





DEPARTMENT: BIOTECHNOLOGY & CHEMISTRY

Diploma: Agricultural Management 3 Year Full Time

25 (with Math Lit)

CREDITS

1. Admission Requirements:

TOTAL

Semester 1 & 2

Agricultural Law 1.1

Agricultural Law 1.2

Animal Production 3.1

Animal Production 3.2

DIPLOMA: AGRICULTURAL MANAGEMENT

Subjects		
NSC endorsement	Eligibility fo	r Diploma or Bachelors'Degr
Compulsory subjects		
English	4	
Mathematics	3	
Mathematic Literacy		4
Life Orientation	Max 3	
Any other 3 subjects (recom	nmended)	
Business Studies, Economics,	Computer Studies,	
Geography, Agriculture, Life S	ciences 11	

24

NQF

Recognition of Prior Learning: Applications with a Senior Certificate and a minimum of 5 years related laboratory/office experience may be considered for a Diploma: Agricultural Management

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I	Vote
3	3 = 40-49%
4	1 = 50-59%
5	5 = 60-69%
6	5 = 70-79%
7	7 = 80-89%
8	3 = 90-99%

Applied Communication Skills 1.1	HKCOX1A	5	8	
Applied Communication Skills 1.2	HKCOY1A	5	8	
Business Management 1.1	ABBMX1A	5	10	
Business Management 1.2	ABBMY1A	5	10	
ICT Skills 1	ASICT1A	5	10	
Animal Production 1	ABANP1A	5	10	
Agricultural Soil Science 1.1	ABASX1A	5	10	
Agricultural Computer Applications 2	AICAA2A	5	10	
Plant Production 1	ABPLP A	5	10	
Animal Production 2	ABANP2A	6	10	
Plant Production 2	ABPLP2A	6	10	
Pasture Science 1	ABPAS1A	5	9	
Agricultural Soil Science 1.2	ABASY1A	5	10	
Semester 3 & 4				
Applied Communication Skills 2.1	HKCOX2A	5	8	
Applied Communication Skills 2.2	HKCOY2A	5	8	
Business Management 2.1	ABBMX2A	6	10	
Business Management 2.2	ABBMY2A	6	10	
Personnel Management 1.1	BHPEX1A	5	12	
Personnel Management 1.2	BHPEY1A	5	12	
Agricultural Engineering 1	ABAGE1A	5	12	
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HLALX1A

HLALY1A

ABANX3A

ABANY3A

5

6



6

6

12

12

2. Recognition of prior learning (RPL):

Application with a Senior Certificate and a minimum of 5 years related laboratory experience will be considered for Diploma: Agricultural Management

3. Career opportunities:

A farm manager oversees the entire production and functions of a farm. You will coordinate with supervisors and workers to ensure equipment, supplies, seeds/feeds, and other necessities are available and ready. You'll be in charge of schedules, harvests and transporting food/animals. As an Agricultural Manager you will be able to provide financial advice to farms and Agriculture related companies. You'll analyze and create reports as part of your record keeping and oversight of various accounts. This can include the budgets for farm operations and other accounting

duties. Some employers provide on-the-job training for those on a management career path. Most positions require previous experience in managing farm production and supervising workers.

4. Enquiries

Enquiries may be addressed to:
Head: Department of Biotechnology
Faculty of Applied and Computer Sciences
Vaal University of Technology
Private Bag X021
VANDERBULPARK

1900 Tel: 016) 950 9603 / 9648 Website: www.vut.ac.za



DEPARTMENT: BIOTECHNOLOGY & CHEMISTRY

Diploma: Biotechnology, 3 Year course

Advanced Diploma: Biotechnology (1 Year course- Full Time), Postgraduate Diploma: Biotechnology (1 Year course- Full Time)

Master of Applied Science in Biotechnology (by research), PhD: Biotechnology (by research)

1. Admission Requirements:

DIPLOMA: BIOTECHNOLOGY

Subjects

NSC endorsement Eliaibility for Diploma

Compulsory subjects

English Mathematics or 4 Note Mathematics Engineering 4 (TVET N4) 60% 3 - 40-40% Physical Science or 1 4 = 50-59% Engineering Science 4 (TVET N4) 60% 5 = 60-69% Life Science 6 = 70-79% Life Orientation May 3 7 = 80-89% Any other 2 subjects 8 = 90-99%

26

2.	Curriculum

YEAR1

TOTAL

Semester 1

Microbiology I (Practical and Theory)

Chemistry I

Biodiversity and Ecology

Calculations & Statistics I

Applied Communication Skills 1 (Model 1)

Semester 2

Microbiology II (Practical and Theory)

Biochemistry II (Practical and Theory) Analytical Chemistry: Biological II

Disease & Immune Response II

Applied Communication Skills 1 (Module II) ICT Skills I

YEAR2

Semester 3

Microbiology III (Practical and Theory)

Introductory Genetics II

Microbial Biochemistry III (Practical and Theory)

Fermentation Technology II (Practical and Theory)

Applied Communication Skills II (Module I)

Semester 4

Food Microbiology III (Practical and Theory)

Analytical Biochemistry III

Quality Assurance I (Biological) Bioprocessing III (Practical and Theory)

Applied Communication Skills II (Module II)

Entrepreneurship

YEAR3

Semester 5

Biotechnology Laboratory Practice I

Semester 6

Biotechnology Laboratory Practice II

ADVANCED DIPLOMA

Diploma: Biotechnology or equivalent relevant NQF level 6, 360 credit qualification.

