



VUT

Vaal University of Technology

Your world to a better future

Chemical Engineering

Chemical Engineering
Dip; Advanced Dip; PGD; MEng & PhD

Civil Engineering

Civil Engineering
Dip; Advanced Dip; PGD; MEng, & DEng

Electronic Engineering

Electrical Engineering (Electronics)
Dip; Advanced Dip; PGD; MEng, & DEng

Power Engineering

Electrical Engineering (Power)
Dip; Advanced Dip; PGD; MEng & DEng

Process Control
Engineering

Electrical Engineering (Process Control)
Dip; Advanced Dip; PGD; MEng & DEng

Computer Systems
Engineering

Electrical Engineering
(Computer Systems)
Dip; Advanced Dip; PGD; MEng & DEng

Industrial Engineering &
Operations Management

Industrial Engineering
Dip; Advanced Dip; PGD & MEng
Operations Management
Dip; Advanced Dip & PGD

Mechanical Engineering

Mechanical Engineering
Dip; Advanced Dip; PGD; MEng & DEng

Metallurgical Engineering

Metallurgical Engineering
Dip; Advanced Dip; PGD & MEng

Additional Information:
Bursaries & Loans
Sport Academy
Student Counselling & Support

Faculty of Engineering & Technology
2021 for 2022
Vanderbijlpark

MINIMUM ADMISSION REQUIREMENTS: FACULTY OF ENGINEERING AND TECHNOLOGY

Table 1: Academic Points Calculation

(Please note Life Orientation is excluded from all points' calculations and bonus points)

NSC Percentages	NSC Achievement Score/Rating	SC HG	SC SG	VUT Score	BONUS POINTS	
					Maths	Physical/Natural Science and English
90% - 100%	7	A	A	8	3	2
80% - 89%				7		
70% - 79%	6	B		6	2	1
60% - 69%	5	C	B	5	1	
50% - 59%	4	D	C	4		
40% - 49%	3	E	D	3		
30% - 39%	2	F	E	2	0	0
0% - 29%	1	G	F	0		

The academic point score (APS) for the Faculty of Engineering and Technology admission requirement is shown in the following tables for different type of qualifications.

Table 2: Diploma programmes in Engineering

Qualification	Compulsory Subjects	Minimum for the Diploma programme
Diploma:	Mathematics	4
Chemical Engineering	Physical Sciences	4
Civil Engineering	English Language	4
Electrical Engineering:		
· Electronic	Any other 3 subjects with a minimum level of 4, excluding Life Orientation	12
· Power		
· Process Control & Computer Systems		
Industrial Engineering		
Mechanical Engineering		
Metallurgical Engineering		
	Total	*24

- *Admission requirements for any of the **4-year extended Diploma** programmes in Engineering is a National Senior Certificate with a minimum of 24 APS points, plus a minimum of 4 for Mathematics, Physical Science and English. All candidates with APS scores from 24 – 29 will be required to register for the extended programme.
- *Admission requirements for any of the **3-year Diploma** programmes in Engineering is a National Senior Certificate with a minimum of 30 APS points, plus a minimum of 4 for Mathematics, Physical Science and English.

Table 3: Diploma programme in Operations Management

Qualification	Compulsory Subjects	Minimum for the extended Diploma programme
Diploma:	Mathematics	4
Operations Management	Physical Sciences	3
	English Language	4
	Any other 3 subjects with a minimum level of 4, excluding Life Orientation	12
	Total	23

For admission into Diploma in Engineering Programmes the following should be noted:

- The prospective student's results must meet the statutory admission requirement.
- Bonus points will only be used for selection purposes.
- Students that need more information regarding Extended programmes should liaise with their respective HOD's.
- All other grade 12 or equivalent certificates will be treated on ad hoc basis.
- International qualifications: All international qualifications will be evaluated by the International Office based on the Swedish scale.
- Transfers: Applications from students to transfer from other institutions will be dealt with in terms of the Recognition of Prior Learning and Continuation of Studies policies of VUT.

ENGINEERING COUNCIL OF SOUTH AFRICA

The Engineering Council of South Africa (ECSA) audit all the engineering programmes offered at the Vaal University of Technology every four years. ECSA awards an accreditation status to each programme that meets the standard for the award of the qualification. The standards are designed to meet the educational requirement towards registration as a Candidate or Professional Engineering Technician with ECSA and acceptance as a candidate to write the examinations for Certificated Engineers (for Diploma in Engineering Programmes) and the educational base required for registration as a Professional Engineering Technologist and/or Certificated Engineer with ECSA (for the Advanced Diploma in Engineering Programmes).

DEPARTMENT: CHEMICAL ENGINEERING

Diploma in Chemical Engineering, Advanced Diploma in Chemical Engineering, Postgraduate Diploma in Chemical Engineering
Master of Engineering in Chemical Engineering
PhD in Chemical Engineering

DIPLOMA: CHEMICAL ENGINEERING

1.1 Duration of Programme: Three year full-time qualification: Two and a half years (Five semesters S1 to S5); One semester (6 months) Workplace Based Learning (WBL)

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
AAECH1A	Engineering Chemistry 1	10
EEESK1A	Engineering Skills 1	5
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 1.2	8
AAECH2A	Engineering Chemistry 2	10
EMEDR1A	Engineering Drawing 1	10
EHITC1A	Introduction to Chemical Engineering 1	12
AMMAT2A	Mathematics 2	10
APHYT2A	Physics 2 (Theory)	5
APHYP2A	Physics 2 (Practical)	5
EHSPA1A	Safety Principles and Law 1	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
BHMAN1A	Management 1	10
EHCP11A	Chemical Process Industries 1	12
AAECH3A	Engineering Chemistry 3	10
EHMEB2A	Material and Energy Balance 2	12
AMMAT3A	Mathematics 3	10
EHMPO1A	Mechanical Operation 1	12

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
EHCOA2A	Computing Applications 2	7
EHCEL1A	Chemical Engineering Laboratory 1	12
EH CET2A	Chemical Eng. Thermodynamics 1	12
EHHMT2A	Heat and Mass Transfer 1	12
EHP CO2A	Process Control 1	12
EHPFD2A	Process Fluid Dynamics 1	12

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EHATH3A	Applied Thermodynamics 2	12
EHCPR3A	Chemical Process Design	12
EHENE1A	Environmental Engineering 1	12
EHRTE3A	Reactor Technology 1	12
EHSEP3A	Separation Processes 1	12
EHCEL2A	Chemical Engineering Laboratory 2	12

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EHEXL1A	Workplace Based Learning 1	60

ADVANCED DIPLOMA

1.2.1 Admission Requirements: Diploma in Chemical Engineering or equivalent qualification. All other equivalent qualifications will be considered on a case-by-case basis.

