlife Management I	(0,100)	
	Field Trip 2 - KwaZulu-Natal		
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

CUS110T	Computer Usage I	(0,100)	
ECD200T	Ecotourism Development II	(0,166)*	Ecotourism Development I
ECK200T	Ecotourism Marketing II	(0,100)	Ecotourism Marketing I
ECQ200T	Ecotourism Management II	(0,167)	Ecotourism Management I
ECR200T	Ecotourism Practice II	(0,100)	Ecotourism Practice I
FIRST SEMESTER			
ECB20AT	Ecotourism: Biology IIA	(0,083)	Ecotourism: Biology IA Ecotourism: Biology IB
WIM201T	Wildlife Management II	(0,100)	Wildlife Management I
	Field Trip 3 - Lowveld		

SECOND SEMESTER

ECB20BT	Ecotourism: Biology IIB	(0,084)	Ecotourism: Biology IA Ecotourism: Biology IB
ECI301T	Ecotourism Interpretation III	(0,100)	Ecotourism Interpretation II
	Field Trip 4 - Mpumalanga/Lowveld		

TOTAL CREDITS FOR THE SECOND YEAR: **1,000**

THIRD YEAR

ECD300T	Ecotourism Development III	(0,166)*	Ecotourism Development II
ECQ300T	Ecotourism Management III	(0,167)	Ecotourism Management II

FIRST SEMESTER

ECB301T	Ecotourism: Biology III	(0,167)	Ecotourism: Biology IIA Ecotourism: Biology IIB
EXP1ETM	Experiential Learning I	(0,250)	

SECOND SEMESTER

EXP2ETM	Experiential Learning II	(0,250)

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

11.3 BACCALAUREUS TECHNOLOGIAE: ECOTOURISM MANAGEMENT
Qualification code: BTEK01

Campus where offered: Pretoria Campus

THIS QUALIFICATION IS OFFERED BY THE FACULTY OF SCIENCE AND THE FACULTY OF MANAGEMENT SCIENCES.

REMARKS

a. Admission requirement(s):
A National Diploma: Ecotourism Management or a NQF level 6 bachelor's degree in Ecotourism Management from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicants' suitability/competence for admission to the programme.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
All applications are subject to selection.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE

CODE	SUBJECT	CREDIT
ECB40AT	Ecotourism: Biology IVA	(0,125)
ECB40BT	Ecotourism: Biology IVB	(0,125)
ECD400T	Ecotourism Development IV	(0,250)
ECQ400T	Ecotourism Management IV	(0,250)
RMD10AH	Research Methodology A	(0,125)
RMD10BH	Research Methodology B	(0,125)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

11.4 MAGISTER TECHNOLOGIAE: ECOTOURISM MANAGEMENT
Qualification code: MTES01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Ecotourism Management or an NQF level 7 bachelor's or honours degree in Ecotourism Management from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
ETM510T	Dissertation: Ecotourism	(1,000)
ETM510R	Dissertation: Ecotourism (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

11.5 FIELD TRIPS

A minimum of four compulsory training field trips (5 -14 days each) are scheduled in the training period. The evaluation of each training field trip forms an integral part of the semester mark for the subject, and a pass mark is required for each training field trip in order to pass that semester. The cost of a training field trip normally includes all travelling expenses, accommodation and entrance fees. Where necessary, provision should be made for preventing malaria and, especially, tick-bite fever. Students will be fully informed in this regard. Basic camping equipment is required and students should be self-sufficient during the training trips.

Please note: Dates, duration, venues and cost of training field trips are subject to change.

FIELD TRIP 1 – LOCAL NATURE RESERVE: PRETORIA REGION
During this field trip, the emphasis is on the practical principles and philosophy of ecotourism as a career. Practical aspects of all first-semester subjects are emphasised, and the most important biotic and abiotic components of the local environment are studied. An additional objective of this field trip is to introduce students to the complex interaction in nature and to gain knowledge of plant identification, animal studies and veld interpretation. (Duration: 5 days)

FIELD TRIP 2 – KWAZULU-NATAL
This field trip includes a visit to the coastal areas and/or midland reserves of KwaZulu-Natal. Students participate in and are exposed to management, research, community, guiding and interpretation activities. (Duration: 8 days)

FIELD TRIP 3 – LOWVELD
Students are exposed to a variety of practical aspects regarding conservation management and environmental interpretation. The following tourism aspects are emphasised: the layout of rest camps/resorts, marketing and management of resorts and ecotourism facilities, waste management, environmental interpretation (including bush camps), hiking tours and community involvement. (Duration: 8 days)

FIELD TRIP 4 – MPUMALANGA/LOWVELD
During this field trip, the emphasis is especially on the activities of an ecotourism practitioner in provincial and privately owned conservation practices. Ecological management and daily activities, as well as field interpretation skills, are emphasised. The ecological impact of tourism is studied. The main emphasis of this field trip is on practical application and participation in various activities and medium-term projects. (Duration: 8 days)

11.6 NATIONAL DIPLOMA: GAME RANCH MANAGEMENT
Qualification code: NDGR04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with D symbols at the Standard Grade for English and either Biology, Physical Science or Mathematics. Candidates with E symbols at the Standard Grade will also be considered.

Recommended subject(s):
None

Selection criteria:
Admission is based on the normal M score with a weighted Swedish scale.

SYMBOL	HG VALUE	SG VALUE
A	6	5
B	5	4
C	4	3
D	3	2
E	2	1

A minimum of 20 points are required with bonus points for Biology, Geography, Agriculture, etc. A maximum of six bonus points can be awarded and two bonus points can also be awarded for prior experience.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Life Sciences, Physical Sciences, Agricultural Sciences and Geography.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
- Candidates with a score of 24 and more will be considered for selection.
- Candidates with a score of 20 (19 with mathematical) to 23 will be invited for the TUT potential assessment. The TUT assessment result will contribute 40 % and the APS 60 % to the total score.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Registration for the subjects in this qualification:
January and July

g. Training excursions, field trips and practicals:
Training excursions, field trips and practical classes are compulsory and involve additional expenses, over and above the class fees. Basic camping equipment is also required. Students will be provided with further details at registration.

h. General:
It is compulsory to wear the required uniform during certain practical classes. Uniforms may also be worn to class and to practicals.Students will be provided with details about uniforms at registration.

The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries, it is recommended that students take out insurance. More information will be available at registration.

i. Financial support, loans and bursaries:
The University administers the National Student Financial Aid Scheme (NSFAS) for financial support, and the Department currently administers some bursaries (for senior students only), namely the Stud Breeders (Wildlife Ranching South Africa) and the South African Hunters' Association Bursary. Information is available at the Department.

j. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

k. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
GRM101T	Game Ranch Management I	(0,100)	
GRY101T	Game Ranch Ecology I	(0,100)	
GSC101T	Game Science I	(0,100)	
RLS101T	Rangeland Studies I	(0,100)	
	Field Trip 1 – Pretoria region		
TOTAL CREDITS FOR THE SEMESTER:		0,400	

SECOND SEMESTER

Any two subjects from the first semester should be passed for conditional acceptance.

GRE101T	Game Ranch Economics I	(0,100)	
GRM201T	Game Ranch Management II	(0,100)	Game Ranch Management I
GRY201T	Game Ranch Ecology II	(0,100)	Game Ranch Ecology I
GSC201T	Game Science II	(0,100)	Game Science I
SSC101C	Soil Science I	(0,100)	
	Field Trip 2 – Limpopo Province		
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,900**	

SECOND YEAR

FIRST SEMESTER

CUS101T	Computer Usage I	(0,100)	
GRE201T	Game Ranch Economics II	(0,125)	Game Ranch Economics I
GRY301T	Game Ranch Ecology III	(0,125)	Game Ranch Ecology II
GSC301T	Game Science III	(0,125)	Game Science II
	plus one of the following subjects:		
GLN101T	Game Lodge Management I	(0,125)	
GUN101T	Game Utilization I	(0,125)	
	Field Trip 3 – Bushveld		
TOTAL CREDITS FOR THE SEMESTER:		0,600	

SECOND SEMESTER

GHM101T	Game Health Management I	(0,125)	
GRE301T	Game Ranch Economics III	(0,125)	Game Ranch Economics II
GRM301T	Game Ranch Management III	(0,125)	Game Ranch Management II
	plus one of the following subjects:		
GLN201T	Game Lodge Management II	(0,125)	Game Lodge Management I
GUN201T	Game Utilization II	(0,125)	Game Utilization I
	Field Trip 4 - Limpopo Province		
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,100**	

THIRD YEAR

FIRST SEMESTER

EXP1GRM	Experiential Learning I	(0,500)
TOTAL CREDITS FOR THE SEMESTER:		0,500

SECOND SEMESTER

EXP2GRM	Experiential Learning II	(0,500)
TOTAL CREDITS FOR THE SEMESTER:		0,500
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**

11.7 BACCALAUREUS TECHNOLOGIAE: GAME RANCH MANAGEMENT
Qualification code: BTGR03

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Game Ranch Management or an NQF level 6 bachelor's degree in Game Ranch Management from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years. These blocks comprise four compulsory week-long blocks per annum (excluding examinations) – usually one in January, one in April, one in July and one in October.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE (2012/2014)

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
GRS400T	Game Ranch Strategic Management IV	(0,150)	
GRM40AT	Game Ranch Management IVA	(0,150)	
GSC40AT	Game Science IVA	(0,150)	
	plus one of the following subjects:		
RMD10AH	Research Methodology A	(0,050)	
RMD10BH	Research Methodology B	(0,050)	Research Methodology A
TOTAL CREDITS FOR YEAR:		**0,500**	

ATTENDANCE (2013/2015)

GRE400T	Game Ranch Economics IV	(0,150)	
GRM40BT	Game Ranch Management IVB	(0,150)	
GSC40BT	Game Science IVB	(0,150)	
	plus one of the following subjects:		
RMD10AH	Research Methodology A	(0,050)	
RMD10BH	Research Methodology B	(0,050)	Research Methodology A
TOTAL CREDITS FOR YEAR:		**0,500**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

11.8 MAGISTER TECHNOLOGIAE: GAME RANCH MANAGEMENT
Qualification code: MTGR01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Game Ranch Management or an NQF level 7 bachelor's or honours degree in Game Ranch Management from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
GRM500T	Dissertation: Game Ranch Management	(1,000)
GRM500R	Dissertation: Game Ranch Management (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

11.9 DOCTOR TECHNOLOGIAE: GAME RANCH MANAGEMENT
Qualification code: DTGR01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Game Ranch Management or an NQF level 8 master's degree in Game Ranch Management, obtained from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
GRM700T	Thesis: Game Ranch Management	(2,000)
GRM700R	Thesis: Game Ranch Management (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

11.10 FIELD TRIPS

A minimum of four compulsory training field trips are scheduled in the training period. The evaluation of each training field trip forms an integral part of the semester mark for the subject and a pass mark is required for each training field trip in order to pass that semester. The cost of training field trips normally includes all travelling expenses, accommodation and entrance fees, and meals in some cases. Where necessary, precautions should be taken against malaria, and, especially, tick-bite fever. Students will be informed in this regard.

FIELD TRIP 1 – PRETORIA REGION
This field trip is undertaken annually to a suitable site in the Pretoria area. The practical aspects of all first-semester subjects are addressed during the field trip. The most important biotic and abiotic components of the local environment are investigated and students have an opportunity to gain knowledge of plant identification, animal identification and field interpretation. (Duration: 5 days)

FIELD TRIP 2 – LIMPOPO PROVINCE
Limnological evaluation of the Palala River within the Waterberg biosphere at Lephalale. Visits to game ranches and to important role-players in the game industry. Students are exposed to surveying techniques of freshwater ecotypes. (Duration: 5 to 10 days)

FIELD TRIP 3 – BUSHVELD
This fieldtrip is undertaken by third-semester students either enrolled for Game Ranch Ecology III and/or Game Utilisation I. The venue varies and will be announced. This field trip exposes students to habitat analysis and game utilisation on a game farm. The field trip focuses on different vegetation survey methods and various aspects relating to the hunting industry. Practical hunting, skinning and caping of game form an integral part of this training excursion. Other activities can be arranged on an ad hoc basis. (Duration: 7 to 10 days)

FIELD TRIP 4 – LIMPOPO PROVINCE
This field trip is undertaken by fourth-semester students and comprises a vital component of the training in the subject, Game Ranch Management III. The Percy Fife, Polokwane and Venetia Nature Reserves are visited. Students are exposed to management techniques for the intensive breeding of roan antelope and the management of lions, wild dogs, white rhinos and elephants at relatively smaller reserves. Practical training is given for lion and hyena call-ups, radiotelemetry, GPS, map development, bird ringing and trophy carcass preparation. Reserve management along the principles of sustainable utilisation and adaptive management are also discussed. (Duration: 9 days)

11.11 NATIONAL DIPLOMA: NATURE CONSERVATION
Qualification code: NDNA04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with D symbols at Standard Grade for English and either Biology, Physical Science or Mathematics. Candidates with E symbols at Standard Grade will also be considered.

Recommended subject(s):
None

Selection criteria:
Assessment is based on the normal M score with a weighted Swedish scale.

SYMBOL	HG VALUE	SG VALUE
A	6	5
B	5	4
C	4	3
D	3	2
E	2	1

A minimum of 20 points are required with bonus points for Biology, Geography, Agriculture, etc. A maximum of six bonus points can be awarded, and two bonus points are also awarded for prior experience.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Life Sciences, Physical Sciences, Agricultural Sciences and Geography.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
- Candidates with a score of 24 and more will be considered for selection.
- Candidates with a score of 20 (19 with mathematical) to 23 will be invited for the TUT potential assessment. The TUT assessment result will contribute 40 % and the APS 60% to the total score.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Training excursions, field trips and practicals:
Training excursions, field trips and practical classes are compulsory and involve additional expenses, over and above the class fees. Basic camping equipment is also required. Students will be provided with further details at registration.

g. General:
It is compulsory to wear the required uniform during certain practical classes. Uniforms may also be worn to class and to practicals. Students will be provided with details about uniforms at registration.

The nature of the training involves a degree of risk, although all reasonable precautions are taken by the University and the Department to prevent accidents and injuries, it is recommended that students take out insurance. More information is available at registration.

h. Financial support, loans and bursaries:
The University administers the National Student Financial Aid Scheme (NSFAS) for financial support and the Department currently administers some bursaries (for senior students only), namely the Stud Breeders (Wildlife Ranching South Africa) and the South African Hunters' Association Bursary. In addition there is bursary from the South African National Parks Honorary Rangers.

i. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

j. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
ANS111T	Animal Studies I	(0,100)	
BON101T	Conservation Development I	(0,100)	
WNB101T	Conservation Ecology I	(0,100)	
WPS101T	Plant Studies I	(0,100)	
	Field Trip 1 - Pretoria region		
TOTAL CREDITS FOR THE SEMESTER:		0,400	

SECOND SEMESTER
Any two subjects from the first semester should be passed for conditional acceptance.

ANS211T	Animal Studies II	(0,100)*	Animal Studies I
RMG101T	Resource Management I	(0,100)	
SSC101C	Soil Science I	(0,100)	
WNB201T	Conservation Ecology II	(0,100)	Conservation Ecology I
WPS201T	Plant Studies II	(0,100)*	Plant Studies I
	Field Trip 2 - KwaZulu-Natal		
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,900**	

SECOND YEAR

FIRST SEMESTER

BKO101T	Conservation Communication I	(0,125)	
CUS101T	Computer Usage I	(0,100)	
CVA101T	Conservation Administration I	(0,125)*	
RMG201T	Resource Management II	(0,125)	Resource Management I
WPS301T	Plant Studies III	(0,125)	Plant Studies II
	Field Trip 3 - Mpumalanga Escarpment/Lowveld and Kruger National Park		
TOTAL CREDITS FOR THE SEMESTER:		0,600	

SECOND SEMESTER

ANS311T	Animal Studies III	(0,125)	Animal Studies II
BKO201T	Conservation Communication II	(0,125)	Conservation Communication I
RMG301T	Resource Management III	(0,125)	Resource Management II
WNB301T	Conservation Ecology III	(0,125)	Conservation Ecology II

Field Trip 4 - Suikerbosrand Nature Reserve

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,100**

THIRD YEAR

FIRST SEMESTER

EXP1NCV Experiential Learning I (0,500)

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

EXP2NCV Experiential Learning II (0,500)

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

11.12 BACCALAUREUS TECHNOLOGIAE: NATURE CONSERVATION
Qualification code: BTNA00

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Nature Conservation or an NQF level 6 bachelor's degree in Nature Conservation from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes offered over a period of two years. These blocks comprise four compulsory week-long blocks per annum (excluding examinations) – usually one in January, one in April, one in July and one in October.

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Subject credits:
Subject credits are shown in brackets after each subject.

ATTENDANCE (2012/2014)

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CVM100T	Conservation Management I	(0,100)	
RMG40PT	Resource Management IVA	(0,150)	
WPS40PT	Plant Studies IVA	(0,150)	
	plus one of the following subjects:		
RMD10AH	Research Methodology A	(0,050)	
RMD10BH	Research Methodology B	(0,050)	Research Methodology A
TOTAL CREDITS FOR THE YEAR:		**0,450**	

ATTENDANCE (2013/2015)

RMG40QT	Resource Management IVB	(0,150)	
WPS40QT	Plant Studies IVB	(0,150)	
	plus one of the following subjects:		
RMD10AH	Research Methodology A	(0,050)	
RMD10BH	Research Methodology B	(0,050)	Research Methodology A
	plus two of the following subjects:		
EED100T	Environmental Education I	(0,100)	
FMN120T	Financial Management I	(0,100)	
FWM400T	Fresh Water Management IV	(0,100)	
PMR100T	Principles of Management I	(0,100)	
TOTAL CREDITS FOR THE YEAR:		**0,550**	
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**	

11.13 MAGISTER TECHNOLOGIAE: NATURE CONSERVATION
Qualification code: MTNA95

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Nature Conservation or an NQF level 7 bachelor's or honours degree in Nature Conservation from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
NCV500T	Dissertation: Nature Conservation	(1,000)
NCV500R	Dissertation: Nature Conservation (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

11.14 DOCTOR TECHNOLOGIAE: NATURE CONSERVATION
Qualification code: DTNA96

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Nature Conservation or an NQF level 8 master's degree in Nature Conservation, obtained from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. He or she should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
NCV700T	Thesis: Nature Conservation	(2,000)
NCV700R	Thesis: Nature Conservation (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

11.15 FIELD TRIPS

A minimum of four compulsory training field trips are scheduled in the training period. The evaluation of each training field trip forms an integral part of the semester mark for the subject and a pass mark is required for each training field trip in order to pass that semester. The cost of training field trips normally includes all travelling expenses, accommodation and entrance fees, and meals in some cases. Where necessary, precautions should be taken against malaria, and, especially, tick-bite fever. Students will be informed in this regard.

FIELD TRIP 1 – PRETORIA REGION
This field trip is undertaken annually to a suitable site in the Pretoria area. During the field trip, the practical facets of all first-semester subjects are addressed. The most important biotic and abiotic components of the area are studied. Students thus have an opportunity to gain knowledge of plant identification, animal identification and veld interpretation. (Duration: 5 days)

FIELD TRIP 2 – KWAZULU-NATAL
This field trip takes place during September, and the KwaZulu-Natal north coast, midlands and Drakensberg reserves are visited. Students take part in various practical activities and are exposed to management and research procedures. The field trip often overlaps the international coastal clean-up activities. The involvement of local communities in the activities of the KwaZulu-Natal Wildlife Service and other environmental education actions are also noted. (Duration: 10 to 12 days)

FIELD TRIP 3 – MPUMALANGA ESCARPMENT/LOWVELD AND KRUGER NATIONAL PARK
Students are exposed to biomes of the region, in particular bankenveld, grassland and savannah. In-depth discussions are conducted and field demonstrations provided on the abiotic components, such as soils and the plants or animal assemblages of each. This includes visits to Verloren Vallei Nature Reserve, with special emphasis on its role as a conservation area for wattled cranes and rare plant species, as well as a practical field trip to fen wetlands to see peat and various graminoid plants.

This is followed by a visit to the Lydenburg Fisheries Station, and practicals on aquaculture. Moving to the Lowveld, students undertake field practicals on the catena effect in savannahs with the relevant plant or soil associations. This includes field-monitoring techniques, followed by field demonstrations on the soils, underlying geology and plant associations of the major landscapes of the Kruger National Park. Students attend a series of specialist lectures on predators, disease epidemiology (TB, theileriosis, foot-and-mouth disease, anthrax, rinderpest, encephalitis and myocarditis), management plans, alien plants, TB in lions and vegetation monitoring at the Kruger National Park. Students actively participate in environmental education, interpretation demonstrations and field trips at Lydenburg, Bourke's Luck and Skukuza. Students also attend lectures and field demonstrations on amphibians, rare plant cultivation and problem animal control. (Duration: 10 days)

FIELD TRIP 4 – SUIKERBOSRAND NATURE RESERVE
During this field trip, the emphasis is particularly on the activities of a nature conservationist in a provincial conservation organisation. Students are exposed to a variety of practical aspects pertaining to conservation, i.e. resource management, environmental education, interpretation, law enforcement, cultural services and ecological processes or activities. Also included are recommendations on game numbers and species, water provision, supplementary feeding and game capturing. The provision of infrastructure, fire breaks and veld management are also emphasised. (Duration: 5 days)

12. DEPARTMENT OF PHARMACEUTICAL SCIENCES

12.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Dr G Enslin - D Tech (Pharmaceutical Sciences) (TUT)
Telephone numbers: 012 382 6230/6303

Departmental Administrator: Ms T Mathai

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Ms DJ Baron	Senior Lecturer	NH Dip (Beauty Technology) (Tech Pta), NH Dip (Post-School Education) (Tech Pta), CIDESCO
Dr PH Demana	Senior Lecturer	PhD (Pharmaceutics) (OTAGO)
Ms BM Komane-Mofokeng	Lecturer	B Tech (Somatology) (Tech Pta), Dip (Post-School Education) (Tech Pta), CIDESCO
Ms CM Leonard	Senior Lecturer	MSc (Microbiology) (UWC)
Ms CA Louw	Lecturer	NH Dip (Beauty Technology) (Tech Pta), Dip (Tertiary Education) (UP), CIDESCO
Ms TM Mapeka	Lecturer	MSc (Med Sciences) (Microbiology) (Medunsa) (UL)
Mr DP Nazer	Senior Lecturer	B Pharm (UWC), MBL (Unisa)
Dr EI Olivier	Senior Lecturer	D Tech (Biomedical Technology) (TUT)
Mr C Tarirai	Lecturer	M Tech (Pharmaceutical Sciences) (TUT)
Prof AM Viljoen	Professor	PhD (Botany) (RAU)
Ms I Vermaak	Lecturer	M Tech (Pharmaceutical Sciences) (TUT)

12.2 BACCALAUREUS: PHARMACIAE (B PHARM)

Qualification code: B PHARM

Campus where offered: Arcadia Campus and Medunsa Campus (University of Limpopo)

REMARKS

Please note: this qualification is offered in partnership with the University of Limpopo (Medunsa Campus). The degree will be conferred by the University of Limpopo. The rules of the University of Limpopo therefore apply to this programme.

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  Applications from prospective students will be considered who are in possession of or are about to receive –
  - A Matriculation Exemption Certificate of the UMALUSI;
  - A Matriculation Exemption Certificate granted by the Matriculation Board; or
  - A Senior Certificate with university exemption.

Mathematics and two of the following Matric subjects at the Higher Grade are compulsory:

Biology, Botany, Physical Science and Physiology. Learners who have Mathematics at the Standard Grade, and who have achieved A or B ratings may also be considered.

Applications from learners who have completed training that meets the requirements of the National Qualifications Framework (NQF), will also be considered. Learners who had already successfully completed the foundation programme at the Tshwane University of Technology will also be accepted.

Recommended subject(s):
None

Selection criteria:
After the B Pharm selection committee has screened all the candidates who comply with the above, they will compile a list of candidates for Potential Assessment and interviews.

After the Potential Assessment and interviews, a list will be drawn up of applicants who have been conditionally accepted. A reserve list will also be drawn up for the replacement of accepted applicants who do not enrol.

Due to the nature of the programme and the teaching, learning and assessment methods, admission to the B Pharm programme is at first-year level only.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008 :**
(As published in the calendar of the University of Limpopo - Please contact the University of Limpopo (Medunsa Campus).

Admission requirement(s) and selection criteria:

(i) Applications will be considered from candidates who are in possession of, or are about to receive –
  - A Matriculation Exemption Certificate of the Matriculation Board, **or**
  - A Certificate of Exemption from the Matriculation Examination granted by the Matriculation Board, **or**
  - A Senior Certificate with university exemption.

(ii) Candidates will be required to have passed Mathematics and two of the following subjects in the Higher Grade at Matric level: Biology, Botany, Physical Sciences and Physiology. (Candidates with Mathematics in the Standard Grade who have achieved an A or B rating may be considered).

(iii) Applications will also be considered from candidates who have completed appropriate training within the requirements of the National Qualifications Framework

(iv) Because of the nature of the programme and the teaching/learning and assessment methods, admission to the B Pharm programme is at first-year level only.

Admission Points Score (APS):

SUBJECTS REQUIREMENTS	MINIMUM PERFORMANCE LEVEL/SCORE
Life Sciences	4
Mathematics	4
Physical Sciences	4
Language of Learning	4
Life Orientation	3
Two additional subjects (Accounting and Economics)	3 X 2
TOTAL POINTS:	**25**

- The B Pharm Selection Committee will screen all candidates who comply with (i) above and provide a list for potential testing and interview.
- After the potential testing and interview, a list of conditional acceptances will be developed, as well as a reserve list, for replacement of non-acceptances.

b. Presentation:

The Baccalaureus: Pharmaciae (B Pharm) is conferred on successful completion of the study period. It is a degree of the Medunsa Campus (University of Limpopo), offered in partnership with the Tshwane University of Technology (TUT). Students are registered at the University of Limpopo (Medunsa Campus) and enrolled at a TUT campus. The B Pharm is presented in semester format, with one semester of each year of study offered at each institution.

This programme is presented in English only. The B Pharm curriculum will be updated continuously to reflect statutory requirements. The B Pharm students will receive dual identification, which will give them full access to all the facilities of both institutions. Academic support for students is available at both institutions.

c. General information for registration with the SAPC:

All students admitted to the second year of study must register with the South African Pharmacy Council (SAPC) before 31 March of the relevant year. Registration as a pharmacist assistant may also take place from the second year of study.

The SAPC requires the following documents and fee before registration can be effected:

(i) Birth certificate.
(ii) Matriculation/Matriculation Exemption Certificate. If this certificate does not indicate a pass in Mathematics, a further certificate to the effect that an examination in Mathematics of a standard at least equivalent to the Standard Grade in the Matriculation examination has been passed, is required.
(iii) Certificate of having commenced professional study for the degree.
(iv) Registration fee as determined by the SAPC.

After qualification, graduates are required to undertake a one-year period of internship during which they must satisfactorily complete a pre-registration examination for entry-level pharmacists. They are then required to complete one year in the public sector as a community service pharmacist, before proceeding to full registration as a pharmacist.

Exit points: In terms of regulations relating to the Pharmacy Act, 1974 (Act No. 53 of 1974), as amended, students who leave the programme after completion of Year 1 may register with the SAPC as Basic-Level Pharmacists' Assistants. Students who leave the programme after satisfying the requirements for Year 2 may register as Post-Basic-Level Pharmacists' Assistants.

Note: These rules must comply with the proposed regulations of the South African Pharmacy Council, as promulgated in terms of the Pharmacy Act, as amended.

d. Minimum duration:

(i) The minimum duration of the degree is four years of day-classes.
(ii) The maximum permitted duration of the four-year degree programme will be six years. Any year of the B Pharm may be repeated once only, i.e. failure of any year at the second attempt leads to exclusion from the programme.

e. Accommodation and transport:

Accommodation is available at the student residences of the Medunsa Campus (University of Limpopo) or at the TUT campuses. A student bus service operates between the University of Limpopo (Medunsa Campus) and the TUT (Arcadia Campus).

f. Information for applications:

UNIVERSITY OF LIMPOPO
(Medunsa Campus)
The Registrar
PO Box 143
MEDUNSA 0204
Tel. 012 521 4135
Fax: 012 521 5732

TSHWANE UNIVERSITY OF TECHNOLOGY
The Registrar
Private Bag X680
PRETORIA
0001
Tel. 012 382 5911
Fax: 012 382 5114

or

TSHWANE UNIVERSITY OF TECHNOLOGY
(Arcadia Campus)
Department of Pharmaceutical Sciences
Tel. 012 382 6303
Fax: 012 382 6243

Please note: Information on subject fees is available at the University of Limpopo (Medunsa Campus).

FIRST YEAR

CODE	SUBJECT
ENGS124	English Language

FIRST SEMESTER (ARCADIA CAMPUS)

PATO113	From Atoms to Molecules
PMOL114	From Molecules to Medicines
PORI111	Orientation and Induction
PTAS112	Tasks and Challenges in Health Care

SECOND SEMESTER (ARCADIA AND MEDUNSA CAMPUSES)

PBIO121	Biopharmaceutics, Pharmacokinetics and Pharmacodynamics (Arcadia Campus)
PELR123	Experiential Learning: Research Methodology and Primary Health Care (Medunsa Campus)
PMIC122	Micro-Organisms, Man and Medicines (Arcadia Campus)

SECOND YEAR

FIRST SEMESTER (MEDUNSA CAMPUS)

PCAR212	Cardiovascular Pharmacy
PNUT211	Nutrition and Gastro-Enterology
PRES213	Respiratory System (Ear and Eye)

SECOND SEMESTER (ARCADIA CAMPUS)

PELI223	Experiential Learning: Industrial Pharmacy Practice
PIND222	Industrial Pharmacy Practice
PMAN221	Principles and Practice of Pharmaceutical Manufacturing

THIRD YEAR

FIRST SEMESTER (ARCADIA CAMPUS)

PBIV313	Modern Technologies in Health Care
PCOM312	Community-Based Pharmaceutical Care
PPRE311	Sterile Pharmaceutical Products

SECOND SEMESTER (ARCADIA AND MEDUNSA CAMPUS)

PELC323	Experiential Learning: Community Pharmacy Practice (Arcadia Campus)
PEND321	Endocrine and Reproductive Pharmacy (Medunsa Campus)
PMUS322	Musculoskeletal and Skin Conditions and Pain Management (Medunsa Campus)

FOURTH YEAR

FIRST SEMESTER (MEDUNSA CAMPUS)

PHSP412	Health Systems: Pharmacy
PNEU411	Neurological and Psychiatric Pharmacy

SECOND SEMESTER (ARCADIA AND MEDUNSA CAMPUS)

PELH423	Experiential Learning: Hospital Pharmacy Practice (Medunsa Campus)
PHBC421	Hospital-Based Pharmaceutical Care (Medunsa Campus)
PREM422	Research Methodology (Advanced) and Research Project (Arcadia Campus)

12.3 BACCALAUREUS TECHNOLOGIAE: PHARMACEUTICAL SCIENCES
Qualification code: BTPL01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
Any relevant NQF level 6 Health- or Pharmaceutical Sciences-related degree or diploma from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Block-based classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Late applications:
Late applications for this qualification will be considered.

h. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
Five of the following subjects:		
BPM400T	Biopharmaceutics IV	(0,200)
CCR400T	Clinical Trials IV	(0,200)
EQI400T	Establishing the Quality of Medicines IV	(0,200)
FDF400T	Formulation of Dosage Forms IV	(0,200)
GCL400T	Good Clinical and Laboratory Practice IV	(0,200)
PHA400T	Pharmaceutical Packaging IV	(0,200)
ROM400T	Registration of Medicines IV	(0,200)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

12.4 MAGISTER TECHNOLOGIAE: PHARMACEUTICAL SCIENCES (Structured)
Qualification code: MTPLS0

Campus where offered: Arcadia Campus

REMARKS
Please note: A moratorium was placed on new intakes as from 2008 until further notice.

a. Admission requirement(s):
Any relevant four-year tertiary qualification. A student has to apply in advance for status to be granted or an equivalent qualification to be recognised. Depending on the nature of such equivalent qualification, the completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. These procedures will be fully explained to each prospective student at his or her personal interview.

It is highly recommended that the student should have passed relevant pharmaceutical subjects during undergraduate studies and/or completed a pharmaceutical-related short learning programme beforehand.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Block-based classes

e. Structure:
This programme consists of subjects offered on a block basis and a research project in the form of a mini-dissertation (research report). In order to obtain a structured magister technologiae, the student has to pass all the relevant subjects and the mini-dissertation (research report) has to be accepted. The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

Subjects are offered as determined by the Department.

CODE	SUBJECT	CREDIT
PHR510T	Research Report: Pharmaceutical Sciences V	(0,500)
PHR510R	Research Report: Pharmaceutical Sciences V (re-registration)	(0,000)
RMD500C	Research Methodology	(0,101)
	plus three of the following subjects:	
CRH500T	Clinical Research	(0,133)
CYH500T	Community Pharmacy	(0,133)
MGE500T	Medicine Governance	(0,133)
PHN500T	Pharmaco-Economics	(0,133)
PRU500T	Pharmaceutical Production	(0,133)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

12.5 MAGISTER TECHNOLOGIAE: PHARMACEUTICAL SCIENCES
Qualification code: MTPL01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Pharmaceutical Sciences or an NQF level 7 Health- or Pharmaceutical Sciences-related bachelor's or honours degree from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, the manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
PHR500T	Dissertation: Pharmaceutical Sciences	(1,000)
PHR500R	Dissertation: Pharmaceutical Sciences (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

12.6 DOCTOR TECHNOLOGIAE: PHARMACEUTICAL SCIENCES
Qualification code: DTPL01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Pharmaceutical Sciences or an NQF level 8 Health- or Pharmaceutical Sciences-related master's degree from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.
These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
PHR700T	Thesis: Pharmaceutical Sciences	(2,000)
PHR700R	Thesis: Pharmaceutical Sciences (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**2,000**

12.7 NATIONAL DIPLOMA: SOMATOLOGY
Qualification code: NDSY97

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with at least D symbol at Standard Grade, for English and either Biology, Physiology, Physical Science or Mathematics. Subjects with E symbols at the Higher Grade will also be considered.

  Recommended subject(s):
  Business Economics

  Selection criteria:
  Candidates may be required to write an academic proficiency test and attend an interview with a departmental selection panel.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy and 3 for Life Sciences or 3 for Physical Sciences.

  Recommended subject(s):
  Economics

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18** (with Mathematics) or **19** (with Mathematical Literacy).

Assessment procedures:
- Candidates with an APS of 24 and more will be considered for admission.
- Candidates with a score of 19 (or 18 with Mathematics) to 23, will be required to write an academic proficiency test and attend an interview with a departmental selection panel.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Theory and practical:
Before students may enrol for the next level, they must pass both the practical and theoretical components of Biotics I, II and III, and Soma Techniques I, II and III. Students must attend at least 85% of both the practical and theoretical classes of those two subjects. Should a student fail to attend 85% of the classes, permission to sit for the final practical and theoretical examinations may be denied. Should a student be physically unable to carry out the practical component, permission to continue with this qualification may be refused.

g. Textbooks:
Textbooks will be required.

h. Uniforms:
A specific uniform is compulsory and must be purchased by the student. Access to classes will be refused to students who do not wear their uniforms.

i. Projects and assignments:
Students will be expected to undertake projects and assignments in some of the subjects.

j. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks:
* The subject Soma Techniques III (STH300T) must be taken simultaneously with Soma Techniques Project II (STP200T); alternatively Soma Techniques III (STH300T) must already have been completed before Soma Techniques Project II (STP200T) may be taken.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
AES110T	Aesthetics I	(0,100)	
APY140B	Anatomy and Physiology I	(0,130)	
BTS100T	Biotics I	(0,150)	
COS100B	Communication Skills I	(0,080)	
NUT100T	Nutrition I	(0,100)	
SCI100T	Science I	(0,140)	
STH100T	Soma Techniques I	(0,300)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR			
APY220T	Anatomy and Physiology II	(0,120)	Anatomy and Physiology I
BNP110C	Business Practice I	(0,100)	
BTS200T	Biotics II	(0,150)	Biotics I
NUT210B	Nutrition II	(0,100)	Nutrition I
SCI200T	Science II	(0,130)	Science I
SOS100T	Socio-Psychology I	(0,100)	
STH200T	Soma Techniques II	(0,300)	Soma Techniques I
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR			
ABS300T	Applied Biological Sciences III	(0,100)	Anatomy and Physiology II Science II
BNP200T	Business Practice II	(0,100)	Business Practice I
BTS300T	Biotics III	(0,150)	Biotics II
NUT320B	Nutrition III	(0,100)	Nutrition II
SOS200T	Socio-Psychology II	(0,100)	Socio-Psychology I
STH300T	Soma Techniques III*	(0,300)	Soma Techniques II Science II
STP200T	Soma Techniques Project II*	(0,150)	
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

12.8 BACCALAUREUS TECHNOLOGIAE: SOMATOLOGY
Qualification code: BTSY97

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Somatology or an equivalent qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day classes

e. Intake for the qualification:
January only

f. Textbooks:
Textbooks will be required.

g. Uniforms:
A specific uniform is compulsory and must be purchased by the student. Access to classes will be refused to students who do not wear their uniforms.

h. Projects and assignments:
Students will be expected to undertake projects and assignments in some of the subjects.

i. Readmission:
See Chapter 3 of Students' Rules and Regulations.

j. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

ATTENDANCE

CODE	SUBJECT	CREDIT
BNP300T	Business Practice III	(0,150)
NUT400T	Nutrition IV	(0,150)
SOJ400T	Somatology Project IV	(0,250)
STH400T	Soma Techniques IV	(0,300)

FIRST SEMESTER

RSY201T	**Research Methodology: Natural Sciences**	
RSY20XT	Research Methodology: Natural Sciences: Somatology	(0,075)

SECOND SEMESTER

RSY201T	**Research Methodology: Natural Sciences**	
RSY20YT	Research Methodology: Natural Science: Statistics	(0,075)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

12.9 MAGISTER TECHNOLOGIAE: SOMATOLOGY
Qualification code: MTSY99

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Somatology or an equivalent qualification.
Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during tgeir personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, the manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
STG500T	Dissertation: Somatology	(1,000)
STG500R	Dissertation: Somatology (re-registration)	(0,000)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

13. DEPARTMENT OF PHYSICS

13.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Head of Department: Dr JKO Asante - PhD (Physics) (UFS), BEd (Unisa)
Telephone numbers: 012 382 6280/6357

Departmental Administrator: Ms F Roberts

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Dr A Coetzee	Lecturer	BSc (Hons) (Energy Studies) (RAU), MSc (Science Education) (Wits), HED (US), DEd (TUT)
Mr J Ludick	Junior Lecturer	B Tech (Fire Technology) (Tech Pta)
Mr J Madonsela	Lecturer	MSc (Nuclear Physics) (Wits)
Mr MK Maremane	Lecturer	MSc (Physics) (UP)
Mr F Simpson	Senior Lecturer	BSc (Hons) (UP), BEd (UP)
Ms M Steenkamp	Lecturer	MSc (Medical Physics) (Wits)
Ms S Titus	Lecturer	Dip (Ed) (LU), MSc (Physics) (KERALA, India)
Mr NJ van der Schyff	Lecturer	B Tech (Fire Technology) (Tech Pta)

13.2 NATIONAL DIPLOMA: FIRE TECHNOLOGY
Qualification code: NDFY01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with symbol E at the Standard Grade for Mathematics and Physical Science and a symbol D at the Standard Grade for English or symbol E at the Higher Grade. Prospective students must be employed by an approved fire or emergency service.