Semester 1

Green Biotechnology Molecular Biotechnology

Research Methodology

Biotechniques (Year Course)

Semester 2

Laboratory Management and Compliance

White Biotechnology

Advanced Microbial Biochemistry

Biotechniques (Year Course)



Recognition of Prior Learning: Applications with a Senior Certificate and a minimum of 5 years related laboratory experience may be considered for Diploma: Biotechnology

POSTGRADUATE DIPLOMA

Advanced Diploma in Biotechnology.

emester 1

Advanced Molecular Biology

Bioinformatics Module I Advanced Biotechnology Module I

Research Project (Year Course)

Semester 2

Bioinformatics Module I

Biostatistics

Advanced Biotechnology Module II

Research Project (Year Course)

MASTER OF APPLIED SCIENCE IN BIOTECHNOLOGY

(By Research)

Postgraduate Diploma in Biotechnology (60%) or equivalent

PHD: BIOTECHNOLOGY (By Research)

Master of Applied Science in Biotechnology or equivalent.

3. What are the functions of a Microbiologist/Biotechnologist?

Quality control in enterprises such as the following: water purification plants, food processing factories, dairies, pharmaceutical factories, sewerage plants, etc. Liaise with chemical engineers and technicians in the fermentation and biotechnology industries.

4. Career opportunities

A career as a Microbiologist / Biotechnologist offers challenging and exciting opportunities including quality control in enterprises such as: water purification plants, food processing factories, dairies, pharmaceutical factories, sewerage plants, etc. There is a demand for trained Microbiologists / Biotechnologists in industrial, research and academic settings.

Entry level: Laboratory Assistant Middle level: Laboratory Technician Top level: Laboratory Manager

Research opportunities are available at academic, industrial and research institutions.

5. Phased out Qualifications

NDip Biotechnology (phased out in 2016) BTech Biotechnology (phased out in 2019) MTech Biotechnology (phased out in 2019)

6. Enquiries

Enquiries may be addressed to: Head: Department of Biotechnology Faculty of Applied and Computer Sciences Vaal University of Technology Private Bag X021 VANDERBIJLPARK

1900 Administrator: Ms R Moseki Tel: 016) 950 9648 Fax: (016) 950-9794 E-mail:lieketsengn@vut.ac.za Website: www.vut.ac.za

DEPARTMENT: CHEMISTRY

Diploma: Analytical Chemistry, 3 Year Course Advanced Diploma in Chemistry (1 Year Full Time), Postgraduate Diploma in Chemistry (1 Year Full Time) Master of Applied Sciences: Chemistry, PhD: Chemistry

8 = 90-99%

1. Admission Requirements:

DIPLOMA: ANALYTICAL CHEMISTRY		
Subjects	D11500	
NSC endorsement Eligibility for Diplor	na	
Compulsory subjects		
English	4	Note
Mathematics or	4	3 = 40-49%
Engineering Mathematics 4 (TVET N4)	60%	4 = 50-59%
Physical Science or		5 = 60-69%
Engineering Science 4 (TVET N4)	60%	6 = 70-79%
4		7 = 80-89%

Max 3

Any other 3 subjects	9
TOTAL	24

2. Curriculum

Life Orientation

YEAR1

Semester 1

Chemistry I Physics I Applied

Mathematics 1 Applied

Applied Communication skills I

ICT skills I

Semester 2 Analytical Chemistry I

Analytical Chemistry Practical I

Inorganic Chemistry II

Mathematics II

Organic Chemistry II

YEAR2 Semester 3

Analytical Chemistry II

Analytical Chemistry Practical II

Physical Chemistry II

Organic Chemistry III

Inorganic Chemistry III

Semester 4

Analytical Chemistry III

Analytical Chemistry Practical III Physical Chemistry III

Chemical Quality Assurance III

YEAR3

Semester 5

Chemical Process Industries II

Physics Theory II Physics Practical II

Entrepreneurship I

Applied Communication skills I Module II

Industrial Chemical Analysis I

OR

Chemical Industry Practical I PI

Semester 6

Chemical Project PII or

Chemical Industry Practical I

ADVANCED DIPLOMA

Diploma: Analytical Chemistry or equivalent relevant NQF level 6 360 credit qualification.

Semester 1

Analytical Chemistry IV

Physical Chemistry IV

Research Methodology in Chemistry

Semester 2

Inorganic Chemistry IV Organic Chemistry IV

Introduction to Chemistry Project



Recognition of Prior Learning: Applications with a Senior Certificate and a minimum of 5 years experience may be considered for Diploma: Chemistry.

POSTGRADUATE DIPLOMA

Diploma: Analytical Chemistry or equivalent relevant NQF level 6 360 credit qualification.

Semester 1

Advanced Analytical Chemistry V Applied Physical Chemistry V

Chemistry Research Project

Semester 2

Applied Inorganic Chemistry V Advanced Organic Chemistry V Chemistry Research Project

MASTER OF APPLIED SCIENCE IN CHEMISTRY

Research Project by dissertation. Admission Requirements: B Tech Chemistry/BSc. Hons Chemistry/Postgraduate Diploma in Chemistry or equivalent with an average of 60%.

PHD: CHEMISTRY

Research project by thesis. Admission Requirements: NQF level 9 related qualification with a minimum of 180 credits. 60% average not a requirement.

3. What are the functions of of an Analytical Chemistry Technician?

Analysis of samples by the wet methods or using analytical instruments, writing reports on analysis, developing methods for analysis, writing requisitions for purchasing instrumentation, managing of a laboratory.

4. Career opportunities

A career in chemistry offers challenging and exciting opportunities in both the private and public sectors. There is a continuous demand for trained analytical technicians. Position on entry level: Laboratory assistant. Middle level: Laboratory technician. Top level: Laboratory manager. Researchers and development of scientific opportunities that exist in the Science councils. Opportunities also exist in the academic environment to become lectures and professors.