1.2.2 Duration of Programme: One year full-time qualification, offered at Vanderbijlpark only.

1.2.3 Curriculum

YEAR SUBJECTS

SUBJECT CODE	SUBJECT	CREDITS
EHAPD4A	Advanced Process Design	30
EHRMP4A	Research Methodology and Project	28

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EHAEM4A	Advanced Engineering Mathematics	12
EHARE4A	Advanced Reaction Engineering	12
EHFLM4A	Advanced Fluid Mechanics	12
EHHMX4A	Advanced Heat, Mass Transfer and Separation: Mod 1	10

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EHHMY4A	Advanced Heat, Mass Transfer and Separation: Mod 2	11
EHMAN4A	Engineering Management	7
EHCEL4A	Chemical Engineering Laboratory	8
EHAPC4A	Advanced Process Control	12

POSTGRADUATE DIPLOMA

1.3.1 Admission Requirements: Advanced Diploma in Chemical Engineering and equivalent qualification such as BTech in Chemical Engineering. All other equivalent qualifications will be considered on a case-by-case basis.

1.3.2 Duration of Programme: One year full-time qualification, offered at Vanderbijlpark only.

1.3.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	Core/ Fundamental/ Elective	CREDITS
EHPRM5A	Research Project (Chemical Engineering) *Full Year	Core	40
EHPEEX5A	Environmental Engineering I (Chemical Eng)	Core	15
EHPDPX5A	Chemical Process Design I (Chemical Eng) Elective Group Y1**	Core Elective	15 10

* Research Project (Chemical Engineering) (Full year)

** Elective Group Y1 *(Elective group Y = A or B)



SEMESTER 2

SUBJECT CODE	SUBJECT	Core/ Fundamental/ Elective	CREDITS
EHPEEY5A	Environmental Engineering II (Chemical Eng)	Core	15
EHPPDY5A	Chemical Process Design II (Chemical Eng)	Core	15
	Elective Group YII***	Elective	10

*** Elective Group YII *(Elective group Y = A or B)

Subject Elective Groups: The learners will first select a group among petroleum, mineral processing and bioprocessing. Elective YI and YII may not come from different groups. The elective group of subjects to be offered will depend on admission numbers per group (Minimum of 20 students).

ELECTIVE GROUP A

SUBJECT CODE	SUBJECT	Core/ Fundamental/ Elective	CREDITS
EHBPXE5A	Bioprocess Engineering I	Elective	10
EHBPYE5A	Bioprocess Engineering II	Elective	10

ELECTIVE GROUP B

SUBJECT CODE	SUBJECT	Core/ Fundamental/ Elective	CREDITS
EHPEXE5A	Petrochemical Engineering I	Elective	10
EHPEYE5A	Petrochemical Engineering II	Elective	10

MASTER OF ENGINEERING IN CHEMICAL ENGINEERING

1.4.1 Admission Requirements: BEng degree in Chemical Engineering or Equivalent level 8 qualification including Postgraduate Diploma in Chemical Engineering.

1.4.2 Duration of Programme: At least 1 year full-time research, concluded with a Master Dissertation.

PHD IN CHEMICAL ENGINEERING

1.5.1 Admission Requirements: MEng. (Chemical Engineering) or equivalent. Ad hoc cases will be treated on merit.

1.5.2 Duration of Programme: At least two years full-time research, concluded with a Doctoral Thesis.

2. WHAT ARE THE FUNCTIONS OF A CHEMICAL ENGINEERING TECHNICIAN?

The qualified Chemical engineer/technician may find himself/herself as a member of an engineering team which may consist of engineers, scientists, artisans, process personnel, technologists and technicians from other disciplines. Functions may include the commissioning and maintenance of chemical plants, process control, design and development, optimizing of chemical processes, quality control over the products of the manufacturing processes, feasibility studies and a variety of tasks related to the chemical process industry.

3. CAREER OPPORTUNITIES

A profession in the field of Chemical Engineering offers a challenging and exciting career in both the private and public sectors. There is a continuous demand for trained manpower in the field of Chemical Engineering. Job designations may vary from production foremen, area superintendents, line managers and various others within several branches of heavy, light and general types of industries where the services and expertise of such persons are required.

4. ENQUIRIES

Enquiries may be addressed to:

The Head of Department:

Chemical Engineering

Faculty of Engineering and Technology

Vaal University of Technology

Private Bag X021

Vanderbijlpark 1900

Tel: (016) 950-9243

Fax: (016) 950-9796

e-mail: tumisangs@vut.ac.za

Website: www.vut.ac.za

DEPARTMENT: CIVIL ENGINEERING

**Diploma in Civil Engineering, Advanced Diploma in Civil Engineering, Postgraduate Diploma in Civil Engineering
Master of Engineering in Civil Engineering
Doctor of Engineering in Civil Engineering**

DIPLOMA: CIVIL ENGINEERING

1.1 Duration of Programme: This is a three-year course and consists of five semesters university attendance and one semester Workplace Based Learning in industry.

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
ASICT1A	ICT Skills 1	10
AAECH1A	Engineering Chemistry 1	10
EEESK1A	Engineering Skills 1	5
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
ECAME1A	Applied Mechanics 1	10
ECCOA2A	Computing Applications 2	7
AAECH2A	Engineering Chemistry 2	10
ECEDR1A	Engineering Drawing 1	10
AMMAT2A	Mathematics 2	10
APHYP2A	Physics 2 – Practical	5
APHYT2A	Physics 2 - Theory	5
ECSPA1A	Safety Principles and Law 1	5



SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
ECCOS1A	Construction Methods 1	10
ECCOM1A	Construction Materials 1	5
ECEDR2A	Engineering Drawing 2	10
EYEGE1A	Engineering Geology 1	10
ECESU1A	Engineering Surveying 1	10
ECSME1A	Soil Mechanics 1	5
ECST2A	Theory of Structures 2	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
ECCEM1A	Civil Engineering Management 1	10
ECCOM2A	Construction Materials 2	5
ECEOS2A	Elements of Structural Steel and Timber Design 2	10
ECESU2A	Engineering Surveying 2	10
ECSAN3A	Structural Analysis 3	10
ECTEN1A	Transportation Engineering 1	10
ECWEN1A	Water Engineering 1	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
ECCEM2A	Civil Engineering Management 2	10
ECCOC1A	Documentation 1	10
ECOR3A	Elements of Reinforced Concrete Masonry Design 3	10
ECFMC2A	Fluid Mechanics 2 (Civil)	10
ECSME2A	Soil Mechanics 2	10
ECSAN4A	Structural Analysis 4	10
ECTEN2A	Transportation Engineering 2	10

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
ECEXL1A	Workplace Based Learning	60

ADVANCED DIPLOMA

1.2.1 Admission Requirements: A student with relevant qualification on NQF level 6 (min 360 credits) can enter this Advanced Diploma in Civil Engineering or a relevant qualification (e.g. Bachelors in Civil Engineering). *The relevant NQF level 6 qualification must be passed with an average of 65% of all the exit level subjects.* All other equivalent qualifications will be treated on an ad hoc basis.

1.2.2 Duration of Programme: A one-year full-time course and consists of two semesters' university attendance (13 modules) that includes two (2) modules on Civil Engineering Research Methods and Project.