  A number of students not employed by the emergency services will also be considered, subject to the availability of training space at the Tshwane Metropolitan. These students will be required to pass the physical and medical fitness tests prescribed by the emergency services.

  Selection criteria:
  Candidates without Mathematics and Physical Science will be selected for admission based on the successful completion of a potential assessment and a science skills knowledge test.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy, and 3 for Physical Sciences.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18** (with Mathematics) or **19** (with Mathematical Literacy).

Assessment procedures:
Candidates who are employed by an approved fire or emergency service will be considered for admission to the National Diploma, provided that they meet the minimum APS requirements.

A number of students not employed by the emergency services will also be considered, subject to the availability of training space at the Tshwane Metropolitan. These candidates will be invited for an interview with a departmental selection panel and will be required to pass the physical and medical fitness tests prescribed by the emergency services, provided that they meet the minimum APS requirements.

b. Minimum duration:
Three years

c. Presentation:
Block-based classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Textbooks:
Textbooks and other educational material will be required.

g. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2011.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
EMR101T	Emergency Management I	(0,143)	
FBH111T	Fire Hydraulics I	(0,143)	
FBO111T	Fire Construction I	(0,143)	
EXP1FTC	Fire Technology: Practical I (offered in both semesters)	(0,071)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

CEM101T	Chemistry: Emergency Services I	(0,143)	
FBT111T	Fire Technology I	(0,143)	
EXP2FTC	Fire Technology: Practical II (offered in both semesters)	(0,071)*	Fire Technology: Practical I
PHV101T	Physics: Emergency Services I	(0,143)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

FBC211T	Fire Chemistry II	(0,214)*	Chemistry: Emergency Services I
FBH211T	Fire Hydraulics II	(0,143)	Fire Hydraulics I Physics: Emergency Services I
FBP211T	Fire Physics II	(0,214)*	Fire Hydraulics I Physics: Emergency Services I
TOTAL CREDITS FOR THE SEMESTER:		0,571	

SECOND SEMESTER

EMR201T	Emergency Management II	(0,143)	Emergency Management I
FBO211T	Fire Construction II	(0,143)	Fire Construction I Fire Hydraulics I
FBT211T	Fire Technology II	(0,143)	Fire Technology I Physics: Emergency Services I
TOTAL CREDITS FOR THE SEMESTER:		0,429	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

FBC311T	Fire Chemistry III	(0,166)	Fire Chemistry II
FBO311T	Fire Construction III	(0,167)	Fire Construction II Fire Hydraulics II
FBT311T	Fire Technology III	(0,167)	Fire Physics II Fire Technology II
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

EMR301T	Emergency Management III	(0,167)	Emergency Management II
FBH311T	Fire Hydraulics III	(0,167)	Fire Hydraulics II Fire Physics II
FBP311T	Fire Physics III	(0,166)	Fire Hydraulics II Fire Physics II
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

13.3 BACCALAUREUS TECHNOLOGIAE: FIRE TECHNOLOGY
Qualification code: BTFY01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Fire Technology, a National Diploma: Fire Services or an equivalent qualification.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation:*
Block-based classes offered over a period of one and a half year.

e. *Intake for the qualification:*
January and July

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2009.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

ATTENDANCE

FIRST SEMESTER (2012)

CODE	SUBJECT	CREDIT
EMR401T	Emergency Management IV	(0,150)
PYE201T	Psychology: Emergency Services II	(0,092)
RMD110E	**Research Methodology**	
RMD11XE	Research Methodology: Fire Technology	(0,045)
TOTAL CREDITS FOR THE SEMESTER:		0,287

SECOND SEMESTER (2012)

FMN211T	Financial Management II	(0,092)
MIS201T	Management Information Systems II	(0,092)
RMD110E	**Research Methodology**	
RMD11YE	Research Methodology: Statistics	(0,045)
TOTAL CREDITS FOR THE SEMESTER:		0,229

FIRST SEMESTER (2013)

FBT411T	Fire Technology IV	(0,150)
FIN411T	Fire Technology: Investigations IV	(0,150)

LES201T	Legislation: Emergency Services II	(0,092)
SHS101T	Safety and Health: Emergency Services I	(0,092)

TOTAL CREDITS FOR THE SEMESTER: 0,484

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

13.4 MAGISTER TECHNOLOGIAE: FIRE TECHNOLOGY
Qualification code: MTFY01

Campus where offered: Arcadia Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Fire Technology or Fire Services

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a prospective student should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation will be considered, the manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
FIT500T	Dissertation: Fire Technology	(1,000)
FIT500R	Dissertation: Fire Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

14. DEPARTMENT OF SPORT, REHABILITATION AND DENTAL SCIENCES

14.1 PERSONNEL INFORMATION

On 1 August 2011, this department had the following staff members:

Acting Head of Department: Prof A Toriola - PhD (Physical Education/Exercise Physiology) (OAU, Ile-Ife, Nig)
Telephone number: 012 382 5807

Departmental Administrator: Ms M du Rand

NAME	POST DESIGNATION	HIGHEST GENERIC QUALIFICATION(S)
Mr AR Boshoff	Senior Lecturer	NDip (Dental Technology) (Tech Pta)
Mr JL Botsoere	Technician	PGA Dip (SA)
Prof JF Cilliers	Professor	PhD (Biokinetics) (PU for CHE/Oregon State University and University of Jerusalem)
Mr KB de Wet	Lecturer	BA (Hons) (Biokinetics) (UP)
Mr CE Fourie	Junior Lecturer	N Dip (Sport Management) (TUT)
Mr C Hartman	Lecturer	B Tech (Dental Technology) (TUT)
Dr S Jacobs	Lecturer	PhD (Biokinetics) (North-West Univ)
Dr J Janse van Rensburg	Lecturer	DEd (Fund Ped) (Unisa)
Mr J Jooste	Junior Lecturer	Bed (Hons) (Inclusive Ed) Unisa, B Tech (Officiating and Coaching Science) (TUT), PGCE (TUT)
Mr WJ Kloppers	Manager (Golf Academy)	BA (Education) (UP), HED (Postgraduate) (UP)
Ms R Mistry	Junior Lecturer	B Tech (Medical Orthotics and Prosthetics) (TUT)
Mr N Neveling	Lecturer	BA (Hons) (Biokinetics) (UP), M Tech (Sport and Exercise Technology) (Tech Pta)
Mr P Nongogo	Lecturer	MA (Human Movement Studies) (UFH)
Dr Y Paul	Senior Lecturer	HDE (Sec School Ed) (UKZN), PhD (Sport Science) (UP)
Ms GM Phoffu	Lecturer	B (Occ Therapy) (Medunsa), Postgraduate Dip (Tertiary Education) (UP)
Mrs S Pieterse	Lecturer	Dip (Dental Assisting) (PC for ATE)
Mrs EM Prinsloo	Senior Lecturer	Dip (Dental Assisting) (PC for ATE), N Dip (Organisation and Work Study) (Tech Pta), Dip (Tertiary Education) (UP)
Ms KV Ramodike	Lecturer	B (Hons) (Occ Therapy) (Medunsa), Master of Health (Professions Education) (Mhpe) (Maastricht University)
Mrs M Schmidt	Junior Lecturer	B Tech (Medical Orthotics and Prosthetics) (TUT)
Mr A Schutze	Technologist	B Tech (Medical Orthotics and Prosthetics) (TUT)
Ms S Schwartz	Lecturer	B Tech (Dental Technology) (Tech Pta)
Prof B Shaw	Associate Professor	DPhil (Biokinetics) (UJ)
Mr WA Smit	Senior Lecturer	M Tech (Dental Technology) (TUT)
Mr CM Snyman	Lecturer	B Tech (Medical Orthotics and Prosthetics) (Tech Pta)
Dr L van der Berg	Lecturer	PhD (Sport Science) (NWU)

14.2 BACCALAUREUS TECHNOLOGIAE: BIOKINETICS
Qualification code: BTBK05

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Sport and Exercise Technology or an NQF level 6 bachelor's degree in Sport Sciences or Biokinetics from a South African university, recognised by the Health Professions Council of South Africa (HPCSA).

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Professional registration (as a student):
Registration with the HPCSA as a student-in-training is compulsory. Please note that the Council requires a further period of internship before full registration as a biokineticist.

h. Special qualification rules:
Special qualification rules apply, and students who register for this qualification will receive the rules with their acceptance letter. It is the students' responsibility to familiarise themselves with those rules.

i. Subject credits:
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in September 2006.)

YEAR SUBJECTS		
CODE	**SUBJECT**	**CREDIT**
ALN400T	Applied Anatomy IV	(0,167)
AXP400T	Advanced Exercise and Physical Evaluation IV	(0,167)
CCX400T	Clinical Exercise Science IV	(0,167)
CNO400T	Clinical Orthopaedic Management IV	(0,167)
PMN400T	Practice Management IV	(0,167)
RMD110T	Research Methodology	(0,081)*
SET410T	Research Project IV	(0,084)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

14.3 NATIONAL CERTIFICATE: DENTAL ASSISTING
Qualification code: NCDS91

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with a pass in English.

  Recommended subject(s):
  Mathematics, Biology, Physical Science, or Physiology.

  Selection criteria:
  Assessment is based on a TUT potential assessment and a personal interview. Prospective students should arrange a selection interview with the departmental selection panel.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language).

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18**.

  Assessment procedures:
  - Candidates with an APS of at least 18 will be invited for an interview with the departmental selection panel.
  - Candidates with a minimum of two years relevant working experience in the Dental Field and/or a Dental Assisting Qualification from another institution will also be considered even if the APS is below 18, but not lower than 16.

b. Minimum duration:
One year

c. Presentation:
One year day classes or two years block-based classes – only applicable to students already employed in dental practice.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Additional expenses:
Required uniform: approximately R1 000.
Awards function: approximately R300.

g. Other requirements:
A valid first-aid certificate. First-aid programmes are arranged by the University.
Immunisation against Hepatitis B is compulsory.

h. Experiential Learning:
See Chapter 5 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
DAP110T	Dental Assisting Practical I	(0,175)
DAT110T	**Dental Assisting Theory I**	
DAT11PT	Dental Assisting Theory: Dental Assisting I	(0,088)
DAT11QT	Dental Assisting Theory: Dental Radiography I	(0,087)
DPM100T	Dental Practice Management I	(0,175)
EXP1DET	Experiential Learning	(0,300)
OAP100T	Oral Anatomy and Pathology I	(0,175)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

14.4 NATIONAL DIPLOMA: DENTAL TECHNOLOGY
Qualification code: NDDT96

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with a pass at the Standard Grade in one of the following minimum combinations: Mathematics and Physical Science **or** Mathematics and Biology or Physiology, **or** Physical Science and Biology or Physiology.

Selection criteria:
Selection is done in accordance with the South African Dental Technicians Council.
Selection takes place in four steps. The weight of each step is given in brackets.
- Step 1: Academic Performance (40%)
- Step 2: Potential Assessment (20%)
- Step 3: Dexterity test (30%)
- Step 4: Personal interview (10%)

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy, and 3 for Life Sciences or 3 for Physical Sciences.

  Selection criteria:
  To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

  Assessment procedures:
  For 2012: Candidates who meet the minimum requirements will be invited to write the TUT potential assessment and a practical assessment. The candidates with the top scores will be invited for an interview.
  As from 2013: Selection is done in accordance with the South African Dental Technicians Council. Selection takes place in four steps. The weight of each step is given in brackets.
  - Step 1: Academic Performance (40%)
  - Step 2: Potential Assessment (20%)
  - Step 3: Dexterity test (30%)
  - Step 4: Personal interview (10%)

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Other requirements:
- Immunisation against Hepatitis B is compulsory.
- Students should have access to computers and Internet.
- Students should register with the South African Dental Technicians Council; this will be done by the Department.
- Students must obtain approved first-aid certificates to be admitted to the third-year examinations of the National Diploma. First-aid programmes are usually arranged by the Department.
- Faculty and statutory rules and regulations will apply to students who register for this qualification. It is the responsibility of the students to familiarise themselves with these rules and regulations.
- In addition to tuition fees, textbooks, equipment, other educational material and an amount of approximately R25 000 for personal instruments will be required in the first year of study. These will remain the property of the student. Students are responsible for purchasing these instruments themselves.

g. Special qualification rules:
Special qualification rules apply, and students who register for this qualification will receive the rules with their letter of acceptance. It is the students' own responsibility to familiarise themselves with those rules.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005.)

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
ANT100T	Applied Dental Technology I	(0,170)	
CEN150T	Communication I	(0,080)	
DMS100T	Dental Materials Science I	(0,350)	
DTT100T	Dental Technology Theory I	(0,240)	
FIRST SEMESTER			
TMY101T	Tooth Morphology I	(0,080)	
SECOND SEMESTER			
OAT101T	Oral Anatomy I	(0,080)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	
SECOND YEAR			
ANT200T	Applied Dental Technology II	(0,250)	Applied Dental Technology I
DMS200T	Dental Materials Science II	(0,330)*	Dental Materials Science I
DTT200T	Dental Technology Theory II	(0,250)	Dental Technology Theory I
JUR100T	Jurisprudence I	(0,170)	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	
THIRD YEAR			
ANT300T	Applied Dental Technology III	(0,200)	Applied Dental Technology II
BNP110B	Business Practice I	(0,170)	
DMS300T	Dental Materials Science III	(0,350)	Dental Materials Science II
DTT300T	Dental Technology Theory III	(0,280)	Dental Technology Theory II
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

14.5 NATIONAL DIPLOMA: DENTAL TECHNOLOGY (EXTENDED CURRICULUM PROGRAMME WITH FOUNDATION PROVISION)

Qualification code: NDDTF0

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:
See qualification NDDT96.

b. Minimum duration:
Four years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Other requirements:

- Immunisation against Hepatitis B is compulsory.
- Students should have access to a computer and Internet.
- Students should register with the South African Dental Technicians Council; this will be done by the Department.
- Students must obtain approved first-aid certificates to be admitted to the third-year examinations of the National Diploma. First-aid programmes are usually arranged by the Department.
- Faculty and statutory rules and regulations will apply to students who register for this qualification. It is the responsibility of the students to familiarise themselves with these rules and regulations.
- In addition to tuition fees, textbooks, equipment, other educational material and an amount of approximately R25 000 for personal instruments will be required in the first year of study. These will remain the property of the student. Students are responsible for purchasing these instruments themselves.

g. Special qualification rules:
Special qualification rules apply, and students who register for this qualification will receive the rules with their letter of acceptance. It is the students' responsibility to familiarise themselves with those rules.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

FIRST YEAR			
CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
FPCLY01	Foundation Computer Literacy	(0,100)	
FPENG01	Foundation English	(0,150)	
FPIHS01	Foundation Introduction to Health Sciences	(0,150)	
FPLSK01	Foundation Life Skills	(0,100)	
FIRST SEMESTER			
TMY101T	Tooth Morphology I	(0,060)	
SECOND SEMESTER			
OAT101T	Oral Anatomy I	(0,070)	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,630**	
SECOND YEAR			
ANT100T	Applied Dental Technology I	(0,170)	
CEN150T	Communication I	(0,080)	
DMS100T	Dental Materials Science I	(0,230)	
DTT100T	Dental Technology Theory I	(0,240)	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,720**	
THIRD YEAR			
ANT200T	Applied Dental Technology II	(0,200)	Applied Dental Technology I
DMS200T	Dental Materials Science II	(0,280)	Dental Materials Science I
DTT200T	Dental Technology Theory II	(0,200)	Dental Technology Theory I
JUR100T	Jurisprudence I	(0,140)	
TOTAL CREDITS FOR THE THIRD YEAR:		**0,820**	

FOURTH YEAR

ANT300T	Applied Dental Technology III	(0,170)	Applied Dental Technology II
BNP110B	Business Practice I	(0,140)	
DMS300T	Dental Materials Science III	(0,290)	Dental Materials Science II
DTT300T	Dental Technology Theory III	(0,230)	Dental Technology Theory II

TOTAL CREDITS FOR THE FOURTH YEAR: **0,830**

14.6 BACCALAUREUS TECHNOLOGIAE: DENTAL TECHNOLOGY
Qualification code: BTDT96

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Dental Technology.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Other requirements:
- Students should have access to computers and Internet.
- The Department will register students with the South African Dental Technicians Council.
- Students should register as technicians with the South African Dental Technicians Council.
- Faculty and statutory rules and regulations will apply to students who register for this qualification. It is the students' own responsibility to familiarise themselves with these rules and regulations.

h. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
BNP200B	Business Practice II	(0,200)
DMS400T	Dental Materials Science IV	(0,250)
DTN410T	Dental Technology IV	(0,350)
RMQ110B	Research Methods and Techniques I	(0,200)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

14.7 MAGISTER TECHNOLOGIAE: DENTAL TECHNOLOGY
Qualification code: MTDT95

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Baccalaureus Technologiae: Dental Technology.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

In addition, a candidate should successfully complete Research Methodology in the first year of study if it was not included in a previous qualification.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of one year and a maximum of three years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a dissertation. Before the final assessment report of the dissertation is considered, a manuscript of at least one scientific paper, which is a requirement for the degree, has to be handed in. It has to be ready for submission for publication in a peer-reviewed journal (preferably accredited). The student has to present a colloquium before submitting the dissertation.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DTN500T	Dissertation: Dental Technology	(1,000)
DTN500R	Dissertation: Dental Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

14.8 DOCTOR TECHNOLOGIAE: DENTAL TECHNOLOGY
Qualification code: DTDT96

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A Magister Technologiae: Dental Technology.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on a personal interview with a departmental selection panel. Registration prior to the approval of a research proposal is provisional and will be made official only when the proposal is approved by the Faculty Higher Degrees Committee.

These procedures will be fully explained to each prospective student during their personal interview.

c. Duration:
A minimum of two years and a maximum of five years. Students have to re-register annually for this qualification.

d. Presentation:
Research

e. Structure:
This qualification consists of a research project in the form of a thesis. Before the final assessment report of the thesis is considered, at least two scientific articles, based on the research and approved by the supervisor, should have been submitted for publication to peer-reviewed journals (preferably accredited). Written proof that the journals have received the article(s) has to be handed in as part of the requirements for the degree. The student has to present a colloquium before submitting the thesis. Students should also successfully defend the thesis before the degree will be conferred.

f. Subject credits:
Subject credits are shown in brackets after each subject.

CODE	SUBJECT	CREDIT
DTN700T	Thesis: Dental Technology	(2,000)
DTN700R	Thesis: Dental Technology (re-registration)	(0,000)

TOTAL CREDITS FOR THE QUALIFICATION: **2,000**

14.9 NATIONAL DIPLOMA: MEDICAL ORTHOTICS AND PROSTHETICS
Qualification code: NDOP04

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with a D symbol at the Higher grade (C symbol at the Standard Grade) for English and E symbols at the Higher Grade (D symbols at the Standard Grade) in Biology or Physiology, Physical Science and Mathematics.

Selection criteria:
For 2012: On successful completion of a Potential Assessment, prospective students must take an aptitude test and attend a personal interview.
As from 2013: Selection is done in accordance with the Health Professions Council of South Africa (HPCSA). There are four steps in the assessment process; all potential candidates will be required to complete all four steps. The weight of each step is given in brackets.
- Step 1: Academic Performance (40%)
- Step 2: Potential Assessment (20%)
- Step 3: Dexterity test (30%)
- Step 4: Personal interview (10%)

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Physical Sciences and 3 for Mathematics or 4 for Mathematical Literacy.

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
Selection is done in accordance with the Health Professions Council of South Africa (HPCSA). There are four steps in the assessment process; all potential candidates will be required to complete all four steps. The weight of each step is given in brackets.
- Step 1: Academic Performance (40%)
- Step 2: Potential Assessment (20%)
- Step 3: Dexterity test (30%)
- Step 4: Personal interview (10%)

b. Minimum duration:
Three years

c. Presentation:
Four semesters of day classes and two semesters of experiential learning at an institution approved by the Health Professions Council of South Africa (HPCSA). Students are placed by TUT for experiential learning and internship.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Professional registration (as a student):
Registration with the HPCSA via the Department is compulsory.

g. Other requirements:
Immunisation against Hepatitis B is compulsory. A valid first-aid certificate. A first-aid programme will be arranged by the University in the first year. International students will be assessed by the Department to determine enrolment for this qualification.

h. Special qualification rules:
Special qualification rules apply, and students who register for this qualification will receive the rules with their letter of acceptance. It is the students' own responsibility to familiarise themselves with those rules.

i. Registration as a medical orthotist and prosthetist with the HPCSA:
On meeting the qualification requirements of either the National Diploma: Medical Orthotics and Prosthetics or the Baccalaureus Technologiae: Medical Orthotics and Prosthetics, a student has to complete an internship of 12 months at an HPCSA-accredited training centre before they may register with the Council as a medical orthotics and prosthetics practitioner. At the end of the internship year students may register as medical orthotists and prosthetists with the HPCSA. The year of internship will be completed under the auspices of HPCSA, and any enquiries in this regard should be addressed to that Council.

j. Experiential Learning I and II:
See Chapter 5 of Students' Rules and Regulations.

k. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks:
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2009.)

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
APK121T	Anatomy, Physiology and Kinesiology I	(0,170)*	
OPS101T	Orthotics and Prosthetics Material Science I	(0,170)*	
PYY111T	Psychology I	(0,160)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

EXP1MOP	Experiential Learning I	(0,500)	
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

FIRST SEMESTER

APK221T	Anatomy, Physiology and Kinesiology II	(0,100)*	Anatomy, Physiology and Kinesiology I
OPC101T	Orthotics and Prosthetics Practice I	(0,200)*	
OTT101T	Orthotics Theory I	(0,100)*	
PCX101T	Prosthetics Theory I	(0,100)*	
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

OPC211T	Orthotics and Prosthetics Practice II	(0,200)*	Orthotics and Prosthetics Practice I Orthotics Theory I Prosthetics Theory I
OPS201T	Orthotics and Prosthetics Material Science II	(0,100)*	Orthotics and Prosthetics Material Science I
OTT201T	Orthotics Theory II	(0,100)*	Orthotics Theory I Orthotics and Prosthetics Practice I
PCX201T	Prosthetics Theory II	(0,100)*	Orthotics and Prosthetics Practice I Prosthetics Theory I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

BCO301T	Basic Concepts of Orthopaedics III	(0,100)*	Anatomy, Physiology and Kinesiology II
OPC311T	Orthotics and Prosthetics Practice III	(0,200)*	Orthotics and Prosthetics Practice II Orthotics Theory II Prosthetics Theory II
OTT301T	Orthotics Theory III	(0,100)*	Orthotics and Prosthetics Practice II Orthotics Theory II
PCX301T	Prosthetics Theory III	(0,100)*	Orthotics and Prosthetics Practice II Prosthetics Theory II
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

EXP2MOP	Experiential Learning II	(0,500)	Experiential Learning I Orthotics and Prosthetics Practice III
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

14.10 BACCALAUREUS TECHNOLOGIAE: MEDICAL ORTHOTICS AND PROSTHETICS

Qualification code: BTOP98

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Medical Orthotics and Prosthetics.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day classes

e. Intake for the qualification:
January only

f. Re-admission:
See Chapter 3 of Students' Rules and Regulations.

g. Other requirements:
International students will be assessed by the Department to determine enrolment for this qualification. Student fees are applicable to this process.

h. Professional registration as a student:
Registration with the HPCSA is compulsory for all national students.

i. Registration as a medical orthotist and prosthetist with the HPCSA:
On meeting the qualification requirements of either the National Diploma: Medical Orthotics and Prosthetics or the Baccalaureus Technologiae: Medical Orthotics and Prosthetics, a student has to complete an internship of 12 months at an HPCSA-accredited training centre before they may register with the HPCSA as a medical orthotics and prosthetics practitioner. At the end of the internship year, students may register as medical orthotists and prosthetists with the HPCSA. The year of internship will be completed under the auspices of the HPCSA, and any enquiries in this regard should be addressed to that Council.

j. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
BNP110T	Business Practice I	(0,170)
OPC400T	Orthotics and Prosthetics Practice IV	(0,250)
ORP400T	Orthotics and Prosthetics Theory IV	(0,250)
RMQ110C	Research Methods and Techniques I	(0,160)
TSF200T	Applied Psychology and Pharmacology II	(0,170)

TOTAL CREDITS FOR THE QUALIFICATION: **1,000**

14.11 NATIONAL CERTIFICATE: OCCUPATIONAL THERAPY ASSISTANTS
Qualification code: NCOY97

Campus where offered: Pretoria Campus.

REMARKS
Please note: A moratorium was placed on new intakes as from 2012 until further notice.

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with Biology and English.

  Selection criteria:
  For 2012: All applications are subject to selection.
  As from 2013: Assessment is based on a TUT potential assessment and a personal interview. Prospective students should arrange a selection interview with the departmental selection panel.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma or a Higher Certificate, or an equivalent qualification, with an achievement level of at least 4 for English (home language or first additional language), 3 for Life Sciences, 3 for Mathematics or 4 for Mathematical Literacy, and 3 for any other second language.
  As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma or a Higher Certificate, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language) and 3 for Life Sciences.

  Selection criteria:
  For 2012: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).
  As from 2013: To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18**.

  Assessment procedures:
  For 2012: Candidates who obtained an APS of 19 and more will be considered for unconditional admission, provided that the maximum number of students has not been reached. If there are more candidates than the maximum intake allows, candidates with the highest APS will be given preference until the maximum number is reached.
  As from 2013: Candidates with an APS of at least 18 will be invited for an interview with a departmental selection panel.

b. Minimum duration:
One year

c. Presentation:
Day or block-based classes offered over a period of two years.

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Purpose of qualification:
The qualifying student will be able to facilitate the functional participation of clients in various settings in which occupational therapy is required. Students will function as a member of a multidisciplinary team, under the supervision of a qualified occupational therapist. On completion of this programme, students will be able to register with the Health Professionals Council of South Africa (HPCSA).

g. Exit-level outcomes:
- Contributes to the health and well-being of individuals, groups, families and the community.
- Applies treatment to clients through purposeful activities required by an occupational therapist.
- Conducts himself or herself as a professional and contributes to the management of the assigned work area, adhering to relevant policies.

h. Experiential learning:
See Chapter 5 of Students' Rules and Regulations.

i. Subject credits:
Subject credits are shown in brackets after each subject.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
APY140D	Anatomy and Physiology I	(0,100)
COD100B	Community Development I	(0,100)
EXP1OTA	Experiential Learning	(0,300)
OCT100T	Occupational Therapy: Theory I	(0,250)
OTP100T	Occupational Therapy: Practice I	(0,250)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

14.12 NATIONAL DIPLOMA: OFFICIATING AND COACHING SCIENCE
Qualification code: NDOC01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

Admission requirement(s):
A Senior Certificate or an equivalent qualification with a D symbol at the Standard Grade for English.

Recommended subject(s):
Biology or Physiology

Selection criteria:
Candidates with a minimum M-score will be considered for admission until the programme complement is full.

SYMBOL	HG VALUE	SG VALUE
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0

A minimum M-score of 10 points is required.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

Admission requirement(s):
A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language).

Recommended subject(s):
Life Sciences

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **18**.

Assessment procedures:
Candidates with a minimum APS score will be considered for admission until the programme complement is full.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Golf Specialisation (only for Golf Academy students):
No new intake for 2012.

g. Coaching practical:
Students have an opportunity to gain practical experience in different types of sport at schools and clubs. The head coach of the school or club, as well as lecturers from TUT, will be responsible for Assessment. A portfolio of competency will be drawn up. Two hours of practicals per week will be scheduled.

h. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in May 2009.*)*

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
MRK130T	Marketing I	(0,200)	
SDC110T	Sport Didactics and Coaching I	(0,200)	
SET110T	Sport and Exercise Technology I	(0,200)	
SFR100T	Sport and Physical Recreation Studies I	(0,200)	
SRT100T	Sport Management I	(0,200)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

CSI200T	**Coaching Science II**		
CSI20QT	Coaching Science: Theory II	(0,200)*	Sport Didactics and Coaching I
HMS200T	Human Movement Studies II	(0,200)*	
PRS120T	Public Relations I	(0,200)*	
SYC200T	Sport Psychology II	(0,200)*	
	plus one of the following subjects/modules:		
CSI200T	**Coaching Science II**		
CSI20PT	Coaching Science: Coaching Practical II	(0,200)*	
CSI20RT	Coaching Science: Golf Practical II	(0,200)*	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

CSI300T	**Coaching Science III**		
CSI30QT	Coaching Science: Theory III	(0,200)*	Coaching Science: Theory II Coaching Science: Coaching Practical II **or** Coaching Science: Golf Practical II
PDM300T	Physiological Development III	(0,200)*	
PRS210T	Public Relations II	(0,200)*	Public Relations I
SYC300T	Sport Psychology III	(0,200)*	Sport Psychology II
	plus one of the following subjects/modules:		
CSI300T	**Coaching Science III**		
CSI30PT	Coaching Science: Coaching Practical III	(0,200)*	Coaching Science: Theory II Coaching Science: Coaching Practical II
CSI30RT	Coaching Science: Golf Practical III	(0,200)*	Coaching Science: Theory II Coaching Science: Golf Practical II
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

14.13 BACCALAUREUS TECHNOLOGIAE: OFFICIATING AND COACHING SCIENCE

Qualification code: BTOC01

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s):
A National Diploma: Officiating and Coaching Science or an NQF level 6 bachelor's degree in Sport Sciences or Officiating and Coaching Science from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. Selection criteria:
Selection is based on an assessment by a departmental selection panel.

c. Minimum duration:
One year

d. Presentation:
Day classes

e. Intake for the qualification:
January only

f. Readmission:
See Chapter 3 of Students' Rules and Regulations.

g. Golf specialisation (only for Golf Academy students):
Golf enthusiasts who wish to qualify as professional players, coaches, golf club managers or directors of golf may enrol simultaneously at the Professional Golfers Association (PGA) for an accredited qualification. The following PGA subjects must be taken additionally: Golf Coaching, Business Finance, Equipment Technology, Rules, Tournament Organisation, Golf World, Swing Theory and Golf Psychology. The Golf Academy facilitates the PGA programme and students will be enrolled at the Golf Academy. Selection criteria are based on an academic assessment, a personal interview and a playing ability test. Golfing ability will be evaluated on a practical assessment that includes a portfolio of competency. Twenty hours practicals per week will be scheduled.

h. Subject credits:
Subject credits are shown in brackets after each subject.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
ALV400T	Athlete Development IV	(0,200)
APS400T	Applied Sport Psychology IV	(0,200)
CEY400T	Coaching Effectiveness and Analysis IV	(0,200)
CHA400T	Coaching Management IV	(0,200)
OCS400T	**Research Project**	
OCS40PT	Research Project: Theory	(0,100)
OCS40QT	Research Project: Practical	(0,100)
TOTAL CREDITS FOR THE QUALIFICATION:		**1,000**

14.14 NATIONAL DIPLOMA: SPORT AND EXERCISE TECHNOLOGY
Qualification code: NDSX05

Campus where offered: Pretoria Campus

REMARKS

a. Admission requirement(s) and selection criteria:

- **FOR STUDENTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:**

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with a D symbol at the Standard Grade for English.

  Recommended subject(s):
  Biology and Physiology

  Selection criteria:
  Candidates with a minimum M-score will be considered for admission until the programme complement is full.

SYMBOL	HG VALUE	SG VALUE
A	5	4
B	4	3
C	3	2
D	2	1
E	1	0

  A minimum M-score of 10 points is required.

- **FOR STUDENTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE SINCE 2008:**

  Admission requirement(s):
  For 2012: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Mathematics or 4 for Mathematical Literacy.
  As from 2013: A National Senior Certificate with an endorsement of a Bachelor's degree or a diploma, or an equivalent qualification, with an achievement level of at least 3 for English (home language or first additional language), 3 for Life Sciences and 3 for Mathematics or 4 for Mathematical Literacy.

Recommended subject(s):
Physical Sciences

Selection criteria:
To be considered for this qualification, candidates must have an Admission Points Score (APS) with a minimum of **19** (with Mathematics) or **20** (with Mathematical Literacy).

Assessment procedures:
Candidates with a minimum APS-score will be considered for admission until the programme complement is full.

b. Minimum duration:
Three years

c. Presentation:
Day classes

d. Intake for the qualification:
January only

e. Readmission:
See Chapter 3 of Students' Rules and Regulations.

f. Subject credits:
Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

FIRST YEAR

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
MRK130T	Marketing I	(0,200)	
SDC110T	Sport Didactics and Coaching I	(0,200)	
SET120T	Sport and Exercise Technology I	(0,200)	
SFR100T	Sport and Physical Recreation Studies I	(0,200)	
SRT100T	Sport Management I	(0,200)	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,000**	

SECOND YEAR

HMS200T	Human Movement Studies II	(0,250)	
KIN200T	Kinesiology II	(0,250)	Sport and Physical Recreation Studies I
SET220T	Sport and Exercise Technology II	(0,250)	Sport and Exercise Technology I
WPY220T	Work Physiology II	(0,250)	Sport and Physical Recreation Studies I
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

HSN300T	Health Sciences III	(0,250)	
SET320T	Sport and Exercise Technology III	(0,250)	Sport and Exercise Technology II
SRO100T	Sport Psychology I	(0,250)	
WPY320T	Work Physiology III	(0,250)	Work Physiology II
TOTAL CREDITS FOR THE THIRD YEAR:		**1,000**	

14.15 BACCALAUREUS TECHNOLOGIAE: SPORT AND EXERCISE TECHNOLOGY
Qualification code: BTSX01

Campus where offered: Pretoria Campus

REMARKS

a. *Admission requirement(s):*
A National Diploma: Sport and Exercise Technology or an NQF level 6 bachelor's degree in Sport Sciences from a South African university.

Holders of any other equivalent South African or foreign qualifications may also be considered, but will have to apply in advance (± six months) for recognition of such qualifications. Foreign students will be required to submit an evaluation of their qualifications by the South African Qualifications Authority (SAQA). The Faculty reserves the right to assess these qualifications and the applicant's suitability/competence for admission to the programme. Proof of English proficiency may be required.

Depending on the nature of such an equivalent qualification, completion of certain additional subjects may be required.

b. *Selection criteria:*
Selection is based on an assessment by a departmental selection panel.

c. *Minimum duration:*
One year

d. *Presentation:*
Day classes

e. *Intake for the qualification:*
January only

f. *Readmission:*
See Chapter 3 of Students' Rules and Regulations.

g. *Subject credits:*
Subject credits are shown in brackets after each subject.

Key to asterisks
* Information does not correspond to information in Report 151.
(Deviations approved by the Senate in August 2005 and September 2006.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

YEAR SUBJECTS

CODE	SUBJECT	CREDIT
APS400T	Applied* Sport Psychology IV	(0,165)*
ASE400T	Advanced Sport and Exercise Technology IV	(0,167)
AVS400T	Advanced Sport Physical Evaluation IV	(0,167)
SBV400T	Sport Injury Prevention IV	(0,167)
SET400T	**Research Project IV**	
SET40PT	Research Project: Theory IV	(0,083)
SET40QT	Research Project: Practical IV	(0,084)
WPY400T	Work Physiology IV	(0,167)

SECTION B: PHASING OUT QUALIFICATIONS

1. DEPARTMENT OF BIOTECHNOLOGY AND FOOD TECHNOLOGY

1.1 NATIONAL DIPLOMA: BIOTECHNOLOGY

Qualification code: NDBT03

NO NEW REGISTRATIONS FOR THIS QUALIFICATION ARE ACCEPTED AS FROM 2012. STUDENTS WHO ARE CURRENTLY REGISTERED FOR THIS QUALIFICATION HAVE UNTIL 2016 TO OBTAIN IT, SUBJECT TO THE STIPULATIONS OF REGULATION 3.1.1 ON THE MAXIMUM DURATION OF STUDY.