5. Phased out Qualifications

NDip Anlytical Chemistry (phased out in 2016) BTech Analytical Chemistry (phased out in 2018) MTech Analytical Chemistry (phased out in 2017) DTech Analytical Chemistry (phased out in 2017)

6. Enquiries

Enquiries may be addressed to: Head of Department: Chemistry Faculty of Applied and Computer Sciences Vaal University of Technology Private Bag X021 VANDERBIJLPARK, 1900 Administrator: Ms N Lieketseng Tel: (016) 950 9648

E-mail: lieketsengn@vut.ac.za

Fax: (016) 950-9794 Website: www.vut.ac.za

DEPARTMENT: HEALTH SCIENCES

Degree: Bachelor of Health Sciences in Medical Laboratory Sciences (BHSc: MLS), 4 Year Course Advanced Diploma in Biomedical Technology (1 Year Full Time) Postgraduate Diploma in Biomedical Technology (1 Year Full Time)

1. Admission Requirements:

DEGREE: BACHELOR OF HEALTH SCIENCES IN MEDICAL LABORATORY SCIENCES (BHSC: MLS) **4 YEAR COURSE**

The student will have the first five semesters of class attendance at the University followed by three semesters of clinical practice in a laboratory approved for training purposes by Health Professions Council of South Africa (HPCSA). In the last two semesters of Clinical practice, the student will select an area of specialization. Students must pass a National Board Examination in their area of specialization before they graduate.

NSC endorsement	Eligibility for Bachelor degree

Compulsory subjects or equivalent (Standard or Higher grade system)		Higher Grade	Standard Grade	Rating Codes
English	4	D	C	3=40-49%
Mathematics	4	D	C	4=50-59%
Physical Science	4	D	C	5=60-69%
Life Sciences/Biology	5	D	C	6=70-79%
Life Orientation	Max 3			7=80-89%
Any other 2 subjects	10	No Math Lite	No Math Literacy	
TOTAL	30			

Additional Entry Requirements: Applicants may be required to have industrial knowledge (i.e. job shadowing) and may undergo placement testing.

QUALIFICATION	COMPULSORY SUBJECTS	MINIMUM REQUIRED SCORE	ADDITIONAL COMPULSORY SUBJECTS	SCORE*	OTHER SUBJECTS	MINIMUM APS REQUIRED
Bachelor of Health sciences:	English	4	None	0	4 other subjects	30
MLS	Mathematics	4				
	Physical Sciences	4				
	Life Sciences	5				

2. Curriculum

VEAR1

Semester 1

Human Anatomy, Physiology & Disease I Module I Introduction to Medical Laboratory Sciences I Module I

Health Chemistry I Health Physics I

Biostatistics I

Semester 2

Introduction to Medical Laboratory Sciences I Module II Human Anatomy, Physiology & Disease I Module II

Laboratory Instrumentation and Techniques

Cell Biology I

Immunology I

Introduction to Medical Laboratory Sciences I Module II

YFAR2

Semester 3

Clinical Chemistry II Module I

Microbiology II Module I

Haematology II Module I

Immunohaematology II

Histology II

Semester 4

Clinical Chemistry II Module II

Microbiology II Module II

Hematology II Module II

Cytology II

YEAR3

Semester 5

Clinical Chemistry III

Microbiology III

Haematology III

Cytology III

Integrative Medical Laboratory Sciences Theory III Module I

Integrative Medical Laboratory Sciences III. Module II(Clinical Practice) Research Methods III

YEAR4

Semester 7

Research Project IV Laboratory Management IV

Semester 8

Clinical Practise (students must choose one from the following special-

isation)

Clinical Chemistry IV

Microbiology IV

Haematology IV Immunohaematology IV

Cytology IV Histology IV

Immunology IV

Virology IV

Forensic Sciences IV

Pharmacology IV

Cytogenetics IV

Clinical Pathology IV

Admission Requirements: ADVANCED DIPLOMA

Diploma in Biomedical Technology with 60% average in Microbiology III, Chemical Pathology III, Cellular Pathology III and Haematology III, or 5years experience as a HPCSA registered Medical Technologist.

Semester 1

Research methodology in Biomedical Technology

Medical Laboratory Management Module I

Genetics Module I

Choose one elective subject from the list below:

Advanced Chemical Pathology module I

Advanced Cytogenetics Module I

Advanced Haematology Module I

Advanced Immunology Module I

Advanced Medical Microbiology Module I

Advanced Histology Module I

Advanced Cytology Module I

Advanced Virology Module I

Forensic Technology Module I Marketing in Health Science Module I Pharmacology Module I Training in Health Sciences Module I Immunohaematology Module I

Semester 2

Medical Laboratory Management Module II

Genetics Module II

Choose one elective subject from the list below (Module II of the elective chosen in semester I):

Advanced Chemical Pathology module II

Advanced Cytogenetics Module II

Advanced Haematology Module II

Advanced Immunology Module II

Advanced Medical Microbiology Module II

Advanced Histology Module II

Advanced Cytology Module II

Advanced Virology Module II

Forensic Technology Module II

Marketing in Health Science Module II

Pharmacology Module II

Training in Health Sciences Module II

Immunohaematology Module II

Admission Requirements: POSTGRADUATE **DIPLOMA: BIOMEDICAL TEHNOLOGY**

Advanced Diploma in Biomedical Technology (60%) or equivalent.

Semester 1

Advanced Molecular Biology (year subject)

Research Project in Medical Laboratory Sciences (year subject)

Epidemiology and Biostatistics

Integrated Pathophysiology

Semester 2

Advanced Molecular Biology (year subject)

Research Project in Medical Laboratory Sciences (year subject)

Management in Biomedical environment

What are the functions of of a Medical Laboratory Scientist?

Qualified medical laboratory scientists are specialized health professionals who play an integral role in the healthcare of society by providing vital information about a patient's state of health. Their input is necessary in the diagnosis, monitoring and treatment of diseases. They diagnose chemical, blood, immunologic, tissue, cellular disorders and also the presence of microorganisms that cause diseases. They analyze human specimens such as blood, urine, sputum, stool, cerebrospinal fluid (CSF), peritoneal fluid, pericardial fluid, and synovial fluid, and more other specimens.

Career opportunities

The analytical and diagnostic services provided by medical laboratory scientists require a strong scientific knowledge, as well as trained reasoning ability and empathy for humanity. Career opportunities exists in a variety of laboratory settings including national laboratories within hospital settings, private clinical laboratories, blood banking institutions. research, biotechnology, forensic, and reference laboratories.