1.2.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
ECMAT4A	Civil Engineering Materials	10
ECHE4A	Highway and Traffic Engineering	10
ECSTR4A	Structural Analysis	10
ECWWE4A	Water and Wastewater Engineering	10
ECENS4A	Environmental Studies	10
ECREM4A	Civil Engineering Research Methodology	15

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
ECDE4A	Earthworks Design	10
ECSRD4A	Steel and Reinforced Concrete Design	10
ECRWE4A	Railway Engineering	10
ECRED4A	Reticulation Design	10
ECBDC4A	Business Development in the Civil Engineering Environment	10
ECMITT4A	Management Tools and Techniques	10
ECREP4A	Civil Engineering Research Project	15

NB: All subjects/modules are compulsory and must be completed in VUT

POST GRADUATE DIPLOMA

1.3.1 Admission Requirements: A student with relevant qualification on NQF level 7, typically a Bachelor's Degree, Advanced Diploma or relevant NQF level 7 qualifications can enter this programme. *The relevant NQF level 7 qualification must be passed with an average of 65% of all the exit level subjects.*

1.3.2 Duration of Programme: This is a one-year full-time programme (or a minimum two years part-time programme). Consists of two semesters' university attendance (8 modules) that includes two (2) modules on Civil Engineering Research Project.

1.3.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
ECEEN5A	Environmental Engineering	10
ECGTESA	Geotechnical Engineering	20
ECPCM5A	Project and Construction Management	10
ECRXP5A	Research Project in Civil Engineering (Module 1)	15

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
ECSTE5A	Structural Engineering	20
ECTEN5A	Transportation Engineering	20
ECWEN5A	Water Engineering	20
ECRYP5A	Research Project in Civil Engineering (Module 2)	25

MASTER OF ENGINEERING IN CIVIL ENGINEERING

1.4.1 Admission Requirements: A BEng Degree or Equivalent level 8 qualification including the Postgraduate Diploma in Civil Engineering with an average pass mark of 60% and above. Proof of successful completion of a Vaal University of Technology approved course in Research Methodology. Ad hoc cases will be treated on merit.

1.4.2 Duration of Programme: The equivalent of 1 year, full-time study.

1.4.3 Programme Structure: This programme comprises of a thesis only.

DOCTOR OF ENGINEERING IN CIVIL ENGINEERING

1.5.1 Admission Requirements: Master of Engineering in Civil Engineering or Equivalent level 9 qualification. Ad hoc cases will be treated on merit.

1.5.2 Duration of Programme: At least two years full-time research, concluded with a Doctoral Thesis.

2. CIVIL ENGINEERING FIELDS

Fields of study includes but is not limited to transportation, water, structural, geotechnical, construction management and urban engineering.

3. CAREER OPPORTUNITIES

The following selections of careers are available:

Design Draughtsman, Project Official, Site Agent, Municipal Technician, Engineering Surveyor, Quantity Technician, Designer, Laboratory Technician, Contract Manager, Project Planner, Estimator, Quality Controller or a Geo-technician.

4. ENQUIRIES

Enquiries may be addressed to:

The Head of Department

Civil Engineering

Faculty of Engineering and Technology

Vaal University of Technology

Private Bag X021

VANDERBIJLPARK 1900

Tel: (016) 950-9241

Fax: (016) 950-9957

e-mail: rosaliat@vut.ac.za or georgeo@vut.ac.za

Website: www.vut.ac.za



DEPARTMENT: ELECTRONIC ENGINEERING

Diploma in Electrical Engineering (Electronics), Advanced Diploma in Electrical Engineering (Electronics)

Postgraduate Diploma in Electrical Engineering (Electronics)

Master of Engineering in Electrical Engineering (Electronics) / Master of Engineering in Energy Efficiency (MEng Energy Efficiency)

Doctor of Engineering in Electrical Engineering (Electronics)

DIPLOMA: ELECTRONIC ENGINEERING

1.1 Duration of Programme: Three years full-time qualification, 360 credits. Sixty credits are allocated to Workplace Based Learning which will take place in industry.

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
EESK1A	Engineering Skills 1	5
EPEEN1A	Electrical Engineering 1	10
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3
ADDITIONAL SUBJECT		
AAECH1A	Engineering Chemistry 1	10

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EICOA2A	Computing Applications 2	7
EIDSY1A	Digital Systems 1	10
EPEEN2A	Electrical Engineering 2	10
AMMAT2A	Mathematics 2	10
EEEL1A	Electronics 1	10
EEWPR1A	Projects 1	7
EESPA1A	Safety Principles And Law 1	5
ADDITIONAL SUBJECTS		
EIPRI1A	Process Instrumentation 1	10
APHYT2A	Physics 2 (Theory)	5
APHYP2A	Physics 2 (Practical)	5
AAECH2A	Engineering Chemistry 2	10

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
EIDSY2A	Digital Systems 2	10
EEEL2A	Electronics 2	10
EEWPR2A	Projects 2	7
EECAD1A	Electrical Cad 1	10
AMMAT3A	Mathematics 3	10
EEECO2A	Electronic Communication 2	10
ADDITIONAL SUBJECTS		
EIENP1A	Engineering Programming 1	10
BHMAN1A	Management 1	10
EINET1A	Networks 1	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
EEEL3A	Electronics 3	10
EEWPR3A	Projects 3	8
EEDCO2A	Digital Communication 2	10
EECAD2A	Electrical Cad 2	10
EEMET3A	Measurement Technology 3	10
CHOICE SUBJECTS		
EICSY2A	Control Systems 2	10
EIENP2A	Engineering Programming 2	10
EIPRI2A	Process Instrumentation 2	10
EINET2A	Networks 2	10
EIDCS1A	Digital Control Systems 1	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EEOEL3A	Opto-Electronics 3	10
EEWPR4A	Projects 4	8
EEMIC3A	Microwave Communication 3	10
EERAD3A	Radio Engineering 3	10
EETXR3A	Transmission 3 (Radio Frequency)	10
ADDITIONAL SUBJECTS		
EEPEL4A	Power Electronics 4	10
EIENP3A	Engineering Programming 3	10

SEMESTER 6 WBL PLACEMENT

SUBJECT CODE	SUBJECT	CREDITS
EEEXL1A	Workplace Based Learning 1	14
EEEXL2A	Workplace Based Learning 2	16
EEPRJ4A	Engineering Project 4	30

ADVANCED DIPLOMA

1.2.1 Admission Requirements: All applicants must have a Diploma in Electrical Engineering (Electronics) with the provision of a 60% performance in those diploma subjects that will carry forward into the Advanced Diploma in Electrical Engineering (Electronics). Apart from the prescribed qualification, a specified period of relevant post-qualification practical experience is a prerequisite for registration.