Phase-out date: 31 December 2016

Campus where offered: Arcadia Campus (Day classes)

Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CAL101T	Calculations and Statistics	(0,080)	
CHE141C	Chemistry IB	(0,150)	
PHU161C	Physics IB	(0,120)	
SSH101T	Sanitation, Safety and Hygiene I	(0,110)	
TOTAL CREDITS FOR THE SEMESTER:		0,460	

SECOND SEMESTER

ACI201T	Analytical Chemistry: Biological II	(0,130)	Chemistry IB
BCH221B	Biochemistry II	(0,130)	Chemistry IB
MBI101T	Microbiology I	(0,150)	
PTM101T	**Process Technology and Management I**		
PTM10XT	Process Technology and Management: Theory I	(0,070)	
PTM10YT	Process Technology and Management: Computer Skills I	(0,040)	
TOTAL CREDITS FOR THE SEMESTER:		0,520	
TOTAL CREDITS FOR THE FIRST YEAR:		**0,980**	

SECOND YEAR

FIRST SEMESTER

DIR201T	Disease and Immune Response II	(0,125)	Microbiology I
FMT201T	Fermentation Technology II	(0,125)	Microbiology I
MBB301T	Microbial Biochemistry III	(0,125)	Biochemistry II
MBI241T	Microbiology II	(0,130)	Microbiology I
TOTAL CREDITS FOR THE SEMESTER:		0,505	

SECOND SEMESTER

ALB301T	Analytical Biochemistry III	(0,125)	Analytical Chemistry: Biological II
BPS301T	Bioprocessing III	(0,125)	Fermentation Technology II
FMB311T	Food Microbiology III	(0,140)	Microbiology II
MBG301T	Microbiology: Biological III	(0,125)	Microbiology II

TOTAL CREDITS FOR THE SEMESTER: 0,515

TOTAL CREDITS FOR THE SECOND YEAR: **1,020**

THIRD YEAR

On completion of all the above subjects.

FIRST OR SECOND SEMESTER

EXP1BIO	Experiential Learning I	(0,500)	
EXP2BIO	Experiential Learning II	(0,500)	Experiential Learning I

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

1.2 NATIONAL DIPLOMA: FOOD TECHNOLOGY

Qualification code: NDFT03

NO NEW REGISTRATIONS FOR THIS QUALIFICATION ARE ACCEPTED AS FROM 2012. STUDENTS WHO ARE CURRENTLY REGISTERED FOR THIS QUALIFICATION HAVE UNTIL 2016 TO OBTAIN IT, SUBJECT TO THE STIPULATIONS OF REGULATION 3.1.1 ON THE MAXIMUM DURATION OF STUDY.

Phase-out date: 31 December 2016

Campus where offered: Arcadia Campus (Day classes)

Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

Key to asterisks:
* Information does not correspond to information in Report 151. (Deviations approved by the Senate in August 2005.)

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CAL101T	Calculations and Statistics	(0,080)	
CHE141C	Chemistry IB	(0,147)*	
FPE101T	**Food Process Engineering I**		
FPE10YT	Food Process Engineering: Computer Skills I	(0,075)	
PHU161C	Physics IB	(0,125)	

TOTAL CREDITS FOR THE SEMESTER: 0,427

SECOND SEMESTER

ACI201T	Analytical Chemistry: Biological II	(0,125)	Chemistry IB
BCH221B	Biochemistry II	(0,125)	Chemistry IB
FTN111T	Food Technology I	(0,150)	
MBI101T	Microbiology I	(0,148)	

TOTAL CREDITS FOR THE SEMESTER: 0,548

TOTAL CREDITS FOR THE FIRST YEAR: **0,975**

SECOND YEAR

FIRST SEMESTER

FBI301T	Food Biochemistry III	(0,140)	Biochemistry II
FQA101T	Food Quality Assurance I	(0,100)	Food Technology I
FTN211T	Food Technology II	(0,160)	Food Technology I
MBI241T	Microbiology II	(0,125)	Microbiology I

TOTAL CREDITS FOR THE SEMESTER: 0,525

SECOND SEMESTER

FDC301T	Food Production III	(0,125)	Food Biochemistry III Food Technology II Microbiology II
FMB311T	Food Microbiology III	(0,140)	Microbiology II
FPE101T	**Food Process Engineering I**		
FPE10XT	Food Process Engineering: Food Engineering I	(0,075)	Calculations and Statistics Physics IB
FTN301T	Food Technology III	(0,160)	Food Technology II

TOTAL CREDITS FOR THE SEMESTER: 0,500

TOTAL CREDITS FOR THE SECOND YEAR: **1,025**

THIRD YEAR

On completion of all first- and second-year subjects.

FIRST OR SECOND SEMESTER

EXP1FDT	Experiential Learning I	(0,500)	
EXP2FDT	Experiential Learning II	(0,500)	Experiential Learning I

TOTAL CREDITS FOR THE THIRD YEAR: **1,000**

2. DEPARTMENT OF ENVIRONMENTAL, WATER AND EARTH SCIENCES

2.1 NATIONAL DIPLOMA: WATER CARE
Qualification code: NDWC02

NO NEW REGISTRATIONS FOR THIS QUALIFICATION ARE ACCEPTED AS FROM 2010. STUDENTS WHO ARE CURRENTLY REGISTERED FOR THIS QUALIFICATION HAVE UNTIL 2012 (FOR THE DAY CLASSES OPTION) OR 2014 (FOR THE BLOCK-BASED CLASSES) TO OBTAIN IT, SUBJECT TO THE STIPULATIONS OF REGULATION 3.1.1 ON THE MAXIMUM DURATION OF STUDY.

Phase-out dates: 31 December 2012/2014

Campus where offered: Arcadia Campus (Day and block-based classes)

Subject credits are shown in brackets after each subject. The total number of credits required for this qualification is 3,000.

SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.

OPTION A: DAY CLASSES

FIRST YEAR

FIRST SEMESTER

CODE	SUBJECT	CREDIT	PREREQUISITE SUBJECT(S)
CHE141D	Chemistry IC	(0,160)	
COW101T	Computations: Water I	(0,160)	
CSK101B	Computer Skills I	(0,100)	
WCT101T	Water Care Technology I	(0,160)	
TOTAL CREDITS FOR THE SEMESTER:		0,580	

SECOND SEMESTER

COS101B	Communication Skills I	(0,100)	
MBI101B	**Microbiology I**		
MBI10XB	Microbiology: Theory I	(0,120)	
MBI10YB	Microbiology: Practical I	(0,040)	
PHU161F	Physics IB	(0,160)	
PMW101T	Principles of Management: Water I	(0,100)	
TOTAL CREDITS FOR THE SEMESTER:		0,520	
TOTAL CREDITS FOR THE FIRST YEAR:		**1,100**	

SECOND YEAR

FIRST SEMESTER

GRW201T	Groundwater II	(0,100)	Chemistry IC Computations: Water I Water Care Technology I
LGA201T	Legal Aspects: Water II	(0,133)	Communication Skills I Water Care Technology I

PTN201T	Potable Water Purification II	(0,134)	Chemistry IC Computations: Water I Water Care Technology I
PWA201T	**Potable Water Analysis II**		
PWA20XT	Potable Water Analysis: Theory II	(0,067)	Chemistry IC Computations: Water I Water Care Technology I
PWA20YT	Potable Water Analysis: Practical II	(0,066)	Chemistry IC Computations: Water I Water Care Technology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

WBI201T	Water Biology II	(0,100)	Microbiology I Water Care Technology I
WHY201T	Water Hydraulics II	(0,133)	Computations: Water I Physics IB Water Care Technology I
WSA201T	**Wastewater Analysis II**		
WSA20XT	Wastewater Analysis: Theory II	(0,067)	Chemistry IC Computations: Water I Potable Water Analysis II Water Care Technology I
WSA20YT	Wastewater Analysis: Practical II	(0,066)	Chemistry IC Computations: Water I Potable Water Analysis II Water Care Technology I
WTR201T	Wastewater Treatment II	(0,134)	Chemistry IC Computations: Water I Microbiology I Water Care Technology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	
TOTAL CREDITS FOR THE SECOND YEAR:		**1,000**	

THIRD YEAR

FIRST SEMESTER

CBW301T	Cooling and Boiler Water Technology III	(0,116)	Computer Skills I Potable Water Analysis Potable Water Purification
INE301T	Industrial Effluents III	(0,116)	Legal Aspects: Water II Potable Water Purification Wastewater Treatment II
RMN201T	**Research Methodology: Natural Sciences**		
RMN20YT	Research Methodology: Natural Sciences: Statistics	(0,050)	Chemistry IC Communication Skills I Computations: Water I Computer Skills I Microbiology I Physics IB Water Care Technology I
WTI201T	Water Treatment: Investigations II	(0,117)	Potable Water Purification Wastewater Analysis II Wastewater Treatment II

WTR301T	Wastewater Treatment III	(0,117)	Computer Skills I Wastewater Analysis II Wastewater Treatment II
TOTAL CREDITS FOR THE SEMESTER:		0,516	

SECOND SEMESTER

RMN201T	**Research Methodology: Natural Sciences**		
RMN20XT	Research Methodology: Natural Sciences: Water Care	(0,050)	Chemistry IC Communication Skills I Computations: Water I Computer Skills I Microbiology I Physics IB Water Care Technology I
WIP201T	Water Industry: Practical II	(0,100)	Potable Water Purification Wastewater Analysis II Wastewater Treatment II
WPL201T	Water Plant II	(0,117)	Chemistry IC Computations: Water I Physics IB Water Care Technology I
WTN301T	Water Treatment III	(0,117)	Computer Skills I Potable Water Analysis II Potable Water Purification
TOTAL CREDITS FOR THE SEMESTER:		0,384	
TOTAL CREDITS FOR THE THIRD YEAR:		**0,900**	

OPTION B: BLOCK-BASED CLASSES

FIRST YEAR

FIRST SEMESTER

CODE	**SUBJECT**	**CREDIT**	**PREREQUISITE SUBJECT(S)**
CHE141D	Chemistry IC	(0,160)	
COW101T	Computations: Water I	(0,160)	
WCT101T	Water Care Technology I	(0,160)	
TOTAL CREDITS FOR THE SEMESTER:		0,480	

SECOND SEMESTER

COS101B	Communication Skills I	(0,100)
MBI101B	**Microbiology I**	
MBI10XB	Microbiology: Theory I	(0,120)
MBI10YB	Microbiology: Practical I	(0,040)
PHU161F	Physics IB	(0,160)
TOTAL CREDITS FOR THE SEMESTER:		0,420
TOTAL CREDITS FOR THE FIRST YEAR:		**0,900**

SECOND YEAR

FIRST SEMESTER

LGA201T	Legal Aspects: Water II	(0,133)	Communication Skills I Water Care Technology I
PTN201T	Potable Water Purification II	(0,134)	Chemistry IC Computations: Water I Water Care Technology I
PWA201T	**Potable Water Analysis II**		
PWA20XT	Potable Water Analysis: Theory II	(0,067)	Chemistry IC Computations: Water I Water Care Technology I
PWA20YT	Potable Water Analysis: Practical II	(0,066)	Chemistry IC Computations: Water I Water Care Technology I
WBI201T	Water Biology II	(0,100)	Microbiology I Water Care Technology I
TOTAL CREDITS FOR THE SEMESTER:		0,500	

SECOND SEMESTER

CSK101B	Computer Skills I	(0,100)	
PMW101T	Principles of Management: Water I	(0,100)	
WSA201T	**Wastewater Analysis II**		
WSA20XT	Wastewater Analysis: Theory II	(0,067)	Chemistry IC Computations: Water I Potable Water Analysis II Water Care Technology I
WSA20YT	Wastewater Analysis: Practical II	(0,066)	Chemistry IC Computations: Water I Potable Water Analysis II Water Care Technology I
WTR201T	Wastewater Treatment II	(0,134)	Chemistry IC Computations: Water I Microbiology I Water Care Technology I
TOTAL CREDITS FOR THE SEMESTER:		0,467	
TOTAL CREDITS FOR THE SECOND YEAR:		**0,967**	

THIRD YEAR

FIRST SEMESTER

GRW201T	Groundwater II	(0,100)	Chemistry IC Computations: Water I Water Care Technology I
RMN201T	**Research Methodology: Natural Sciences**		
RMN20XT	Research Methodology: Natural Sciences: Water Care	(0,050)	Chemistry IC Communication Skills I Computations: Water I Computer Skills I Microbiology I Physics IB Water Care Technology I

RMN20YT	Research Methodology: Natural Sciences: Statistics	(0,050)	Chemistry IC Communication Skills I Computations: Water I Computer Skills I Microbiology I Physics IB Water Care Technology I
WTR301T	Wastewater Treatment III	(0,117)	Computer Skills I Wastewater Analysis II Wastewater Treatment II
TOTAL CREDITS FOR THE SEMESTER:		0,317	

SECOND SEMESTER

WHY201T	Water Hydraulics II	(0,133)	Computations: Water I Physics IB Water Care Technology I
WIP201T	Water Industry: Practical II	(0,100)	Potable Water Purification Wastewater Analysis II Wastewater Treatment II
WPL201T	Water Plant II	(0,117)	Chemistry IC Computations: Water I Physics IB Water Care Technology I
WTN301T	Water Treatment III	(0,117)	Computer Skills I Potable Water Analysis II Potable Water Purification
TOTAL CREDITS FOR THE SEMESTER:		0,467	
TOTAL CREDITS FOR THE THIRD YEAR:		**0,784**	

FOURTH YEAR

FIRST SEMESTER

CBW301T	Cooling and Boiler Water Technology III	(0,116)	Computer Skills I Potable Water Analysis II Potable Water Purification II
INE301T	Industrial Effluents III	(0,116)	Legal Aspects: Water II Potable Water Purification Wastewater Treatment II
WTI201T	Water Treatment: Investigations II	(0,117)	Potable Water Purification Wastewater Analysis II Wastewater Treatment II
TOTAL CREDITS FOR THE SEMESTER:		0,349	
TOTAL CREDITS FOR THE FOURTH YEAR:		**0,349**	

SECTION C: SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

Syllabus content is subject to change to accommodate industry changes. **Please note:** a more detailed syllabus is available at the department or in the study guide of the applicable subject.

A

ADVANCED EXERCISE AND PHYSICAL EVALUATION IV (AXP400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students who successfully complete this subject will be competent in the physiological and anatomical evaluation and assessment of sports people and people suffering from various pathologies. The student will be equipped to identify various strengths and weaknesses and interpret test results effectively in order to prescribe the necessary interventions. This includes both field and laboratory tests, and advanced techniques such as isokinetic testing, pulmonary function testing, EMG and ECG. (Total tuition time: ± 75 hours)

ADVANCED SPORT AND EXERCISE TECHNOLOGY IV (ASE400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
This subject comprehensively covers the principles associated with safe and effective training and conditioning. In addition, a wide variety of case studies and the latest article and journal investigations enable the student to adopt an eclectic and pragmatic approach to the dynamic field of exercise technology. Students are equipped to complete internationally recognised certificate of the National Strength and Conditioning Association (NSCA) (USA), namely the Certified Strength and Conditioning Specialist (CSCS) certificate. (Total tuition time: ± 108 hours)

ADVANCED SPORT PHYSICAL EVALUATION IV (AVS400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students who have successfully completed this subject will be competent in the physiological testing and evaluation of sports people. This includes both laboratory and field tests, covering all possible performance-enhancing components. Students will be equipped to identify the strengths and weaknesses of an athlete and to interpret test data effectively in order to prescribe the necessary interventions. (Total tuition time: ± 162 hours)

AESTHETICS I (AES110T) **1 X 3-HOUR PAPER AND PRACTICAL**
(Subject custodian: Department of Pharmaceutical Sciences)
History of make-up, current make-up techniques, corrective make-up, evening make-up, photographic make-up, day make-up, make-up for different skin colours, make-up for the aged skin, hairstyles, client cards, make-up products, eyebrow shaping. Principles of colour and form. (Total tuition time: not available)

AGRICULTURAL ANATOMY AND PHYSIOLOGY I (AAP101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
A systematic, summarised study of the skeleton, muscular system, organs and organ systems of the different farm animals, as well as the physiology of digestion, milk production and endocrinology. (Total tuition time: ± 70 hours)

AGRICULTURAL BOTANY I (AGB101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
A review of the importance of plants in general and crop plants in particular. The morphology of crop plants: seed and germination, roots, stems, leaves, inflorescence, flowers and fruit. Crop anatomy: the plant cell, roots, stems and leaves. Classification: common and botanical names, development of the botanical classification, plant identification and nomenclature. Crop physiology: photosynthesis, respiration, water absorption and transport, translocation of sugars. (Total tuition time: ± 70 hours)

AGRICULTURAL CALCULATIONS I (AGA111T) **1 X 2-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Quantifying information through applied mathematics. Elaboration on and presentation of information through appropriate computer programmes. Computer literacy. Agricultural calculations: the use of pocket calculators, fractions, decimals, formulae, exponents, ratios, length, circumference, area, volume, mass, time, percentages and graphs. Computer literacy: the extension and presentation of information by means of applied computer programmes. (Total tuition time: ± 70 hours)

AGRICULTURAL COMMUNICATION I (AGC100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

The importance of group forming in the work sphere. Productive leadership and participation in democratic groups. The functioning of groups within the dynamic environment. The use of groups for solving problems and increasing productivity. The management of groups with various group techniques. Defining aims and evaluations in groups. Leadership types and styles and their management implications. (Total tuition time: ± 70 hours)

AGRICULTURAL ECONOMICS I (AGE111T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

A study of agricultural economics with the emphasis on micro-economics of production as part of farming management. Functional general management process with internal management information system and enterprise functions, applied to farm labour management and financial management for farmers under conditions of risk and uncertainty. (Total tuition time: ± 70 hours)

AGRICULTURAL EXTENSION I (AEX101C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Description of the South African agricultural environment. Role-players in the South African agricultural industry. An introduction to agricultural extension and its relation to technology and rural development. An introduction to different extension methods. An introduction to communication theory and practice, including administrative communication. The use of extension programmes. (Total tuition time: ± 70 hours)

AGRICULTURAL EXTENSION II (AEX201C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Agricultural extension in greater detail. Analysis of the concept of the nature and purpose of agricultural extension. Search for an ethically accountable approach to development. Principles and elements of the science of communication. Investigation of the phenomenon of credibility and its importance in persuasion. Analysis of the different methods and their application in practice. (Total tuition time: ± 70 hours)

AGRICULTURAL EXTENSION III (AEX301C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

An introduction to group dynamics and leadership. The use of leaders and groups in agricultural extension. Relationship between behavioural change and innovativeness. An in-depth study of the communication of innovation. The theory and practice of diffusion and acceptance. The use of sources of innovations. (Total tuition time: ± 70 hours)

AGRICULTURAL EXTENSION IV (AEX400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

The philosophic relationship between extension and programme planning. Agricultural problems and their solutions. Handling of the problem-solving process. Drawing up of extension programmes, gathering of information. Principles of interviewing. The relationship between extension programmes, educational principles, communication and marketing. Implementation of programmes. The principles of personnel and financial management. (Total tuition time: ± 50 hours)

AGRICULTURAL MARKETING II (AGR201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Principles of price-forming theory and agricultural marketing, with the emphasis on the marketing function, institutions, competition, marketing costs and margins from the enterprise point of view. Purchasing principles and procedures in buying agricultural inputs (especially farm firms and cooperatives). (Total tuition time: ± 70 hours)

AGRICULTURAL MECHANISATION I (AGH101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Principles and operation of the basic power units applicable to agriculture. (Total tuition time: ± 70 hours)

AGRICULTURAL PRODUCTION ECONOMICS I (AEC101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Introduction to and background of management economics. Principles of the micro-economics of production elements of general farming management. Guidelines for human resource management in agriculture. Aspects of risk and uncertainty management in farming. (Total tuition time: ± 40 hours)

AGRICULTURAL PRODUCTION MANAGEMENT III (APN301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
An in-depth study of labour relations and labour unionism in agriculture. Production operation systems management for the farming enterprise. Introduction to mechanisation management, especially machinery management. Financial management and the management of information systems. Agricultural cooperation management, especially the management of enterprise functions. (Total tuition time: ± 70 hours)

AGRICULTURAL SCIENCE I (AGS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An introduction to the basics of science, as required later in the qualification. Specific aspects of organic chemistry, biochemistry, physics, mathematics, biology, computer application, cell biology, genetics and accounting. (Total tuition time: ± 96 hours)

AGRONOMY II (AGN201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
The cultivation of field crops, with the emphasis on grain crops and potatoes. This includes the extent of the industry, the growth and development of crops and cultivation practices. (Total tuition time: ± 70 hours)

AGRONOMY III (AGN301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
The cultivation of field crops, with the emphasis on oil seeds and protein seeds, industrial crops and fodder crops. This includes the extent of the industry, the growth and development of crops and cultivation practices. (Total tuition time: ± 70 hours)

AIR POLLUTION IV (AIP400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Sources, control methods and apparatus, legislation, measuring of air pollutants, incinerators, climatology, colour control radio-activity, and analysis of air pollutants. (Total tuition time: ± 120 hours)

ANALYTICAL BIOCHEMISTRY III (ALB301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chromatography, spectrophotometry, spectroscopy, polarimetry, refractometry. (Total tuition time: ± 45 hours)

ANALYTICAL CHEMISTRY I (ANC101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Laboratory practice and safety in analytical chemistry. Elementary statistics, significant digits. Precision and accuracy. Sampling and sample preparation. Introduction to classical analysis. Writing technical reports. Practical: relevant practical work. (Total tuition time: ± 135 hours)

ANALYTICAL CHEMISTRY II (ANC251T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Gravimetric analysis. Precipitation titrations. Neutralisation titrations. Non-aqueous titrations. Complex formation titrations. Redox titrations. Analytical separations. Refractometry and polarimetry. (Total tuition time: ± 75 hours)

ANALYTICAL CHEMISTRY III (ANC321T) **2 X 2-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Atomic spectroscopy. Molecular spectroscopy. Chromatographic methods. Electroanalysis. Introduction to thermal analysis. (Total tuition time: ± 112 hours)

ANALYTICAL CHEMISTRY IV (ANC411T) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Atomic spectroscopy. Molecular spectroscopy. Chromatography. Electroanalysis. Thermal analysis. Automated analysis. Practical: experimental techniques related to the theory. (Total tuition time: ± 135 hours)

ANALYTICAL CHEMISTRY: BIOLOGICAL II (ACI201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chromatographic and spectrophotometric techniques and instrumentation. (Total tuition time: ± 65 hours)

ANALYTICAL CHEMISTRY: PRACTICAL II (AHP201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Chemistry)
"Wet" chemical analysis. Basic instrumental analysis. (Total tuition time: ± 105 hours)

ANALYTICAL CHEMISTRY: PRACTICAL III (AHP311T) **PRACTICAL**
(Subject custodian: Department of Chemistry)
Practical atomic spectroscopy, molecular spectroscopy, chromatographic analysis, electroanalysis. Introductory experiments in thermal analysis. (Total tuition time: ± 195 hours)

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)

ANATOMY I (ANA100B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Systemic anatomy, including osteology, anthropology, myology, neurology, angiology, splanchnology, surface anatomy and regional anatomy. (Total tuition time: not available)

ANATOMY AND PHYSIOLOGY I (APY140B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Terminology. The cell, tissue and the skin. The skeletal and muscular systems. The nervous and circulatory systems. (Total tuition time: not available)

ANATOMY AND PHYSIOLOGY I (APY140D) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Introduction to the structure of the human body. The cell: chemistry, biochemistry molecules, enzyme structure and function. Tissues: types, bones, blood lymph and muscle. Basic knowledge: skeletal, neurological, lymphatic, respiratory, digestive and reproductive systems and the senses. (Total tuition time: ± 160 hours)

ANATOMY AND PHYSIOLOGY I (APY140T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
The anatomical and physiological systems of the human body, e.g. respiration, hearing, digestion, circulation of the blood, central nervous system and endocrine system. (Total tuition time: ± 228 hours)

ANATOMY AND PHYSIOLOGY I (APY141T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
The subject serves as an introduction to subjects following later in the qualification. The emphasis is on cell structure and tissues. All the systems in the body are discussed, with the emphasis on those aspects of importance to the qualification. (Total tuition time: ± 90 hours)

ANATOMY AND PHYSIOLOGY II (APY211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
An integrated study of micro-anatomy, physiological anatomy, physiology and physiological chemistry of the following systems: digestive, metabolic, thermo-regulatory, endocrine, nervous, reproductive. (Total tuition time: not available)

ANATOMY AND PHYSIOLOGY II (APY220T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
The skin, sensory organs, lymphatic system and immunology, digestive system, metabolism and nutrition. Excretory organs, urinary system, fluids and electrolytes, reproductive, endocrine and respiratory systems. Practical work. (Total tuition time: not available)

ANATOMY, PHYSIOLOGY AND KINESIOLOGY I (APK121T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
An introduction to the various skeletal and muscular systems. (Total tuition time: ± 120 hours)

ANATOMY, PHYSIOLOGY AND KINESIOLOGY II (APK221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
A study of the most important skeletal, muscular and vascular systems, as well as the nervous system. (Total tuition time: ± 120 hours)

ANIMAL NUTRITION II (ANU201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

The maintenance and production requirements of ruminants and monogastric animals. The nutrients in feed, namely protein, energy, vitamins, minerals and fats. Feed components and chemical feed additives. (Total tuition time: ± 96 hours)

ANIMAL PRODUCTION IV (DPS400T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Animal Sciences)

Advanced concepts in small stock, poultry, pig, beef, milk and fodder production. Preparation and presentation of three seminars on approved animal and fodder production topics. (Total tuition time: ± 300 hours)

ANIMAL PRODUCTION ECONOMICS I (APE101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Study field of agricultural economics with the emphasis on production management and micro-economics of production, with specific reference to animal production systems. Introduction to general farming management and internal management information systems with reference to the principles of financial management under conditions of risk and uncertainty in an agricultural context. (Total tuition time: ± 40 hours)

ANIMAL SCIENCE IV (ANS400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

Broadening the knowledge field of animal science through four modules, with an emphasis on animal physiology, nutrition, breeding and health. Animal physiology module covers growth and reproductive physiology. Nutrition will focus on digestion and metabolism of nutrients. Breeding focuses on principles of genetics, molecular biology and breeding systems. Animal health will focus on immunity and vaccination principles, parasites and animal diseases. (Total tuition time: not available)

ANIMAL SCIENCE PROJECT IV (PJA400T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Animal Sciences)

The development and evaluation of a control or development strategy and/or programme regarding a selected diversification or specialist field in agriculture, using existing literature. Internal evaluation on the basis of preparation for, and the presentation of a seminar, through a colloquium. (Total tuition time: ± 200 hours)

ANIMAL STUDIES I (ANS111T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Taxonomy and systematic, phylogeny and evolution. Invertebrate Zoology (Free living and parasitic species, general characteristics, physiology, body structure, ecological roles and life cycles). Animal diseases: Introduction to microbes and reckettsias, indigenous and exotic diseases: symptoms, control treatment. (Total tuition time: ± 75 hours)

ANIMAL STUDIES II (ANS211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Overview of the animal kingdom. Classification and systems of the following vertebrates: Mammalia, Aves, Reptilia, Amphibia, Pisces, with special reference to birds and mammals. (Total tuition time: ± 75 hours)

ANIMAL STUDIES III (ANS311T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

The ethology of vertebrates and, particularly, habitat selection, social behaviour, and feeding and mating behaviour. Adaptations of animals, zoogeography and applied population genetics. (Total tuition time: ± 75 hours)

APPLIED ANATOMY IV (ALN400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Students will learn the fundamental anatomical principles underlying the objective evaluation of joints, muscle, posture, and pain. These include joint and anatomical palpation techniques, assessment techniques for generalised joint range of motion and isolated muscle flexibility and strength assessment. Students will further gain a working knowledge of neural plexuses, spinal nerves, and the composition of muscle charts. Basic radiological/imaging interpretive skills will also be covered to aid the practitioner with the correct assessment of various bone and soft tissue conditions. (Total tuition time: ± 75 hours)

APPLIED BIOLOGICAL AND NATURAL SCIENCE I (ABN100T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical Sciences)
Applied anatomy and physiology, nutrition, biochemistry and biophysics. (Total tuition time: ± 120 hours)

APPLIED BIOLOGICAL AND NATURAL SCIENCE II (ABN200T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical Sciences)
Applied anatomy and physiology, nutrition, biochemistry and biophysics. (Total tuition time: ± 130 hours)

APPLIED BIOLOGICAL SCIENCES III (ABS300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Microbiology, hygiene, introduction to pharmacology, introduction to pathology. (Total tuition time: not available)

APPLIED DENTAL TECHNOLOGY I (ANT100T) **PRACTICAL ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The manufacturing of all types of full dentures. The use and handling of materials and equipment that is important in prosthetic work. (Total tuition time: ± 544 hours)

APPLIED DENTAL TECHNOLOGY II (ANT200T) **PRACTICAL ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The design and manufacture of all types of dentures, orthodontic appliances and mouth guards. These include clinical work received from the clinics. Full metal crowns, temporary crowns and posts are also constructed. (Total tuition time: ± 816 hours)

APPLIED DENTAL TECHNOLOGY III (ANT300T) **PRACTICAL ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The construction of full metal crowns and bridges with acrylic veneers, as well as metal constructions for porcelain crowns, prosthetics, orthodontics and cobalt chrome. (Total tuition time: ± 850 hours)

APPLIED GEOLOGY I (AGL111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Introductory geophysics. Introductory hydrogeology. Introductory engineering geology. (Total tuition time: ± 60 hours)

APPLIED GEOLOGY II (AGL211B, AGL211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
South African stratigraphy and mineral deposits. (Total tuition time: ± 68 hours)

APPLIED PSYCHOLOGY AND PHARMACOLOGY II (TSF200T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Social development of rehabilitation patients and an introduction to and understanding of basic medicine. (Total tuition time: ± 60 hours)

APPLIED SOCIAL SCIENCE I (ASU100T) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Developmental stages of an individual. Life-span of an individual. Counselling skills. Crisis intervention skills. Stress management. Cultural and religious differences regarding health and illness. Group norms. Group processes. Interviewing skills. (Total tuition time: ± 70 hours)

APPLIED SOCIAL SCIENCE II (ASU200T) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Mentally, physically or socially disabled individuals and groups. Family studies. Role development. (Total tuition time: ± 78 hours)

APPLIED SPORT PSYCHOLOGY IV (APS400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students are equipped with the necessary skills to report and comment on the following: The application of psychological principles in sport coaching, the principles of sport and exercise behaviour, specific psychological dimensions of sport, play and exercise, the psychology of coaching and the psychology of injuries. (Total tuition time: ± 54 hours)

APPLIED VETERINARY TECHNOLOGY II (AVT201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical Sciences)
A training programme is drawn up in collaboration with the supervisor at an accredited laboratory. (Total tuition time: 6 months)

ATHLETE DEVELOPMENT IV (ALV400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Functional physiology. Blueprint for athletic strength training. Resistance training. Factors affecting performance. Periodicity and training organisation of the full training year. Biomechanics. Nutrition. (Total tuition time: ± 51 hours)

B

BASIC CONCEPTS OF ORTHOPAEDICS III (BCO301T) **1 X 2-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The most important abnormalities and deformities of the body, as well as pre- and post-operative procedures. (Total tuition time: ± 120 hours)

BEEFER PRODUCTION II (BPD201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An introductory study of beefer production with the emphasis on the beefer industry, breeds, breeding, reproduction, equipment, marketing, diseases and nutrition. (Total tuition time: ± 96 hours)

BEEFER PRODUCTION III (BPD301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An in-depth study of management programmes, marketing, seminars, applied nutrition, the efficiency of farming, judging, farm planning, beefer production and computer application. (Total tuition time: ± 70 hours)

BIOCHEMISTRY II (BCH221B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Structures and properties of carbohydrates, lipids, proteins and nucleic acids. Buffers and pH. Vitamins and coenzymes. Principles of volumetric analyses and spectrophotometry. (Total tuition time: ± 65 hours)

BIOCHEMISTRY II (BCH221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Nucleic acids, pH and bufferscarbohydrates, amino acids and proteins, enzymes and lipids. (Total tuition time: ± 90 hours)

BIOCHEMISTRY III (BCH311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Metabolism of carbohydrates, lipids, proteins and nitrogen-containing compounds. Protein biosynthesis. (Total tuition time: ± 90 hours)

BIOLOGICAL WATER TREATMENT IV (BWT401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
degradation of organic compounds. Models of ideal biochemical reactors. Kinetics and the design of nutrient removal processes. Small wastewater treatment systems. (Total tuition time: ± 64 hours)

BIOMEDICAL APPARATUS AND PROCEDURES II (BPR200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
General first aid. Patient monitoring. Clinical application of infusion. Medical terminology. (Total tuition time: not available)

BIOPHARMACEUTICS IV (BPM400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Routes of drug administration. Principles of drug absorption and factors influencing absorption. Bio-equivalence testing. (Total tuition time: not available)

BIOPHARMACEUTICS, PHARMACOKINETICS AND PHARMACODYNAMICS (PBIO121) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An introduction to health-care interventions and biopharmaceutics (processes prior to drug administration), pharmacokinetics (processes that include drug absorption, distribution, metabolism and excretion) and therapeutic drug monitoring and pharmacodynamics (drug action). (Total tuition time: not available)

BIOPROCESSING III (BPS301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Products of fermentation technology such as food and beverage fermentations, amino acid production, single cell protein production etc. Biotransformation, enzyme technology, domestic and industrial wastewater treatment. (Total tuition time: ± 65 hours, preparation time)

BIOTICS I (BTS100T) **1 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Components of well-being, movement, applied anatomy, anthropometry, aerobic programming and injury prevention. Practical: aerobic participation, body analysis and music planning. (Total tuition time: not available)

BIOTICS II (BTS200T) **1 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Anthropometry, physiology of exercise and energy systems. Practical: anthropometry, aerobics, step, toning and stretching classes. (Total tuition time: not available)

BIOTICS III (BTS300T) **1 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Injuries, stress management, exercise and pregnancy, fitness evaluation. Practical: advanced aerobics and callisthenics classes, fitness evaluation, gymnasium equipment, personal training and prenatal and postnatal exercise. (Total tuition time: not available)

BLOOD TRANSFUSION TECHNOLOGY (BDT211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Basic immunology and genetics, ABO, Rh, HLA and other systems, determination of ABO and Rh blood groups, government regulations, preparation of blood components and applicable laboratory tests. (Total tuition time: ± 90 hours)

BUSINESS MANAGEMENT I (BMN121C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Management principles. Principles of financial management. Labour relations. Environmental management. Resources management and mineral economy. Entrepreneurial skills. (Total tuition time: ± 60 hours)

BUSINESS PRACTICE I (BNP110C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Management and Entrepreneurship)

Introduction to the business world, marketing orientation, non-verbal and verbal communication, written business communication, professional ethics, selling techniques, sales administration. (Total tuition time: not available)

BUSINESS PRACTICE I (BNP110B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Basic accounting, as well as the layout of offices and the management and administration of a business. (Total tuition time: ± 68 hours)

BUSINESS PRACTICE I (BNP110T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Management and Entrepreneurship)

Basic management skills, dealing with conflict, marketing, personnel management, stock control and cash flow. (Total tuition time: ± 30 hours)

BUSINESS PRACTICE II (BNP200B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

A study of basic management skills, how to handle conflict, marketing, personnel management, stock control and cash flow. (Total tuition time: ± 68 hours)

BUSINESS PRACTICE II (BNP200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Identifying market opportunities, locating the clinic, product and service strategy, pricing strategy, advertising, sales promotions, public relations, legal aspects. (Total tuition time: not available)

BUSINESS PRACTICE III (BNP300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Strategic business planning, human resource, financial and operations management, clinic administration, basic accounting procedures, risk management, starting a small business, entrepreneurship. (Total tuition time: not available)

C

CALCULATIONS AND STATISTICS (CAL101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
General mathematics: algebra, calculations with pocket calculators. Graphs. Reduction of data to linear form. Trigonometry. Statistical calculations: basic descriptive statistics, elementary probabilities, the normal probability division. (Total tuition time: ± 45 hours)

CARDIOLOGY IV (CRD400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Specialised echocardiography. Mechanisms of arrhythmogenesis. Advanced electro-physiological studies. Interventional management of arrhythmias. Cardiac pharmacology. (Total tuition time: not available)

CARDIOLOGY: BIOMEDICAL APPARATUS III (CBM300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Haemodynamic monitoring techniques and specialised equipment. Blood-gas analysis equipment, arrhythmia monitoring apparatus. Intra-aortic balloon pump. Vector cardiography, echocardiography, exercise stress test, electrocardiography. Phonocardiography, nuclear cardiology. Pericardiocentesis. (Total tuition time: not available)

CARDIOLOGY: CLINICAL PRACTICE III (KKP300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sceices)
The electrocardiogram. Vector cardiography. Cardiovascular resuscitation. Intra-aorta balloon pump. The temporary pacemaker. Electro-physiological studies. Pericardiocentesis, cardioversion, cardiac catherisation. Exercise stress test, electrocardiography, echocardiography, arrhythmia monitoring techniques. Phonocardiography. Nuclear cardiology. (Total tuition time: not available)