Registration with Professional Board

On enrolment, it is mandatory that each student registers with the Health Professionals Council of South Africa (HPCSA) as a student Medical Laboratory Scientist as per regulations set out in the Government Gazette (Circular E2/a9/2, 79, 09, 28). Successful completion of this qualification will entitle the student to register with the Health Professions Council of South Africa (HPCSA) as a qualified Medical Laboratory Scientist.

Phased out Qualifications

- Bachelor of Nursing (R425) last date of intake 31 December 2019
- B Tech Community Nursing last date of intake 31 December 2019
- National Diploma in Biomedical Technology remaining students were incorporated into the Diploma programme syllabus
- Diploma in Biomedical Technology last date of intake 31 December 2019
- B Tech Biomedical Technology last date of intake 31 December
- All phased out programmes to be completed by 2021. No student will be allowed to continue with programme beyond 2021 as it will no longer be on the system.

Enquiries

Enquiries may be addressed to:

Head: Department of Health Sciences Faculty: Applied and Computer Sciences Vaal University of Technology Private Bag X021 VANDERRIJI PARK

Administrator: Mr N Mokoena Tel: (016) 950-7592 E-mail: ntsanem@vut.ac.za website: www.vut.ac.za

DEPARTMENT: INFORMATION AND COMMUNICATION TECHNOLOGY

Diploma: Information Technology (3 year - Full time), Advanced Diploma Information Technology (1 year - Full time) Postgraduate Diploma Information Technology (1 year full-time)

Magister of Information and Communication Technology (2 years full-time, 3 years part-time) Doctor Philosophiae in Information and Communication Technology (2 years full-time, 4 years part-time)

1. Admission Requirements:

DIPLOMA: INFORMATION TECHNOLOGY

Subjects			
NSC endorsement	Eligib	ility for Di	ploma
Compulsory subjects			Note
English	4		3 = 40-49%
Mathematics or	4		4 = 50-59%
Technical Mathematics or	4		5 = 60-69% 6 = 70-79%
Mathematical Literacy		6	7 = 80-89%
Any other 4 subjects	16		8 = 90-99%
TOTAL	24	26	

A maximum of 6 subjects are taken into consideration when calculating the total APS score, excluding Life Orientation.

Curriculum

Two Information Technology specialisation fields are offered: Business Applications & Development Software.

DEVELOPMENT SOFTWARE

YEAR1

- Information Systems I
- Systems Software I Development Software I
- Programming Logic I Accounting Skills I
- Applied Communication I

YEAR2

- Information Systems II
- Development Software II
- Business Analysis II
- Systems Software II Applied Communication II
- IT Law
- Entrepreneurship

YEAR3

- Development Software III
- Business Analysis III
- Web Development III

BUSINESS APPLICATIONS YEAR1

- Information Systems I
- Systems Software I
- Development Software I
- Programming Logic I
- Accounting Skills I Applied Communication

YEAR2

- Information Systems II
- Development Software II
- **Business Analysis II**
- Systems Software II
- Web Management II
- Applied Communication II
- IT Law
- Entrepreneurship

YEAR3

- Information Systems III
- Business Analysis III
- Web Development III

ADVANCED DIPLOMA: AD: IT

The Advanced Diploma: IT is offered only at the Vanderbijlpark campus. It is offered on a full-time basis: therefore, students are required to take a full load of subjects. The minimum duration is one year. Eight modules must be completed and ONLY seven modules can be completed if Networks is taken an elective module. One elective subject is chosen per semester. In the case of Networks, if chosen, this will be the chosen elective for both semesters 1 and 2.

NB: It is imperative that students wishing to apply for Advanced Diploma: Information Technology, have an average of 60% for their final year subjects in their previous qualification.

Admission Requirements:

Diploma: Information Technology or equivalent relevant NQF level 6 360 credit qualification. 60% Average on all third-year subjects. (Ad hoc cases will be treated on merit).

Semester 1

Emerging Technologies (Compulsory)

Statistics for IT (Compulsory)

IT Management (Compulsory)

Advanced Software Design (Elective)

Computer Security (Elective)

Networks (Elective) in Semester 1 and 2

Semester 2

Research Methodology (Compulsory)

Advanced Databases (Compulsory)

User Experience Design (Compulsory)

IT Auditing (Elective)

Artificial Intelligence (Elective)

Networks (Elective) in Semester 1 and 2

* Credits: 120 credits on NOF level 7

POSTGRADUATE DIPLOMA: PG IT

The Postgraduate: IT is offered only at the Vanderbijlpark campus. It is offered on a full-time basis, therefore only during the day. The minimum duration is one year. Six modules must be completed.

Admission Requirements:

Advanced Diploma: Information Technology or equivalent relevant NQF level 7, 120 credit qualification (Ad hoc cases will be treated on merit).

Semester 1

Advanced supportive techniques and technologies

Business Intelligence

Software Engineering

Semester 2

Strategic Business Analysis

Database Administration

Research Project in Information systems and Technology

* Credits: 120 credits on NOF level 8

MAGISTER OF INFORMATION AND COMMUNICATION TECHNOLOGY (MICT)

Admission Requirements:

NQF level 8 related qualification with a minimum of 120 credits or equivalent with research methodology as a prerequisite with a 60% average for all subjects

(Ad hoc cases will be treated on merit)

Duration: Minimum 2 years, maximum 3 years part time study.

Research project by dissertation Credits: 180 credits on NQF level 9

DOCTOR PHILOSOPHIAE IN INFORMATION AND COMMUNICATION TECHNOLOGY (PhD: ICT)

Admission Requirements:

NQF level 9 related qualification with a minimum of 180 credits or equivalent with a 60% average

(Ad hoc cases will be treated on merit)

Duration of course:

Minimum 2 years, maximum 4 years part time study.