1.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

1.2.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
COMPULSARY		
EEPRO4A	Electrical Engineering Project (AD)	25
EIREM4A	Engineering Research Methods (AD)	15
CHOICE SUBJECTS		
EEAEL4A	Electronics 4 (AD)	20
EERAD4A	Radio Engineering 4 (AD)	20
EIDSP4A	Digital Signal Processing 4 (AD)	20
EISPC4A	Signal Processing 4 (AD)	20



SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
	COMPULSARY	
AMAEM4A	Advanced Engineering Mathematics	15
BHEMN4A	Engineering Management	10
	CHOICE SUBJECTS	
EEAMI4A	Microwave Engineering 4	20
EEAOE4A	Opto-Electronics 4	20
EESAT4A	Satellite Communication 4	20
EICIA4A	Circuit Analysis 4	20
EIDCS4A	Digital Control Systems 4	20

- Steam distribution components
 - Tracer lines
 - Waste heat recovery
 - Improving the hot water distribution system
 - Cogeneration
- Electrical Systems**
- Rate structures
 - Electrical systems
 - Electric motors and drives
 - Tariffs and structures
 - Electrical protection systems
 - Energy systems maintenance
 - Control systems and computers
 - Need for controls
 - Types of controls
 - Manual systems
 - Basic automatic controls
 - Web based building automation systems

Renewable Energy

Credits: 25

- Renewable energy sources and water management:
 - Wind generation
 - Water energy systems
 - Geothermal energy
 - Solar energy
 - Thermal energy storage
 - Hydrogen and Fuel Cells
- Distributed generation (DG)
 - Economics of DG
 - Technologies
 - Analysing your own facility for DG application
 - A case study
- Research Project relating to energy sources and/or water management systems pertaining to:
 - Wind generation systems and optimization
 - Water energy systems and optimization
 - Geothermal energy systems and optimization
 - Solar energy systems and optimization
 - Thermal energy storage systems and optimization
 - Hydrogen and Fuel Cell systems and optimization

Research Project

Credits: 90

1.5.4 Enquiries (MEng Energy Efficiency):
Prof WJ Bekker
Tel: (016) 950-9410
E-mail: bekkerj@vut.ac.za

DOCTOR OF ENGINEERING IN ELECTRICAL ENGINEERING (ELECTRONICS)

- 1.6.1 Admission Requirements:** A MEng. Electrical Engineering (Electronics). Ad hoc cases will be treated on merit.
- 1.6.2 Duration of Programme:** At least two years full-time research, concluded with a Doctoral Thesis.
- 1.6.3 Programme Structure:** This instructional programme comprises of a thesis only. This qualification is offered at the Vanderbijlpark campus only.

2. ENQUIRIES

Enquiries may be addressed to:
The Head of Department: Electronic Engineering
Faculty of Engineering and Technology
Vaal University of Technology
Private Bag X021
Vanderbijlpark 1900
Tel: (016) 950-9416
Fax: (016) 950-9796
e-mail: reflwem1@vut.ac.za
Website: www.vut.ac.za

POSTGRADUATE DIPLOMA

1.3.1 Admission Requirements: Students who have completed the Advanced Diploma in Electrical Engineering automatically qualify for entry into this Postgraduate Diploma in Electrical Engineering. Students who have completed another relevant qualification are subjected to an RPL process.

1.3.2 Duration of Programme: This is a one-year full-time programme.

1.3.3 Curriculum

YEAR

SUBJECT CODE	SUBJECT	CREDITS
EEPRO5A	Engineering Research Project	30

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EEMET5A	Advanced Measurement Technology	25
EEEMNSA	Energy Management	25

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EEMIC5A	Microwave Design	25
EEEMS5A	Energy Efficiency Management	25

MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING (ELECTRONICS)

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year, full-time research, concluded with a Master's dissertation.

MASTER OF ENGINEERING IN ENERGY EFFICIENCY (MENG ENERGY EFFICIENCY)

1.5.1 Admission Requirements: An appropriate BEng or Advanced Diploma.

1.5.2 Programme Structure: One-year full-time or two years part time.

1.5.3 Curriculum

MODULE	MODULE CONTENT
Energy Accounting & Economics Credits: 20	<ul style="list-style-type: none">• Building energy use and economic analysis and life cycle costing• Building envelopes and insulation• Energy auditing• Audit instruments• Codes standards and protocols• Energy purchasing• Energy accounting and benchmarking• Energy rates structures• Electrical systems and electricity management
Process Energy Management Credits: 25	<ul style="list-style-type: none">• Fan systems• Pumps and pump systems• Air systems components management.• Heating, ventilating and air conditioning• Understanding and managing boilers:<ul style="list-style-type: none">- Operation- Boiler components- Boiler controls and gauges- Boiler fuels- Heat balance for boilers- Boiler efficiency and improvements• Steam distribution systems:<ul style="list-style-type: none">- Introduction



DEPARTMENT: POWER ENGINEERING

Diploma in Electrical Engineering (Power), Advanced Diploma in Electrical Engineering (Power)
 Postgraduate Diploma in Electrical Engineering (Power), Master of Engineering in Electrical Engineering (Power)
 Doctor of Engineering in Electrical Engineering (Power)

DIPLOMA: ELECTRICAL ENGINEERING (POWER)

1.1 Duration of Programme: Three years full-time qualification, 360 credits. Sixty credits are allocated to Workplace Based Learning which will take place in industry.

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
EEESK1A	Engineering Skills 1	5
EPEEN1A	Electrical Engineering 1	10
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EICOA2A	Computing Applications 2	8
EIDSY1A	Digital Systems 1	10
EPEEN2A	Electrical Engineering 2	10
EEELE1A	Electronics 1	10
AMMAT2A	Mathematics 2	10
EESPA1A	Safety Principles And Law 1	5
CHOICE SUBJECTS		
EMEDR1A	Engineering Drawing 1	10
APHYT2A	Physics 2 Theory	5
APHYP2A	Physics 2 Practical	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
EPEEN3A	Electrical Engineering 3	10
EPEMA2A	Electrical Machines 2	10
EPSYS2A	Power Systems 2	10
AMMAT3A	Mathematics 3	10
EEELE2A	Electronics 2	10
CHOICE SUBJECT (CHOOSE 1)		
EIDSY2A	Digital Systems 2	10
BHMAN1A	Management 1	10
EIPRI1A	Process Instruments 1	10
EMMEC1A	Mechanics 1	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
EPSYS3A	Power Systems 3	10
EEPEL3A	Power Electronics 3	10
EPAEN2A	Alternative Energy 2	10
EPEMA3A	Electrical Machines 3	10
EPEEN4A	Electrical Engineering 4	10
CHOICE SUBJECT		
EICSY2A	Control Systems 2	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EPEPR3A	Electrical Protection 3	10
EPAEN3A	Alternative Energy 3	10
EPEMA4A	Electrical Machines 4	10
EPTXP3A	Transmission 3	10
EEPEL4A	Power Electronics 4	10
EPEMN2A	Energy Management 2	10
CHOICE SUBJECT		
EEELE3A	Electronics 3	10

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EPEXL1A	Workplace Based Learning 1	14
EPEXL2A	Workplace Based Learning 2	16
EPPRJ4A	Engineering Project 4	30

1.1.3 Government Certificate of Competency (GCC)

The Certificate of Competency as a Mechanical and / or Electrical Engineering Technician is issued by the Department of Labour (Factories) or the Department of Minerals and Energy Affairs (Mines) to a person with the necessary academic diploma / degree and practical experience and who has passed a qualifying examination. A person with such a certificate must take responsibility for the operation of a factory or mine where the consumption of electricity exceeds a certain limit.