CARDIOLOGY: CLINICAL TECHNOLOGY PRACTICE III (EXP3KKP) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant cardiological procedures and skills. (Total tuition time: not available)

CARDIOVASCULAR PHARMACY (PCAR212) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
An overview of the anatomy and physiology of the cardiovascular and renal systems. The pathophysiology of the major disorders affecting the cardiovascular and renal systems. The pharmacology of the therapeutic agents, including antimicrobials used to treat these disorders. (Total tuition time: not available)

CELLULAR PATHOLOGY I (CPG101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Introduction to cellular pathology. Preparation techniques for histology: collection and fixation of tissues, embedding and sectioning of tissues, staining and mounting. (Total tuition time: ± 90 hours)

CELLULAR PATHOLOGY II (CPG221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Biological behaviour of cells and tissues. Concepts of tissue growth. Functional differentiation. Normal morphology of tissues. Preparatory techniques for cytology. Histology and cytology of the female genital tract. (Total tuition time: ± 90 hours)

CELLULAR PATHOLOGY III (CPG301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Histology and cytology of the respiratory tract, urinary tract, gastro-intestinal tract and serous cavities. Cytology of other sites: fine-needle aspiration and the central nervous system. Cytogenetics, techniques and application. (Total tuition time: ± 90 hours)

CHEMICAL PATHOLOGY I (CPH111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Introduction to clinical chemistry. Laboratory safety. Quality control, statistics and quality assurance. Specimen collection. Water balance and electrolytes and minerals (calcium, phosphates, magnesium, etc.). Blood gases and pH. The kidney and tests of renal function. (Total tuition time: ± 90 hours)

CHEMICAL PATHOLOGY II (CPH241T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Laboratory instruments, automation and maintenance. Amino acids and proteins. Immuno-chemical techniques. Carbohydrate metabolism. Lipid metabolism. CSF and other body fluids and prenatal testing. (Total tuition time: ± 90 hours)

CHEMICAL PATHOLOGY III (CPH311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Enzymes. The liver and tests of hepatic function. Trace elements. Endocrinology and tumor markers. DNA/ molecular diagnostics. Statutory rules and regulations and ethics. Pharmacology. (Total tuition time: ± 90 hours)

CHEMICAL QUALITY ASSURANCE (CQA201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Advanced statistical treatment of data in analytical chemistry. Optimisation and calibration of analytical instruments. Quality assurance systems. Laboratory accreditation. (Total tuition time: ± 45 hours)

CHEMICAL/PHYSICAL WATER TREATMENT IV (CWT401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Reaction kinetics, coagulation, flocculation, sedimentation, flotation, filtration, gas transfer, ion exchange, adsorption, membrane technology, chemical phosphate removal. Fundamentals of colloidal systems. Electrodialysis. Reverse osmosis. (Total tuition time: ± 120 hours)

CHEMISTRY IA (CHE141B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Matter and energy: atomic structure, chemical bonding, periodic tables and nomenclature of inorganic compounds. Chemical equations and stoichiometry. Solutions. Acids, bases and salts. Chemical reactions. Chemical equilibrium. Electrochemistry and redox theory. Introduction to inorganic and organic chemistry. Practical: experiments based on the theory, with the emphasis on basic laboratory techniques. (Total tuition time: ± 98 hours)

CHEMISTRY IB (CHE141C) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Inorganic chemistry: atoms, molecules, periodic table, mole concept, chemical calculations, chemistry and elements of groups 1A, 4A, 5A, 6A. Organic chemistry: introduction, alkanes, alkenes, aromates, alkanols, phenols, halogen compounds, alkanoates, alkynes, aldehydes, ketones and alkanoic acids. (Total tuition time: ± 90 hours)

CHEMISTRY IC (CHE141D) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Matter and energy: atomic theory, the periodic table, chemical bonding, chemical compositions and nomenclature. Reaction equations and stoichiometry. Solutions. Acids, bases and salts. Chemical equilibrium. Electrochemistry and redox theory. Descriptive chemistry of selected elements. Organic chemistry. Nomenclature and types of reactions. (Total tuition time: not available)

CHEMISTRY PROJECT III (CPJ311T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Chemistry)
Practical experience in experiential techniques in a chemical laboratory. (Total tuition time: no formal tuition)

CHEMISTRY PROJECT IV (CPJ401T) **PROJECT**
(Subject custodian: Department of Chemistry)
This project should be conducted with the cooperation of the student's employer (or a suitable alternative, in the case of private students). The project must, as far as possible, be of an applied nature. Introduction to research methodology. (Total tuition time: no formal tuition)

CHEMISTRY: EMERGENCY SERVICES I (CEM101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Matter and energy: atomic theory, the periodic table. Reaction equations and stoichiometry. Solutions, acids, bases and salts. Chemical equilibrium, electrochemistry and the redox theory. Descriptive chemistry of selected elements, organic chemistry. (Total tuition time: ± 45 hours)

CLINICAL EXERCISE SCIENCE IV (CCX400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The student will cover the theoretical and practical skills of the guidelines for exercise testing and prescription of the American College of Sports Medicine, including the areas of health appraisal, risk assessment, the safety of exercise and exercise testing and prescription. Following this introduction, students will cover the essentials of pathophysiology, starting with the foundations and concepts in pathophysiology, and covering the pathophysiology of the most common chronic and acute systemic conditions. Finally, exercise management for persons with chronic diseases and disabilities, including considerations regarding physical activity for children and the youth, considerations regarding physical activity during pregnancy and post-partum, cardiovascular diseases, pulmonary diseases, metabolic diseases, immunological/haematological diseases, orthopaedic diseases and disabilities, neuromuscular disorders, cognitive, psychological and sensory disorders. (Total tuition time: ± 75 hours)

CLINICAL ORTHOPAEDIC MANAGEMENT IV (CNO400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Both the theoretical knowledge and clinical skills to assess and successfully manage acute traumatic and overuse orthopaedic and sport injuries will be covered in this section. Special consideration will be given to the rehabilitation and management of musculoskeletal injuries, encompassing the prognoses and goals of rehabilitation, the various tools of rehabilitation, and scientific rehabilitation techniques for specific injuries. (Total tuition time: ± 75 hours)

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

CLINICAL RESEARCH (CRH500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Study design in clinical trials. Biopharmaceutics. Case reports. Good clinical practice (GCP) and good laboratory practice (GLP). (Total tuition time: not available)

CLINICAL TRIALS IV (CCR400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Clinical trial design. Case reports. (Total tuition time: not available)

COACHING EFFECTIVENESS AND ANALYSIS IV (CEY400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Analysis of coaching effectiveness. Analysis of the game. Development and implementation of strategies to improve coaching effectiveness. Performance analysis. Designing training plans and programmes and competition strategies. (Total tuition time: ± 51 hours)

COACHING MANAGEMENT IV (CHA400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Planning. Personal management. Leadership skills. Liaison with the media. Resource management. Coaching and the law. Analysis of sport administration and management. Channels of communication. (Total tuition time: ± 51 hours)

COACHING SCIENCE: COACHING PRACTICAL II (CSI20PT) **PRACTICAL**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Basic coaching methods, styles and their analysis, communication skills in coaching, safety in sport training and competition, team preparation and coaching techniques for junior athletes. (Total tuition time: ± 75 hours)

COACHING SCIENCE: COACHING PRACTICAL III (CSI30PT) **PRACTICAL**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Sport event organisation and management, advanced coaching methods and communication skills, design and implementation of coaching programmes for pre-, in- and off-seasons, sport accident prevention and safety, sport coaching ethics, practical application of psychological skills in sport coaching. (Total tuition time: not available)

COACHING SCIENCE: GOLF PRACTICAL II (CSI20RT) **PRACTICAL**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Application of practical golf skills focusing on the following areas: Type, maintenance and care of golfing equipment and facilities, basics of swing theory and ball flight, tournament preparation, coaching methods for junior golf players and fundamentals of golf officiating. (Total tuition time: ± 75 hours)

COACHING SCIENCE: GOLF PRACTICAL III (CSI30RT) **PRACTICAL**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Application of practical golf skills in the following areas: Analysis and demonstration of golf swing, advanced golf coaching methods, advanced golf tournament organisation and management. (Total tuition time: not available)

COACHING SCIENCE: THEORY II (CSI20QT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Foundations of coaching. Planning coaching sessions. Seasonal coaching principles. Scientific training principles. (Total tuition time: ± 70 hours)

COACHING SCIENCE: THEORY III (CSI30QT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Analysis of performance in team sports and individual sports. Career coaching principles. Coaching for optimal performance. (Total tuition time: ± 70 hours)

COLLOQUIUM V (CQM500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Mathematics and Statistics)
Students take turns to present lectures on the theory and applications of real analyses with the aid of algebraic manipulators. (Total tuition time: not available)

COMMUNICATION I (CEN150T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Applied Languages)
Basic communication skills and professionalism. (Total tuition time: ± 68 hours)

COMMUNICATION SKILLS I (COS100B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Applied Languages)
Writing and letter-writing skills for the somatology industry. Oral presentation and demonstration skills. (Total tuition time: not available)

COMMUNICATION SKILLS I (COS101B, COS101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Applied Languages)
Communication theory. Oral presentation. Technical writing skills. Group communication skills. (Total tuition time: not available)

COMMUNITY DEVELOPMENT I (COD100B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Introduction to community development: process, community profile. Life skills: interpersonal relationships, learning skills, thinking skills. Sociology: definition, culture, socialisation, demography and human ecology, social change, social problems. Psychology: definition of concepts, motivation, attitudes, human needs. Industrial psychology: ergonomics, work environment, occupational health and safety. (Total tuition time: ± 186 hours)

COMMUNITY DEVELOPMENT I (COD100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Professionalism, ethics, communication, introduction to computers, survival skills, culture, social problems, personality, motivation, emotions and industrial psychology. (Total tuition time: ± 228 hours)

COMMUNITY DEVELOPMENT II (COD200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Didactics, relations, community studies, community profiles, community promotions, environmental psychology. (Total tuition time: ± 228 hours)

COMMUNITY HEALTH IV (COH400T) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Policy-making structures – micro and macro levels. National Health Plan. National Health Services Facility Plan. Theoretical foundations and models applied to community nursing. Epidemiological processes. Health indicators influencing health-care delivery and planning. Health information systems. Population and health profiles. Demographic data and ecological profiles of urban and rural communities. Interpretation of health statistics and epidemiological reports. Community health profiles. Scientific nursing processes applied to community nursing. Assessment methods. Community analysis and diagnosis. Methods, approaches and strategies for planning and implementation. Evaluation of communities. Community dynamics and cultural diversity. Principles of community development. Strategic management. (Total tuition time: ± 200 hours)

COMMUNITY NURSING: PRACTICAL IV (CNG40QT) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Assessment, diagnosis and treatment of patients through life span. Prescribing, administrating, and management of side effects of medication. Development of treatment protocol. Management of minor ailments. Designing, implementing and evaluating of health promotion programmes. HIV testing, counselling and treatment. Visual and auditory screening. Community assessment diagnosis and intervention. Case studies. Emergency care, (Total tuition time: ± 44 hours)

COMMUNITY NURSING IV: THEORY IV (CNG40PT) **PRACTICAL**
(Subject custodian: Adelaide Tambo School of Nursing Science)
International and national views and policies on health-care delivery approaches. International views on primary health care. National Health-Care Plan. Reconstruction and Development Programme. Levels of prevention, strategies and their importance. Development of a health-care system with a multi-professional and multi-sectoral approach throughout the lifespan. Scientific nursing approach applied to individuals, groups and communities. Importance and principles of primary health-care. Common ailments and health problems and their assessment, diagnosis, treatment and management. Applied knowledge of pharmacology. Pharmacological drug classification and pharmacokinetics. Nursing process applied to pharmacology. Assessment: history, medication history, physical assessment and contraindications. Nursing diagnosis indications for administration. Prevention, principles, medication administration and control, education. Evaluation: therapeutic actions, side effects, adverse effects. Principles of health education and strategies applied to individuals, groups and communities. (Total tuition time: ± 44 hours)

COMMUNITY PHARMACY (CYH500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Principles of pharmaceutical care. Drug information. Human resource management. (Total tuition time: not available)

COMMUNITY-BASED PHARMACEUTICAL CARE (PCOM312) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Administration, management skills and the philosophy of pharmaceutical care. Counselling, provision of advice and drug therapy management and their effects on the patient. Immune status importance of prevention and nutrition and their effects on the family. Epidemiology, health education and drug information and their effects on the community. The following aspects of dispensing: legal, communication with the patient and other health-care professionals, patient profiles, preparation of the prescription and record-keeping. The role of the pharmacist as a tutor. (Total tuition time: not available)

COMPUTATIONS: WATER I (COW101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Arithmetic, equations, graphs, volumes and areas. Retention time, flow calculations. SI units, statistics, concentration calculations. (Total tuition time: not available)

COMPUTER APPLICATIONS I (COA101C) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
Students have to acquire theory and practical skills and knowledge. Theory knowledge to be learned are Personal Computer Basics, Managing Computer Contents, Display Devices, Internet Privacy and Security, Connectors and Adapters, Network Basics, Multimedia Devices, Processors and Memory, Data Storage Devices, Network Security Overview and Safety. Practical skills to be acquired are Operating System XP and Application Software Microsoft Office Suite 2007 which include Microsoft Word, Microsoft Excel and MS PowerPoint. (Total tuition time: ± 36 hours)

COMPUTER APPLICATION I (COA101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
The subject consists of theory and practical components. The theoretical component introduces students to basic computer knowledge which includes; Evolution of Computers, Input devices, Processing data, Data storage devices, Output devices, Network basics, Safety and green IT, Computer hardware care and maintenance. The practical component covers MS Word essentials, MS Excel essentials, MS PowerPoint essentials and Windows XP essentials. (Total tuition time: ± 36 hours)

COMPUTER SKILLS I (CSK101B) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
The subject consists of theory and practical components. The theoretical component introduces students to basic computer knowledge which includes; Evolution of Computers, Input devices, Processing data, Data storage devices, Output devices, Network basics, Safety and green IT, Computer hardware care and maintenance. The practical component covers MS Word essentials, MS Excel essentials, MS PowerPoint essentials and Windows XP essentials. (Total tuition time: ± 36 hours)

COMPUTER USAGE I (CUS110T) **PRACTICAL**
(Subject custodian: Department of End-User Computing)
Basic concepts of IT, Microsoft Word, Excel and PowerPoint for Windows. Internet and e-mail. (Total tuition time: ± 75 hours)

COMPUTER USAGE I (CUS101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
The subject consists of theory and practical components. The theoretical component introduces students to basic computer knowledge which includes; Evolution of Computers, Input devices, Processing data, Data storage devices, Output devices, Network basics, Safety and green IT, Computer hardware care and maintenance. The practical component covers MS Word essentials, MS Excel essentials, MS PowerPoint essentials and Windows XP essentials. (Total tuition time: ± 75 hours)

CONSERVATION ADMINISTRATION I (CVA101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Administrative procedures, legislation and law enforcement, personnel management, tourism management and conservation economy. (Total tuition time: ± 75 hours)

CONSERVATION COMMUNICATION I (BKO101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Introduction to the nature, objectives and functions of conservation communication. Important fields such as interpretation, community development and environmental education, play a major role in equipping students to fulfil the true role of a nature conservator. Skills and knowledge pertaining to oral presentations and the preparation of visual aids are emphasised and put into practice. The credibility as well as the attitude of the nature conservator will be enhanced. Aspects pertaining to human behaviour, as well as behavioural change, will be discussed against the background of the adoption and diffusion of innovations. Students will be actively involved in presenting an environmental education awareness programme (EEAP) and talks to various target groups. This subject is very "hands-on". (Total tuition time: ± 75 hours)

CONSERVATION COMMUNICATION II (BKO201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Important fields such as interpretation, community development and environmental education, are enhanced and executed at a higher level for an allocated target group. The dynamics of groups, including the group process and leadership, are discussed and applied in an Environmental Education Awareness Programme (EEAP). Applicable techniques/activities will be enhanced, developed and put into practice. There will be practical marketing pertaining to conservation aspects. Problem solving and environmental problems/issues will be conceptualised and dealt with through the process of programme planning and development (Total tuition time: ± 75 hours)

CONSERVATION DEVELOPMENT I (BON101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

The extent and importance of the conservation of natural resources, biotic diversity and essential biochemical cycles. The following aspects are covered: conservation history in South Africa and elsewhere, conservation philosophies, conservation strategies, environmental conservation and the utilisation of natural resources. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY I (WNB101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Ecobiological principles, components of an ecosystem, energy in the ecosystem, productivity and the ecosystem, limiting factors in the ecosystem and climatology. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY II (WNB201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Population ecology dealing with aspects such as mortality and natality, population growth and density, population organisation and evolution, ecological co-actions such as herbivory and predation, parasitism, commensalism and saprobism, competition and mutualism. (Total tuition time: ± 75 hours)

CONSERVATION ECOLOGY III (WNB301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Biomes of the world – their net primary productivity and associated abiotic conditions as well as plant and animal adaptations. Aquatic systems – freshwater ecology, estuarine ecology, marine ecology. Environmental ecology, human ecology, and integrated environmental management. (Total tuition time: ± 75 hours)

CONSERVATION MANAGEMENT I (CVM100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject is broadly based on the emerging discipline of conservation biology. The goal of conservation biology is to gain an understanding of natural ecological systems in order to maintain ecological diversity in the face of increasing human population pressure. The subject attempts to apply theoretical ecological and genetic models to real-life situations and to address the loss of biodiversity through a fusion of theory, basic and applied research and public education. It investigates human impact and develops practical approaches to prevent the extinction of species. (Total tuition time: ± 40 hours)

CONTINUAL QUALITY IMPROVEMENT IV (CQI401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Introduction to TQM. ISO 9000 and TQM. Business philosophies. Quality awards and Excellence Models, ISO 9004: 2000. Quality function deployment (QFD) and quality policy deployment (QPD). Business process re-engineering (BPR). Quality information systems and quality cost calculations (ISO10014:2005). Surveying customer satisfaction (ISO 10001, 10002, 10003:2005). Teamwork. Motivation. (Total tuition time: not available)

COOLING AND BOILER WATER TECHNOLOGY III (CBW301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Corrosion: basic theory, forms of corrosion, combating and prevention, inhibitors, measurement. Cooling water: classification, problems, treatment, equipment. Boiler water: classification, description of installations, pretreatment of feed water, typical problems and control. Water treatment analyses: sampling procedures and frequency, chemical analyses, interpretation of results. (Total tuition time: ± 75 hours)

CRITICAL CARE IV (CTC400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Pathophysiology. Treatment regimes. Nutrition. (Total tuition time: not available)

CRITICAL CARE: BIOMEDICAL APPARATUS III (CBP310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Electrocardiography, invasive and non-invasive pressure monitoring, assessment of pulmonary volumes, measurements (pH, blood gas and electrolytes), treatment of respiratory failure, clinical anaesthesia, thermometry, assessment of homeostasis, infusion devices. (Total tuition time: not available)

CRITICAL CARE: CLINICAL PRACTICE III (KSK310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Electrical safety, electrocardiography, cardio-pulmonary resuscitation, invasive and non-invasive pressure monitoring, assessment of pulmonary volumes, blood-gas sampling, arterial oxygen saturation, acid-base values, nebulisation, humidification, positive pO_2. (Total tuition time: not available)

CRITICAL CARE: CLINICAL TECHNOLOGY PRACTICE III (EXP3KSK) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant critical-care procedures and skills. (Total tuition time: not available)

CROP PRODUCTION I (CRO101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
An introduction to crop production. Factors influencing the adaptability of crops. The principles of different cultivation practices and crop improvement. Calculations regarding planting dates, crop potential, fertilisation, plant population, yields, calibration of implements. (Total tuition time: ± 70 hours)

CROP PRODUCTION IV (CRO400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Crop Sciences)
An in-depth study of botany and production of a crop or groups of crops that are cultivated on a commercial scale. These include agronomic crops, vegetable crops, fruit crops and other crops. (Total tuition time: ± 50 hours)

CROP PROTECTION I (OBS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
Basic entomology: a review of the morphology, development, reproduction, biology and classification of insects and mites, and collection and mounting of insect specimens. Plant pathology: a review of symptoms and the classification of plant diseases, the classification and biology of the different groups of plant pathogens, the disease cycle, the dissemination of plant pathogens. A review of the biology of weeds and methods of weed control: chemical weed control regarding classification, choice and the effectivity of herbicides. (Total tuition time: ± 70 hours)

CROP PROTECTION II (OBS201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
Pest control: a review of various pesticides, the use of standard reference material, a review of various pest control methods, the biology and control of known South African agricultural pests. Disease control: a review of different disease management strategies, separation of host and pathogen, cultural control, biological control, physical control, immunisation and resistance, and chemical control, with appropriate examples. Pathogen resistance: mechanisms of resistance and management of resistance. Application: a review of the different types of application equipment and the principles of application, and calibration of application equipment, with appropriate examples. Legislation and the safe use of agrochemicals: discussion of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act No. 36 of 1947) and Hazardous Substances Amendment Act (Act No. 53 of 1992) and various other important agricultural laws relating to pest control, a review of the safe use of agrochemicals. (Total tuition time: ± 70 hours)

CROP PROTECTION III (OBS301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Pest control: a review of insect behaviour relevant to pest control in agriculture, a comprehensive explanation of the principles of biological and integrated control, insect pest management (IPM). Disease epidemiology: a study of various epidemics and the disease management strategies they require, the influence of environmental, human, pathogen, host and time span factors on the development of epidemics, classification of epidemics, development of integrated disease management strategies through applicable case studies. (Total tuition time: ± 70 hours)

CROP SCIENCE PROJECT IV (PJG400F) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Crop Sciences)

Not available. Please contact the Head of the Department.

CULTIVATED PASTURES I (CVT101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

Broadening the field of pasture science by studying the role of cultivated pastures, soil and veld management, radical veld improvement, irrigation, fodder conservation, grass and legume pastures, grazing mixtures, drought feeding and fodder-flow planning. (Total tuition time: ± 120 hours)

D

DATA MANAGEMENT II (DMN211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of End-User Computing)

Principles of electronic data processing: data capturing, data manipulation, data processing and information management. Practical applications of stud management in a database package. (Total tuition time: ± 40 hours)

DENTAL ASSISTING PRACTICAL I (DAP110T) **PRACTICAL ASSESSMENT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

General orientation and maintenance of the dental surgery, clinical asepsis, clinical dental disciplines, the processing of X-ray film, the preparation of dental materials. (Total tuition time: ± 110 hours)

DENTAL ASSISTING THEORY: DENTAL ASSISTING I (DAT11PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Dental terminology, disinfection and sterilisation, anesthetics, dental disciplines and dental materials. (Total tuition time: ± 80 hours)

DENTAL ASSISTING THEORY: DENTAL RADIOGRAPHY I (DAT11QT) **1 X 2-HOUR PAPER**

(Subject custodian: Department of Physics)

Basic principles of X-rays, principles of radiographic examination techniques and preventive methods. (Total tuition time: ± 80 hours)

DENTAL MATERIALS SCIENCE I (DMS100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Dental materials such as gypsum, wax, impression material, acrylics and abrasive and polishing agents. Basic chemistry and physics applicable to dental materials. (Total tuition time: ± 68 hours)

DENTAL MATERIALS SCIENCE II (DMS200T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Dental materials such as inlay material. Dental alloys and physical properties of materials. Basic chemistry and physics that apply to dental materials. (Total tuition time: ± 68 hours)

DENTAL MATERIALS SCIENCE III (DMS300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

A continuation of the study of dental materials. Implants, cross-infection and safety in the laboratory. Basic chemistry and physics that apply to dental materials. (Total tuition time: ± 68 hours)

DENTAL MATERIALS SCIENCE IV (DMS400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

A continuation of the study of dental materials, especially metals and precious metals used in metal constructions for porcelain crowns and bridges. Health hazards in the dental laboratory. Basic chemistry and physics that apply to dental materials. (Total tuition time: ± 68 hours)

DENTAL PRACTICE MANAGEMENT I (DPM100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Introduction to dentistry, working area, telephone technique, appointments, records and filing, mail, finance and dental stock, human relations, ethics and jurisprudence, introduction to computer literacy. (Total tuition time: ± 80 hours)

DENTAL TECHNOLOGY IV (DTN410T) **1 X 3-HOUR PAPER AND PRACTICAL ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory and practice of crown and bridge work, orthodontic and surgical equipment, including full metal crowns, porcelain crowns, orthodontic apparatus and maxillary-facial prostheses. (Total tuition time: ± 986 hours)

DENTAL TECHNOLOGY THEORY I (DTT100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the construction of full dentures. (Total tuition time: ± 136 hours)

DENTAL TECHNOLOGY THEORY II (DTT200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the construction of orthodontic appliances, as well as partial dentures and full metal crowns and bridges, temporary crowns and posts. (Total tuition time: ± 102 hours)

DENTAL TECHNOLOGY THEORY III (DTT300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of crown and bridge work, including full metal crowns with acrylic veneers and metal constructions for porcelain crowns and bridges. (Total tuition time: ± 136 hours)

DISEASE AND IMMUNE RESPONSE II (DIR201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Important diseases of man, animals and plants. Control strategies. Immune system, vaccination, monoclonal and polyclonal antibody, plant and animal tissue culture, diagnostic techniques. (Total tuition time: ± 65 hours)

E

ECOTOURISM: BIOLOGY IA (ECB10AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
The use of botanical keys: general and specialist keys, plant identification, and an in-depth study of the biomes of Southern Africa. (Total tuition time: ± 75 hours)

ECOTOURISM: BIOLOGY IB (ECB10BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Animals: vertebrates (identification, ecological roles, life-cycles). Ecology: trophic levels, food chains, energy flow, biogeochemical cycles. (Total tuition time: ± 75 hours)

ECOTOURISM: BIOLOGY IIA (ECB20AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
An in-depth study of the biomes of Southern Africa. (Total tuition time: ± 75 hours)

ECOTOURISM: BIOLOGY IIB (ECB20BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Animals: vertebrates (identification, ecological roles, life-cycles). Ecology: trophic levels, food chains, energy flow, biogeochemical cycles. Total tuition time: ± 75 hours)

ECOTOURISM: BIOLOGY III (ECB301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Use of plants: medicinal, cultural, by animals, aesthetic purposes. Animals: speciation and zoogeography, basic genetics, basic ethology. Ecology: ecological habitats, estuaries, marine, terrestrial. (Total tuition time: ± 75 hours)

ECOTOURISM: BIOLOGY IVA (ECB40AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Human-nature interaction: Understanding human behaviour in nature and cultural differences. Ecology: environmental impact assessment, integrated environmental management. (Total tuition time: ± 40 hours)

ECOTOURISM: BIOLOGY IVB (ECB40BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Rare and endangered plants. Problem plants. Sociobiology. Behavioural ecology. Conservation biology. (Total tuition time: ± 40 hours)

ECOTOURISM DEVELOPMENT I (ECD100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Tourism Management)

Introduction to tourism: what is tourism, history of travel and tourism, tourism challenges and opportunities. Tourism motivations: segmenting the tourism market, specialised tourist segments. Distribution channels: one-, two- and three-level distribution channels. Transportation: surface transportation, air transportation, cruises. Accommodation: types of accommodation, classification and rating systems. Attractions and entertainment: heritage attractions, commercial attractions. Impact of tourism. Future tourism trends. (Total tuition time: ± 75 hours)

ECOTOURISM DEVELOPMENT II (ECD200T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Tourism Management)

Tourism planning – the planning process and the impacts. Rural tourism: financing, development and marketing issues, holiday farm operators, key issues facing rural enterprises. Cultural tourism: definition of cultural tourism, cultural heritage, cultural resources, case studies. Environmental impact assessment (EIA). (Total tuition time: ± 75 hours)

ECOTOURISM DEVELOPMENT III (ECD300T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Tourism Management)

Sustainable tourism: global environmental issues, environmental significance of leisure tourism, sustainability and economic restructuring, sustainability tourism and indigenous people, sustainability in the accommodation sector. Tourism in protected areas. Global positioning system (GPS). (Total tuition time: ± 75 hours)

ECOTOURISM DEVELOPMENT IV (ECD400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Tourism Management)

Project management for ecotourism development. Sustainable ecodevelopment practices made applicable to South Africa: case studies. Geographic information systems (GIS). (Total tuition time: ± 40 hours)

ECOTOURISM INTERPRETATION I (ECI101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Presentation skills: oral and written, verbal and non-verbal. Perceptions and attitudes. Credibility. Intercultural communication. Group dynamics. Interpersonal skills. (Total tuition time: ± 75 hours)

ECOTOURISM INTERPRETATION II (ECI201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Environmental Interpretation: general. Interpretation planning. Guided activities and techniques. Self-guided activities: exhibits, brochures, signage. Trail development and construction. Environmental education. (Total tuition time: ± 75 hours)

ECOTOURISM INTERPRETATION III (ECI301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Human-nature interaction: Disconnectedness, reconnection with nature, ecotourism as a means to reconnect, factors affecting nature experiences, nature-based activities and their influence on nature experiences. (Total tuition time: ± 75 hours)

ECOTOURISM MANAGEMENT I (ECQ100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Tourism Management)

An overview of management. Planning for a dynamic environment. Introduction to strategic strategic decision-making. Concepts such as organising, leading, controlling and evaluating as applied within an ecotourism business environment. (Total tuition time: ± 75 hours)

ECOTOURISM MANAGEMENT II (ECQ200T) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Tourism Management)
Consists of three components applicable for the operations of an ecotourism venture: Human Resource Management, Financial Management and Economics for Ecotourism. (Total tuition time: ± 75 hours)

ECOTOURISM MANAGEMENT III (ECQ300T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Tourism Management)
The entrepreneur – characteristics and nature of entrepreneurship. Creativity, innovation and business opportunity. The business plan. Legal aspects and resource requirements. Financing entrepreneurial ventures. Franchises, business buy-outs and starting one's own ecotourism business. E-commerce opportunities. Intrapreneurship. First-aid level I and II. (Total tuition time: ± 75 hours)

ECOTOURISM MANAGEMENT IV (ECQ400T) **1 X 4-HOUR PAPER (OPEN BOOK)**
(Subject custodian: Department of Tourism Management)
Introduction to strategic management. Strategic analyses. Environmental scanning. Industry analysis. Formulation of strategy. Implementation of strategy. Evaluation of strategy. (Total tuition time: ± 40 hours)

ECOTOURISM MARKETING I (ECK100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Tourism Management)
Introduction to ecotourism marketing. The ecotourism market, product, pricing, distribution, retailing and wholesaling. Marketing communications for ecotourism. Marketing planning for ecotourism. (Total tuition time: ± 75 hours)

ECOTOURISM MARKETING II (ECK200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Tourism Management)
What ecotourism marketing is. Planning: research and analyses, marketing strategy and planning. Implementing the marketing plan. Controlling and evaluating the marketing plan. (Total tuition time: ± 75 hours)

ECOTOURISM PRACTICE I (ECR100T) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Tourism Management)
Global ecodestinations. Principles of ecotourism. Retail and wholesale travel. Tour operations: designing a tour, negotiating and booking a tour, costing and pricing a tour, client handling, preparation and dispatch, post-tour wrap-up. (Total tuition time: ± 75 hours)

ECOTOURISM PRACTICE II (ECR200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Tourism Management)
Conferences and other events: Lodge management and front-office operations: Client care. Health and safety. Opera. Tour Plan. Summit. (Total tuition time: ± 75 hours)

EMERGENCY MANAGEMENT I (EMR101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of People Management and Development)
Personnel management: recruitment, selection, placing, maintenance. Communication, problem-solving, conflict management. (Total tuition time: ± 45 hours)

EMERGENCY MANAGEMENT II (EMR201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Legislation, regulations, codes, ventilation. (Total tuition time: ± 45 hours)

EMERGENCY MANAGEMENT III (EMR301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Vision, mission and objectives. Procedures. Socio-economic systems. Basic tasks of managers. (Total tuition time: ± 45 hours)

EMERGENCY MANAGEMENT IV (EMR401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Evolution of management. Management practices. Styles of management. Management by objectives. Top management and team work. External relations. Protocol. Case studies. (Total tuition time: ± 45 hours)

ENDOCRINE AND REPRODUCTIVE PHARMACY (PEND321) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
A study of the pathophysiology of major disorders affecting the endocrine system, coupled with drug treatment of such conditions. This module includes the basic female and male reproduction functions, diseases and conditions that are under hormonal control, including pregnancy, growth development, birth, genetics, lactation and ageing. (Total tuition time: not available)

ENGINEERING GEOLOGY III (ENG301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Rock material and rock mass, engineering geology of soils, introduction to rock mechanics, introduction to soil mechanics, engineering-geological investigation methods, the engineering geology of South African rock types. (Total tuition time: ± 77 hours)

ENGINEERING GEOLOGY IV (ENG401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Case studies. Exploration techniques for engineering materials. Core logging. Geomechanics. Engineering geophysics. Seminars and self-study. (Total tuition time: ± 77 hours)

ENGLISH LANGUAGE (ENGS124) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Applied Languages)
Refer to UL (Medunsa Campus) Calendar. (Total tuition time: not available)

ENTREPRENEURIAL SKILLS (EPS101B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Types of businesses. Management functions. Planning, organising, guidance and control. Budgeting. Accounting. Administration. Banking. Personnel management. Customer relations. (Total tuition time: ± 45 hours)

ENTREPRENEURIAL SKILLS (EPS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Entrepreneurship, core business strategies, marketing strategies, operational strategies, financial planning and management, human resource planning. (Total tuition time: ± 60 hours)

ENTREPRENEURIAL SKILLS (EPS111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
The various types of businesses, management functions, budgeting, accounting, administration, banking, personnel management, customer relations, and entrepreneurship versus entrepreneurship. (Total tuition time: not available)

ENTREPRENEURIAL SKILLS I (EPS131T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Types of businesses. Management functions. Planning, organising, leading, control. Budgeting. Accounting. Administration. Banking. Personnel management. Customer relations. (Total tuition time: not available)

ENVIRONMENTAL ACCOUNTING V (ECC500T) **1 X 4-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Accounting theories. Cost-benefit analysis. Application in terms of life cycles. (Total tuition time: not available)

ENVIRONMENTAL BIOTECHNOLOGY II (EMB201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Treatment processes of, inter alia, industrial wastewater, as well as soil and oil-spill bioremediation. (Total tuition time: not available)

ENVIRONMENTAL BIOTECHNOLOGY IV (EMB401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Environmental protection and waste disposal, industrial wastewater treatment processes, biodegradation of xenobiotic compounds, bioleaching and biosorption, soil bioremediation, bioremediation of oil spills. (Total tuition time: ± 48 hours)

ENVIRONMENTAL CHEMISTRY II (ENC201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
History of the earth and chemical cycles. Major elements found in living matter. Major elements in the crust of the earth. Minor elements and environmental problems. Aquatic chemistry, including water analysis, water pollution and its treatment. Toxicological chemistry. Mass balances. (Total tuition time: ± 82 hours)

ENVIRONMENTAL CHEMISTRY III (ENC301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
The transport of pollutants in the environment, stratospheric chemistry and the ozone layer, ground-level air chemistry, principles of toxicology and ecotoxicology and environmental chemistry of natural waters. Environmental chemistry of hazardous substances, techniques for modeling land pollution, pollution abatement technology, disposal of waste, hazardous waste, nuclear waste, agricultural chemicals. (Total tuition time: ± 82 hours)

ENVIRONMENTAL CHEMISTRY IV (ENC400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Green chemistry. Environmentally friendly syntheses. Alternative chemical processes. (Total tuition time: ± 36 hours)

ENVIRONMENTAL CHEMISTRY V (ENC500T) **1 X 4-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental engineering. Soil chemistry. Advanced atmospheric and water chemistry. Advanced hazardous waste and legislation. (Total tuition time: not available)

ENVIRONMENTAL ECONOMY (EEC201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Introductory economy. Sociopolitical factors. Resource economy. Quantification of environmental risks. Environmental and economical problems and situation criteria. (Total tuition time: ± 42 hours)

ENVIRONMENTAL EDUCATION I (EED100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
This is a study of the philosophy of environmental education, community development and human behaviour as a pathway to sustainability. The nature, objectives, goals and subgoals of environmental education will be discussed and implemented, practically. Environmental issues will be conceptualised and presented in terms of the nature, causes, effects, and how they can be linked to the school curriculum. Methods will be discussed as to the supporting and implementation of the subject, Environmental Education, in the school curriculum. Evaluation/assessment of the National Curriculum Statement, learning areas (subject curriculum) and learning outcomes pertaining to environmental education awareness programme (EEAP). Students will be required to evaluate the schools learners' understanding and skills in relation to environmental subject matter. The student will be required to develop environmental education resource material and to assess it according to accepted standards (OBE). Students will be required to assess an environmental education awareness programme and present it to a target group. Here various techniques, knowledge, and skills must be used to assess environmental behaviour. (Total tuition time: ± 75 hours)

ENVIRONMENTAL EPIDEMIOLOGY (ENP400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
An introduction to ecotoxicology and risk factor analysis. Case studies, practical research project. (Total tuition time: ± 120 hours)

ENVIRONMENTAL GEOHYDROLOGY III (ENV301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Basic concepts. Appearance and movement of groundwater. Groundwater exploration. Drilling techniques. Borehole construction, development and maintenance. (Total tuition time: ± 60 hours)

ENVIRONMENTAL GEOHYDROLOGY IV (ENV400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Groundwater modelling. Management of groundwater problems. (Total tuition time: ± 48 hours)