Curriculum:

Research project and thesis Credits: 360 edits on NQF level 10

NON-ALIGNED PROGRAMS

The following ICT qualifications have phased out due to revisions in the Higher Education Qualifications Sub-Framework (HEQSF). Currently, only students who were previously registered at VUT for these qualifications will be allowed to continue. This opportunity will only be provided until the dates listed in the table below. Where modules have already phased out, suitable alternatives will be identified, and credit will be given in lieu of the original module (subject to the sunset dates provided). After the sunset dates, students that were registered for the non-aligned modules will need to register for the new, aligned qualifications.

Work Integrated Learning

The IT Diploma does not have a formal Work Integrated Learning component.

What does the IT specialist do?

The person will find himself/herself in any of a wide variety of computerised environments. Responsibilities may include the maintenance of systems in use, systems analysis and design and/or programming of new systems, network administration, database administration and user support. The computer specialist communicates with management and the different users of the systems, which make the position an important link in the global set-up of the organisation. Management of IT functions is a possible position in the career development of the keen IT specialist.

Career opportunities

Computerisation of most facets of modern society creates a multitude of possibilities. In-service training includes the development of prototypes or systems and/or the supervised support of existing systems. The typical entry level is that of programmer with a quick advance to the level of senior programmer. Further promotions are to the level of Systems Analyst, Network Administrator or Database Administrator.

Career status

IT specialists can acquire membership of the Computer Society of South Africa and the Institute of Information Technology Professionals South Africa (IITPSA).

Enquiries

Enquiries may be addressed to:

Head: Department: Information and Communication Technology

Faculty of Applied and Computer Sciences

Vaal University of Technology

Private Bag X021 VANDERBIJLPARK

1900

Administrator: Ms T Rikhotso

Tel: (016) 950 9605 E-mail: tiyiselamir@vut.ac.za

Fax: (016) 950 9793 Website: www.vut.ac.za

DEPARTMENT: ENVIRONMENTAL SCIENCE, MATHEMATICS, NON-DESTRUCTIVE TESTING & PHYSICS

Diploma: Non-Destructive Testing (3 Year Course)
Advanced Diploma: Non-Destructive Testing (1 Year -Full Time)

1. Admission Requirements:

DIPLOMA: NON-DESTRUCTIVE TESTING

Judjects	Su	bj	ec	ts
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NSC endorsement	Eligibility for Diploma			
Compulsory subjects	Achievement Level	Option 1	Option 2	Note
English		3	3	3 = 40-49%
Mathematics or		3	4	4 = 50-59%
Technical Mathematics		4	4	
Physical Science		4	3	
Life Orientation		Max 3	Max 3	
Any other 3 subjects		9	9	
TOTAL		22	22	19 Excluding LO
		23	23	with Technical Maths

Prospective students to be admitted to the NDT Diploma are those who have a

a. TVET National Certificate (Vocational) level 4.

a minimum 50% pass mark in Mathematics, Science and English first additional language and passes in three additional subjects.

TVET National N3 Certificate.

a minimum 50% symbol D in Mathematics, Engineering Science, and English language or

a minimum 50% in Technical Mathematics, Physical Science and English language

b. Higher Certificate in Physical Sciences at NQF level 5.

must have passed Mathematics, Physical Science or Physics & Chemistry and English

c. Pass mark in Matric Mathematics, Physical Science and English

first additional language at a minimum achievement level 3 and industrial experience of 3-5 years.

Recognition of Prior Learning policy will be applied.

d. Senior Certificate (Matric) (before 2008).

Higher Grade E or Standard Grade D in Mathematics, Physical Science and English language.

e. National Senior Certificate (Matric) (from 2008).

Minimum Admission Point Score (APS)

2. Curriculum

YEAR1

Semester 1

Chemistry I

Mathematics I

Physics I Applied Communication Skills I. I

ICT Skills I

Introduction to NDT I (Theory)

Introduction to NDT I (Practical)

Semester 2

Mathematics II

Physics II (Theory)
Physics II (Practical)

Engineering Drawing I

Penetrant Testing II (Theory)

Penetrant Testing II (Practical)

Radiographic Testing II (Theory)

Radiographic Testing II (Practical)

Applied Communication Skills I. II

YEAR2

Semester 3

Magnetic Particle Testing (Theory) Magnetic Particle Testing (Practical) Ultrasonic Testing (Theory) Ultrasonic Testing (Practical) Introduction to Fracture Mechanics

Metallurgy for NDT I

Semester 4

Advanced Ultrasonic Testing (Theory) Advanced Ultrasonic Testing (Practical) Eddy Current Testing (Theory) Eddy Current Testing (Practical) Quality Assurance Entrepreneurship I Metallurgy for NDT II

YFAR3

Semester 5

Advanced Radiographic Testing (Theory) Advanced Radiographic Testing (Practical) Advanced Eddy Current Testing (Theory) Advanced Eddy Current Testing (Practical) Signal Processing Project (Numerical Analysis)

Semester 6

Work Integrated Learning (NDT)

ADVANCED DIPLOMA

Admission Requirements:

- The VUT National Diploma / Diploma in NDT (360 credits at NQF Level 6).
- National Diploma or Diploma in Metallurgical Engineering, Mechanical Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering and Industrial Engineering with an average of 55% from all S4 subjects for National Diploma or an average of 55% from all S5 subjects for Diploma.
- Bachelor's Degree in Physics, Mathematics and Chemistry with an average of 55% from all final year subjects including Mathematics II and Physics II in case where they are not major subjects.

All applicants received by the published closing date will be evaluated and selected according to the average achieved for all final semester / year subjects. Only the top ranked applicants will be offered admission as per the applicable Enrolment Plan.