This University is one of a few tertiary institutions accredited to offer Diplomas complying with the requirements for admission to the GCC examination. This is not a GCC qualification, only a subject package complying with the entry requirements to the GCC examination.

This is for the combination of subjects of the National Diploma and NOT for the Diploma in Engineering.

GOVERNMENT CERTIFICATE OF COMPETENCY (GCC)

- Computer & Programming Skills I
- Mathematics I
- Mathematics II
- Industrial Electronics II
- Power Electronics III
- Electronics I
- Electronics II
- Mechanics I
- Mechanical Engineering Drawing I
- Mechanical Technology I
- Mechanical Technology II
- Mechanical Technology III
- Design Project III
- Electrical Distribution 3
- Electrical Engineering I
- Electrical Engineering II
- Electrical Engineering III
- Electrical Machines II
- Electrical Machines III
- Electrical Protection III
- Digital Systems I
- Applied Communication Skills 1.1
- Applied Communication Skills 1.2
- Applied Communication Skills 2.1
- Applied Communication Skills 2.2
- EDL
- Strength of Materials II
- Strength of Materials III

Government Certificate of Competency Contact Information:

Written application for admission to the examination for the Certificate of Competency can be addressed to:

Mines & Industries
 Department of Minerals & Energy Affairs
 Private Bag X59
 Pretoria, 0001



The written application must also include a letter stating that all the prescribed theoretical requirements have been met. This letter is obtainable from the Department of Power Engineering.

ADVANCED DIPLOMA

1.2.1 Admission Requirements: All applicants must have a Diploma in Electrical Engineering (Power) with the provision of a 60% performance in those diploma subjects that will carry forward into the Advanced Diploma in Electrical Engineering (Power). Apart from the prescribed qualification, a specified period of relevant post-qualification practical experience is a prerequisite for registration.

1.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

1.2.3 Curriculum

SEMESTER 1 COMPULSORY

SUBJECT CODE	SUBJECT	CREDITS
EPPRO4A	Electrical Engineering Project 4	25
EPREM4A	Engineering Research Methods 4	15
EPHVE4A	High Voltage Engineering 4	20
EPELP4A	Electrical Protection 4	20
EPELM4A	Electrical Machines 4	20

SEMESTER 2 COMPULSORY

SUBJECT CODE	SUBJECT	CREDITS
AMAEM4A	Advanced Engineering Mathematics 4	15
BHEMN4A	Engineering Management 4	10
EPEPS4A	Electrical Power Systems 4	20
EEPOW4A	Power Electronics 4	20

POSTGRADUATE DIPLOMA

1.3.1 Admission Requirements: Students who have completed the Advanced Diploma in Electrical Engineering automatically qualify for entry into this Postgraduate Diploma in Electrical Engineering. Students who have completed another relevant qualification are subjected to an RPL process.

1.3.2 Duration of Programme: This is a one-year full-time programme.

1.3.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EPELP5A	Electrical Protection	25
EPHVE5A	High Voltage Engineering	25
EPEPS5A	Power Systems	25

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EPAEN5A	Alternative Energy Feasibility	25
EPEEM5A	Energy Efficiency Management	25
EXPRO5A	Engineering Research Project	30

MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING (POWER)

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year full-time research, concluded with a Master's dissertation.

DOCTOR OF ENGINEERING IN ELECTRICAL ENGINEERING (POWER)

1.5.1 Admission Requirements: Master of Engineering in Electrical Engineering (Power). Ad hoc cases will be treated on merit.

1.5.2 Duration of Programme: At least two years full-time research, concluded with a Doctoral Thesis.

1.5.3 Programme Structure: This instructional programme comprises of a doctoral thesis only, offered at the Vanderbijlpark campus.

2. CAREER OPPORTUNITIES:

A successful candidate can pursue a career as a technician in one of the following specialisation fields: Electrical Machines; Generation of Electricity; Electrical Transmission and Distribution, Electrical Protection, Alternative Energy and Energy Management. The specialisation fields above each offer careers in Design and Development and Maintenance.

3. ENQUIRIES

Enquiries may be addressed to:

The Head of Department:

Power Engineering

Faculty of Engineering and Technology

Vaal University of Technology

Private Bag X021

Vanderbijlpark 1900

Tel: (016) 950-9929

Fax: (016) 950-9795

e-mail: hendrick@vut.ac.za

Website: www.vut.ac.za

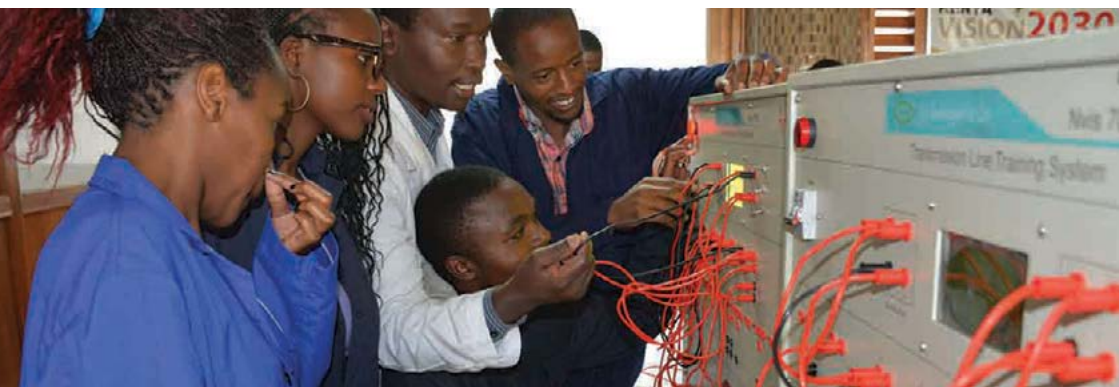


DEPARTMENT: PROCESS CONTROL AND COMPUTER SYSTEMS

Diploma in Electrical Engineering (Process Control and Computer Systems), Advanced Diploma in Electrical Engineering (Process Control and Computer Systems), Postgraduate Diploma in Electrical Engineering (Process Control and Computer Systems)

Master of Engineering in Electrical Engineering (Process Control and Computer Systems)

Doctor of Engineering in Electrical Engineering (Process Control and Computer Systems)



DIPLOMA: ELECTRICAL ENGINEERING (Process Control)

1.1 Duration of Programme: Offered full-time, contact classes are for a period for six semesters (three years) followed by a one-year Workplace Based Learning (carried out through attachment to industry) component.