ENVIRONMENTAL GEOLOGY II (EGE201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Natural disasters. Human impact on geological environment. (Total tuition time: ± 45 hours)

ENVIRONMENTAL GEOLOGY III (EGE301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental geophysics, environmental geohydrology and environmental engineering geology. (Total tuition time: ± 60 hours)

ENVIRONMENTAL LEGISLATION (ELE201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Framework of environmental law. South African legal process. Nature and scope of national, provincial and local legislation. Implementation of specific laws. Environmental impact assessment, environmental management programme. International environmental legislation and standards. International conventions and treaties. Green organisations. Quantification of legal risks. (Total tuition time: ± 42 hours)

ENVIRONMENTAL LEGISLATION V (ELE500T) **1 X 4-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Application of environmental legislation. Advanced environmental impact study. Environmental management programmes and applied case studies. (Total tuition time: not available)

ENVIRONMENTAL MANAGEMENT II (EMG201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Production management. Life cycle analysis. Environmental finance and cost analysis. Industrial health. (Total tuition time: ± 30 hours)

ENVIRONMENTAL MANAGEMENT III (EMG301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental management strategy. Environmental audit. Environmental monitoring. Integrated environmental management. (Total tuition time: ± 42 hours)

ENVIRONMENTAL MANAGEMENT IV (EMG400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental impact study. Sustainable development. Environmental accounting. Life cycle assessment. (Total tuition time: ± 32 hours)

ENVIRONMENTAL MANAGEMENT V (EMG500T) **1 X 4-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Applied environmental management concepts and applications. (Total tuition time: not available)

ENVIRONMENTAL MANAGEMENT: APPLIED I (EMG10YT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Introduction to environmental management. Key environmental issues, cultural-historical environment and human factors. Strategic management and implementation of the strategy. Personnel management. (Total tuition time: ± 30 hours)

ENVIRONMENTAL MANAGEMENT: GENERAL I (EMG10XT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Introduction to environmental management. Key environmental issues, cultural-historical environment and human factors. Strategic management and implementation of the strategy. Personnel management. (Total tuition time: ± 60 hours)

ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental management philosophy. Formal management resources. Various uses of environmental systems. ISO 14000, BS 7750 and ERA. (Total tuition time: ± 45 hours)

ENVIRONMENTAL PLANNING I (EPN100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Planning, building and administrating housing schemes, town planning, building materials and design of buildings. Environmental surveys, impact studies, environmental auditing and basic environmental management, as well as ecology. (Total tuition time: ± 228 hours)

ENVIRONMENTAL POLLUTION: AIR AND NOISE III (EPA300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Air pollution, combustion and its sources and occurrence, engineering control, legislation, monitoring and climatology. Environmental noise – legal requirements, sources, monitoring and control. (Total tuition time: ± 228 hours)

ENVIRONMENTAL POLLUTION: WASTE AND WATER II (EPW200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Water quality management, sources of water pollution, principles of water quality, sewage treatment, water purification, sanitation, waste technology. (Total tuition time: ± 228 hours)

ENVIRONMENTAL REHABILITATION IV (ERE400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
General overview of resources in the mining sector. The impact of the activities on the environment. Rehabilitation methods. (Total tuition time: ± 45 hours)

ENVIRONMENTAL RESOURCES II (ERS201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Environmental quality: air pollution, water pollution, solid waste, pesticides, radiation, noise. Waste management. Waste: rational use reduces waste, renewal techniques, recycling. Risk management: identifying potential risks, dealing with risks. (Total tuition time: ± 30 hours)

ENVIRONMENTAL RESOURCES III (ERS301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Climate studies: the South African climate, urban climate, factors that have an impact on climate. Particular environmental features: mountains, rivers, the coastal zone. Indications of environmental concerns: unofficial indicators, official indicators. (Total tuition time: ± 45 hours)

ENVIRONMENTAL RESOURCES IV (ERS410T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Industrial ecology. Protected areas. Waste management. Risk management. (Total tuition time: ± 45 hours)

ENVIRONMENTAL RESOURCES: ECOSYSTEM ECOLOGY I (ERS10XT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
General ecology: the purpose of the study of ecology, organisation of the ecosystem, ecological pyramids and population interactions. Renewable resources: soil, wild animals, freshwater systems, marine systems. Non-renewable resources: terrestrial minerals, offshore minerals. (Total tuition time: ± 45 hours)

ENVIRONMENTAL RESOURCES: POPULATION ECOLOGY I (ERS10YT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
General ecology: the purpose of the study of ecology, organisation of the ecosystem, ecological pyramids and population interactions. Renewable resources: soil, wild animals, freshwater systems, marine systems. Non-renewable resources: terrestrial minerals, offshore minerals. (Total tuition time: ± 45 hours)

ENVIRONMENTAL RISK ASSESSMENT V (ERA500T) **1 X 4-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Assessment of risk, hazard identification, risk characterisation. Management of risk, consideration of management option, risk communication, control decision, monitoring. (Total tuition time: not available)

ENVIRONMENTAL STUDIES I (ERT111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
The natural environment, ecology and ecosystems, the human environment. (Total tuition time: ± 45 hours)

ENVIRONMENTAL STUDIES II (ERT200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Environmental conservation, land use and environmental protection, environmental legislation, environmental impact studies, environmental planning and reclamation practices. (Total tuition time: ± 60 hours)

EPIDEMIOLOGY II (EPI210T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Physical, chemical and biological agents, pathogenesis, vector control and agents, host environmental exchange and control. (Total tuition time: ± 228 hours)

EPIDEMIOLOGY III (EPI300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Epidemiological study approach and methods, biostatistics. (Total tuition time: ± 228 hours)

EQUINE ANATOMY AND PHYSIOLOGY I (EAP101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An introduction to the basic anatomy and physiology of the horse, referring to the musculoskeletal system, organs and organ systems, as well as specific aspects of neurology and endocrinology. (Total tuition time: ± 112 hours)

EQUINE BREEDING I (EQB111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An introduction to basic mammalian genetics, especially as applied to horse breeding. Horse diseases related to genetic deficiency. (Total tuition time: ± 80 hours)

EQUINE NUTRITION I (EQN111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An introduction to livestock nutrition. The anatomy and physiology of the digestive system of the horse, feed analyses and a horse's nutrient requirements. Classification and characteristics of different fodders. ractical horse feeding, as well as basic ration formulation. (Total tuition time: ± 80 hours)

EQUINE SCIENCE IV (EQC400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Animal Sciences)
A comprehensive study of particular aspects of the equine industry. Critical evaluation of research publications in the specific fields of study, as well as preparation for seminars. (Total tuition time: ± 300 hours)

ESTABLISHING THE QUALITY OF MEDICINES IV (EQI400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Good manufacturing practice. Quality control procedures on raw materials and finished products. Stability testing. (Total tuition time: not available)

EXPERIENTIAL LEARNING (EXP1ACH) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Chemistry)
This project should be conducted with the cooperation of the student's employer, and must include one or more of the following: the pharmaceutical industry, soaps and detergents, pulp and paper, sugar and starch, dyestuffs, Portland cement, calcium and magnesium compounds, surface coating, fermentation, petroleum and petrochemicals, agrichemicals, chemicals and chemical processes in ore processing, applications of analytical techniques, mining, iron and steel, water and sewage treatment. (Total tuition time: not available)

EXPERIENTIAL LEARNING (EXP1DET) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Practical application in a work situation of theoretical subjects in the first year. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING (EXP1OTA) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Four blocks of five weeks each of clinical training, in selected hospitals, and selected health-care centres. Student placement will be done by the University. (Total tuition time: ± 1000 hours)

EXPERIENTIAL LEARNING (EXP1VET) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
A training programme is drawn up in collaboration with the supervisor at an accredited laboratory. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1AAP, EXP1EQS) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Animal Sciences)
A project as determined by the University in collaboration with the employer. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1AGR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Crop Sciences)
A practical internship of one semester at an approved agriculture-related enterprise. A report on the internship, as well as tasks relating to the specialisation field of the student. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1BIO) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biotechnology and Food Technology)
Practical experience in a relevant industry, which covers at least two of the following: research and development, quality control (has to include microbial and chemical quality control). (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1ETM) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Nature Conservation)
Industry-related training as determined by the industry and the University. Report to be submitted and assessed. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1FDT) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biotechnology and Food Technology)
Practical experience in a relevant industry, which covers at least two of the following: research and product development, production, processing or manufacturing, quality assurance or quality control, stock control, marketing. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1GRM) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Nature Conservation)
Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their place of employment. A final oral examination is taken at the end of the period. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (EXP1MOP) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Practical application of theoretical subjects in the first year. (Total tuition time: ± 600 hours)

EXPERIENTIAL LEARNING I (EXP1NCV) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Nature Conservation)
Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A final oral examination is also taken at the end of the period. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING I (BOOYSENS) (EXB1HOR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental horticultural practices. Experiential learning is done by an accredited institution and is overseen by its mentors. A compulsory accredited syllabus is followed and students are evaluated on a continuous basis by writing tests and doing various assignments. At the end of the period a final mark is awarded. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING I (BOOYSENS) (EXB1LST) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental landscape practices. Experiential learning is done by an accredited institution and is overseen by its mentors. A compulsory accredited syllabus is followed and students are evaluated on a continuous basis by writing tests and doing various assignments. At the end of the period a final mark is awarded. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING I (INDUSTRY) (EXP1HOR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental horticultural practices. Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A final oral examination is also taken at the end of the period. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING I (INDUSTRY) (EXP1LST) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental landscape practices. Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A final oral examination is also taken at the end of the period. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING II (EXP2AAP, EXP2EQS) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Animal Sciences)
A project as determined by the University in collaboration with the employer. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2AGR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Crop Sciences)
A practical internship of one semester with an approved agriculture-related enterprise. A report on the internship plus tasks relating to the specialisation field of the student. An oral examination. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2BIO) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biotechnology and Food Technology)
Practical experience in a relevant industry, which covers at least two of the following: research and development, quality control (has to include microbial and chemical quality control). (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2ETM) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Tourism Management)
Industry-related training as determined by the industry and the University. Report to be submitted and assessed. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2FDT) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biotechnology and Food Technology)
Practical experience in a relevant industry, which covers at least two of the following: research and product development, production, processing or manufacturing, quality assurance or quality control, stock control, marketing. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2GRM) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Nature Conservation)
Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their place of employment. A student may be subjected to a final oral examination at the end of the period. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (EXP2MOP) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Practical application of theoretical subjects in the second year. (Total tuition time: ± 600 hours)

EXPERIENTIAL LEARNING II (EXP2NCV) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Nature Conservation)
Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A student may be subjected to a final oral examination at the end of the period. (Total tuition time: 6 months)

EXPERIENTIAL LEARNING II (BOOYSENS) (EXB2HOR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental horticultural practices. Experiential learning is done by an accredited institution and is overseen by its mentors. A compulsory accredited syllabus is followed and students are evaluated on a continuous basis by writing tests and doing various assignments. At the end of the period a final mark is awarded. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING II (BOOYSENS) (EXB2LST) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental landscape practices. Experiential learning is done by an accredited institution and is overseen by its mentors. A compulsory accredited syllabus is followed and students are evaluated on a continuous basis by writing tests and doing various assignments. At the end of the period a final mark is awarded. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING II (INDUSTRY) (EXP2HOR) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental horticultural practices. Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A final oral examination is also taken at the end of the period. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING II (INDUSTRY) (EXP2LST) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Horticulture)
Ornamental landscape practices. Experiential learning is done with an accredited employer and is overseen by a mentor and a departmental lecturer. A compulsory syllabus is followed and two reports (progress and final report) must be submitted. Students might be visited at their places of employment. A final oral examination is also taken at the end of the period. (Total tuition time: ± 480 hours)

EXPERIENTIAL LEARNING: COMMUNITY PHARMACY PRACTICE (PELC323) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Practical experience in aspects of the dispensing process, pharmacist-initiated care, communication with the patient and other health-care workers, specialist areas of community pharmacy, legal and ethical requirements, important aspects of management. (Total tuition time: not available)

EXPERIENTIAL LEARNING: HOSPITAL PHARMACY PRACTICE (PELH423) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Philosophy of pharmaceutical care, health systems, managing drug supply, administration and management. Treatment plans. (Total tuition time: not available)

EXPERIENTIAL LEARNING: INDUSTRIAL PHARMACY PRACTICE (PELI223) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Practical experience in aspects of the medicines regulatory process, production of pharmaceuticals, pharmaceutical research and development, implementing good manufacturing procedures, quality assurance, personnel and business management, as well as the marketing and advertising of pharmaceuticals. (Total tuition time: not available)

EXPERIENTIAL LEARNING: RESEARCH METHODOLOGY AND PRIMARY HEALTH CARE (PELR123) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
The basic principles of research methodology and the design and use of research instruments. The application of those principles and instruments in a study of pharmaceutical and related services at primary health-care level. (Total tuition time: not available)

EXPERIMENTAL ANIMAL TECHNOLOGY II (EAT211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Handling, care, husbandry, nutrition, breeding of experimental animals, e.g. mice, rats, guinea-pigs and rabbits, and the prevention of diseases. Design of captivity facilities. Feeding, ventilation and sterilisation systems. Genetics and legislation concerning experimental animals. (Total tuition time: ± 90 hours)

F

FARM PLANNING I (FMP101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
The planning of a farm to satisfy the principles of optimal resource utilisation. (Total tuition time: ± 70 hours)

FARRIERY I (FRY111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An intensive study of all theoretical aspects of the shoeing of horses, as well as practical hoof care. The aim is not to train farriers, but to present the practice of shoeing to enable students to make a better assessment of the newly shod horse. (Total tuition time: ± 84 hours)

FERMENTATION TECHNOLOGY II (FMT201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Isolation of micro-organisms, preparation of media, microbial growth, primary and secondary screening, setting up a fermentation laboratory: instrumentation, stirred tank reactor design, other types of bioreactors, sterilisation of media, sterility and aseptic conditions, inoculum development, batch and continuous cultures, product recovery, economics of fermentation. (Total tuition time: ± 135 hours)

FINANCIAL MANAGEMENT I (FMN120T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
The objective is to provide the student with the necessary knowledge and techniques to make effective financial decisions. An introductory study unit(micro- and macro-economics), financial reports and statements, the analysis and interpretation of financial results, production economic principles and cost terms, budgets and risk and uncertainty. (Total tuition time: ± 40 hours)

FINANCIAL MANAGEMENT: AGRICULTURE IV (FBL400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
A discussion about the most recent investment options. Drawing up, evaluation and interpretation of financial statements for farming. Guidelines for an operational and strategic farming plan. Diagnosis of farming problems. Farming taxation. Analysis of a complete, economical farming unit. (Total tuition time: ± 70 hours)

FINANCIAL MANAGEMENT II (FMN211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management Accounting and Finance)
Budgets, income and expenditure, budget systems. Tenders and contracts. Loans. Financial control and accountability. Stocking. Case studies. The time value of money. (Total tuition time: ± 45 hours)

FIRE CHEMISTRY II (FBC211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Solutions, chemical kinetics, flammable liquids, gases and vapours. (Total tuition time: ± 45 hours)

FIRE CHEMISTRY III (FBC311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chemical incident management, organic chemistry, chemical radioactivity, fire retardants, plastics, poisonous materials. (Total tuition time: ± 45 hours)

FIRE CONSTRUCTION I (FBO111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Construction principles. Construction technology: building process, building drawings, construction elements. (Total tuition time: ± 45 hours)

FIRE CONSTRUCTION II (FBO211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Fixed installations: sprinklers, standpipe systems, fire pumps. Portable fire extinguishers, special extinguishing systems. Fire detection systems, extinguishing procedures, extinguishing equipment. Fire behaviour. Ventilation methods. High-rise structures. (Total tuition time: ± 45 hours)

FIRE CONSTRUCTION III (FBO311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Management and administration. National Building Regulations: administration, public safety, stairways, glazing, fire, water. Architectural plan evaluation. (Total tuition time: ± 45 hours)

FIRE HYDRAULICS I (FBH111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Emphasise basic mathematics to be used in Fire Physics and Fire Hydraulics: Arithmetic, equations, graphs, basic algebra, trigonometry, mensuration and SI units. Introduction to hydraulics, properties of fluids, hydrostatics, hydrodynamics. (Total tuition time: ± 45 hours)

FIRE HYDRAULICS II (FBH211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Hydrodynamics, nozzles, energy loss in pipelines, water relaying, field calculations. (Total tuition time: ± 45 hours)

FIRE HYDRAULICS III (FBH311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Hydrostatics, hydrodynamics, pumps. (Total tuition time: ± 45 hours)

FIRE PHYSICS II (FBP211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Waves and sound, rotational motion, electricity, magnetism. (Total tuition time: ± 45 hours)

FIRE PHYSICS III (FBP311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Transfer of heat, Thermal Physics, The Laws of thermodynamics. Application of effects of heat on forces in roof trusses and in materials radioactivity, fire detectors. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY I (FBT111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Fire apparatus maintenance, fleet administration, air devices, fire boats, explosions. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY II (FBT211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Incident management: air, sea, rescue, fire suppression, communication. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY III (FBT311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Fire suppression techniques. Risk management for fire services. Fire department occupational safety: OHSA, NFPA 1001 and 1521. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY IV (FBT411T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Background: today's arson problem. Chemistry of fire. Fire scene investigation. Types of fire. Explosives. Interviews. Court appearances. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY: INVESTIGATIONS IV (FIN411T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Physics)
Students must undertake an investigation of a practical/applied research nature of at least 120 hours. A written report/dissertation must be submitted for evaluation, examination and moderation. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY: PRACTICAL I (EXP1FTC) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Physics)
Fire Fighter I: fire hose basic training, fire water streams, ladders, fire behaviour, fire ground safety, forcible entry, SCBA 1 and 2, ventilation procedures. Basic Ambulance Certificate or Level 3 First-Aid Certificate. (Total tuition time: ± 45 hours)

FIRE TECHNOLOGY: PRACTICAL II (EXP2FTC) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Physics)
Fire Fighter II: advanced ventilation techniques, building construction, fire alarm and communications, fire cause determination, fire hose appliances, rescue, water supplies. (Total tuition time: ± 45 hours)

FOOD AND MEAT HYGIENE II (VVH200T) **1 X 3-HOUR PAPER AND PRACTICAL**
(Subject custodian: Department of Environmental Health)
Food poisoning, food standards, food legislation and monitoring, the hygienic production and distribution of milk, the preservation of food and general hygiene at food premises. Anatomy of food animals, primary inspection and legislation. (Total tuition time: ± 408 hours)

FOOD AND MEAT HYGIENE III (VVH300T) **1 X 3-HOUR PAPER AND PRACTICAL**
(Subject custodian: Department of Environmental Health)
Biochemistry, food poisoning, food preservation, contamination, spoilage and the examination of food, food processing, quality control, food microbiology (laboratory), milk, meat science, abattoir planning and construction, food animals, abattoir practice and legislation, parasitology, pathology, diseases, pathology practical, secondary inspection and laboratory. Practical. (Total tuition time: ± 408 hours)

FOOD ANIMALS ANATOMY AND PHYSIOLOGY I (VDA111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Microscopic and macroscopic study of all structures and organs in the bodies of food animals, as well as the functioning of these organs and structures. (Total tuition time: ± 90 hours)

FOOD BIOCHEMISTRY III (FBI301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Study of the major chemical components of food, the chemical changes they undergo during processing and storage, and methods used to analyse them. (Total tuition time: ± 180 hours)

FOOD COMPONENTS IV (FCP401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Food ingredients and functionality, food additives, legislation and labelling, interaction between food ingredients in a particular product, principles of analytical methods. (Total tuition time: ± 48 hours)

FOOD HYGIENE IV (FHY410T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental Health)
Biochemistry, food poisoning, food preservation, processing, contamination, spoilage and inspection. Food microbiology, food engineering (design and apparatus), planning of food premises, evaluation and laboratory. Practical. (Total tuition time: ± 228 hours)

FOOD MICROBIAL ASSURANCE IV (FMA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Quality control and quality assurance, good manufacturing practices and HACCP, microbiological changes in food before, during and after processing, Codex Alimentarius, food biotechnology, risk analysis. (Total tuition time: ± 48 hours)

FOOD MICROBIOLOGY III (FMB311T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Importance of food microbiology, microbial and mycological spoilage of food, factors influencing microbial spoilage of foods, microbiological aspects of food preservation, microbial food poisoning and food-transmitted infection, the isolation and identification of pathogens from food products, the use of micro-organisms in the production of food, microbiology of the air. (Total tuition time: ± 180 hours)

FOOD PROCESS ENGINEERING: COMPUTER SKILLS I (FPE10YT) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
The subject consists of theory and practical components. The theoretical component introduces students to basic computer knowledge which includes; Evolution of Computers, Input devices, Processing data, Data storage devices, Output devices, Network basics, Safety and green IT, Computer hardware care and maintenance. The practical component covers MS Word essentials, MS Excel essentials, MS PowerPoint essentials and Windows XP essentials. (Total tuition time: ± 36 hours)

FOOD PROCESS ENGINEERING: FOOD ENGINEERING I (FPE10XT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Units and dimensions, energy and mass balance, combined energy and mass balances, steam tables, basics of heat transfer, heat exchangers, refrigeration, drying, application of mass and energy balances in food product development and industrial processing. (Total tuition time: ± 90 hours)

FOOD PRODUCT DEVELOPMENT IV (VPO401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Marketing principles. Introduction to the food product development process. Idea generation, screening of ideas from concept to product, sensory and safety analysis, and launching the new product. Retrospection: problems and constraints during the development process. Future trends and intellectual property. (Total tuition time: ± 48 hours)

FOOD PRODUCTION III (FDC301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
The production function in perspective. Product development and process planning. Factory layout, hygiene and sanitation. Cost data for production decision-making purposes. Production planning and inventory control. Food product development project which includes all aspects from idea generation, development, consumer acceptance, analysis and labelling. (Total tuition time: ± 195 hours)

FOOD PRODUCTION IV (FDC401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Operations management: definition, principles and practices of management, management planning, decision-making, customer and human relations and entrepreneurship. (Total tuition time: ± 48 hours)

FOOD PROJECT IV (FPJ401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biotechnology and Food Technology)
Food industry management: definition, principles and practices of management, management planning, Gantt and Load charts. Project management, decision-making, budgeting, customer and human relations and operational management. Entrepreneurship. (Total tuition time: no formal tuition)

FOOD QUALITY ASSURANCE I (FQA101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Introduction to quality, quality control and quality assurance, HACCP and microbiological control, organisation and management, product specifications, packaging, labelling and shelf life, manufacturing, plant inspection, kosher certification and halaal foods, customer services, product and safety data sheets, complaint handling, ISO 9000 & 1400. (Total tuition time: ± 90 hours)

FOOD TECHNOLOGY I (FTN111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
General introduction to food technology and the South African food industry. The use of the metric system and comprehensive report-writing methods. Constituents of food: properties and significance in food systems. Nutritive aspects of food constituents and the introduction to sensory evaluation. Principles of food packaging and general discussion of relevant food topics. Introductory course on the theory and practice of basic food preparation techniques (e.g. vegetable, meat and poultry processing, baking, creating foams and emulsions and sugar confectionary) will be the focus of the practical component. (Total tuition time: ± 90 hours)

FOOD TECHNOLOGY II (FTN211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
The scientific and technological aspects namely food processing unit operations, different food preservation methods, food legislation and nutritional tables of the following major food categories as processed in the food industry: fruits and vegetables, cereals, legumes and oilseeds, meat, poultry and eggs. Theory of analytical methods in sensory evaluation. Dehydration using cabinet and freeze drying, hurdle technology (salami), baking technology and sensory evaluation (triangle and ranking tests) will be the focus of practicals. Factory tours and DVD sessions will be used as learning aids (Total tuition time: ± 90 hours)

FOOD TECHNOLOGY III (FTN301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

The scientific and technological aspects namely food processing unit operations, different food preservation methods, food legislation and nutritional tables of the following major food categories as processed in the food industry: fats and oils, dairy products, fish and seafood, beverages (wine, beer, coffee, tea and carbonated soft drinks), chocolate and sugar confectionery. Manufacturing of butter, mayonnaise, feta cheese as well as a variety of industry visits will be the focus of practicals. DVD sessions will be used as learning aids. (Total tuition time: ± 90 hours)

FOOD TECHNOLOGY IV (FTN411T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

New developments in food packaging, selected food technologies, chemical and physical changes in foods, nutritional and nutraceutical properties of food, fortification and enrichment, legislation regarding claims made for nutritional and nutraceutical properties of food. (Total tuition time: ± 48 hours)

FOUNDATION APPLIED BIOLOGICAL AND NATURAL SCIENCE (FPABN01) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Introduction to anatomy. Anatomy terminology. Introduction to physiology. Terminology of physiology. Introduction to pathophysiology. Terminology of pathophysiology. Introduction to microbiology. Terminology of microbiology. Different micro-organisms. Levers. Basic molecular structure. Chemical notation. Chemical reactions. Calculations. The skeletal system. (Total tuition time: ± 96 hours)

FOUNDATION APPLIED SOCIAL SCIENCE (FPASU01) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Foundation of sociology. Introduction to sociology. Theoretical overview of sociology. Culture. Socialisation. Social processes and structures. Social groups and group dynamics. Social inequality and mobility. (Total tuition time: ± 96 hours)

FOUNDATION BIOLOGY (FPBIO01) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Energy, control and continuity; environment; microbes and diseases; behaviour and populations; physiology and transport; genetics; ecology. (Total tuition time: ± 160 hours)

FOUNDATION CHEMISTRY: PRACTICAL IC (FPCHEQ0) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Chemistry)

Weighing techniques, pipetting techniques, calibration of pipettes and burettes, titrations, small weighing techniques (monoprotic and diprotic), preparation and standardisation of stock solutions, elementary pH, conductivity and turbidity measurements. (Total tuition time: not available)

FOUNDATION CHEMISTRY: THEORY IC (FPCHEP0) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Chemistry)

The use of SI units. Matter. Atomic structure. Compounds in chemistry. The mole concepts and chemical calculations. The electronic structure of the atom and electronic configurations on the periodic table. Chemical bonding. The states of matter and the binding forces within matter. Concentrations and solutions. Acids, bases and salts. Oxidation and reduction and the balancing of equations. Basic organic chemistry. Basic chemical kinetics and chemical equilibrium. Chemistry of water. (Total tuition time: not available)

FOUNDATION CHEMISTRY (FPCHE04) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Chemistry)

Scientific methodology and its use in discovering chemistry. Numbers in chemistry. The use of SI units. Matter. Atomic structure. Compounds in chemistry. The mole concept and chemical calculations. The electronic structure of the atom and electronic configurations within the periodic table. Chemical bonding. The states of matter and the binding forces within matter. Basic concepts of the gas laws. Solutions in chemistry. Acids, bases and salts. Oxidation and reduction and the balancing of equations. Organic chemistry and the chemistry of life. (Total tuition time: ± 160 hours)

FOUNDATION CHEMISTRY: LIFE SCIENCES (FPCLS01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Scientific methodology and its use in discovering chemistry. Numbers in chemistry. The use of SI units. Matter. Atomic structure. Compounds in chemistry. The mole concept and chemical calculations. The electronic structure of the atom and electronic configurations within the periodic table. Chemical bonding. The states of matter and the binding forces within matter. Basic concepts of the gas laws. Solutions in chemistry. Acids, bases and salts. Oxidation and reduction and the balancing of equations. Organic chemistry and the chemistry of life. (Total tuition time: ±160 hours)

FOUNDATION COMMUNICATION SKILLS I (FPCOS02) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Applied Languages)
Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English. (Total tuition time: not available)

FOUNDATION COMPUTATIONS: WATER I (FPCOW01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Arithmetic. Graphs. Functions. Basic algebra. Trigonometry. Differentiation. Mensuration. Basic statistics. Equations. Retention time. Flow calculations. (Total tuition time: not available)

FOUNDATION COMPUTER LITERACY (FPCLY01) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of End-User Computing)
Students will be introduced to: operating systems (Windows environment), basic word-processing skills (MS-Word), spreadsheets (MS-Excel), presentation tools (PowerPoint). Communications, connectivity, the Internet and the Web. (Total tuition time: not available)

FOUNDATION COMPUTER SKILLS (FPCSK01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of End-User Computing)
Students will be introduced to: operating systems (Windows environment), basic word-processing skills (MS-Word), spreadsheets (MS-Excel) and presentation tools (Power Point). (Total tuition time: ± 96 hours)

FOUNDATION ENGLISH (FPENG01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Applied Languages)
Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate level of proficiency in written English. (Total tuition time: not available)

FOUNDATION ENGLISH (FPENG02) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Applied Languages)
Interpret, relate and reflect on all available and relevant resource material in proper English. Communicate orally in a comprehensible and clear manner in both general and subject-specific communication. Demonstrate intermediate-level proficiency in written English. (Total tuition time: ± 160 hours)

FOUNDATION INTRODUCTION TO HEALTH SCIENCES (FPIHS01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Health concepts (environment, ethics, health problems, interventions). Health practitioners in South Africa (legislation, professional boards, codes). Safety in the chemistry and physics laboratory. Preparation of solutions and dilutions. Calibration of glassware. Basic laboratory techniques. Manipulation of laboratory data and reporting. Measurement of length, mass, volume, time, electric current and potential. Use measurements to solve problems and verify physical principles. (Total tuition time: not available)

FOUNDATION LIFE SKILLS (FPLSK01) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Campus ethics, learning styles and whole-brain thinking, self-image and assertive behaviour, time management, self-motivation, conflict management, sexuality and relationships, problem-solving skills, managing stress, multicultural societies, techniques for summarising and memorising, how to cope with assessments and assignments, creativity, etc. The life-skills sessions are participative, with group discussions and personal application to optimise student's learning experience. (Total tuition time: not available)

FOUNDATION LIFE SKILLS (FPLSK02) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Management and Entrepreneurship)

Campus ethics, learning styles and whole-brain thinking, self-image and assertive behaviour, time management, self-motivation, conflict management, sexuality and relationships, problem-solving skills, managing stress, the multicultural society, techniques for summarising and memorising, how to cope with assessments and assignments, creativity, and many more. The life-skills sessions are participative, with group discussions and personal application to optimise student's learning experience. (Total tuition time: ± 128 hours)

FOUNDATION MATHEMATICS (FPMAT06) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Arithmetic. Graphs. Functions. Basic algebra. Trigonometry. Differentiation. Mensuration. Basic statistics. (Total tuition time: ± 160 hours)

FOUNDATION MATHEMATICS: LIFE SCIENCES (FPMLS01) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Arithmetic. Graphs. Functions. Basic algebra. Trigonometry. Differentiation. Mensuration. Basic statistics. (Total tuition time: ± 120 hours)

FOUNDATION NURSING DYNAMICS (FPNDN01) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Principles of scientific writing. Citation. Plagiarism. Literature search. Principles and planning of a scientific document. Interpretation of a scientific document. (Total tuition time: ± 64 hours)

FOUNDATION NURSING: PRACTICAL (FPNURQ0) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

First aid skills. Resuscitation skills. Body mechanisms. Basic nursing skills according to the activities of daily living, including bed bath, positioning of patient, oral hygiene, urine tests, intake and output, vital signs, feeding. (Total tuition time: ± 96 hours)

FOUNDATION NURSING: THEORY (FPNURP0) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Nursing as a science and an art. First-aid. Basic cardiac pulmonary resuscitation (family and friends). The life cycle. The health – illness continuum. Activities of daily living, including hygiene, nutrition, rest and sleep, comfort, elimination, relaxation, death and dying, activity and exercise, homeostasis, self- care. Pregnancy, breast feeding. (Total tuition time: ± 96 hours)

FOUNDATION PHYSICS (FPPHU05) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Physics)

Introduction to physics. Basic mathematics for physics. Measurements. Mechanics. Heat. Waves, sound and optics. Magnetism and electricity. Electromagnetism. Atomic and Nuclear physics. (Total tuition time: ± 160 hours)

FOUNDATION PHYSICS IB (FPPHU04) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Physics)

Introduction to physics. Basic mathematics for physics. Mechanics. Hydraulics. Heat. Waves, sound and optics. Magnetism and electricity. Electromagnetism. Measurements and SI units. Radio activity. Practical experiments related to the theory with emphasis on measuring physical quantities. (Total tuition time: not available)

FOUNDATION PHYSICS: LIFE SCIENCES (FPPLS01) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Physics)

Introduction to physics. Basic mathematics for physics. Measurements. Mechanics. Heat. Waves, sound and optics. Magnetism and electricity. Electromagnetism. Atomic and nuclear physics. (Total tuition time: ± 160 hours)

FOUNDATION WATER CARE TECHNOLOGY I (FPWCT01) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Water sources, hydrological cycle, nutrient cycles, sources of pollution, water pollution, water treatment, simple drinking water and sanitary systems, solid waste. (Total tuition time: ± 132 hours)

FRESH WATER MANAGEMENT IV (FWM400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject is primarily concerned with the management of inland (freshwater) water resources and habitats for conservation, and their sustainable utilisation. A broad theoretical background is given on the ecology, nature, occurrence, conservation status and associated problems of freshwater ecosystems in Southern Africa. This is followed by measures to effectively manage such ecosystems (monitoring, breeding, freshwater organisms, legislation, etc.). The emphasis throughout is on insight and the practical application of knowledge. (Total tuition time: ± 40 hours)

FORMULATION OF DOSAGE FORMS IV (FDF400T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

Types of dosage forms and their excipients. Unit processes. (Total tuition time: not available)

FROM ATOMS TO MOLECULES (PATO113) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

Drug entities of synthetic organic/inorganic nature: structure, reactivity, mechanisms, bonding, acid/base characteristics, configuration and conformation, periodic table, redox reactions, salt formation, pH, pKa, limit tests, physical phases. Analytical methods. (Total tuition time: not available)

FROM MOLECULES TO MEDICINES (PMOL114) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An overview of the design and development of pharmaceutical products. Research and development of drug delivery systems, chemistry of medicinal compounds – introductory organic chemistry, the reactions that drug compounds undergo, physical and chemical properties of drugs and how these affect formulation, isolation/synthesis of active ingredients, preformulation, formulation, basic principles underlying the development of drug delivery systems, the various drug delivery systems, stability aspects, an introduction to preclinical and clinical trails, compounding of medicines.(Total tuition time: not available)

FRUIT AND VEGETABLE PRODUCTION (FVP400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Introduction to postharvest losses of fruit and vegetables: Describing the type and extent of losses; the causes, where and how the losses occur. Basic postharvest management protocols to reduce food loss in the supply chain. Quality assurance: quality components; quality criteria in standard for fresh fruit and vegetables; factors affecting quality; methods for quality evaluation. (Total tuition time: not available)

FRUIT PRODUCTION II (FPR201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

An introduction to the South African fruit industry and the classification of the fruit. Important climatic factors for fruit production. Establishment and maintenance of the orchard. Structure growth development and production of tree fruit, maturity indices for harvesting, basics of harvesting, field handling and determining the fruit quality parameters with an emphasis of popular temperate fruit. (Total tuition time: ± 70 hours)

FRUIT PRODUCTION III (FPR301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Introduction to a nursery practice. Pre-harvest quality improvement measures. Growth regulators of tree fruit and the harvest and postharvest control of fruit. Important climatic factors for fruit production. Structure growth development and production of tree fruit, maturity indices for harvesting, basics of harvesting, field handling and determining the fruit quality parameters with an emphasis of popular tropical and subtropical fruit. (Total tuition time: ± 70 hours)

G

GAME HEALTH MANAGEMENT I (GHM101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Ecology of the important diseases. External and internal parasites. Management and prevention of diseases on a game ranch. Nutrition supplementation. Basic execution of post-mortems. (Total tuition time: ± 75 hours)

GAME LODGE MANAGEMENT I (GLN101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Introduction to tourism as well as ecotourism, and what motivates a tourist to visit South Africa. Types of transportation, accommodation, attractions, and kinds of entertainment as a pathway to sustainability. Rural tourism, cultural aspects, as well as the role communities can play. The lodge manager and his/her responsibilities, and developing and constructing lodges. Ecological impact of a lodge, marketing and the communication process (staff and clients). (Total tuition time: ± 75 hours)

GAME LODGE MANAGEMENT II (GLN201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Client expectations. Communication with the surrounding communities, i.e. intercultural communication. Important fields such as interpretation and environmental education, are shown as tools to effect a successful stay. Designing activities for both adults and children, keeping in mind the dynamics of clients. Interpretation as a management tool on a game ranch, both theoretically and practically, i.e. interpretation techniques. Trail development and construction. The ecological and psychological aspects of interpretation. Field guiding as a tool to a successful walk with clients and a memorable stay. (Total tuition time: ± 75 hours)

GAME RANCH ECOLOGY I (GRY101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Ecobiological principles pertaining to game ranch management. Components of an ecosystem and important interrelationships. Population regulation, limiting factors and their application on a game ranch. (Total tuition time: ± 75 hours)

GAME RANCH ECOLOGY II (GRY201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Freshwater management. Designing and managing dams on a game ranch. Management of rivers and groundwater. Climatology and its application to game ranch management. (Total tuition time: ± 75 hours)

GAME RANCH ECOLOGY III (GRY301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Biomes - grassland and savannah. Adaptive management, veld condition assessment, carrying capacities and vegetation monitoring on a game farm. Vegetation classification and description. Managing problem plants. Fire types and behaviour – implementation of controlled burning programme. (Total tuition time: ± 75 hours)