Semester 1

Ultrasonic Testing Techniques IV Fracture Mechanics IV

Numerical Analysis with Matlab Applications IV

Research Methodology IV

Optical Testing Methods IV (Elective Module)

Penetrant Testing Methods IV (Elective Module) Acoustic Emission Testing Methods IV (Elective Module)

Semester 2

Radiographic Testing Techniques IV Electromagnetic Testing Techniques IV Corrosion Inspection & Monitoring Techniques IV Thermographic Testing Techniques IV NDT Project IV

3. Career Opportunities

NDT Technicians: Perform inspections, monitoring, evaluations using non-destructive methods and quality assessment techniques. This is achieved through both fabrication and maintenance inspections conducted in accordance with regulatory requirements (codes and specifications). The technician can be part of an NDT department or unit within a company or as an independent service provider. NDT Specialist: Being part of a team involved in project development including design, fabrication and specifying inspection techniques and methods to be used to ensure product safety, reliability and longevity. NDT Research and Development Professionals: Working on improving the reliability of inspection methods and techniques. Further developing new techniques to inspect the improved materials and products utilised in the industry.

4. Phased out Qualification

- National Diploma in Non-Destructive Testing [course code: 215048, which had the last date of intake being 31 December 2016].
- National Diploma in Non-Destructive Testing (Extended) [course code: 215099, which had the last date of intake being 31 December 2014].
- No student will be allowed to continue with phased out programmes beyond 2021 as they will no longer be active on the system [6-year maximum duration for the completion of the qualification elapsed].

5. Enquiries

Enquiries may be addressed to:

Head: Department of Mathematics, Non-Destructive Testing & Physics Faculty of Applied and Computer Sciences

Vaal University of Technology

Private Bag X021

VANDERBIJLPARK, 1900 Administrator: Ms G Ntseane Tel: 016 950 9321 E-mail: aaban@vut.ac

E-mail: gaban@vut.ac.za website: www.vut.ac.za





DEPARTMENT: ENVIRONMENTAL SCIENCE, MATHEMATICS, NON-DESTRUCTIVE TESTING & PHYSICS

Diploma: Environmental Science **3 Year Course**

21 (excl LO)

1. Admission Requirements:

DIPLOMA: ENVIRONMENTAL SCIENCE

Subjects NSC endorsement	Eligibility for Diploma	
Compulsory subjects English Mathematics Physical Science Life Orientation Any other 3 subjects	4 4 4 Max 3 9	Note 3 = 40-49% 4 = 50-59%

Prospective students to be admitted to the Diploma in Environmental Science

TVET National Certificate (Vocational) level 4;

a minimum 50% pass mark in Mathematics, Science and English first additional language and passes in three additional subjects TVET National N3 Certificate;

a minimum 50% symbol D in Mathematics, Engineering Science and English language

Higher Certificate in Physical Sciences at NOF level 5:

must have passed Mathematics, Physical Science or Physics & Chemistry and English

Pass mark in Matric Mathematics, Physical Science and English first additional language at a minimum achievement level 3 and relevant environmental advocacy experience of 3-5 years. Recognition of Prior Learning policy will be applied.

Senior Certificate (Matric) (before 2008);

Higher Grade E or Standard Grade D in Mathematics, Physical Science and English language.

National Senior Certificate (Matric) (from 2008);

Minimum Admission Point Score (APS) apply

2. Curriculum

YEAR1

TOTAL

Chemistry 1 Mathematics 1

Fundamentals of the Natural Environment

ICT Skills

Physics 1

Applied Communication Skills 1.1

Chemistry 2

Physics of Environmental Science

Farth Processes

Water Recources

Applied Communication Skills 1.2

Environmental Microbiology 2.1

Microeconomics*

Environmental Impact Assessment 2.1

Applied Environmental Statistics **Environmental Pollution**

Environmental Impact Assessment 2.2

Macroeconomics*

Biodiversity and Ecosystem Management

Environmental Chemistry

Environmental Microbiology 2.2

GIS & Remote Sensing Tools for Environmental Applications **Environmental Economics**

Environmental Law and Planning

Introduction to Research Methodology in Environmental Science

Industry, Waste and Environment Climate Change and Natural Disasters Entrepreneurship* Project in Environmental Science

What does an Environmental Scientist do?

Environmental scientists study the effects of human activity on the environment, and identifying ways to manage, minimise or eliminate any negative impacts. Environmental scientists gather samples and observational data in the field and conduct tests in the lab. For example, they will test water, soil, or air samples to verify pollution and its source.

The environmental scientist will then undertake a rigorous assessment to identify if that contaminant source has the potential to affect or harm individuals and communities. Further, they will present their findings to other scientist and key stakeholders, including government officials, then advance possible ways to solve the problem. They also advise on guidelines of mitigating the problem, and also are involved in crafting future policies

Career opportunities

Typically, an environmental scientists can be employed in

- Manufacturing companies
- Energy generation plants
- Environmental consultancies
- National and Local governments Wildlife/species conservation groups
- Universities

Career status

Environmental Scientists can register with the South African Council for Natural Scientific Professions (SACNASP), the legislated regulatory body for natural science practitioners in South Africa.

Enquiries

Enquiries may be addressed to:

Head: Department of Mathematics, Non-Destructive Testing, and Physics

Faculty of Applied and Computer Sciences

Vaal University of Technology Private Bag X021

VANDERBIJLPARK

1900

Administrator: Ms G Ntseane

Tel: (016) 950-9321

Fax: (016) 950-9793

e-mail: gaban@vut.ac.za

website: www.vut.ac.za





VUT Sport Academy

WELCOME

The VUT Sports and Recreation would like to extend a warm welcome to you as a new student on campus. We invite you to make use of the numerous well-equipped sport facilities that are available. We have top quality coaches who are willing to help with your needs. Through sport we build the image of Vaal University of Technology (VUT). We wish you a happy and successful sporting experience.

ADMISSION REQUIREMENTS

Registration at any one of the sport clubs is open to all full time, part time, as well as non-students at VUT. Acceptance to clubs depends on that club's constitution. There is no discrimination with regard to gender, colour, or creed at the Sport Academy and its associated divisions and clubs. This is also the policy at the Vaal University of Technology. Kindly note that only bona fide VUT students will qualify for selection to national student teams and for representing VUT at the University Sport South Africa (USSA) tournaments and Varsity sport competitions.