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
EEESK1A	Engineering Skills 1	5
EPEEN1A	Electrical Engineering 1	10
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EICOA2A	Computing Applications 2	7
EIDSY1A	Digital Systems 1	10
AMMAT2A	Mathematics 2	10
EIPRI1A	Process Instrumentation 1	10
APHYP2A	Physics 2 Practical	10
APHYT2A	Physics 2 Theory	10
EESPA1A	Safety Principles and Law 1	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
EPEEN2A	Electrical Engineering 2	10
EEELE1A	Electronics 1	10
EIENP1A	Engineering Programming 1	10
EINET1A	Networks 1	10
EIPRI2A	Process Instrumentation 2	10
AMMAT3A	Mathematics 3	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
EIDCS1A	Digital Control Systems 1	10
HKCOY2A	Applied Communication Skills 2.2	8
EIDSY2A	Digital Systems 2	10
EEELE2A	Electronics 2	10
EIENP2A	Engineering Programming 2	10
EINET2A	Networks 2	10
EIPRI3A	Process Instrumentation 3	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EEPEL3A	Power Electronics 3	10
EIDSY3A	Digital Systems 3	10
EINET3A	Networks 3	10
EICSY2A	Control Systems 2	10
EIDCS2A	Digital Control Systems 1	10
EIENP3A	Engineering Programming 3	10

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EIDSY 4A	Digital Systems 4	10
EICSY3A	Control Systems 3	10
EINET4A	Networks 4	10
WBL PLACEMENT		
EIEXL1A	Workplace Based Learning 1	14
EIEXL2A	Workplace Based Learning 2	16
EIPRJ4A	Engineering Project 4A	30

ADVANCED DIPLOMA: ELECTRICAL ENGINEERING (Process Control)

1.2.1 Admission Requirements: All applicants must have a Diploma in Electrical Engineering: Process Control with the provision of a 60% performance average in the third year subjects. Certain pre-required subjects in the Diploma in Electrical Engineering: Process Control must also be passed with a 60% average.

1.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

1.2.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EIPRO4A	Electrical Engineering Project 4	25
EIREM4A	Engineering Research Methods 4	15
EIPRI4A	Process Instrumentation 4	20
EIDSP4A	Digital Signal Processing 4	20

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
AMAEM4A	Advanced Engineering Mathematics 4	15
BHEMN4A	Engineering Management 4	10
EIDCS4A	Digital Control Systems 4	20
EIINT4A	Industrial Network Systems 4	20

POSTGRADUATE DIPLOMA: ELECTRICAL ENGINEERING(Process Control)

1.3.1 Admission Requirements: All applicants must have an Advanced Diploma in Electrical Engineering (Process Control) with the provision of a 60% performance in the Advanced Diploma subjects.

1.3.2 Duration of Programme: This is a one-year full-time programme.

1.3.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
GROUP A (Compulsory)		
EIPRP5A	Process Control Engineering Research Project 5	30
GROUP B (Compulsory)		
EIASI5A	Advanced Smart Instrumentation Engineering 5	25
EIANX5A	Advanced Networking Concepts (A) 5	25
EIANYS5A	Advanced Networking Concepts (B) 5	25

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EIAP15A	Advanced Process Instrumentation Systems 5	25
EIAD55A	Advanced DCS and Safety Systems Engineering 5	25
EIPCS5A	Process Control System Design and Development 5	25
EISIN5A	Smart Industrial Network Control 5	25

MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING (PROCESS CONTROL)

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year full-time research, concluded with a Master's dissertation.

DOCTOR OF ENGINEERING IN ELECTRICAL ENGINEERING (PROCESS CONTROL)

1.5.1 Admission Requirements: Master of Engineering in Electrical Engineering (Process). Ad hoc cases will be treated on merit.

1.5.2 Duration of Programme: At least two years full-time research, concluded with a Doctoral Thesis.

1.5.3 Programme Structure: This instructional programme comprises of a doctoral thesis only, offered at the Vanderbijlpark campus.

2. TYPICAL WORK ENVIRONMENT FOR THE INSTRUMENTATION TECHNICIAN

Measurement and control of pressure, level, flow and temperature parameters. Design, installation and maintenance of process control systems and instrumentation. Installation, commissioning and optimisation of various control systems, industrial networks, Safety Systems and Distributed Control Systems (DCS).

DIPLOMA: ELECTRICAL ENGINEERING (Computer Systems)

2.1 Duration of Programme: Offered full-time, contact classes are for a period for six semesters (three years) followed by a one-year Workplace Based Learning (carried out through attachment to industry) component.

2.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
EEESK1A	Engineering Skills 1	5
EPEEN1A	Electrical Engineering 1	10
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EICOA2A	Computing Applications 2	7
EIDSY1A	Digital Systems 1	10
EPEEN2A	Electrical Engineering 2	10
AMMAT2A	Mathematics 2	10
APHYP2A	Physics 2 Practical	10
APHYT2A	Physics 2 Theory	10
EESPA1A	Safety Principles and Law 1	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
EIDSY2A	Digital Systems 2	10
EEELE1A	Electronics 1	10
EIENP1A	Engineering Programming 1	10
EINET1A	Networks 1	10
EISEN1A	Software Engineering 1	10
EIOSY1A	Operating systems 1	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
EIDSY3A	Digital Systems 3	10
EEEELEC2A	Electronics 2	10
EIENP2A	Engineering Programming 2	10
EINET2A	Networks 2	10
EIOSY2A	Operating Systems 2	10
EISEN2A	Software Engineering 2	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EIDSY 4A	Digital Systems 4	10
EIENP3A	Engineering Programming 3	10
AMMAT3A	Mathematics 3	10
EINET3A	Networks 3	10
EIOSY3A	Operating Systems 3	10
EISEN3A	Software Engineering 3	10

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
	CHOICE (At least 1)	
EIENP4A	Engineering Programming 4	10
EINET4A	Networks 4	10
	WBL Placement	
EIEXC1A	Workplace Based Learning 1	14
EIEXC2A	Workplace Based Learning 2	16
EIPRC4A	Engineering Project 4A	30

ADVANCED DIPLOMA: ELECTRICAL ENGINEERING (Computer Systems)

2.2.1 Admission Requirements: All applicants must have a Diploma in Electrical Engineering (Computer Systems) with the provision of a 60% performance average in the third year subjects. Certain pre-required subjects in the Diploma in Electrical Engineering (Computer Systems) must also be passed with a 60% average.

2.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

2.2.3 Curriculum**SEMESTER 1**

SUBJECT CODE	SUBJECT	CREDITS
	COMPULSARY	
EIPRE4A	Electrical Engineering Project 4	25
EIREM4A	Engineering Research Methods 4	15
	GROUP A	
EIMSD4A	Micro System Design 4	20
EEAEL4A	Electronics 4	20
	GROUP B	
EINTP4A	New Technology Programming 4	20
EIDBP4A	Database Programming 4A	20

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
	COMPULSARY	
AMAEM4A	Advanced Engineering Mathematics 4	15
BHEMN4A	Engineering Management 4	10
	GROUP A	
EISEN4A	Software Engineering 4	20
EIWDC4A	Wireless Data Communications 4	20
	GROUP B	
EICNS4A	Computer Network Security 4	20
EIDBS4A	Database Administration 4	20
EIARI4A	Artificial Intelligence 4	20

Students must do at least 2 subjects from Group A

POSTGRADUATE DIPLOMA: ELECTRICAL ENGINEERING (Computer Systems)

2.3.1 Admission Requirements: All applicants must have an Advanced Diploma in Electrical Engineering; Computer Systems with the provision of a 60% performance in the Advanced Diploma subjects.