GAME RANCH ECONOMICS I (GRE101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Labour legislation applicable to a game ranch. Legislation applicable to game ranch management (ownership of wild animals). Law enforcement and securing integrity. Administrative procedures. (Total tuition time: ± 75 hours)

GAME RANCH ECONOMICS II (GRE201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Economic terms (micro and macro). Aims of accounting. Financial statements, analysis and interpretation of ranching results. Production economics and cost principles. Budgets and control. Financial planning and risk decision making on a game ranch. (Total tuition time: ± 75 hours)

GAME RANCH ECONOMICS III (GRE301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Marketing management and the marketing environment. Consumerism and market segmentation. Marketing information and research process. Marketing instruments. (Total tuition time: ± 75 hours)

GAME RANCH ECONOMICS IV (GRE400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Marketing management principles and practices. Identification of products and production possibilities. Analysis of the market situation and identification of marketing possibilities. Product and product concept. Distribution. Marketing communication. Market analysis. Pricing decisions. (Total tuition time: ± 40 hours)

GAME RANCH MANAGEMENT I (GRM101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Planning and management of infrastructure on a game ranch: roads, fences and camps. Environmental impact assessment. Techniques: welding, erecting fences, water provision and basic vehicle maintenance. (Total tuition time: ± 75 hours)

GAME RANCH MANAGEMENT II (GRM201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
History of conservation and wildlife management internationally, in Africa and Southern Africa. Conservation and wildlife philosophies. International and national conventions and organisations. Wildlife utilisation ethics. Game harvesting and sustainable utilisation. Hunting and handling of carcasses and trophies. Processing of venison. (Total tuition time: ± 75 hours)

GAME RANCH MANAGEMENT III (GRM301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Management of large charismatic megafauna on game farms. The management of mega-herbivores (elephants, rhinos and hippos), large carnivores and expensive game (e.g. roan and sable antelope) on game farms. Game capture and translocation, boma housing, release, monitoring and ultimately management. The excursion to Limpopo is designed to reinforce the lessons learned in theory. (Total tuition time: ± 75 hours)

GAME RANCH MANAGEMENT IVA (GRM40AT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Advanced plant ecological principles and concepts. Vegetation survey techniques. Descriptive versus quantitative sampling. Sampling design. Vegetation classification, analysis and description. Medicinal and cultural use of plants. (Total tuition time: ± 40 hours)

GAME RANCH MANAGEMENT IVB (GRM40BT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Vegetation units, veld conditions and adaptive management. Habitat potential – grazing/browsing. Fire management on game farm – legislation. Veld restoration and replacement (planted pastures). Management of problem plants – legislation. (Total tuition time: ± 40 hours)

GAME RANCH STRATEGIC MANAGEMENT IV (GRS400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
The game ranch and its management environment. Environmental scanning, scenarios and changes on a game ranch. Planning and ethics in planning. Different approaches to planning on a game ranch. Strategic planning. Strategy implementation on a game ranch. Decision-making. Human resources. Labour relations. Control and characteristics of effective control. Management information systems. (Total tuition time: ± 40 hours)

GAME SCIENCE I (GSC101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Population dynamics of wildlife (age structure, sex ratios, mortality and natality), and its application on a game ranch. Monitoring of wildlife populations on a game ranch – numbers, distribution, densities and condition. The principles of data collection, processing and interpretation. (Total tuition time: ± 75 hours)

GAME SCIENCE II (GSC201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Overview of important vertebrates in game ranching. Anatomy and physiology of the different feeding groups. Reproduction and practical application. Feeding and application on a game ranch. Genetic principles and considerations on a game ranch. Reproduction and practical application. (Total tuition time: ± 75 hours)

GAME SCIENCE III (GSC301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Study of animal behaviour, its origins and modern concepts. After reviewing some of the students' ecological knowledge, various aspects of social and territorial behaviour in animals is examined in detail. The balance of the course investigates the social and mating systems, specifically of the antelope and other herbivores that are important for game ranching. (Total tuition time: ± 75 hours)

GAME SCIENCE IVA (GSC40AT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Animal nutrition and feeding. Water needs and utilisation. Anatomy and physiology of digestive systems. Management of nutrition and supplementary feeding. Behavioural ecology of game diseases. Methods of game species selection. Record-keeping of game populations. Game ranch management plans. (Total tuition time: ± 40 hours)

GAME SCIENCE IVB (GSC40BT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

The principles of game ranch management. The adaptive management approach to game ranch management. Ecology and population dynamics of animals. Animals in populations. Animal distribution. Population genetics and animal breeding. Genetics and game ranch management. (Total tuition time: ± 640 hours)

GAME UTILISATION I (GUN101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Different types of utilisation. Safari outfitting. Professional hunting (ethics, guiding). Shooting (shot placement, ballistics, legal considerations). Specialised safaris (bow hunting, game birds). Trophies (SCI and Rowland Ward), field preparation, photography. (Total tuition time: ± 75 hours)

GAME UTILISATION II (GUN201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Game translocation, with the emphasis on physical and chemical capturing techniques, tranquillisers, boma management, transport, veterinary considerations, game sales and auctions, insurance and ethics. Game sales. Auctions. Legal considerations. Veterinary considerations. Habitat assessment. Importing wildlife. (Total tuition time: ± 75 hours)

GENERAL LABORATORY MANAGEMENT IV (GEL401T) **1 X 3-HOUR PAPER (OPEN BOOK)**

(Subject custodian: Department of Chemistry)

Instrument, procurement, preventative maintenance, replacement, disposal and materials management, grading of materials, procurement, storage and disposal, methodology, management, validation, standard operating procedure (SOP), information management, introduction to LIMS, safety management. (Total tuition time: not available)

GEOHYDROLOGY V (GEH500T) **1 X 4-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Advanced hydrochemistry, analysis of the appearance and movement of groundwater. Seminars and self-study. (Total tuition time: not available)

GEOLOGY I (GEO141T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Introduction to earth sciences. Physical geology. Geomorphology. Pedology. Introduction to environmental geology. (Total tuition time: ± 104 hours)

GEOLOGY I (GEO151T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Introduction to earth sciences. Physical geology. Geomorphology. Pedology. Introduction to environmental geology. (Total tuition time: ± 120 hours)

GEOLOGY II (GEO251T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Deformation process. (Total tuition time: ± 68 hours)

GEOPHYSICS II (GPH211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

The use of electrical resistivity, gravitation, the radiometric and electromagnetic methods in exploration and engineering geology. (Total tuition time: ± 156 hours)

GEOPHYSICS III (GPH311T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

The use of borehole geophysics, induced polarisation methods and seismic methods in exploration and engineering geology. (Total tuition time: ± 180 hours)

GEOTECHNIQUES I (GET111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Maps, map projections and map scales, South African map series, compilation of geological profiles, compass mapping and field mapping. (Total tuition time: ± 60 hours)

GEOTECHNIQUES II (GET211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
The solving of three-dimensional structural problems, photogeology, field mapping with aerial photography, field mapping of intrusive and metamorphic rocks, the identification of minerals and rocks. (Total tuition time: ± 60 hours)

GEOTECHNOLOGY I (GTH101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
The use of maps, aerial photographs and other satellite images in the earth sciences. Introduction to section drawings. Mapping techniques. (Total tuition time: ± 60 hours)

GEOTECHNOLOGY II (GTH201T) **PROJECT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Practical field projects. Practical laboratory projects. Report-writing. (Total tuition time: ± 240 hours)

GEOTECHNOLOGY II (GTH201B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Petrology of igneous, metamorphic and sedimentary rocks. (Total tuition time: ± 60 hours)

GEOTECHNOLOGY III (GTH301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Geological exploration. Mining. (Total tuition time: ± 60 hours)

GEOTECHNOLOGY IV (GTH400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Project and report. (Total tuition time: not available)

GEOTECHNOLOGY IV (GTH401T) **PROJECT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Research project and report. (Total tuition time: ± 120 hours)

GOOD CLINICAL AND LABORATORY PRACTICE IV (GCL400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Principles of good clinical practice (GCP) and good laboratory practice (GLP). Writing and implementing standard operating procedures. (Total tuition time: not available)

GROUNDWATER II (GRW201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
South African stratigraphy and mineral deposits. (Total tuition time: ± 60 hours)

GROWTH MEDIA TECHNOLOGY I (GMT101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Characteristics of soil as growth medium. Nutrient management of growth. Soilless growth media. (Total tuition time: ± 35 hours)

H

HAEMATOLOGY II (HAT221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Origin and normal development of the haemopoietic elements, erythrocytes and leukocytes, platelet/megakaryocyte system and haemostasis. (Total tuition time: ± 90 hours)

HAEMATOLOGY III (HAT321T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Abnormal erythrocyte morphology and function, leucocytes and thrombocytes. Causes and laboratory findings of anaemia, leukaemias and coagulation defects. (Total tuition time: ± 90 hours)

HAEMATOLOGY: VETERINARY SCIENCE (HVS201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Morphology and functions of erythrocytes, leucocytes and thrombocytes, applicable laboratory tests. Abnormal morphology and functions of blood cells, causes and laboratory findings of anaemias and coagulation defects. (Total tuition time: ± 90 hours)

HEALTH SCIENCES III (HSN300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and dental Sciences)

A study of the interaction between nutrition, exercise and health. The emphasis is on general terminology and optimum nutrition for active people. Interdependent factors associated with obesity are studied, as well as the effectiveness of diet and exercise as treatment. Lastly, attention is given to the development of muscle strength and cardiovascular health. (Total tuition time: ± 108 hours)

HEALTH SYSTEMS: PHARMACY (PHSP412) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Major managerial and clinical areas of pharmacy, e.g. logistics, including cold-chain management and financial management, standard operating procedures, control of bulk compounding and preparation of sterile products, pharmacy and therapeutic committees, pharmaco-economics in drug selection, drug information, infection control, clinical nutrition (enteral and parenteral feeding and stoma care), oncology, radiopharmacy and radioisotopes, transplants and related drug therapy, handling of pharmaceutical waste, the role of the consultant pharmacist. (Total tuition time: not available)

HELMINTHOLOGY III (HEM301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Identification of parasitic helminths on the grounds of diagnostic characteristics. The life cycle of helminths and prevention and control measures are studied in detail. Recognition and pathology of diseases. Laboratory techniques are introduced. (Total tuition time: ± 90 hours)

HISTOLOGY (HTL201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Fixation, bedding and cutting of tissue. Staining and mounting of histological slide preparations. Preparations are used for diagnosis. Cell structures and basic tissue types. (Total tuition time: ± 90 hours)

HORTICULTURAL MANAGEMENT II (HMN211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Production and operations management, marketing management, public relations, financial management, costing and purchasing. (Total tuition time: ± 65 hours)

HORTICULTURAL MECHANISATION I (HMH101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Principles and operation of the basic power units applicable to horticulture. Introduction to horticultural mechanisation: materials, tools and related tractor performance. Soil preparation machinery: types of engine system components of related horticultural implements. Specialised horticultural equipment: specialised turfgrass machinery and horticultural equipment, as well as hothouse equipment. Horticultural mechanisation planning: the planning for purchasing and managing horticultural machinery. (Total tuition time: ± 35 hours)

HORTICULTURAL PRODUCTION MANAGEMENT III (HPM300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Garden centre management, including merchandising, customer relations, marketing, benchmarking, financial management. Labour relations, including South African labour legislation, workplace behaviour, handling grievances and disciplinary and dispute procedures, collective bargaining and industrial action. (Total tuition time: ± 145 hours)

HORTICULTURAL PRODUCTION MANAGEMENT IVA (HPM40PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Strategic management. Vision/Mission and strategic analysis and developing strategies for change. SWOT analysis. Management information systems. Performance management of staff in the commercial and retail horticultural management, horticultural production, productivity. (Total tuition time: ± 190 hours)

HORTICULTURAL PRODUCTION MANAGEMENT IVB (HPM40QT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Management and communication of innovations. Characteristics of innovations in the Horticultural and Landscape Technology fields. Adoption and diffusion of innovations. (Total tuition time: ± 190 hours)

HORTICULTURAL PRODUCTION TECHNOLOGY IVA (HPT40PT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Genetics and genetic engineering, plant breeding methods and techniques, micropropagation – cell and tissue culture, advanced propagation techniques, improvement of plant material, hydroculture. (Total tuition time: ± 190 hours)

HORTICULTURAL PRODUCTION TECHNOLOGY IVB (HPT40QT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Post-harvest physiology and technology , plant growth regulators and specialised production techniques, biosphere protection, plant breeder's rights, laws and policies that affect horticulture. (Total tuition time: ± 190 hours)

HORTICULTURE I (HOR111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Introduction to the industry, growth media and container growing systems, nutrient management, propagation methods, seeds, cuttings, layering, grafting, budding and micropropagation. (Total tuition time: ± 45 hours)

HORTICULTURE II (HOR211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Nursery management, production in the nursery, flower forcing, growth regulators, CO_2 injection, pruning, hydrocultures. (Total tuition time: ± 65 hours)

HORTICULTURE III (HOR310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Propagation, cultivation, harvesting and marketing practices and procedures of bedding plants, cut flowers, herbs, trees, bulbs, indoor plants and orchids. (Total tuition time: ± 145 hours)

HOSPITAL-BASED PHARMACEUTICAL CARE (PHBC421) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
The principles and practice of pharmaceutical care in the hospital setting. The module covers the compilation of a patient database, identification of his or her drug-related needs, construction of a drug-related problem list and the development, implementation and evaluation of a pharmaceutical care plan. (Total tuition time: not available)

HUMAN RESOURCE MANAGEMENT IV (HRM400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Management Sciences)
Labour laws. Personnel development. Motivation. (Total tuition time: not available)

HUMAN MOVEMENT STUDIES II (HMS200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
A study of motor learning (motor skill acquisition) from a behavioural and physiological perspective. The emphasis is on issues that are particularly relevant for application to human motor skill learning (e.g. sport skills acquisition) and exercise performance situations in a variety of contexts. Biodynamics of physical activity. Dynamics of motor skills acquisition. Physical growth and motor development (tactile development, vestibular system, bilateral integration, motor planning: fine and gross, perception). (Total tuition time: ± 108 hours)

HYDROGEOLOGY III (HGE301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Occurrence and movement of groundwater. Borehole construction. Testing. Hydrochemistry. (Total tuition time: ± 60 hours)

HYDROGEOLOGY IV (HGE401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Advanced hydrochemistry. Analysis of the appearance and movement of groundwater. Seminars and self-study. (Total tuition time: ± 60 hours)

I

IMMUNOLOGY II (IML211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Specific and non-specific immunity. Antigens. Classification and characteristics of antibodies. Lymphoid organs of antibody production. Antigen-antibody reactions, including complement, precipitation, phagocytosis and agglutination. Cellular and humoral immunity. Serological techniques. Immunopathology. (Total tuition time: ± 90 hours)

INDUSTRIAL BIOTECHNOLOGY IV (IBI401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Immobilisation technology, industrial enzymes: classes, production, applications, economic considerations. Processes, applications and economics of ethanol, microbial polysaccharides, antibiotics. Biosafety and biodiversity, microbial insecticides, Bt crops. Influence of biotechnology on industrial products. Microbial transformations with industrial applications. (Total tuition time: ± 48 hours)

INDUSTRIAL PHARMACY PRACTICE (PIND222) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
An overview of the pharmaceutical manufacturing facility and organisational layout. Planning for production. The manufacturing facility. The principles and practice of quality assurance, including good manufacturing practices and quality control. (Total tuition time: not available)

INDUSTRIAL CHEMICAL ANALYSIS (IBA201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Chemistry)
Any five of the following: chemical analysis in complex matrices, drug analysis in biological fluids, analysis in the brewing industry, air pollution analysis, sealants and adhesives, chemical analysis of animal feed and human food, water, metallurgical, polymer and sugar analyses. (Total tuition time: ± 45 hours)

INDUSTRIAL EFFLUENTS III (INE301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Legal aspects and tariffs, purification policy, re-use and disposal, treatment of wastewater, specific problems with industrial effluents, water economy in industry and the assimilation of effluents. (Total tuition time: ± 36 hours)

INDUSTRIAL ENVIRONMENTAL PRACTICE III (INV301T) **REPORTS AND MINI-PROJECT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Students do practical application of basic theory on a structural basis. (Total tuition time: not available)

INDUSTRIAL GEOLOGY I (IGE101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Experiential learning in the industry. (Total tuition time: not available)

INDUSTRIAL MATHEMATICS V (ILM500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Mathematics and Statistics)
The contents depend on the availability of instructors and demand from regional industry (such as wavelets, futures and derivatives, applied graph theory or calculus of variations, etc). (Total tuition time: not available)

INDUSTRIAL PROCESSES III (IPO301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Different types of industries and processes. Alternative technologies. Waste management. (Total tuition time: ± 60 hours)

INORGANIC CHEMISTRY II (ICH231T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Introduction to chemical bonding and advanced study of ionic bonding. Chemical reactions in aqueous and non-aqueous solutions. Redox chemistry. Interpretation of oxidation state diagrams. Descriptive inorganic chemistry. Practical inorganic chemistry. (Total tuition time: ± 60 hours)

INORGANIC CHEMISTRY III (ICH321T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chemical bonding. Theory of covalent bonding. Coordination chemistry. Crystal and ligand field theories. Descriptive chemistry of transition elements. Group IB. Group IIB. Nuclear chemistry. Practical inorganic chemistry. (Total tuition time: ± 105 hours)

INORGANIC CHEMISTRY IV (ICH421T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Theoretical inorganic chemistry. Organometallic chemistry. Descriptive industrial chemistry. Practical: experiments related to the theory. (Total tuition time: ± 135 hours)

INTEGRATED CATCHMENT MANAGEMENT IV (ICM401T, IMA401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Diffuse pollution. Catchment management studies. Institutional arrangements. Mining waste management. (Total tuition time: ± 24 hours)

INTEGRATED PATHOPHYSIOLOGY IV (IPP400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
The pathogenesis of the different systems of the body are studied with reference to the following systems: the skin, skeleton, muscle, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems. The emphasis is on laboratory diagnosis and not on clinical cases. Case studies will be used. (Total tuition time: ± 90 hours)

INTRODUCTION TO MEDICAL TECHNOLOGY (IMT101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical sciences)
The field of medical technology. Introduction to medical laboratory practices, terminology and safety. (Total tuition time: ± 60 hours)

INTRODUCTION TO VETERINARY TECHNOLOGY (IVT101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical Sciences)
Introduction to laboratory practices, terminology, accreditation and safety in the laboratory. (Total tuition time: ± 60 hours)

J

JURISPRUDENCE I (JUR100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Legal aspects of dental technology in South Africa. (Total tuition time: ± 68 hours)

K

KINESIOLOGY II (KIN200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Kinesiology is the study of human movement in the physical sciences. The study of the human body as an organism for performing work is rooted in three major areas of study, namely mechanics, anatomy and physiology. The following aspects are highlighted: Biomechanics: description of human motion. Condition of linear motion. Condition of rotary motion. Centre of gravity and stability. Musculoskeletal anatomy: the upper extremities (shoulders and elbows). The lower extremities (hips, knees and ankles). The spinal column and thorax. Neuromuscular physiology (skills): standing posture. Kinesiology of fitness and exercise. Throwing, striking and kicking skills. Movement on solid surfaces. Movement in the aquatic environment. Movement when suspended and free of support. The accumulated knowledge of these fields forms the foundation of the study of human movement. (Total tuition time: ± 108 hours)

L

LABORATORY FINANCIAL MANAGEMENT IV (LFM401T) **1 X 3-HOUR PAPER (OPEN BOOK)**
(Subject custodian: Department of Chemistry)
Concepts of fixed, variable, capital and current costs, concepts of depreciation, profit and loss, assets and liabilities, pricing, financial control, budgets, development of a business plan, market management, knowledge of existing markets and market trends, development of new markets. (Total tuition time: not available)

LABORATORY MANAGEMENT (LMG201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Personnel and financial management. Management information systems. Communication. Entrepreneurial skills. (Total tuition time: ± 60 hours)

LABORATORY MANAGEMENT PROJECT IV (LMP401T) **PROJECT**
(Subject custodian: Department of Chemistry)
A project of limited scope in which students apply their knowledge in practice. (Total tuition time: not available)

LABORATORY PERSONNEL MANAGEMENT IV (LBM401T) **1 X 3-HOUR PAPER (OPEN BOOK)**
(Subject custodian: Department of Chemistry)
Selection and appointment of staff members, interview management, training, development, motivation, delegation, participative management, communication, leadership, job descriptions, performance management, internationalisation. (Total tuition time: not available)

LABORATORY PRACTICE III (EXP3LAP) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practical training at pathology laboratories in chemical pathology, haematology and microbiology. (Total tuition time: not available)

LANDSCAPE TECHNOLOGY I (LTE101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Horticulture)
Introduction to general design methodology, scale and measuring processes. Site analysis and drawing skills will be covered to equip learner to do a design. Design principles and design elements. Studio work. (Total tuition time: ± 45 hours)

LANDSCAPE TECHNOLOGY II (LTE201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Horticulture)
Designing of various landscape projects. Hard landscaping materials and the application thereof in a design. Plant application in design work. Presentation skills. Studio work. Introduction to a bill of quantity documentation. (Total tuition time: ± 65 hours)

LANDSCAPE TECHNOLOGY III (LTE300T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Horticulture)
Advanced design projects. Construction and specification elements and drawings. Advanced presentation skills. Designing of corporate and residential properties. Detailed bill of quantities and programme schedules. Studio work. (Total tuition time: ± 145 hours)

LANDSCAPE TECHNOLOGY IVA (LTE40PT) **PROJECT**
(Subject custodian: Department of Horticulture)
Advanced design projects on actual projects, energy efficient and urban landscape design. Detailed documentation such as bill of quantity, contract and specification documentation. (Total tuition time: ± 190 hours)

LANDSCAPE TECHNOLOGY IVB (LTE40QT) **PROJECT**
(Subject custodian: Department of Horticulture)
Introduction to permaculture. Permaculture principles and elements. The application of permaculture principles. The development of an actual permaculture garden. Advanced incorporation of permaculture principles in urban garden design. (Total tuition time: ± 190 hours)

LANDSCAPE TECHNOLOGY MANAGEMENT II (LTM211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Production and operations management, marketing management, public relations, financial management, costing and purchasing. (Total tuition time: ± 65 hours)

LANDSCAPE TECHNOLOGY MANAGEMENT III (LTM300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Financial management, human resource management, organisational design, social responsibility, landscape sales and marketing, project management, landscape mechanisation. Labour relations, including South African labour legislation, workplace behaviour, handling grievances and disciplinary and dispute procedures, collective bargaining and industrial action. (Total tuition time: ± 145 hours)

LANDSCAPE TECHNOLOGY MANAGEMENT IVA (LTM40PT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Strategic management. Vision/Mission and strategic analysis and developing strategies for change. SWOT analysis. Management information systems. Performance management of staff in the commercial and retail horticultural management, horticultural production, productivity. (Total tuition time: ± 190 hours)

LANDSCAPE TECHNOLOGY MANAGEMENT IVB (LTM40QT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Management and communication of innovations. Characteristics of innovations in the Horticultural and Landscape Technology fields. Adoption and diffusion of innovations. (Total tuition time: ± 190 hours)

LEADERSHIP DEVELOPMENT II (LDV200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
The development of the farmer as an entrepreneur who will be able to manage his agricultural-industrial enterprise effectively. Negotiation skills in relation to personnel management and handling conflict. Agricultural extension services to less knowledgeable farmers, as well as successful public speaking. (Total tuition time: ± 70 hours)

LEGAL ASPECTS: WATER II (LGA201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Introduction and background to legislation. Water Act. OHS Act. Water Services Act. (Total tuition time: ± 75 hours)

LEGISLATION: EMERGENCY SERVICES II (LES201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Ordinances of local government. Laws and their interpretation. Criminal law. Interpretation of Acts. Fire Brigades Act. Labour matters. Departmental investigations. Ethics. Case studies. Civil Defence Act. Criminal Procedure Act. Machinery and Occupational Safety Act. Trace licences. Law of Delicts. Riots Assemblies Act. (Total tuition time: ± 45 hours)

M

MANAGEMENT INFORMATION SYSTEMS II (MIS201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Informatics)
Importance of MIS. Evaluation of information systems. Efficiency of information systems. Basic principles of work study. Management functions. External relations. Case studies. (Total tuition time: ± 45 hours)

MANAGEMENT PRACTICE III (MPT300T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Introduction to administrative practice, dynamics of administrative processes, study of central, regional and local administration, management techniques and office practice. (Total tuition time: ± 228 hours)

MANAGEMENT PRACTICE IV (MPT400B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Rendering of health services, advanced financial management, advanced personnel management, public relations and contemporary health matters. (Total tuition time: ± 228 hours)

MANAGEMENT PRINCIPLES AND PRACTICE I (MPP100B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Management and Entrepreneurship)
Basic management skills and techniques, as well as office management. Advanced personnel and financial management. Dealing with conflict and diversity. (Total tuition time: ± 60 hours)

MANPOWER MANAGEMENT I (MPM101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
Cardinal aspects of legislation, trade unions, human relations, ethics in the workplace, grievance procedures, in-service training, appointments and work studies. (Total tuition time: ± 60 hours)

MARE AND FOAL MANAGEMENT II (MFM201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
A complete study, with practical demonstrations, of the handling and care of a mare and foal, from the foal's birth to its weaning. (Total tuition time: ± 54 hours)

MARKETING I (MRK130T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Marketing, Logistics and Sport Management)

Introduction to marketing and the market in which businesses function. Background to the functional interaction between the marketing department and the other departments in an organisation. Directives are given on dealing with case studies and the subject terminology used in marketing. An introduction to entrepreneurship. The decision-making areas of the marketing strategy, namely the product, price, distribution, and marketing communication, are studied in depth. (Total tuition time: ± 72 hours)

MATHEMATICS I (MAT171T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Basic mathematics. Differentiation. Integration. Matrices. and (Total tuition time: ± 90 hours)

MATHEMATICS II (MAT271T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Differentiation of functions of more than one variable. Further integration. Numerical methods. First-order ordinary differential equations. Matrices (Gauss elimination). (Total tuition time: ± 90 hours)

MATHEMATICAL TECHNOLOGY: LABORATORY PROJECT (A) V (MTP50AT) **PROJECT**

(Subject custodian: Department of Mathematics and Statistics)

This practical subject must be undertaken simultaneously with any two of the theoretical subjects stated above. Experiments employing both numeric and symbolic computation and using software such as Derive, MATLAB, Mathematica, Scientific Workplace, etc. are carried out, which demonstrate investigations of a deeper nature than would be possible in either of the two subjects. A project report is to be submitted for examination. (Total tuition time: not available)

MATHEMATICAL TECHNOLOGY: LABORATORY PROJECT (B) V (MTP50BT) **PROJECT**

(Subject custodian: Department of Mathematics and Statistics)

This practical subject is to be taken simultaneously with any two of the theoretical subjects not covered in Laboratory Project (A). Experiments employing both numeric and symbolic computation and using software, such as Derive, MATLAB, Mathematica, Scientific Workplace, etc., are carried out, which demonstrate investigations of a deeper nature than would be possible in either of the two subjects. A project report of a deeper nature than that of "Mathematical Technology: Laboratory Project (A) V" is to be submitted for examination. (Total tuition time: not available)

MEDICAL BIOTECHNOLOGY IV (MBT401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Mammalian cell culture, application of normal and cancerous cell cultures, recombinant DNA technology in cell cultures, applications of recombinant cell cultures. (Total tuition time: ± 48 hours)

MEDICAL SURGICAL NURSING (CAPITA SELECTA) IV (MSN400T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Pathophysiology. Cancer cells and features of malignancy. Tumour pathology according to site and organs. Carcinogens. Diagnosis of cancer. Cancer epidemiology. Stages of cancer. Treatment modalities. Surgery. Radiation therapy. Chemotherapy. Principles of preparation, administration and disposal of chemotherapy agents. Radiation physics and protection. Bone-marrow transplants. Unproven methods (alternative therapies). Disease and treatment-related side effects, signs and symptoms. Psychosocial reactions: grief, anxiety, depression, fear, powerlessness. Coping strategies. Comfort: pain, insomnia, pruritus, hiccups. Nursing strategies for comfort. Nutrition: dysphagia, nausea and vomiting. Taste alterations. Xerostomia. Anorexia. Protective mechanisms: leucopenia, thrombocytopenia, stomatitis, esophagitis. Delirium. Mobility: fatigue, activity intolerance. Elimination: constipation, diarrhea, incontinence. Sexuality: self-esteem disturbances, body image, alopecia, sexual dysfunction. Ventilation: dyspnea, airway obstruction. Circulation: anaemia, fluid imbalance: edema, effusion. (Total tuition time: ± 88 hours)

MEDICINE GOVERNANCE (MGE500T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

National drug policies. Drug regulation in South Africa. Regulation of complementary medicines, veterinary medicines and medical devices. (Total tuition time: not available)

MICROBIOLOGY I (MBI101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

General introduction. Microscopy. Protista, mycota and monera. Eucaryotes, procaryotes and viruses. Microbial nutrition. Growth and culture media. Sterilisation and control of micro-organisms. Aseptic techniques and pure culture techniques. Basic terminology and principles of microbial metabolism. Practical microbiology. (Total tuition time: not available)

MICROBIOLOGY I (MBI110T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

General microbiology, chemical and physical control, environmental microbiology, food microbiology, occupational microbiology and microbiology ecology. Practical microbiological techniques. (Total tuition time: ± 248 hours)

MICROBIOLOGY: PRACTICAL I (MBI10YB) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Biotechnology and Food Technology)

Microbial diversity, bacteria, fungi, protozoa, viruses, microbial growth and culture techniques, microscopy, staining techniques, sterilisation, disinfection and control, enumeration of bacteria and fungi. (Total tuition time: not available)

MICROBIOLOGY: THEORY I (MBI10XB) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Microbial diversity, bacteria, fungi, protozoa, viruses, microbial growth and culture techniques, microscopy, staining techniques, sterilisation, disinfection and control, enumeration of bacteria and fungi. (Total tuition time: not available)

MICROBIOLOGY II (MBI241B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Enrichment culture techniques and long-term preservation of micro-organisms. Advanced composition and structure of prokaryotes. Introduction to the genetics of micro-organisms. Microbial metabolism. Identification of the more important groups of bacteria, using biochemical and serological tests. (Total tuition time: ± 90 hours)

MICROBIOLOGY II (MBI241T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Advanced composition and structure of the eukaryotic cell. Metabolism for energy production - pathways for the production of ATP. Introduction to the genetics of micro-organisms, the genetic code, mutations and recombinant DNA technology. Taxonomy, principles and characteristics/schemes used. Bergey's manual - groups of bacteria (including bacteria that cause food-borne illnesses), their characteristics and importance. (Total tuition time: ± 480 hours)

MICROBIAL BIOCHEMISTRY III (MBB301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Genetic code and protein synthesis, restriction enzymes, polymerase chain reaction, glycolysis, glucogeogenesis, pentose phosphate pathway, glycogen degradation and synthesis, control of glycogen metabolism, fatty acid breakdown, fatty acid synthesis, metabolism of triacylglycerols, citric acid cycle, electron transport and oxidative phosphorylation, anaerobic and aerobic metabolism, nitrogen fixation and assimilation, amino acid metabolism, urea cycle. (Total tuition time: ± 180 hours)

MICROBIOLOGY: BIOLOGICAL III (MBG301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Pathogenicity of micro-organisms, antimicrobial chemotherapy, clinical microbiology, epidemiology of infectious diseases. Human diseases caused by viruses, Gram-positive and Gram-negative bacteria, other bacteria, fungi and protozoa. (Total tuition time: ± 90 hours)

MICROBIOLOGY III (MBI321T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sceinces)

Medical mycology: classification of yeasts and moulds of medical importance, mycological procedures, pathogenesis and laboratory identification of medically important yeasts and moulds. Medical parasitology: classification of protozoa and helminths of medical importance, parasitological procedures, life cycles and pathogenicity of medically important parasites. Medical virology: general properties and classification of medically important viruses, culturing of viruses, the properties, isolation and culturing of medically important viruses. (Total tuition time: ± 90 hours)

MICRO-ORGANISMS, MAN AND MEDICINES (PMIC122) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
A study of medically important micro-organisms, including bacteria, viruses, fungi, protozoa, helminths and arthropods. Biological and microbiological aspects of structure, growth, diagnosis, virulence, pathogenesis, sensitivity, resistance and transmission. An introduction to the body's defences against infection, including the lymphatic system, cells of the immune system and inflammatory and hypersensitivity reactions. Additional agents used in infections. (Total tuition time: not available)

MIDWIFERY NURSING: PRACTICAL II (MIN20QT) **CONTINUOUS ASSESSMENT**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Family planning. Teenage pregnancy. Antenatal skills. (Total tuition time: ± 280 hours)

MIDWIFERY NURSING: PRACTICAL III (MIN30QT) **CONTINUOUS ASSESSMENT**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Midwifery skills. Authentic holistic nursing assessment of pregnant women. (Total tuition time: ± 720 hours)

MIDWIFERY NURSING: THEORY II (MIN20PT) **CONTINUOUS ASSESSMENT**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Women's health. Normal childbirth. (Total tuition time: ± 70 hours)

MIDWIFERY NURSING: THEORY III (MIN30PT) **2 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Prenatal care service. Risk factors that affect the health of mother and baby. Physiology of pregnancy. Assessment skills in midwifery. Physiology of labour. Complications during pregnancy and labour. Delivery skills, including placenta. Evaluation skills (mother and baby). Physiology of the post-partum period. Care of the newborn. Problems of the newborn. Care of the mother. Breastfeeding. (Total tuition time: ± 88 hours)

MILK PRODUCTION II (MPD201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
Introduction to milk production with the emphasis on the dairy industry, dairy breeds, nutrition and management, milk production, breeding, reproduction, herd health, herd composition, parlour layout and mechanical milking. (Total tuition time: ± 96 hours)

MILK PRODUCTION III (MPD301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An in-depth study of health regulations, the processing of dairy products, applied economics and management, applied nutrition, applied breeding, seminars, equipment, planning and layout of units, management programmes. Farm planning: milk production and computer application. (Total tuition time: ± 96 hours)

MINERALOGY I (MRL101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Crystallography. Crystal chemistry, crystal physics and crystal optics. Systematic and descriptive mineralogy. Practical. (Total tuition time: ± 60 hours)

MINING AND EXPLORATION GEOLOGY III (MEG301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Terrestrial natural resources, ore petrology, economic geology of South African ore occurrences, mining and exploration geology. Remote sensing and GIS. (Total tuition time: ± 60 hours)

MINING AND EXPLORATION GEOLOGY IV (MEG401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Ore resources calculations and financial evaluation of resources. (Total tuition time: ± 120 hours)

MODERN TECHNOLOGIES IN HEALTH CARE (PBIV313) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Principles of molecular biology, the principles, methods and products of biotechnology, such as fermentation, recombinant DNA technology, gene therapy and immunological assays, as applied to the diagnosis, prevention and treatment of inherited and acquired diseases. Theory and practice of new drug delivery systems. The immune system response and host defence mechanisms, with particular reference to diseases that can be prevented through immunisation. The principles and production of vaccines, antisera, immunoglobulins and the principles of hybridisation technology. (Total tuition time: not available)

MOLECULAR BIOLOGY IV (MLB400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Structure, composition and characteristics of macromolecules. Transcription and translation. Recombinant DNA technology and prokaryotic and eukaryotic genetic manipulation. Use of nucleic acid probes and primers. Mutation analysis. Human mitochondrial genome. Practical techniques. Project. (Total tuition time: ± 90 hours)

MUSCULOSKELETAL AND SKIN CONDITIONS AND PAIN MANAGEMENT (PMUS322) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
An integrated study of the anatomy, physiology, pathophysiology and pharmacotherapy of the skeletal and muscular systems and skin. The module also includes wounds and dressings. Emphasis is placed on the pharmacology of therapeutic agents used to treat disorders of these systems. (Total tuition time: not available)

N

NATURAL PASTURES I (NPT101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
The importance of veld pastures. The morphology, physiology and composition of grasses. Ecological and grazing concepts. Production characteristics of the main grazing areas of South Africa. Growth and production. Veld evaluation. The animal as a factor in veld management. Methods and principles of veld management. (Total tuition time: ± 120 hours)

NEPHROLOGY IV (NEP400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Anatomy of the renal system. Functions of the kidney, excretory function of the kidney. Renal processing of individual substances, water balance, micturition, renal function tests and abnormalities. (Total tuition time: not available)

NEPHROLOGY: BIOMEDICAL APPARATUS III (NRB310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
History, development and theory of dialysis. Optimalisation of therapy (blood/dialysate). Water treatment. (Total tuition time: not available)

NEPHROLOGY: CLINICAL PRACTICE III (NRC310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Patient observation, blood transfusions, setting up disposable equipment, haemodialysis. (Total tuition time: not available)

NEPHROLOGY: CLINICAL TECHNOLOGY PRACTICE III (EXP3NRC) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant nephrological procedures and skills. (Total tuition time: not available)

NEUROPHYSIOLOGY IV (NPH400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Electro-encephalogram, polysomnography, evoked potential recordings, electromyography. Neurography. (Total tuition time: not available)

NEUROPHYSIOLOGY: BIOMEDICAL APPARATUS III (NPB310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Electro-encephalogram, polysomnography, evoked potential recordings, electromyography. (Total tuition time: not available)

NEUROPHYSIOLOGY: CLINICAL PRACTICE III (NPC310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Electro-encephalogram investigations, sleep recordings, polygraphic recordings, visual and somatosensory evoked potential studies, electromyographic studies. (Total tuition time: not available)