SPORT CODES

USSA and Provincial Leagues Ruaby Track and Field Basketball Softball Cross Country Road Running Volleyball Tennis Netball **Table Tennis Body Building** Dance **Aerobics** Chess Karate Cricket Football

Hockey

Head: Sports and Recreational Services: Mr. T. Mabulelong (016) 950-9481

Administrator:

Ms. H. Molatela (016) 950-9282

Stadium Manager:

Mr. Hannes Hattingh (016) 981 6403

FACILITIES

Isak Steyl Stadium 2 rugby fields (floodlit) Grandstand & VIP lounge 3 soccer fields (floodlit) 1 athletics track (floodlit) throws practice nets (floodlit) Astro hockey field (floodlit) 2 hockey grass fields (floodlit) Hockey/cricket/soccer clubhouse 2 cricket fields (2 x floodlit)

8 cricket nets

VUT radio station

Hockey/cricket open pavilion 6 netball courts (floodlit) 6 tennis courts (floodlit) 3 basketball courts (floodlit) Weight training room

VUT RESIDENCES

3 tennis courts (floodlit)

2 soccer fields

1 gymnasium

SPORT MERIT BURSARIES

Merit bursaries are available and awarded to athletes who are selected for the following categories:

- 1. Representation on National or International level
- Representation in any South African Junior teams and/or USSA representation.
- 3. SA and/or USSA and/or Provincial representation.
- 4. School Honoury Colors and Regional representation.

The annual closing date is 31 October.

SPORT AWARDS

Honours:

Awarded to athletes who are selected at a senior provincial level or higher and to those who are selected to represent the different USSA teams

General:

The Sport Academy works in conjunction with the Academic Faculties and the Sport Management Department as well as with student sport organizations such as University South African (USSA), Varsity Sport Competitions (High performance student competitions), as well as South African Sport Federations such as South African Football Association (SAFA), Netball South Africa (NSA), Athletics South Africa (ASA), Basketball South Africa (BSA), Gauteng Cricket Board (GCB), Gauteng Softball Association (GASA), Falcons Rugby, Federation of Dance South Africa (Fedansa) Volleyball South Africa (VSA) etc.

ENOUIRIES

Sport Academy

Vaal University of Technology Private Bag X021 Vanderbijlpark 1900 Tel: (016) 950-9917 Fax: (016) 950-9763

Sports & Recreation Tel: (016) 950-9282



GPS: S26, 42' 15.1 /E27, 52' 35.1

Bursaries & Loans

Financial Aid Office

VISION

To become recognised as a leading administrative section providing a creative, holistic personalised and satisfactory service to a wide range of clients, to the maximum benefit of all concerned.

MISSION

Financial Aid Office strives to offer a comprehensive internal and external administrative service to all stakeholders, specifically catering for individual needs in a creative and professional manner in order to make a meaningful contribution to their success and in so doing to foster a long term working relationship.

The Financial Aid Office offers the following services in order to help students to obtain bursaries and/or loans to be able to complete their studies. Bursaries and/or loans are offered in all study fields at the Vaal University of Technology.

1. SPORT BURSARIES

The Vaal University of Technology offers Sport Bursaries to students who have excelled in sport. The value of these bursaries is determined by the level of competitions in which candidates have participated.

The retention of a sport bursary is dependent on satisfactory academic progress.

Contact number: (016) 950 9282 / 9307

2. MERIT AWARD (Academic) 2.1 FIRST YEARS

Grado 12 Poculto

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%	Criteria	Bursary	
75%+	Science Engineering & Technology	R15 000	
70%+	Photography	R12 000	
65%+	Fine Arts	R10 000	
75%+	Accounting	R10 000	
70%+	Accounting	R 6 000	
65%+	Accounting	R 4 000	
	_		
75%+	Other	R 7 500	
70%+	Other	R 5 000	
65%+	Other	R 3 000	

Contact number: (016) 950 7652 / 950 9342

2.2 SENIOR STUDENTS Please note:

Funds are allocated in the following manner: Annual aggregate of 75+(Minimum 3 registered subjects per annum), R5000 automatic award.

3. COMPANY BURSARIES

At the Vaal University of Technology we fully provide assistance to all company sponsored students. Students who are in pos-

session of confirmation letters must report to the Financial Aid Bureau where their registration will be dealt with.

The following assistance is provided

- Meal vouchers
- Book vouchers
- * Booking of residence
- Sending of statements
- Sending of Academic Records
- * Handling of all refunds
- * Debt Collection
- Company Visits

NOTE: The Vaal University of Technology is not responsible in funding or seeking sponsorship (s) for students. It also remains the responsibility of the student to ensure that their accounts are settled on time.

Should any information be required feel free to contact the following numbers:

Tel: (016) 950 7652/9342 Fax: (016) 950 9106

The Vaal University of Technology will provide assistance to students in securing placements for experiential training but does not guarantee such placements.

4. LOANS

i) NSFAS LOANS

What is NSFAS?

The National Student Financial Aid Scheme (NSFAS) is a loan and bursary scheme operating in terms of Act 56 of 99 and funded by the National Department of Education. NSFAS has been established to assist academically deserving and financially needy students to achieve academic goals at tertiary educational institutions in South Africa, with particular concern in overcoming barriers created by structural disadvantagement.

What does NSFAS offer?

- The means to obtain a tertiary qualification
- Loans at low interest rates
- Loans without guarantees
- A reasonable repayment plan

NSFAS convert loan (s) to a Bursary.

Up to 40% of the award may be converted into a bursary depending on your end of year results.

- If you pass all the courses for which you have registered, you qualify for a 40% bursary.
- If you pass three quarters of the course, you qualify for a 30% bursary.
- If you pass half of the courses, you qualify for a 20% bursary.
- If you pass one quarter of the course, you qualify for a 10% bursary.
- If you pass none of the courses, you qualify for no bursary at all.

What is a loan?

 A loan is the money you borrow to cover tertiary studies.-This loan has to be repaid.

Who qualifies for a NSFAS loan?