2.3.2 Duration of Programme: This is a one-year full-time programme.

2.3.3 Curriculum**SEMESTER 1**

SUBJECT CODE	SUBJECT	CREDITS
	GROUP A (Compulsory)	
EICRP5A	Computer Engineering Research Project 5	50
	GROUP B	
	Co-requisite Modules:	
EIASX5A	Advanced Software Engineering Module 1	5
EIASY5A	Advanced Software Engineering Module 2	5
EISNX5A	Systems Engineering Module 1	5
EISNY5A	Systems Engineering Module 2	5

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EIANX5A	Advanced Networking Module 1	5
EIANY5A	Advanced Networking Module 2	5
	Independent Modules:	
EICSS5A	Computer Systems Security 5	25
EIAHS5A	Advanced Hardware Systems 5	25
EIESS5A	Emerging Systems 5	25
	GROUP C	
EIOSD5A	Operating System Design 5	25
EIISS5A	Intelligent Systems 5	25

MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING (COMPUTER SYSTEMS)

2.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

2.4.2 Programme Structure: At least 1 year full-time research, concluded with a Master's dissertation.

DOCTOR OF ENGINEERING IN ELECTRICAL ENGINEERING (COMPUTER SYSTEMS)

2.5.1 Admission Requirements: Master of Engineering in Electrical Engineering (Computer Systems). Ad hoc cases will be treated on merit.

2.5.2 Duration of Programme: At least two years full-time research, concluded with a Doctoral Thesis.

2.5.3 Programme Structure: This instructional programme comprises of a doctoral thesis only, offered at the Vanderbijlpark campus.

3. TYPICAL WORK ENVIRONMENT FOR THE INSTRUMENTATION TECHNICIAN

The environment where an Instrumentation technician will function is in measurement and control of pressure, level, flow and temperature parameters. The design, installation and maintenance of process control systems and instrumentation. Installation, commissioning and optimisation of various control systems, industrial networks, Safety Systems and Distributed Control Systems (DCS).

4. ENQUIRIES

Enquiries may be addressed to:

The Head of Department:

Process Control and Computer Systems
Faculty of Engineering and Technology
Vaal University of Technology
Private Bag X021
Vanderbijlpark 1900

Tel: (016) 950-9254

Fax: (016) 950-9727

e-mail: refilwem1@vut.ac.za or

andref1@vut.ac.za

Website: www.vut.ac.za

DEPARTMENT: INDUSTRIAL ENGINEERING AND OPERATIONS MANAGEMENT

Diploma in Industrial Engineering
 Advanced Diploma in Industrial Engineering
 Postgraduate Diploma in Industrial Engineering
 Master of Engineering in Industrial Engineering

Diploma in Operations Management
 Advanced Diploma in Operations Management
 Postgraduate Diploma in Operations Management



DIPLOMA: INDUSTRIAL ENGINEERING

1.1 Duration of Programme: Three-year full-time qualification: Five semesters (S1 to S5) of theoretical learning at the Vaal University of Technology and one semester (at least) of Workplace Based Learning (Industry).

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
AAECH1A	Engineering Chemistry 1	10
EESK1A	Engineering Skills 1	5
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EBCOA2A	Computing Applications 2	7
AAECH2A	Engineering Chemistry 2	10
EMEDR1A	Engineering Drawing 1	10
EBMRE2A	Manufacturing Relations 2	10
AMMAT2A	Mathematics 2	10
APHYT2A	Physics 2 (Theory)	5
APHYP2A	Physics 2 (Practical)	5
EBSPA1A	Safety Principles and Law 1	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
EPEEN1A	Electrical Engineering 1	10
EBEWS1A	Engineering Work Study 1	10
EMMEN1A	Manufacturing Engineering 1	10
EBPEN1A	Production Engineering 1	10
EBQTE1A	Qualitative Techniques 1	10
EMMEC1A	Mechanics 1	10
AMMAT3A	Mathematics 3	10

SEMESTER 4 (All Compulsory and 1 Elective)

SUBJECT CODE	SUBJECT	CREDITS
Compulsory (All):		
HKCOY2A	Applied Communication Skills 2.2	8
BACOS2A	Costing 2	10
EBEWS2A	Engineering Work Study 2	10
EBFLA2A	Facility Layout and Material Handling 2	10
EMMEN2A	Mechanical Manufacturing Engineering 2	10
EBPEN2A	Production Engineering 2	10
EBQAS2A	Quality Assurance 2	10
Electives* (Only 1):		
EBCAD1A	Computer Aided Drafting 1*	10
EPEEN2A	Electrical Engineering 2*	10

EMMAE1A	Maintenance 1*	10
EMMOM2A	Mechanics of Machines 2*	10
EMSOM2A	Strength of Materials 2*	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EBAUT3A	Automation 3	10
EBEWS3A	Engineering Work Study 3	10
EBIAC3A	Industrial Accounting 3	10
EBILE3A	Industrial Leadership 3	10
EBORE3A	Operations Research 3	10

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EBWIL1A	Work Based Learning (Industrial)	60

ADVANCED DIPLOMA: INDUSTRIAL ENGINEERING

1.2.1 Admission Requirements: A Diploma in Industrial Engineering or equivalent with an overall minimum average of 60% and with a pass in Mathematics 3. All other equivalent qualifications will be treated on an ad hoc basis.

1.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

1.2.3 Curriculum

SEMESTER 1 (All 3 modules are compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBMPS4A	Manufacturing and Production Science 4	20
EBQIC4A	Quality Control and Improvement 4	20
EBRM4A	Research Methods and Industrial Engineering Project 4	20

SEMESTER 2 (3 compulsory modules and 1 elective)

SUBJECT CODE	SUBJECT	CREDITS
Compulsory modules:		
EBFPD4A	Facility Planning and Design 4	20
EBHFE4A	Human Factors and Ergonomics 4	20
EBIEM4A	Industrial Engineering Management 4	20
Elective modules (choose one):		
EBFEE4A	Financial Engineering and Economics 4*	20
EBIKM4A	Information and Knowledge Management 4*	20
EBMOS4A	Modelling and Simulation 4*	20

POSTGRADUATE DIPLOMA: INDUSTRIAL ENGINEERING

1.3.1 Admission Requirements: A Bachelor's degree or Advanced Diploma or relevant NQF level 7 qualification with an overall minimum average of 60%. All other equivalent qualifications will be treated on an ad hoc basis.

1.3.2 Duration of Programme: The Postgraduate Diploma in Industrial Engineering is a minimum one-year, full-time course.

1.3.3 Curriculum

YEAR MODULES (All compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBIPD5A	Industrial Engineering Project Planning and Design 5	30
EBIDI5A	Industrial Engineering Project Design and Implementation 5	30

SEMESTER 1 (All modules are Compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBADA5A	Advanced Decision Analysis 5	20
EBAM55A	Advanced Modelling and Simulation 5	20

SEMESTER 2 (1 Compulsory module and 1 Elective)

SUBJECT CODE	SUBJECT	CREDITS
<i>Compulsory module:</i>		
EBMPESA	Manufacturing and Production Engineering 5	20
<i>Elective modules (choose one):</i>		
BAFD5A	Advanced Facility Design 5*	20
EBFEN5A	Financial Engineering 5*	20
EBPRE5A	Project Engineering 5*	20

Please note: All modules must be done at VUT. This is an NQF level 8 qualification with 140 credits.