NEUROPHYSIOLOGY: CLINICAL TECHNOLOGY PRACTICE III (EXP3NPC) **EXPERIENTIAL LEARNING**

(Subject custodian: Department of Biomedical Sciences)

Practice-based competency tests of all the relevant neurophysiological procedures and skills. (Total tuition time: not available)

NEUROLOGICAL AND PSYCHIATRIC PHARMACY (PNEU411) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An integrated study of the basic anatomy and physiology of the brain and nervous system. The module includes the pathophysiology of the major disorders affecting the central nervous system, with the emphasis on the pharmacology of appropriate therapeutic agents. Substance abuse, anaesthetics and pain management are also covered. (Total tuition time: not available)

NUTRITION I (NUT100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Hospitality Management)

Study of the chemical structure, metabolism and physiological functions of each nutrient, as well as the interaction of nutrients in the body. (Total tuition time: not available)

NUTRITION II (NUT210B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Hospitality Management)

Application of basic nutritional knowledge gained in the first year regarding energy metabolism, planning of nutritionally balanced meals and the nutrition of specific age groups. Basic knowledge of the modification of the normal diet when planning therapeutic menus. (Total tuition time: not available)

NUTRITION III (NUT320B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Hospitality Management)

Factors influencing dietary patterns. Dietary habits of ethnic, religious and other groups in Southern Africa. Nutrition and the food industry. Consumer education. (Total tuition time: not available)

NUTRITION IV (NUT400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Hospitality Management)

Study of the human nutritional needs in the life cycle, influences of nutrition on physical and mental development with regard to malnutrition, cultural and religious influences. (Total tuition time: not available)

NUTRITION AND GASTRO-ENTEROLOGY (PNUT211) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An anatomical and physiological overview of the liver and gastro-intestinal tract and their innervation, with particular emphasis on the absorption and metabolism of nutrients and drugs. Major problems of nutrition and metabolic or chronic disorders in which nutrition plays a pivotal role will be addressed, including diabetes, obesity, eating disorders, malabsorption, alcohol abuse and pancreatitis. The identification of the presence of risk factors for malnutrition. The chemistry, pharmaceutics and pharmacology of drugs affecting the gastro-intestinal tract and drugs used to treat common GI problems. (Total tuition time: not available)

NUMERICAL ANALYSIS V (NAS500T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Mathematics and Statistics)

Interpolation polynomials, numerical differentiation and integration, Runge-Kutta type methods, error analysis. (Total tuition time: not available)

NUMERICAL LINEAR ALGEBRA V (NLA500T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Mathematics and Statistics)

Methods of solving systems of not necessarily linear equations, error analysis, difference equations and finite element methods. (Total tuition time: not available)

NURSING DYNAMICS I (NDN100T) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Philosophy and essence of nursing. Ethos of nursing and midwifery. Professionalisation. Scope of practice and standards of nursing. Nursing Act, legislation and control history of nursing. Nursing theories. Roles and functions of statutory bodies. Characteristics of professional organisations in nursing – functions of a professional organisation. The nursing and multi-professional health team. Learning principles and theories. Use of library facilities. Use of computer and Internet facilities. Bill of Human Rights. Principles of advocacy. Principles of adult education. Ethical code of nursing (international and national). Computer skills. (Total tuition time: ± 35 hours)

NURSING DYNAMICS II (NDN200T) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Multidisciplinary professional teams. Networking. Reading skills, critical and analytical thinking skills. Interpretation skills. Literature search, also surfing the Net. Scope of practice. Health Act and other applicable legislation, health policies. Interpersonal relations. Assertiveness and self-esteem. (Total tuition time: ± 35 hours)

NURSING DYNAMICS III (NDN300T) **1 X 3-HOUR PAPER**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Health legislation. Interpersonal skills. Self-assertiveness. Quality improvement and dynamic benchmarking. Nursing audits. Code of ethics. Scope of practice (nurse and midwife). Legal implications. Transcultural nursing. Health Act, legislation and regulation. Mental Health Act. Research articles. Introduction of research process. (Total tuition time: ± 35 hours)

NURSING DYNAMICS IV (NDN400T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Quality improvement principles. Nursing delivery systems. Emergency preparedness response. Policies, guidelines, procedures and protocols on disaster management. Different levels of management structures for disaster nursing. Database on disaster life-saving skills. Prevention of life-threatening complications and disabilities. Rehabilitation programmes. Collaboration and consultation. Role development. Multidisciplinary teams. Network. Code of practice (nurse). Leadership skills. Interpersonal and group skills. Labour legislation. Employment legislation. Negotiation skills. Human resource management. Management of physical resources. Cost analysis and management. (Total tuition time: ± 35 hours)

NURSING MANAGEMENT IVA (NMG40AT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Leadership versus management. Human resource management. Interpersonal skills. Management of diversity. (Total tuition time: ± 88 hours)

NURSING MANAGEMENT IVB (NMG40BT) **PRACTICAL**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Project development and presentation. The Reconstruction and Development Programme. The National Health Plan. The national health system. Historical development of management and leadership theories. Decision making and problem solving. The management environment. Management ethics. Planning. Organising. Directing. Control. Financial management. Entrepreneurship. (Total tuition time: ± 88 hours)

NURSING RESEARCH I (NRH100T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

The research process. Research strategies. Research problem identification and formulation. Literature review. Formulation of a hypothesis or central theoretical statement. Research design. Data collection and analysis. Selection of a population and sampling techniques. Communication skills. Nursing theories. (Total tuition time: ± 66 hours)

NURSING: PRACTICAL I (NUR10QT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Fundamental nursing skills. Authentic health assessment of hospitalised patient. Community AIDS awareness. Health education. Family study. (Total tuition time: ± 930 hours)

NURSING: PRACTICAL II (NUR20QT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Clinical nursing skills. Authentic holistic nursing-care plan for palliative patient. Physical examination skills. Community study. Psychiatric nursing skills. (Total tuition time: ± 770 hours)

NURSING: PRACTICAL III (NUR30QT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Adelaide Tambo School of Nursing Science)

Clinical nursing skills. Authentic holistic assessment of a mentally retarded client. Authentic client presentation of holistic nursing-care plan for the mentally retarded client. (Total tuition time: ± 460 hours)

NURSING: PRACTICAL IV (NUR40QT) **CONTINUOUS ASSESSMENT**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Nursing skills for an acutely Ill patient. Comprehensive nursing-care plan for an acutely ill patient. Authentic client presentation of acutely Ill patient. Comprehensive nursing-care plan of a psychiatric patient. Authentic group presentation. Authentic interview with psychiatric patient. (Total tuition time: ± 1 140 hours)

NURSING: THEORY I (NUR10PT) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Scientific nursing process. Assessment skills, diagnostic skills. Health promotion strategies. Health education. Health needs and basic needs. Planning skills. Intervention skills. Decision-making skills. Health and illness. Standards and criteria. First-aid. Referral systems. Inventory mechanisms. Introduction to cost control and management. Needs analysis skills. Scientific writing skills. Critical thinking skills. Communication techniques and skills. Interpersonal skills. Primary health care. Components of a comprehensive health service. Trends and indicators affecting health. Transcultural nursing. Problem-solving skills. Social diversity. Clinical assessment, diagnosis, treatment and care. Collaboration and consultation skills. (Total tuition time: ± 148 hours)

NURSING: THEORY II (NUR20PT) **2 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Epidemiology and biostatics. Applied scientific nursing. Preventative and promotive health strategies. Health education programmes. Community resources. Referral systems. High-risk health problems. Primary health-care principles. Common and minor ailments, including psychiatric nursing aspects and skills. Clinical assessment, diagnosis and treatment. Communicable diseases. Community participation. Emergency care. (Total tuition time: ± 245 hours)

NURSING: THEORY III (NUR30PT) **2 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Chronic diseases. Medical and surgical nursing. Applied clinical drug therapy. (Total tuition time: ± 184 hours)

NURSING: THEORY IV (NUR40PT) **2 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Crisis intervention skills. Communication policies. Curative and rehabilitative care. Medical and surgical nursing. Psychiatric nursing. Occupational health and safety. (Total tuition time: ± 140 hours)

O

OCCUPATIONAL HEALTH IV (OCH400T) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Variables influencing development of occupational health in South Africa, occupational health legislation, labour relations, occupational diseases, occupational safety. (Total tuition time: ± 88 hours)

OCCUPATIONAL HEALTH AND SAFETY II (OHS200T) **1 X 3-HOUR PAPER AND PRACTICAL**
(Subject custodian: Department of Environmental Health)
Basic principles of occupational health and safety, legislation, physical, biological and psychological environmental stresses. (Total tuition time: ± 408 hours)

OCCUPATIONAL HEALTH AND SAFETY III (OHS300T) **1 X 3-HOUR PAPER AND PRACTICAL**
(Subject custodian: Department of Environmental Health)
Chemical stress factors, ergonomic environmental factors, safety systems, occupational health and safety programmes and statistics. (Total tuition time: ± 408 hours)

OCCUPATIONAL HEALTH AND SAFETY IV (OHS400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental Health)
Control and physical, biological, psychological, chemical and ergonomic stresses. Occupational health and safety audit, legislation and management. (Total tuition time: ± 168 hours)

OCCUPATIONAL HEALTH NURSING: PRACTICAL IV (OCN40QT) **PRACTICAL**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Physical assessment diagnosis and treatment of clients in an occupational setting, visual screening, auditory screening with an audiometer, biological monitoring, case studies, HIV counselling, testing and treatment, lung function tests, and counselling. Designing of implementation and evaluation of health promotion programme, in-service education programme and rehabilitation. Emergency care, Risk management, Incident investigation and reporting. (Total tuition time: ± 44 hours)

OCCUPATIONAL HEALTH NURSING: THEORY IV (OCN40PT) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Principles of occupational health nursing: occupational nursing, fundamentals of occupational nursing, role of occupational nurse. Professional ethics (integrated with management). Assessment of health status of workers, family, associates and relevant groups: pre-employment examinations, examinations after sick leave, periodic examination, exit examination, examination of food handlers, screening of the people who are well, identification of clinical vulnerability. Types of screening procedures: audiometry, eye-sight testing, follow-up of contracts, chronic disease screening. Diagnostic and treatment methods (including pharmacology): history taking, physical examination, laboratory studies, treatment, counselling and referral. Pharmacology: anti-effective drugs, antihistamines, CNS drugs, respiratory drugs, autonomic drugs, diuretics, analgesics, anticoagulants. Appropriate nursing in the family, group and community context: healthy lifestyle programme, employee assistance programme, occupational health-training programme. Dynamics of nursing practice: physiology of nursing, interpersonal skills, conflict resolution, effective communication, health promotion and education. Control of working environment, for example, engineering control methods, i.e. hazard identification, controlling, monitoring records, inspections, protective clothing, hazard communication system, training of employees (Total tuition time: ± 44 hours)

OCCUPATIONAL THERAPY: PRACTICE I (OTP100T) **1 X 2-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Occupational therapy: introduction, productivity, leisure, dealing with patients, activities. Presentation of activities: classification indications, materials, care of tools and specific activities. Short programmes: first-aid, sexually responsible behaviour. (Total tuition time: ± 240 hours)

OCCUPATIONAL THERAPY: THEORY I (OCT100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Occupational therapy: introduction, philosophy goals and principles. Health and illness: causes, determinants of ill health, disability, physical and psychological disorders. Ethos and professional practice: professional practice, roles of an occupational therapy assistant and multi-disciplinary team. Occupational therapy practice: treatment modalities, programmes, therapy skills, teaching and learning, interpersonal skills. Management: process, administration. (Total tuition time: ± 214 hours)

ONCOLOGY NURSING SCIENCE PRACTICAL IV (ONS40QT) **PRACTICAL**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Nursing management of specific cancers: Epidemiology, Etiology, prevention and screening, clinical presentation, diagnosis, classification, staging, prognostic indicators and metastases, treatment modalities and specific nursing care. Physical examination skills. Scientific nursing process. Palliative and terminal care: Assessment of pain and other symptoms, psychosocial care, spiritual care, hope, complementary therapies, bereavement, grief, mourning and death, communication in advanced disease, ethical issues in palliative care. Stress: theories, process, management. Interpersonal skills: self-assertiveness, empathy, counselling skills. Community development. (Total tuition time: ± 44 hours)

ONCOLOGY NURSING SCIENCE: THEORY IV (ONS40PT) **1 X 3-HOUR PAPER**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Palliative care. terminal care and support systems. Stress: theories, process, management. Interpersonal skills: self-assertiveness, empathy, counselling skills. Communication. Physical examination skills. Scientific nursing process. Health education and health-care pertaining to oncology services. Psychosocial and cultural aspects of cancer. Community development. (Total tuition time: ± 44 hours)

ORAL ANATOMY I (OAT101T) **1 X 2-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The study of the bone structures, muscles, joints and nervous system of the human skull. (Total tuition time: ± 68 hours)

ORAL ANATOMY AND PATHOLOGY I (OAP100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Anatomical landmarks in dentistry, salivary glands, muscles, blood and nerve supply, development of the face and oral cavity, oral microbiology, oral pathology, elementary pharmacology, clinical emergencies. (Total tuition time: ± 80 hours)

ORIENTATION AND INDUCTION (PORI111) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Orientation in terms of the educational institutions, their administration, student bodies, general organisation, campus layout, the unique arrangement between the University of Limpopo (Medunsa Campus) and the Tshwane University of Technology and its effect on student life. A broad overview of the programme presentation and learning strategy, language, social, communication, academic, library and computer skills. An overview of the nature of the profession and the ethics and professionalism involved. (Total tuition time: not available)

ORDINARY NONLINEAR DIFFERENTIAL EQUATIONS V (ONL500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Mathematics and Statistics)
Not necessarily linear ordinary differential equations are studied. (Total tuition time: not available)

ORGAN AND SYSTEM PATHOPHYSIOLOGY II (OSA200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Diseases of immunity. Fluid and haemodynamic derangements. Nutritional disorders. Systematic diseases. Infectious diseases. Introductory concepts with reference to the following systems: respiratory, circulatory, urinary, digestive, endocrine and reproductive systems, and nervous system and sense organs.(Total tuition time: not available)

ORGANIC CHEMISTRY II (OCH221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Aliphatic hydrocarbons. Benzene. Alkyl and aryl halides. Alkanols and alkoxy alkanes. Phenols. Alkanals and alkanones. Carboxylic acids and derivatives. Amines. Practical organic chemistry. (Total tuition time: ± 90 hours)

ORGANIC CHEMISTRY III (OCH321T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Stereochemistry and conformational analysis. Strengths of acids and bases. Nucleophilic reactions in unsaturated carbons. Nucleophilic reactions in saturated carbons. Elimination reactions. Aromatic chemistry. Natural and synthetic polymers. Carbohydrates and other biological compounds. Determination of organic structures. Practical organic chemistry. (Total tuition time: ± 105 hours)

ORGANIC CHEMISTRY IV (OCH421T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Determination of organic structures. Synthetic organic chemistry. Natural product chemistry. Industrial organic chemistry. Practical: experiments related to the theory. (Total tuition time: ± 135 hours)

ORTHOTICS AND PROSTHETICS MATERIAL SCIENCE I (OPS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The different types of materials that can be used in orthotics and prosthetics. (Total tuition time: ± 72 hours)

ORTHOTICS AND PROSTHETICS MATERIAL SCIENCE II (OPS201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The most important materials currently used in practice (e.g. plastic, POP, metals) are covered in detail. (Total tuition time: ± 92 hours)

ORTHOTICS AND PROSTHETICS PRACTICE I (OPC101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students will apply their theoretical knowledge to manufacture the different orthoses and prostheses. (Total tuition time: ± 240 hours)

ORTHOTICS AND PROSTHETICS PRACTICE II (OPC211T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students will apply in practice what they learned in theory in Orthotics II and Prosthetics II. (Total tuition time: ± 240 hours)

ORTHOTICS AND PROSTHETICS PRACTICE III (OPC311T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Splints, braces and upper-limb prostheses are manufactured. (Total tuition time: ± 240 hours)

ORTHOTICS AND PROSTHETICS PRACTICE IV (OPC400T **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Students will apply in practice the theoretical knowledge of Orthotics and Prosthetics Theory IV. (Total tuition time: ± 120 hours)

ORTHOTICS AND PROSTHETICS THEORY IV (ORP400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Advanced orthotic and prosthetic devices and the related theory. (Total tuition time: ± 30 hours)

ORTHOTICS THEORY I (OTT101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The theory of the manufacturing of lower-limb splints (orthoses) from metal or plastic, and the manufacturing of bow orthoses. (Total tuition time: ± 120 hours)

ORTHOTICS THEORY II (OTT201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The theory of the manufacturing of long leg callipers, hand and arm splints (orthoses). (Total tuition time: ± 102 hours)

ORTHOTICS THEORY III (OTT301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the manufacturing of spinal braces, neck braces, corsets and hernial trusses. (Total tuition time: ± 120 hours)

P

PARASITOLOGY IV (PRY401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
The ecological and epidemiological principles that have an influence on the occurrence and distribution of parasites in Southern Africa. The population dynamics of parasites. Principles of integrated pest control. The prevention of pollution and biological resistance against chemical pesticides. Project. (Total tuition time: ± 90 hours)

PARTIAL DIFFERENTIAL EQUATIONS V (PDQ500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Mathematics and Statistics)
Dirichlet, Neumann, mixed boundary value problems and Sturm-Liouville theory. (Total tuition time: not available)

PASTURE SCIENCE I (PSC121T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
The morphology and physiology of grasses. Veld types and the interaction between livestock and pastures. Methods and principles of veld management. The characteristics, nutritional value and productivity of veld. The burning of veld, bush encroachment and radical veld improvement. The establishment, maintenance and management of cultivated pastures. The most important grasses, legumes, fodder trees and shrubs. Feed conservation and the planning of a fodder-flow programme. (Total tuition time: ± 50 hours)

PATHOPHYSIOLOGY II (PPT201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
The disruption of the normal physiological functions of the body, and the processes that lead to disruption. To understand these processes, the individual sciences of histopathology, microbiology, haematology and chemical pathology are combined in an integral concept. (Total tuition time: ± 90 hours)

PERFUSION IV (PRF400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Physiological calculations of flow rates, physiological fluids. Effects of temperature changes, monitoring: pre-, intra- and post-cardiac drugs. Cardioplegia, perfusion of different organs, tissue changes, blood physiology, pathology of cardiopulmonary bypass on different organs, flow dynamics, blood conservation, different perfusions, paediatric perfusion. (Total tuition time: not available)

PERFUSION: BIOMEDICAL APPARATUS III (PBD310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Heart-lung machines, flow meters, vaporisers, thermometers, heating-cooling systems, safety apparatus, cardioplegia, oxygenators, cardiotomy reservoirs, filters, tubing, pressure monitoring systems, cannulas, suckers, sterilisation, blood gas and electrolyte analysers, draining systems, balloon pumps. (Total tuition time: not available)

PERFUSION: CLINICAL PRACTICE III (PFP310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Determining the layout of the heart-lung machine, physiology of perfusion, laboratory equipment, emergency procedures, parameters during ECC. (Total tuition time: not available)

PERFUSION: CLINICAL TECHNOLOGY PRACTICE III (EXP3PFP) **EXPERIENTIAL LEANRING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant perfusion procedures and skills. (Total tuition time: not available)

PETROLOGY II (PET211T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Igneous petrology. Metamorphic petrology. Sedimentary petrology. Practical. (Total tuition time: ± 120 hours)

PHARMACEUTICAL PACKAGING IV (PHA400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Specification requirements for pharmaceutical packaging and labelling. Quality control procedures regarding packaging materials. (Total tuition time: not available)

PHARMACEUTICAL PRODUCTION (PRU500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Formulation of dosage forms. Establishing the quality of pharmaceutical products. Packaging and labelling of pharmaceuticals. (Total tuition time: not available)

PHARMACO-ECONOMICS (PHN500T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Basic economic concepts. Efficiency concepts. Economic evaluations. Drug utilisation reviews. (Total tuition time: not available)

PHARMACOLOGY I (PMC110T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Adelaide Tambo School of Nursing Science)
Clinical drug therapy. (Total tuition time: ± 38 hours)

PHARMACOLOGY II (PMC200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Pharmaceutical Sciences)
Pharmacokinetics. Pharmacodynamics. Drug dosages, drug interactions, undesirable effects of drugs and medicines. Legislation. Primary health-care. (Total tuition time: not available)

PHARMACOLOGY AND TOXICOLOGY IV (PTX401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Administration routes. Basic principles of toxicology. Sampling, handling and analytical techniques. (Total tuition time: ± 90 hours)

PSYCHOLOGY: EMERGENCY SERVICES II (PYE201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Introduction to psychology. Personality and temperament. Developmental psychology. Intellectual processes. Defence mechanisms. Physical, environmental and psychological stressors. Stress symptoms and reduction. Critical incident stress. Well-being programmes. (Total tuition time: ± 45 hours)

PHYSICS AND CHEMISTRY: CHEMISTRY I (PCQ10YT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chemical comparison and stoichiometry. Solutions, acids, basis and salts, chemical reactions, chemical balance. Electrochemistry and redox theory, inorganic chemistry, organic chemistry, wet chemical analysis, basic instrumental analysis. Practical inorganic chemistry. (Total tuition time: ± 124 hours)

PHYSICS AND CHEMISTRY: PHYSICS I (PCQ10XT) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Remedial mathematics, units and conversion, vectors and scalar, statics. Kinetics, applied mechanics, density and relative density, pressure thermodynamics, waves, sound, optics. Electricity, magnetism, electromagnetic induction, radioactivity, matter and energy. (Total tuition time: ± 124 hours)

PHYSICS: EMERGENCY SERVICES I (PHV101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Remedial mathematics, basic units, vectors and scalars. Kinetics, momentum, moments, work, energy and power. Pressure, density, optics. (Total tuition time: ± 45 hours)

PHYSICAL CHEMISTRY II (PCB221T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Gases (ideal and non-ideal). Liquid surface tension, viscosity, additive properties. Chemical kinetics. Chemical equilibrium. Colloids. Colligative properties of solutions. Electrochemistry. Practical: physical chemistry. (Total tuition time: ± 60 hours)

PHYSICAL CHEMISTRY III (PCB321T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Chemical thermodynamics – first, second and third laws. Changes of phase diagrams. Electrochemical, conductivity, transport numbers, electrolysis. Reaction kinetics orders, Arrhenius equation, composite mechanisms, catalysis. Quantum chemistry, atomic spectra, emission and absorption spectra, rotational spectra, Raman, vibrational and electronic spectra. The solid-state crystal lattice, planes, indices, X-ray, diffraction, structure of crystals. Surface chemistry, adsorption isotherms, surface reactions. Practical: physical chemistry. (Total tuition time: ± 105 hours)

PHYSICAL CHEMISTRY IV (PCB421T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Thermodynamics. Electrochemistry. Corrosion. Surface chemistry. Kinetics. Practical: experiments related to the theory. (Total tuition time: ± 135 hours)

PHYSICS IA (PHU161B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Introduction to vectors. Mechanics, heat, optics, electricity and magnetism, wave motion. Practical: experiments related to the theory. (Total tuition time: ± 105 hours)

PHYSICS IB (PHU161C) **1X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
A general physics qualification with applications in the biological sciences: remedial mathematics, fundamental units, vectors and scalars, kinetics, mechanics, dynamics, momentum, moments, work, energy and power, fluids, temperature and heat, gas laws, waves and sound, optics, electricity, magnetism, radio-activity, nuclear physics. Practical: experiments related to the theory. (Total tuition time: ± 90 hours)

PHYSICS IB (PHU161F) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Introduction to physics. Basic mathematics for physics. Mechanics. Hydraulics. Heat. Waves, sound and optics. Magnetism and electricity. Electromagnetism. Measurements and SI units. Radio activity. Practical experiments related to the theory with emphasis on measuring physical quantities. (Total tuition time: ± 90 hours)

PHYSICS II (PHU201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Electronics, nuclear physics, electric and magnetic fields and forces, spectroscopy, properties of electro-magnetic waves, quantum mechanics. Practical: experiments related to the theory. (Total tuition time: ± 75 hours)

PHYSIOLOGY I (PSO100B) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
An integrated study of body functions and physiological chemistry of all the different body systems. (Total tuition time: ± 153 hours)

PHYSIOLOGY I (PSO100C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Homeostasis and control systems. Cell structure and function. Differentiation and reproduction. Structural organisation and intercellular material. Body fluid compartments. Review of special body fluids. An integrated study of micro-anatomy, physiological anatomy, physiology and physiological chemistry of different systems in humans. (Total tuition time: not available)

PHYSIOLOGICAL DEVELOPMENT III (PDM300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Principles of sport injury prevention. Topics on human nutrition, supplements and performance-enhancing drugs. Conditioning for sport and physical activity. Dealing with special medical conditions (asthmatic and epileptic conditions, back problems, knee and ankle injuries, etc.) (Total tuition time: ± 70 hours)

PIG PRODUCTION II (PFM201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

An introductory study of the South African pig industry, breeds, breeding, reproduction, nutrition, diseases and housing. (Total tuition time: ± 30 hours)

PIG PRODUCTION III (PFM301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

An in-depth study of breeding, management, housing, applied nutrition, marketing, economy, data processing, reproduction technology, farm planning - pig production and computer application. (Total tuition time: ± 30 hours)

PLANT MATERIAL STUDIES I (PLR101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

External morphology, anatomy and physiology, taxonomy, characteristics and requirements of ornamental plants, indigenous, exotic and endemic plants, plant appearance and identification, emphasis on trees, shrubs and ground covers. (Total tuition time: ± 45 hours)

PLANT MATERIAL STUDIES II (PLR201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Requirements of ornamental plant material, factors in the selection of plants, transplanting procedures, pruning techniques, maintenance programmes, lists of indigenous and exotic plants. Emphasis on annuals and perennials, climbers, vines, grasses, fruit, vegetables and herbs. (Total tuition time: ± 45 hours)

PLANT MATERIAL STUDIES III (PLR300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Tree and shrub morphology. Tree and shrub families. Application of ornamental plants in the landscape. Lists of plans for sun, shade and semi-shade. Creepers and climbers. The development of a garden maintenance programme. General garden pests and diseases. Functional and visual uses of plants in the landscape. Lists of indigenous and exotic ornamentals, trees and shrubs with their applications in the landscape. (Total tuition time: ± 75 hours)

PLANT STUDIES I (WPS101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

The structure and germination of different seed types, the external structure and functions of the various plant organs, as well as all the morphological modifications found in nature. The internal (anatomical) structure of roots, stems and leaves, as well as the physiological reactions that take place in plants. (Total tuition time: ± 75 hours)

PLANT STUDIES II (WPS201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Attention is given to basic taxonomic principles. These include definitions, taxonomic systems, taxonomic methods, dynamics of taxonomy and criteria used in classification. The evolutionary development of the flowering plants, as well as a wide range of indigenous flowering plant families, is discussed with reference to characteristics for identification. The development and management of a small herbarium are discussed. (Total tuition time: ± 75 hours)

PLANT STUDIES III (WPS301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Management principles for South African vegetation / veld in wildlife areas. Basic vegetation survey and vegetation monitoring principles and techniques. Veld evaluation principles and techniques used in South Africa. Application of fire as a veld management tool. The management of alien invasive plants and bush encroachment. The threats to rare and endangered plants in African ecosystems, and management thereof. (Total tuition time: ± 75 hours)

PLANT STUDIES IVA (WPS40PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

An in-depth study of vegetation or plant science, its principles, aims and applications. This includes the nature of quantitative plant ecology and vegetation science, the description of plant communities, the nature and characteristics of plant data, basic vegetation-related statistics, analysis of data, ordination methods, phytosociology and numerical classification. The emphasis is placed on the application of vegetation research and monitoring to ensure better management of plant resources. (Total tuition time: ± 40 hours)

PLANT STUDIES IVB (WPS40QT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject deals with advanced theory and application regarding the management of veld and vegetation in nature reserves (for game). An advanced theoretical base is given on aspects such as veld management approaches, veld monitoring, veld evaluation, carrying capacity, fire management, bush control, restoration ecology, and management of alien invasive plants. The emphasis is on practical applications and insight. (Total tuition time: ± 40 hours)

PLANT PROTECTION II (PEC210T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

Entomology, pest management, review of major South African pests, weed management, nematology, plant pathology. (Total tuition time: ± 60 hours)

POTABLE WATER ANALYSIS: PRACTICAL II (PWA20PT, PWA20YT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Application of the following methods on potable water samples: physical parameters, titrimetric methods, colorimetric methods, spectrophotometry, flame photometry. (Total tuition time: ± 240 hours)

POTABLE WATER ANALYSIS: THEORY II (PWA20XT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Determination of physical parameters. Titrimetric methods, colorimetric methods. Analytical procedures. Data processing. Spectrophotometry, flame photometry. (Total tuition time: ± 75 hours)

POTABLE WATER PURIFICATION II (PTN201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Domestic water quality, tastes and odours, aeration, pretreatment, coagulation, flocculation, sedimentation, filtration, disinfection. (Total tuition time: ± 165 hours)

POULTRY PRODUCTION II (POD201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

An introductory study of poultry production with the emphasis on the poultry industry, breeds, breeding, reproduction, equipment, housing, nutrition and diseases. (Total tuition time: ± 96 hours)

POULTRY PRODUCTION III (POD301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

An in-depth study of broiler management, layer management, seminars, the handling of manure, marketing, applied nutrition, hatchery management, strategic planning. Farm planning: poultry production and computer application. (Total tuition time: ± 96 hours)

PRACTICE OF MANAGEMENT IV (PMN401T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Management and Entrepreneurship)

Evolution of management, management practices, styles of management, management by objectives, top management and team work, external relations, protocol, case studies. (Total tuition time: not available)

PRACTICE MANAGEMENT IV (PMN400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Various aspects of the general management and workings of a biokineticist in a private practice/ multidisciplinary environment. Basic principles of financial management for a small business, the code of ethics and scope of practice for biokinetics, and selected readings in medical law as suggested by the Health Professions Council of South Africa (HPCSA) and Biokinetics Association of South African (BASA). (Total tuition time: ± 35 hours)

PRINCIPLES AND PRACTICE OF PHARMACEUTICAL MANUFACTURING (PMAN221) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An overview of the manufacturing of pharmaceuticals. Physical, chemical and pharmaceutical principles in the production, packaging and labelling of pharmaceutical products. (Total tuition time: not available)

PRINCIPLES OF MANAGEMENT I (PMR101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Management and Entrepreneurship)

Managers and management, planning, organisation, leading, control, decision-making, motivation, leadership and supervision, communication, coordination, human resource management, financial management, entrepreneurship, marketing management, legal aspects of contracts, business plan. (Total tuition time: not available)

PRINCIPLES OF MANAGEMENT: WATER I (PMW101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of People Management and Development)

Management principles: introduction to management, the business economics environment, the enterprise and its functions, introduction to management functions. Human resource functions: introduction to the human as an employer. Basic labour relations for supervisors. (Total tuition time: not available)

PRINCIPLES OF MANAGEMENT I (PMR100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

A study of the principles of management as a functional part of business management. The theory of management is explained through the process approach. Aspects that are emphasised include different management levels, basic management functions, additional functions, the management environment, environmental reconnaissance (scenarios) and planning. Strategic planning and strategy implementation, decision-making, coordination, organising (principles and systems), provision of human resources (performance evaluation), and activating, controlling and managing information systems. (Total tuition time: ± 40 hours)

PROCESS TECHNOLOGY AND MANAGEMENT: COMPUTER SKILLS I (PTM10YT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of End-User Computing)

The subject consists of theory and practical components. The theoretical component introduces students to basic computer knowledge which includes; Evolution of Computers, Input devices, Processing data, Data storage devices, Output devices, Network basics, Safety and green IT; Computer hardware care and maintenance. The practical component covers MS Word essentials, MS Excel essentials, MS PowerPoint essentials and Windows XP essentials. (Total tuition time: ± 36 hours)

PROCESS TECHNOLOGY AND MANAGEMENT: THEORY I (PTM10XT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biotechnology and Food Technology)

Units and dimensions, energy and mass balances, steam tables, basics of heat transfer. Introduction to general management: planning, organising, leading, controlling, communication and interpersonal skills, transcultural management. (Total tuition time: ± 90 hours)

PROJECT IV (PJT400T) **PROJECT**

(Subject custodian: Department of Mathematics and Statistics)

Research methodology. Project management principles (ISO 10006:2003). Project discussion sessions. Colloquiums. Report writing. Submission of a 240-hour project. (Total tuition time: not available)

PROJECT: ENVIRONMENTAL TECHNOLOGY IV (PJN410T) **PROJECT**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Research methodology. Students plan and implement an applied environmental project. A final report has to be submitted. (Total tuition time: not available)

PROJECT MANAGEMENT: AGRICULTURE IV (PUU400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Animal Sciences)
The development and evaluation of a control or development strategy and/or programme regarding a selected diversification or specialist field in agriculture, using existing literature. Internal evaluation on the basis of preparation for and the presentation of a seminar through a colloquium. (Total tuition time: ± 200 hours)

PROJECT: VETERINARY TECHNOLOGY IV (PJA401T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Project. Students must submit a protocol and a final report. (Total tuition time: 6 months)

PROSTHETICS THEORY I (PCX101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the manufacture of below-knee limbs (prostheses). (Total tuition time: ± 120 hours)

PROSTHETICS THEORY II (PCX201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the manufacture of through-knee, above-knee and through-hip prostheses. (Total tuition time: ± 120 hours)

PROSTHETICS THEORY III (PCX301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
Theory of the manufacture of all upper limbs, as well as the treatment of all special cases. (Total tuition time: ± 120 hours)

PROTOZOOLOGY III (PZY301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Identification of parasitic protozoa and recognition of the diseases they cause in food animals and pets. Diagnostic characteristics, life cycles, pathology, prevention and control. Laboratory techniques are introduced. (Total tuition time: ± 90 hours)

PSYCHO-DYNAMICS I (PDY101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Professionalism, ethics, developmental psychology, patient-care, applied psychology. (Total tuition time: not available)

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)

PSYCHOLOGY I (PYY111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
A basic study of psychology forms part of the curriculum, because patients treated by an orthotist or prosthetist often have psychological problems due to the fact that they have to wear visible support. Emphasis is placed on social development and dealing with personal problems. (Total tuition time: ± 120 hours)

PUBLIC RELATIONS I (PRS120T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Public Relations and Business Communication)
An occupation that relates mainly to image building. The student's image, the image of the Department and the University, as well as that of the organisation that will eventually employ the student, will therefore form an intrinsic and important whole. (Total tuition time: ± 70 hours)

PUBLIC RELATIONS II (PRS210T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Public Relations and Business Communication)
An occupation that relates mainly to image building. The student's image, the image of the Department and the University, as well as that of the organisation that will eventually employ the student, will therefore form an intrinsic and important whole. (Total tuition time: ± 70 hours)

PULMONOLOGY IV (PUL400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Exercise studies. Sleep studies. Advanced body plethysmographic studies. Control of ventilation studies. Industrial respiratory diseases. Allergies. Clinical trials and procedures. Bronchoscopic procedures. Nebulisation. Pulmonary-related procedures. Ventilation/perfusion studies with radio-active materials. (Total tuition time: not available)

PULMONOLOGY: BIOMEDICAL APPARATUS III (PBP310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Spirometry, flow measuring devices, transducers, transcutaneous monitoring, gas chromatography, mass spectrometry, thermal conductive detectors, analysers (optical transmission, infrared, paramagnetic, Geissler tube, blood gas), lung functions, whole-body plethysmography, bronchoscopy. (Total tuition time: not available)

PULMONOLOGY: CLINICAL PRACTICE III (KPU310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Sterilisation, electrical safety, gas laws, lung volumes, ventilation, spirogram, flow-volume curves, lung scans, whole-body plethysmography, diffusion, bronchodilators, bronchoscopy. (Total tuition time: not available)

PULMONOLOGY: CLINICAL TECHNOLOGY PRACTICE III (EXP3KPU) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant pulmonological procedures and skills. (Total tuition time: not available)

Q

QUALITY AND PRODUCTIVITY IV (QAP401T) **1 X 3-HOUR PAPER (OPEN BOOK**
(Subject custodian: Department of Chemistry)
Quality: basic principles (quality plan, model, objectives, programme, protocol), productivity, creativity. Innovation: basic principles, laboratory structure, laboratory organogram, identification of key staff and functions, accreditation, basic principles. (Total tuition time: not available)

QUALITY AUDITING TECHNIQUES IV (QAQ401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
ISO 19011:2002. Product, process and system audits. Basic configuration management (ISO 10007). IAF-APG guidance documents. Sydney Model. IATF process approach to system audits. (Total tuition time: not available)

QUALITY MANAGEMENT SYSTEMS III (QMS301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
General management techniques. ISO 9000-based QMS. The development of Quality Standards. Overview of the ISO 9000 family. Quality terminology. Guide for Selection and Use, QM Principles. ISO 9001:2000 requirements. Preparing the QMS. Process management. Quality plans (ISO 10005:2005). Documentation. Internal quality auditing. QMS Certification. EMS (ISO 14001) and OH&S (OHSAS 18001), ISO 17025 for laboratories. (Total tuition time: not available)

QUALITY PLANNING AND IMPLEMENTATION IV (QPI401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
The American quality experts: Juran, Deming, Crosby. Other quality experts. Service Quality. Change management. Integrated ISO management systems. Risk management. (Total tuition time: not available)

QUALITY TECHNIQUES IV (QTS401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Mathematics and Statistics)
Six Sigma process. Statistical process control (SPC) techniques. Process capability. SPC for measurement and R & R studies (MSA). FMEAs. Reliability theory, ISO 10017 (Total tuition time: not available)