You can qualify for a NSFAS loan if you are:

- A South African citizen;
- Registered at a South African university or University of Technology;
- An undergraduate, studying for a first tertiary educational qualification; or
- Studying for a second tertiary qualification, if this is necessary to practice in your chosen profession; (e.g. LLB or HDE)
- Able to demonstrate potential for academic success;
- Financially needy;
- You will, however, be expected to make your own family contribution towards the total costs of your studies. (EFC)

How much money do you get?

 There is a minimum award and a maximum award, which is determined annually by NSFAS. Please enquire at the Financial Aid Office for the current limits.

Where do you apply for a loan?

At the Financial Aid Office of the Vaal University of Technology.

NOTE:

Interest on NSFAS awards is determined annually by NSFAS.

Closing dates:

Senior students (year and first semester courses) 04 October. First year students (year and semester courses) 31 October. Late first year applicants: 24 January.

Late applicants will **only** be considered for awards if funds are available.

Contact numbers:

(016) 950 9484, 9972, 9486, 9485, 9571
Brochures for NSFAS 'Students guide to funding' are available at the Financial Aid Bureau office





Apply for an education loan today and we'll help you realise your ambition.

Apply for a loan at the Finance Office, Window 14&15, VUT Please contact your customer service consultant, Nonkululeko Jali.

Tel: 016 950 9948 | Email: nonkululekoj@fundi.co.za For more information, visit www.fundi.co.za At Fundi, we cover study fees, registration fees, outstanding balances, text books, accommodation, uniforms and stationery, laptops, tablets and other study tools.

With the agreement we have with various institutions around South Africa, we pay direct into the institutions.

And the applicant pays us back with low interest rate and at an affordable monthly repayment.

For someone to qualify for a Fundi Loan, the person must be permanently employed.

Student Counselling and Support Career Services

Student Counselling and Support as a whole is committed to offering career support, career counselling and guidance, therapeutic counselling and support as well as spiritual/pastoral quidance and support.

Career services that are offered within Student Counselling and Support

The Career Centre Support Services include:

- Career Guidance
- Psvchometric Testing
- Workplace Preparation:
 - o CV writing
 - o Job hunting skills
 - o Interview skills
 - Professionalism and ethics
- Academic Support:
 - o Adjustment to student life
 - Study skills/time management
 - o exam preparation
 - o exam and test anxiety
 - Personal Finance

As enrolled students, the above services are available FREE of charge.

Prospective students and External Clients can liaise with our department to enable them to make appropriate subject (Grade 9) and career (Grade 11/12) choice as well as graduate career development decisions. Career and subject choice counselling process include:

- The initial interview (40-60 minutes) and parents are welcome to sit in on the interview
- Psychometric testing (approximately 5 hours) determining your:
- interests: which measures how people differ in their motivation, values and opinions in relation to their interests
- Aptitude: Which measures how people differ in their ability to perform or carry out different tasks
- Personality: Which measures how people differ in their style or manner of doing things and in the way they interact with their environment and other people
- Feedback session (40-60 minutes), where we will be giving feedback about the assessment and discussing the outcomes with you. Parents are welcome to sit in during this session

Procedure to follow on assessing our services:

- Phone (016) 950-9244 or visit us at P021
- An initial interview will be arranged, after which a payment (R600.00) must be made at AW-Building into cost code 4220/5460. The receipt must be forwarded to us.
- A booking for psychometric testing will be confirmed as soon as the proof of payment is received
- The payment includes the feedback session that will be scheduled after the psychometric testing to discuss the results.

Career Assessments and Career Guidance Services are offered to Grade 9-12 Learners as well as those who have graduates and are looking to develop in their career.

Office Hours: Monday – Friday 08:30-16:30

For Further information, please feel to contact us and calling our office

Where to find us: P-Block (P021-ground floor)
Contact number: (016) 950 9244



VUT- Student Counselling and Support



www.vut.ac.za

FACULTY OF APPLIED & COMPUTER SCIENCES

Tel: (016) 950 9249. Fax: (016) 950 9793

e-mail: kathyp@vut.ac.za

BIOTECHNOLOGY AND CHEMISTRY

Ms Phumzile Makhanya, 016 950 9648 Ms Tiviselani ikhotso, 016 950 9605

phumzilem@vut.ac.za **HEALTH SCIENCES**

Mr Ntsane Mokoena, 016 950 7592

ntsanem@vut.ac.za

ICT

tiviselamir@vut.ac.za

MATHS. NDT & PHYSICS

Ms Gaba Ntseane, 016 950 9321

aaban@vut.ac.za

Major expenses for the year:

Registration fee, Accommodation, Class / Course Fees, Books, Pocket Money, Transport. For costs see VUT website www.vut.ac.za (look under: Study at VUT. Tution Fees & Study Loans).

Application for Admission & Accommodation:

Prospective students are advised to apply early in the year preceding registration for admission to the course, and / or for hostel accommodation.

Arrangements can be made to visit the campus in this regard.

Closing date for admission 30 September.

Closing date for accommodation applications 31 October.

International Students:

31 October

How to apply:

See front page of application form or VUT website (www.vut.ac.za) click on "study at VUT" and then "admissions and how to apply" and then "how to apply".

Enquiries:

(016) 950 9924/5 or Call Centre 0861 861 888 General Tel:

Admission Enquiries: (016) 950 9356

Application Status: Self-check

Go to VIII website - www.vut.ac.za

Click on "admisssions new students"

Click on "check your application status"

Click on blue block "check your application status"

Enter student or identification number

(lick "submit"

The Department of Co-operative Education assists in experiential learning administration and placements.

Contact details: Tel: (016) 950 9496

> Fax: (016) 950 9759 F-mail: wil@vut ac 7a

The institution makes every attempt to accommodate students with disabilities.

Whilst every effort has been made to present you with the relevant informationin this brochure, program offerings may be subject to change in order to keep abreast with new developments in the higher education landscape. The institution therefore reserves the right to unilaterally change or amend any of the content / structures contained herein.



Inspiring thought. Shaping talent.