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

RADIATION SCIENCE: RADIATION PHYSICS AND PROTECTION AND EQUIPMENT II (RSC22PT) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Supply of electricity to X-ray rooms, X-ray tube designs, including X-ray tables and tube stands, exposure switching and methods for limited scattered beams. 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 Biomedical Sciences)
Special X-ray tubes and tables. Fluoroscopic, photofluorographic, tomographic, neurological equipment. Digital equipment and 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)

RADIOGRAPHIC PRACTICE IV(D) (PRP400T) **2 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Application and integration of advanced imaging modalities and procedures, quality management processes and pattern recognition. Acquiring innovative learning methods like case studies and presentation. (Total tuition time: ± 109 hours)

RANGELAND STUDIES I (RLS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Plant organs: structure, function of roots, stems and leaves so as to be able to identify plants using field guides on a game ranch. Flora of South Africa: biomes and veld types. Basic veld management principles: plant succession, sour, sweet and mixed veld, veld condition assessment, grazing systems, influence of herbivores on plants and soils, use of fire as a management tool. Basic population ecology principles: birth and death rates, longevity, life tables, population growth, population density and population organisation. (Total tuition time: ± 75 hours)

RECOMBINANT DNA TECHNOLOGY IV (RDT401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Fundamental aspects of techniques for DNA cloning, including gene engineering and introduction into host cells, isolating a gene from a cellular chromosome, detection of specific DNA sequences, and DNA sequencing. Polymerase chain reaction, an alternative to cloning and the application and impact of recombinant DNA technology. (Total tuition time: ± 48 hours)

REGISTRATION OF MEDICINES IV (ROM400T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
Requirements of the Medicines Control Council. Application for the registration of a medicine. (Total tuition time: not available)

REPRODUCTION: BIOMEDICAL APPARATUS III (RBA310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Laboratory equipment. Functioning of a computer-assisted sperm analysis (CASA) system. Microscopes. Photographic and videographic equipment. Maintenance of equipment. (Total tuition time: not available)

REPRODUCTION: CLINICAL PRACTICE III (KRE310T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Laboratory safety. Computer-assisted sperm analysis (CASA). Biomedical statistics, word processing and data management, sterility and quality control in the workplace, ethics and handling of laboratory animals, handling of chemicals in the reproductive biology laboratory. (Total tuition time: not available)

REPRODUCTION: CLINICAL TECHNOLOGY PRACTICE III (EXP3KRE) **EXPERIENTIAL LEARNING**
(Subject custodian: Department of Biomedical Sciences)
Practice-based competency tests of all the relevant reproductive procedures and skills. (Total tuition time: not available)

REPRODUCTION TECHNOLOGY IV (RPT401T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Practical and theoretical knowledge of the anatomy and physiology of the reproduction systems of animals. The application of semen technology, including semen preservation, semen evaluation and artificial insemination. Embryo technology involves all aspects of fertilisation, embryo development and implantation, maintenance of pregnancy and assistance with partus. (Total tuition time: ± 90 hours)

REPRODUCTIVE BIOLOGY IV (RBY400T) **PROJECT**
(Subject custodian: Department of Biomedical Sciences)
Micro-manipulation. Cell culturing. Bioassays. Sperm function tests. Computer-assisted sperm motility. Fluorescence microscopy. Electron microscopy. Biochemical separation techniques, system quality controls. (Total tuition time: not available)

RESEARCH METHODOLOGY (RMD100H) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Research in agriculture, scientific research, theoretical concepts, practising a science, defining problems, motivation, literature studies, aims, sampling, the preliminary investigation, the research report, the interpretation and discussion of scientific data, the planning of a research project, statistical processing. (Total tuition time: ± 236 hours)

RESEARCH METHODOLOGY: AGRICULTURE (RMD10PC) **1 X 2-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Planning, designing and conducting research; meaning of research; tools in research; research paradigms; research and society; research project cycle; review of literature and citing sources; quantitative research including the survey method and the experimental method; qualitative research; ethics in research: the research proposal. (Total tuition time: ± 48 hours)

RESEARCH METHODOLOGY: BIOMETRY (RMD10QC) **1 X 2-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Introduction to statistics and biometry; general concepts in statistics; presenting and summarising data; relationships between variables (regression); probability theory; probability distributions; estimating population parameters; hypothesis testing. (Total tuition time: ± 48 hours)

RESEARCH METHODOLOGY (RMD500C) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

Qualitative and quantitative research. Protocol writing. Report writing. Basic statistics. (Total tuition time: not available)

RESEARCH METHODOLOGY (RMD100F) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Environmental Health)

Methodology: methods, data collection, reporting, interaction between supervisor and student, writing of research articles. Statistical methods: measurement scales, graphic representation, correlation and regression, arrangement of data testing, hypotheses, variance analysis. (Total tuition time: ± 228 hours)

RESEARCH METHODOLOGY (RMD110T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

The subject provides an overview of the research process, including types of research, the literature survey, research hypothesis, etc. Basic statistics and statistical analysis will also be covered to help students complete their research project successfully. (Total tuition time: ± 35 hours)

RESEARCH METHODOLOGY (ADVANCED) AND RESEARCH PROJECT (PREM422) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

The theory and practice of research, including a structured project in an area of pharmacy. The module is presented in three parts: Part 1: Research methodology, theory and protocol development. Part 2: Experimental phase and data collection. Part 3: Completion and submission of a research report. These parts are separated by other modules for administrative and logistical reasons. (Total tuition time: not available)

RESEARCH METHODOLOGY A (RMD10AH) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject provides background knowledge of research methodology regarding the planning, execution and interpretation of results and scientific reporting. It incorporates the following aspects: philosophies, skills, criteria, types of research and processes, as well as the writing of reports and presentation of seminars, construction of questionnaires, etc. Introductory statistical analysis forms an integral part of this presentation. (Total tuition time: ± 40 hours)

RESEARCH METHODOLOGY A (RMD10AK) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

This subject provides background knowledge of research methodology regarding the planning, execution and interpretation of results and scientific reporting. It incorporates the following aspects: philosophies, skills, criteria, types of research and processes, as well as the writing of reports and presentation of seminars, construction of questionnaires, etc. Introductory statistical analysis forms an integral part of this presentation. (Total tuition time: ± 40 hours)

RESEARCH METHODOLOGY B (RMD10BH) RESEARCH REPORT AND ORAL EXAMINATION
(Subject custodian: Department of Nature Conservation)
Drawing up a detailed research protocol (research proposal) and completing a pilot study for an identified research project under the guidance of a mentor. The results of the pilot study will be presented during the last contact week of the study year. A written report, as well as an oral presentation is required. (Total tuition time: ± 40 hours)

RESEARCH METHODOLOGY B (RMD10BK) PROJECT
(Subject custodian: Department of Horticulture)
Drawing up a detailed research protocol (research proposal) and completing a pilot study for an identified research project under the guidance of a mentor. The results of the pilot study will be presented during the last contact week of the study year. A written report, poster and an oral presentation is required. (Total tuition time: ± 40 hours)

RESEARCH METHODOLOGY: FIRE TECHNOLOGY (RMD11XE) CONTINUOUS ASSESSMENT
(Subject custodian: Department of Physics)
A general introduction to research methodology, including the planning and execution of the research process, as well as the different types of research strategies. Basic principles of measurement and methods of data collection. (Total tuition time: ± 45 hours)

RESEARCH METHODOLOGY: NATURAL SCIENCES (RMD201B, RMN201D) 1 X 3-HOUR PAPER
(Subject custodian: Department of Biomedical Sciences)
Data collection. Data processing. Reporting: papers and seminars. Statistical methods: descriptive statistics, probability, inference, confidence intervals, parametric and distribution-free tests, analysis of variance, experimental design, correlation and regression. Project. (Total tuition time: ± 60 hours)

RESEARCH METHODOLOGY: NATURAL SCIENCES: BIOTECHNOLOGY (RMN20XB) CONTINUOUS ASSESSMENT
(Subject custodian: Department of Biotechnology and Food Technology)
Introduction, tools of research, problem identification and development, review of related literature, planning of research proposals, instrumentation, writing proposals, presenting results of research, statistics, working with a supervisor. (Total tuition time: ± 48 hours)

RESEARCH METHODOLOGY: NATURAL SCIENCES: SOMATOLOGY (RSY20XT) 1 X 3-HOUR PAPER
(Subject custodian: Department of Pharmaceutical Sciences)
A general introduction to research methodology, which includes the planning and execution of the research process, as well as the different types of research and research strategies. Basic principles of measurements and methods of data collection. (Total tuition time: not available)

RESEARCH METHODOLOGY: NATURAL SCIENCES: STATISTICS (RSY20YT) 1 X 3-HOUR PAPER
(Subject custodian: Department of Mathematics and Statistics)
A general introduction to research methodology, which includes the planning and execution of the research process, as well as the different types of research and research strategies. Basic principles of measurements and methods of data collection. (Total tuition time: not available)

RESEARCH METHODOLOGY: NATURAL SCIENCES: STATISTICS (RMN20YB) CONTINUOUS ASSESSMENT
(Subject custodian: Department of Mathematics and Statistics)
Statistical methods for the preparation and working of data, including descriptive statistical methods. (Total tuition time: ± 48 hours)

RESEARCH METHODOLOGY: NATURAL SCIENCES: STATISTICS (RMN20YT) CONTINUOUS ASSESSMENT
(Subject custodian: Department of Mathematics and Statistics)
Statistical methods for the preparation and processing of data, which include descriptive statistical methods. (Total tuition time: not available)

RESEARCH METHODOLOGY: NATURAL SCIENCES: WATER CARE (RMN20XT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

General introduction to research methodology, planning and execution of the research process, as well as the different research types and research strategies. Basic principles of measurement and data collection methods. (Total tuition time: ± 45 hours)

RESEARCH METHODOLOGY: STATISTICS (RMD11YE) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Mathematics and Statistics)

Statistical methods for the preparation and processing of data, which include descriptive statistical methods. (Total tuition time: ± 45 hours)

RESEARCH METHODS AND TECHNIQUES (RMQ200C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Theory of basic research, methodological principles and completion of a proposal. (Total tuition time: ± 54 hours)

RESEARCH METHODS AND TECHNIQUES (RMQ201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Data collection. Data processing. Reporting: papers and seminars. Statistical methods: descriptive statistics, probability, inference, confidence intervals, parametric and distribution-free tests, analysis of variance, experimental design, correlation and regression. Project. (Total tuition time: ± 60 hours)

RESEARCH METHODS AND TECHNIQUES I (RMQ110C) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Theory of research and statistics, as well as statistics calculations. An additional requirement for obtaining the full qualification is a research article by the candidate at the end of the study period. (Total tuition time: ± 30 hours)

RESEARCH METHODS AND TECHNIQUES I (RMQ110B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Theory of research and statistics, as well as statistical calculations. (Total tuition time: ± 8 hours)

RESEARCH PROJECT IV (RSP401T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Biotechnology and Food Technology)

Students will be guided in choosing an applicable practical project. A protocol and a final report must be submitted and orally presented. (Total tuition time: ± 48 hours)

RESEARCH PROJECT IV (SET410T) **PROJECT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

This subject relates to the research project the student will have to complete in order to pass the subject. A short research proposal, mini-dissertation and a research article of limited scope, will be written under the guidance of a supervising lecturer. (Total tuition time: not available)

RESEARCH PROJECT: PRACTICAL (OCS40QT) **PROJECT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

This subject relates to the research project that the student will have to complete in order to pass this subject. A short research proposal, mini-thesis and article will be written under the guidance of a lecturer. (Total tuition time: not available)

RESEARCH REPORT: MATHEMATICAL TECHNOLOGY V (MAY501T) **RESEARCH**

(Subject custodian: Department of Mathematics and Statistics)

This could, for example, cover work extending results from the respective laboratory projects or it could be a completely new project incorporating the use of available technology, such as Derive, MATLAB, Mathematica and Scientific Workplace. The project must demonstrate the student's ability to produce publishable research articles and/or artefacts in mathematical technology. It may be undertaken only on successful completion of four of the six theoretical subjects and the two laboratory projects listed above. (Total tuition time: not available)

RESEARCH PROJECT: THEORY (OCS40PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

An overview of the research process, including types of research, the literature survey, defining the problem, research hypothesis, etc. The role of valid and reliable measurements in research, as applied to management principles, market factors and financial influences within the sport environment, is emphasised. The statistical concepts of research are also covered. (Total tuition time: ± 51 hours)

RESEARCH PROJECT: PRACTICAL IV (SET40QT) **PROJECT**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

This subject relates to the research project that the student will have to complete in order to pass this subject. A short research proposal, mini-thesis and article will be written under the guidance of a lecturer. (Total tuition time: not available)

RESEARCH PROJECT: THEORY IV (SET40PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

An overview of the research process, including types of research, the literature survey, defining the problem, research hypothesis, etc. The role of valid and reliable measurements in research, as applied to management principles, market factors and financial influences within the sport environment, is emphasised. The statistical concepts of research are also covered. (Total tuition time: ± 72 hours)

RESPIRATORY SYSTEM (EAR AND EYE) (PRES213) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

The structure and functioning of the respiratory system, the ear and the eye. The role of the nervous system in controlling the functioning of the respiratory system, ear and eye. Important disorders of the respiratory system, ear and eye and their prevention, non-pharmacological and pharmacological management. (Total tuition time: not available)

RESOURCE MANAGEMENT I (RMG101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Monitoring of numbers, distribution and density of species, as well as the monitoring of condition and population dynamics, which includes age determination, sex ratios and natality and mortality percentages. Principles of data collection, processing and interpretation. Basic statistics, as applicable to the nature conservation field, as well as the scientific method. Principles and methods of animal monitoring, with the emphasis on ungulates. Determination of animal numbers, age and condition. (Total tuition time: ± 75 hours)

RESOURCE MANAGEMENT II (RMG201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Management of rivers. Aquaculture and the management of freshwater resources for production. Management of a farm and threatened fish species. Public freshwater angling. Management of marine resources, including the intertidal zones, seabirds and marine mammals. (Total tuition time: ± 75 hours)

RESOURCE MANAGEMENT III (RMG301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

The planning and management of wildlife areas (physical and biological), game breeding, game recommendations, harvesting, game capture and translocation, game feeding, supplements, managing hunters. Planning and management of infrastructure in wildlife areas. (Total tuition time: ± 75 hours)

RESOURCE MANAGEMENT IVA (RMG40PT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject deals with advanced aspects of game and wildlife management. Different approaches and objectives in wildlife management are covered, as well as the nature and philosophy of wildlife management as a science. The following aspects are covered at an advanced level: ecology and population dynamics of game, animal nutrition, feeding and water utilisation, the ecology of animal behaviour, the ecology of predation and the ecology of game diseases. The emphasis is on the application of these aspects in practical game management. (Total tuition time: ± 40 hours)

RESOURCE MANAGEMENT IVB (RMG40QT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

This subject addresses advanced aspects and applications of game and wildlife management. An advanced theoretical basis is given for aspects such as management approaches, genetics in conservation, counting wildlife and the statistics of monitoring, modelling and GIS, with the emphasis on recent developments in these fields. An introduction is also given to aspects such as ecotourism. (Total tuition time: ± 40 hours)

S

SAFETY AND HEALTH: EMERGENCY SERVICES I (SHS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Overview of the Occupational Safety and Health (OSH) Act. Introduction to basic health and safety risks; urban terrorism; risk evaluation; control procedures of emergency services; emergency situations involving disasters (fire, EMS and nuclear radiation); and practical safe handling of radioactive materials (WIL training at Necsa). (Total tuition time: ± 45 hours)

SANITATION, SAFETY AND HYGIENE I (SSH101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biotechnology and Food Technology)
Introduction to biotechnology, importance of first-aid and laboratory safety. Aspects of safety legislation and reporting. Cleaning and sanitising of equipment, chemical cleansers and sanitisers and good personal hygiene practice. Classification of microbial hazards, and accreditation and certification of laboratories. Waste disposal, monitoring of factory contamination. (Total tuition time: ± 40 hours)

SCIENCE I (SCI100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Weight and measures, nature of matter, two-phase preparations, properties of solids, liquids and gases, heat, water, saponification, acids, bases, salts, neutralisation, oils, fats, waxes, starches, gums, gels, resins, synthetic mucilages, colours, lakes, pigments and dyes. Cosmetology practical. (Total tuition time: not available)

SCIENCE II (SCI200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Chemistry)
Electricity, light, sound. Classification of cosmetic preparations. Mask, make-up cosmetics, nail products and bath preparations. Organic chemistry. Cosmetology practical. (Total tuition time: not available)

SITE PLANNING I (TEB101T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Horticulture)
Historical outline, legislation, principles and processes, site investigation, site design, drawing techniques and site construction. (Total tuition time: ± 35 hours)

SMALL STOCK PRODUCTION II (SSP201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
Introduction to small stock production with the emphasis on the small stock industry, small stock races, breeding, reproduction, diseases, nutrition and production systems. (Total tuition time: ± 70 hours)

SMALL STOCK PRODUCTION III (SSP301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
An in-depth study of management programmes, applied nutrition, marketing, equipment and housing, seminars, wool classification, breeding, judging, strategic planning. Farm planning: small stock production and computer application. (Total tuition time: ± 96 hours)

SOCIO-PSYCHOLOGY I (SOS100T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Pharmaceutical Sciences)
Personality development, intelligence, emotion, motivation. Sociology. Family systems, society and culture. Development psychology. The adolescent, mature, middle-aged and aged client. (Total tuition time: not available)

SOCIO-PSYCHOLOGY II (SOS200T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Pharmaceutical Sciences)
Abnormal psychology: frustration, conflict, stress, neurosis and pathological manifestations. Basic principles and handling techniques. (Total tuition time: not available)

SOIL SCIENCE I (SSC111T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
Basic principles of chemistry: a basic introduction to the structure of an atom and the properties of the periodic table, including the naming of inorganic compound, properties and the influence of soil pH on nutrient availability with special emphasis on the sources and properties of different fertilisers used. (Total tuition time: ± 100 hours)

SOIL SCIENCE I (SSC101C) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Basic field geology, with emphasis on rock identification, and understanding the role of geology in ecosystems and as soil forming factor. Application of soil science principles and knowledge in wildlife area management. Understanding soil forming factors. The study of characteristics of soil and application thereof in wildlife areas. Practical soil classification, soil profile description and soil mapping for wildlife areas. (Total tuition time: ± 75 hours)

SOIL SCIENCE III (SSC301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Plant nutrition and the properties of fertilisers: properties of plant nutrients and their role in plant growth, properties of fertilisers. Fertiliser recommendations and methods of application: sampling soil and leaf analysis, calculations, fertiliser recommendations, factors that influence placing, methods of placing and calibration of equipment. Irrigation scheduling: soil-water relationships, classification of soil water, measurement of water content, infiltration water movement in soils, evapotranspiration, plant-water relationships, irrigation scheduling. (Total tuition time: ± 70 hours)

SOIL SURVEYS II (SSV201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Physics)

The systematic investigation, description, classification and mapping of soils. The agricultural potential of the most important soils. Basic principles of physics: measurements, units and conversions, mechanics, heat and electricity. (Total tuition time: ± 100 hours)

SOMA TECHNIQUES I (STH100T) **1 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Safety, hygiene and sterilisation. Record-keeping. Skincare and products. Skin diseases and disorders. Facial treatments, and electrical apparatus. Manicure, pedicure, waxing and body massage. Students are required to attend and pass all product training and workshops. Students may be required to do community service. (Total tuition time: not available)

SOMA TECHNIQUES II (STH200T) **2 X 2-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Facial treatments. Body treatments. Epilation techniques, Reflexology, aromatherapy. Students are required to attend and pass all product training workshops and to do a certain amount of community service. (Total tuition time: not available)

SOMA TECHNIQUES III (STH300T) **2 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Lymph drainage, Reflexology, Aromatherapy, Specialised facial treatments, complementary therapies, skin diseases and hereditary diseases, different kinds of therapies, new developments and spa therapies. Students are required to attend and pass all product training and workshops. (Total tuition time: not available)

SOMA TECHNIQUES IV (STH400T) **1 X 3-HOUR PAPER AND PRACTICAL**

(Subject custodian: Department of Pharmaceutical Sciences)

Stress Relief and Relaxation therapy Specialised massage techniques, Medical aesthetics and Remedial therapies. (Total tuition time: not available)

SOMA TECHNIQUES PROJECT II (STP200T) **EXPERIENTIAL LEARNING**

(Subject custodian: Department of Pharmaceutical Sciences)

Various techniques and their application. Co-operative Learning at an approved spa, health clinic, hospital or on campus. (Total tuition time: not available)

SOMATOLOGY PROJECT IV (SOJ400T) **PROJECT**

(Subject custodian: Department of Pharmaceutical Sciences)

Students complete a protocol and literature study. (Total tuition time: not available)

SPORT AND EXERCISE TECHNOLOGY I (SET110T, SET120T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Marketing, Logistics and Sport Management)

This subject provides the student with insight into the basic concepts of health, wellness and fitness. A wide range of topics pertaining to motor- and health-related fitness components, and an introduction to a number of practically orientated exercises which form the foundation for Sport and Exercise Technology II. (Total tuition time: ± 108 hours)

SPORT AND EXERCISE TECHNOLOGY II (SET220T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

On completion of the subject, students will be able to design a seasonal year-round programme for resistance exercise, plan athletic-type functional strength exercises for developing optimum potential, and will have theoretical knowledge on how to test an athlete for muscle strength and cardiovascular endurance. Students will also develop a broader knowledge base for the application of finer, specific exercise techniques and programme designs and the prescription of metabolic exercises. (Total tuition time: ± 108 hours)

SPORT AND EXERCISE TECHNOLOGY III (SET320T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

On completion of the subject, students will have a theoretical basis for the further testing of anaerobic power and capacity, kinanthropometry and flexibility, as well as the general health status of a sports person. Students will also learn to prescribe exercises for the improvement of all the above parameters from the existing test data. (Total tuition time: ± 198 hours)

SPORT AND PHYSICAL RECREATION STUDIES I (SFR100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Orientation with regard to the human body. Anatomy of the human body. The study of human anatomy. Students are introduced to the basic structures and functions of the body, from the chemical level to the systemic level. Anatomical terminology plays an important role. This knowledge is applied to the functioning of the human body. The second component of the subject focuses on the history of sport. Students acquire insight into the development of sport from ancient times to the present time. (Total tuition time: ± 108 hours)

SPORT DIDACTICS AND COACHING I (SDC110T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Foundations of coaching. Coaching techniques. Introduction to the psychology of sport. Basic sport psychology. The steps to a successful activity series, which means that activities are the primary building blocks of the curriculum. Each activity block has been designed from a knowledge-based perspective that reflects across the disciplinary framework; that is, it identifies skills and strategies and shows how scientific concepts in exercise physiology, motor learning, biomechanics, psychology, history, sociology and other areas that affect performance, teaching and coaching. A rationale is offered for fitness, the basic concepts behind fitness programmes, and the practical application of the basic principles in constructing a basic training programme for diverse population groups. The increasingly formalised sports structures have led to a greater commitment among coaches to the care and preparation of athletes. Didactic aspects place the learning of skills and strategies into the context of game play as soon as possible. It is also the approach used by most of the master teachers and coaches. (Total tuition time: ± 108 hours)

SPORT INJURY PREVENTION IV (SBV400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

This subject contains aspects relating to sport injuries, the principles involved in the prevention of injuries. The focus is placed on the field of sport injuries through literature discussions and reviews. (Total tuition time: ± 108 hours)

SPORT MANAGEMENT I (SRT100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Marketing, Logistics and Sport Management)

An introduction to the basic principles of sport management and of entrepreneurship with special attention to the establishment of a small business enterprise and/or sport club. (Total tuition time: ± 108 hours)

SPORT PSYCHOLOGY I (SRO100T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Human development across the lifespan. The psychology of human movement. Personality research in sport psychology. Sport psychology and athletic performance: learning in sport, information processing and attention in sport, arousal, stress and anxiety in sport. (Total tuition time: ± 72 hours)

SPORT PSYCHOLOGY II (SYC200T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Human development across the lifespan. The psychology of human movement. Personality research in sport psychology. Sport psychology and athletic performance: learning in sport, information processing and attention in sport, arousal, stress and anxiety in sport. (Total tuition time: ± 70 hours)

SPORT PSYCHOLOGY III (SYC300T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Sport psychology interventions: interventions targeting arousal and anxiety regulation and athletic injury management, interventions targeting self-confidence, imagery, attention control and psychological skills training. The social psychology of sport: player aggression in sport, leadership in sport, the social nature of sport, team cohesion, audience effects and self-presentation. Sport fans and sport spectators: the psychology of sport fans and sport spectators, the emotional and aggressive reactions of sport spectators. (Total tuition time: ± 70 hours)

STABLE MANAGEMENT II (STB201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

The layout of buildings and the construction of stables, ancillary buildings and arenas. Field management and fencing. All aspects of the daily management of a stable yard and the handling of horses. (Total tuition time: ± 51 hours)

STABLE MANAGEMENT III (STB301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

This subject is divided into two subsections. The first covers the management of labour, as well as business, administrative and financial tasks concerning the running of a yard. The second is a study of exercise physiology. Exercise routines and the application of physiological norms in the exercising of horses. Riding programmes and the basic training of horses. (Total tuition time: ± 31 hours)

STALLION MANAGEMENT II (SLM201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

An in-depth study of the handling, training and health of the stallion, with special reference to a healthy stallion. (Total tuition time: ± 50 hours)

STATISTICAL QUALITY TECHNIQUES III (SQT301T) **PRACTICAL**

(Subject custodian: Department of Mathematics and Statistics)

Fundamentals of statistics. Analytical statistics, including descriptive statistics, probability theory, sampling techniques, confidence intervals, hypothesis testing, regression analyses, non-parametric tests. Design of experiments. Use of statistical software. ISO 10017. (Total tuition time: not available)

STATISTICS I (STA111B) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Mathematics and Statistics)

Introduction. Presentation of data. Statistical measures of position. Statistical measures of distribution. Moments and measures of asymmetry and kurtosis. Linear correlation and regression. Probability theory. (Total tuition time: not available)

STERILE PHARMACEUTICAL PRODUCTS (PPRE311) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Pharmaceutical Sciences)

An overview of the manufacturing of sterile pharmaceutical products. Sterilisation. The control of contamination. The manufacturing of sterile pharmaceutical products. The principles and practice of quality assurance, including good manufacturing practices and quality control, as applied to sterile pharmaceutical products. (Total tuition time: not available)

STRATEGIC MANAGEMENT: AGRICULTURE IV (SBL400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Crop Sciences)

Formulating a mission for a farming enterprise. Evaluation of the internal and external environment, formulating long-term goals and farming strategies. Formulating annual goals, developing policy, procedures and a budget. Control and evaluation of this process. Planning, implementation and control of agricultural marketing at an advanced strategic level. (Total tuition time: ± 50 hours)

STRUCTURAL GEOLOGY I (SGE101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Geological structures. Deformational processes. Practical. (Total tuition time: ± 60 hours)

SUPERVISORY MANAGEMENT I (SMN101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Horticulture)

The business environment, entrepreneurship, establishing a business, the main management tasks including planning, organising, leading and control, secondary management tasks including communication and delegation. (Total tuition time: ± 45 hours)

T

TASKS AND CHALLENGES IN HEALTH CARE (PTAS112) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Pharmaceutical Sciences)
National drug policy, selection, procurement and distribution, including cold chain management. Applicable legislation. Drug information. Rational drug use, essential drug lists and treatment protocols. Drug pricing. Ethics, good pharmacy practice, interaction with other health professionals. (Total tuition time: not available)

TOOTH MORPHOLOGY I (TMY101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)
The development, growth and formation of human teeth. (Total tuition time: ± 68 hours)

TURFGRASS CULTURE I (TGC101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Construction of turfgrass facilities, propagation and establishment techniques, culture practices, equipment, machinery and techniques. Introduction to turfgrass culture. Turfgrass propagation methods. Turfgrass establishment techniques. Introduction to primary cultural practices, supplementary cultural practices and turf pest control. Turfgrass identification. (Total tuition time: ± 35 hours)

TURFGRASS CULTURE IV (TGC400T) **PROJECT**
(Subject custodian: Department of Horticulture)
Dissertation/project on a subject relevant to turfgrass science, culture, mechanisation or facility management. (Total tuition time: ± 190 hours)

TURFGRASS MANAGEMENT IV (TGM400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Horticulture)
Business planning, entrepreneurship, marketing, project management, management information systems. (Total tuition time: ± 190 hours)

V

VEGETABLE PRODUCTION I (VEG101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Crop Sciences)
An introduction to the vegetable industry. The structure, growth, development and production of important vegetable crops in South Africa. (Total tuition time: ± 70 hours)

VETERINARY BACTERIOLOGY IV (VTB401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Biomedical Sciences)
The more important pathogenic bacteria, mycoplasmas and fungi of veterinary importance that are covered with respect to isolation, identification and symptoms. Advanced techniques. Project. (Total tuition time: ± 90 hours)

VETERINARY ENTOMOLOGY III (VTE301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Identification of parasitic insects and the recognition of diseases transferred and caused by them. Life cycles of insects and environmental factors that influence those cycles. Prevention and control, as well as chemical control. Acarology (ticks and mites). (Total tuition time: ± 90 hours)

VETERINARY MICROBIOLOGY III (VTM301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Biomedical Sciences)
Micro-organisms (bacteria and fungi) that cause veterinary diseases. Emphasis is placed on the isolation and identification of organisms. (Total tuition time: ± 90 hours)

VETERINARY SCIENCE I (VTS101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Animal Sciences)
The pathogenesis of diseases and disturbances of normal function and balance in the body. The development of diseases as caused by micro-organisms, toxins, trauma and parasites. Functional disturbances. First-aid for horses. (Total tuition time: ± 92 hours)

VETERINARY SCIENCE II (VTS211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

Specific conditions affecting the musculoskeletal system and the different organ systems of the horse are discussed. Special problems of the newborn foal are dealt with separately. Introduction to veterinary drugs and their routes of administration, as well as preventative medicine. (Total tuition time: ± 107 hours)

VIROLOGY III (VIR311T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Biomedical Sciences)

Morphology and structure of viruses. Physical and chemical characteristics. Cytopathology. Distribution and transmission of viruses. Immunisation and chemotherapy. Cultivation of viruses. Immunology. Diagnosis with the aid of serological and biological methods. General epidemiology and parthogenesis. Classification. (Total tuition time: ± 90 hours)

VIROLOGY IV (VIR401T) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Biomedical Sciences)

Bacteriophages. Biochemistry of viruses. Replication. Interaction between virus and host. Control of viral infections. Tumour viruses. Insect viruses. Vaccine production. Project. (Total tuition time: ± 90 hours)

W

WASTE MANAGEMENT IV (WMG400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental Health)

Sources of waste, composition and analysis, quantification of waste, nuisance, dumping, method for treatment of waste, indicators to determine health risks, techno-economical studies, safety, the health risks of waste to humans, legislation. (Total tuition time: ± 120 hours)

WASTEWATER ANALYSIS: PRACTICAL II (WSA20PT, WSA20YT) **CONTINUOUS ASSESSMENT**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Application of the following methods on wastewater samples, industrial effluents and mine water: physical parameters, titrimetric methods. Determination of oxygen and nitrogen parameters, flame atomic absorption spectrophotometry. Colorimetric and spectrophotometric methods. Introduction to chromatography. (Total tuition time: not available)

WASTEWATER ANALYSIS: THEORY II (WSA20XT) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Determination of physical parameters. Titrimetric methods, gravimetric methods, colorimetric methods. Other instrumental methods. Analyses of industrial effluents. Mine water analysis. Process control analysis. (Total tuition time: ± 90 hours)

WASTEWATER TREATMENT II (WTR201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Characteristics of sewage. Screening and the removal of grit. Primary and secondary sedimentation. Biological processes. Disinfection. Small sewage treatment works. Micro-organisms and their role in wastewater treatment. (Total tuition time: ± 90 hours)

WASTEWATER TREATMENT III (WTR301T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Tertiary treatment. Advanced treatment. Sludge treatment. (Total tuition time: ± 92 hours)

WATER BIOLOGY II (WBI201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Limnology. Aquatic ecosystems: rivers, lakes, dams, wetlands. Physical and chemical properties of natural waters. Aquatic toxicology. Practicals: biomonitoring. (Total tuition time: ± 90 hours)

WATER CARE TECHNOLOGY I (WCT101T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Environmental, Water and Earth Sciences)

Sources of water pollution, sources of pollution, waterborne diseases, water treatment, simple drinking water and sanitary systems, solid waste. (Total tuition time: not available)

WATER HYDRAULICS II (WHY201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Physics)
Operation of pumps. Sluice gates. Types of pumps. Flow measurement, valves, level measurement, head, water hammer/cavitation. Operational procedures, calculations, liquids and fluids, pipelines, canals and hydraulic structures. (Total tuition time: not available)

WATER INDUSTRY: PRACTICAL II (WIP201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Practicals at selected wastewater treatment plants, including relevant wastewater analysis. (Total tuition time: ± 240 hours)

WATER PLANT II (WPL201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Standardisation and measurements. Principles of corrosion. On-line analyses. Process control. Material and energy balances. Heat transfer. Chemical dosing. (Total tuition time: ± 90 hours)

WATER UTILITY MANAGEMENT II (WUM201T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Management functions (planning, organising, leading and control). Human resources functions. Problem solving. Strategic and operational planning. Change management. Quality improvement. Leadership. Water safety plans. (Total tuition time: ± 64 hours)

WATER QUALITY MANAGEMENT IV (WQM401T, WQM411T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Policies and guidelines. Resource-directed measures. Source-directed measures. Waste treatment technologies. (Total tuition time: ± 24 hours)

WATER QUALITY MANAGEMENT IV (WQM400T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Water quality parameters and standards, standards for water sources. Water pollution. Endemic health problems. Treatment and effluent standards, water analysis. Legislative requirements. (Total tuition time: ± 120 hours)

WATER TREATMENT III (WTN301T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Stabilisation, softening, iron and manganese removal, demineralisation. Membrane technology, adsorption, ozone, fluoridation, ion exchange, sludge disposal. (Total tuition time: ± 90 hours)

WATER TREATMENT: INVESTIGATIONS II (WTI201T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Practicals at selected potable water purification plants, including relevant water analysis. (Total tuition time: ± 285 hours)

WATER TREATMENT: INVESTIGATIONS III (WTI301T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Flow characterisation of reactors. Determination of the operational efficiency of a settling tank. Determination of the hydraulic behaviour of rapid sand filters. Determination of the oxygen transfer coefficient. Activated carbon adsorption studies. Determination of the kinetic parameters of wastewater. (Total tuition time: ± 150 hours)

WATER TREATMENT: PROJECT IV (WTO401T) **CONTINUOUS ASSESSMENT**
(Subject custodian: Department of Environmental, Water and Earth Sciences)
Students must perform an investigation of a practical or applied research nature of at least 120 hours. A written report or dissertation must be submitted for evaluation. (Total tuition time: ± 32 hours)

WILDLIFE MANAGEMENT I (WIM101T) **1 X 3-HOUR PAPER**
(Subject custodian: Department of Nature Conservation)
Basic field guiding skills (FGASA level I) encompassing bush craft (survival and orientation), biomes, classification and characteristics, catenas and plant succession, geology and soils, introduction to geomorphology, earth forces that change the crust of the earth, origin and nature of important rocks in Southern Africa, soil-forming factors, soil characteristics, basic pedology, basic climatology and basic astronomy. (Total tuition time: ± 75 hours)

WILDLIFE MANAGEMENT II (WIM201T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Nature Conservation)

Overview of conservation history. Environmental philosophies and ethics. Wilderness philosophies and conservation. Nature management: management plans, monitoring techniques, game diseases. Overview of game farm management. Animal population dynamics. Ethology of selected mammal species. (Total tuition time: ± 75 hours)

WORK PHYSIOLOGY II (WPY220T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

An extension of first-year Anatomy. The functioning of the body is discussed in detail with special reference to the interdependence of the different systems (respiratory, cardiovascular, etc.). On completion of this subject, the student will be able to describe the complementarity of anatomy and physiology. The effects of exercise on the systems will be discussed in detail. (Total tuition time: ± 108 hours)

WORK PHYSIOLOGY III (WPY320T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

Work Physiology III focuses on the application of basic and advanced physiology principles within an exercise setting. Students build a strong foundation in energy transfer and exercise training/physiology. (Total tuition time: ± 216 hours)

WORK PHYSIOLOGY IV (WPY400T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Sport, Rehabilitation and Dental Sciences)

The subject focuses on applying human physiology to the sport and exercise environments. An in-depth study of the functioning of the different body systems during sport and exercise and their adaptations to conditioning. This knowledge is applied to specific sport and exercise events. (Total tuition time: ± 108 hours)

Z

ZOOTECHNOLOGY II (ZTN211T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences))

All important and interesting technical data on the equine industry are dealt with in this subject. The historical development of a horse and the different breeds and types. The ideal conformation and the deviations from it, normal gaits and gait abnormalities. Identification of horses, including age determination, blood typing and legal implications. Tack and harness, bandages and protective gear. (Total tuition time: ± 126 hours)

ZOOTECHNOLOGY III (ZTN311T) **1 X 3-HOUR PAPER**

(Subject custodian: Department of Animal Sciences)

A study of saddles, harnesses, other relevant equipment and their uses. Training programmes for shows. Special care of horses at shows and of the competing horses. (Total tuition time: ± 104 hours)