MASTER OF ENGINEERING IN INDUSTRIAL ENGINEERING

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year full-time study, comprising of a thesis only.

1.5 Job Opportunities: There is a great need for persons who are well trained in Industrial Engineering. Job opportunities as business advisors, industrial analysts, production personnel, planning personnel and line managers are available in all types of manufacturing companies as well as in service organisations. Experience has shown that people with a dynamic personality and a qualification in Industrial Engineering quickly progress to management level or start their own businesses.

1.6. ENQUIRIES

Enquiries may be addressed to:

Tel: (016) 950 9287

The Head of Department

Fax: (016) 950 9797

Industrial Engineering & Operations Management

Vaal University of Technology

e-mail: madeleine@vut.ac.za or

Private Bag X021

thomas@vut.ac.za

Vanderbijlpark, 1900

Website: www.vut.ac.za

2. Admission Requirements:

DIPLOMA: OPERATIONS MANAGEMENT

Subjects

NSC endorsement

Eligibility for Diploma

Compulsory subjects

Subject	Minimum	Maximum
English	4	3 = 40-49%
Mathematics	4	4 = 50-59%
Physical Science	3	5 = 60-69%
Any other 3 subjects minimum of 4, excl Life Orientation	12	6 = 70-79%
		7 = 80-89%
		8 = 90-99%

TOTAL **23**

2.1 Duration of Programme: Five semesters of theoretical learning and one semester Operations Management Practice (Project based).

2.1.2 Curriculum

SUBJECT CODE	SUBJECT	CREDITS
SEMESTER 1		
HKCOX1A	Applied Communication Skills 1	8
ASICT1A	ICT Skills 1	10
EBMFX1A	Manufacturing Technology 1.1	10
AMMAT1A	Mathematics 1	10
EBOPX1A	Operations Management 1.1	10
EBOGX1A	Organisational Effectiveness 1.1	10
EBWPX1A	Workplace Dynamics 1.1	10
SEMESTER 2		
SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EBMFY1A	Manufacturing Technology 1.2	10
EBOPY1A	Operations Management 1.2	10
EBOGY1A	Organisational Effectiveness 1.2	10
EBQMA1A	Quality Management 1	10
EBWPY1A	Workplace Dynamics 1.2	10
SEMESTER 3		
SUBJECT CODE	SUBJECT	CREDITS
HKCOX2A	Applied Communication Skills 2.1	8
BACEY1A	Costing and Estimating 1.1	10
EBMAX2A	Operations Management 2.1	10
EBOGX2A	Organisational Effectiveness 2.1	10
EBQAS2A	Quality Assurance 2	10
EBSTX1A	Statistics 1.1	10

SUBJECT CODE	SUBJECT	CREDITS
<i>(Subjects with * are electives) – choose one:</i>		
AAECH1A	*Engineering Chemistry 1	10
HLAWX1A	*Labour Law 1.1	15
APHYS1A	*Physics 1	10
ASPRG1A	*Programming 1	10

SUBJECT CODE	SUBJECT	CREDITS
SEMESTER 4		
SUBJECT CODE	SUBJECT	CREDITS
HKCOY2A	Applied Communication Skills 2.2	8
BACEY1A	Costing and Estimating 1.2	10
EBMAT2A	Operations Management 2.2	10
EBMAT2A	Operations Management Techniques 2	10
EBOGY2A	Organisational Effectiveness 2.2	10
AAECH2A	*Engineering Chemistry 2	10
EMMAE2A	*Maintenance Engineering 2	10
EMMEN2A	*Manufacturing Engineering 2	10
APHYS2A	*Physics 2	10
ASPRG2A	*Programming 2	10

SUBJECT CODE	SUBJECT	CREDITS
SEMESTER 5		
SUBJECT CODE	SUBJECT	CREDITS
EBILE3A	Industrial Leadership 3	10
EBMAX3A	Operations Management 3.1	10
EBMAT3A	Operations Management Techniques 3	10
EBOMG3A	Operations Management Technology 3	10
EBOEG3A	Organisational Effectiveness 3	10
SEMESTER 6		
SUBJECT CODE	SUBJECT	CREDITS
EBMAP1A	Operations Management Practice 1	60

ADVANCED DIPLOMA: OPERATIONS MANAGEMENT

2.2.1 Admission Requirements: A Diploma in Operations Management or other engineering disciplines or equivalent (including National Diploma in Operations Management) with an overall minimum average of 60% and a pass in Mathematics 1. All other equivalent qualifications will be treated on an ad hoc basis.

2.2.2 Duration of Programme: The Advanced Diploma is a one-year full-time course.

2.2.3 Curriculum

SEMESTER 1 (All 3 modules are compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBQMA4A	Quality Management 4	20
EBRMO4A	Research Methodology for Operations Management 4	20
EBSCM4A	Supply Chain Management 4	20

SEMESTER 2 (2 compulsory modules and 1 elective)

SUBJECT CODE	SUBJECT	CREDITS
<i>Compulsory modules:</i>		
EBFIM4A	Financial Management 4	20
EBWDE4A	Workplace Design 4	20
<i>Elective modules (choose one):</i>		
EBMAS4A	Manufacturing Systems 4*	20
EBMOM4A	Modelling in Operations Management 4*	20

Please note: All modules must be done at VUT. This is an NQF level 7 qualification with 120 credits.

POSTGRADUATE DIPLOMA: OPERATIONS MANAGEMENT

2.3.1 Admission Requirements: A Bachelor's degree or Advanced Diploma or relevant NQF level 7 qualification with an overall minimum average of 60%. All other equivalent qualifications will be treated on an ad hoc basis.

2.3.2 Duration of Programme: A minimum one-year, full-time course.

2.3.3 Curriculum

YEAR MODULES (All compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBOPD5A	Operations Management Project Planning and Design 5	30
EBODI5A	Operations Management Project Design and Implementation 5	30

SEMESTER 1 (All modules are Compulsory)

SUBJECT CODE	SUBJECT	CREDITS
EBAMA4A	Advanced Modelling in Operations Management 5	20
EBQRM5A	Quality and Reliability Management 5	20

2.4 ENQUIRIES

Enquiries may be addressed to:

*The Head of Department: Industrial Engineering and Operations Management
Vaal University of Technology, Private Bag X021, Vanderbijlpark, 1900*

SEMESTER 2 (1 Compulsory module and 1 Elective)

SUBJECT CODE	SUBJECT	CREDITS
Compulsory module:		
EBOM55A	Advanced Manufacturing Systems 5	20
Elective modules (choose one):		
EBAIM5A	Advanced Industrial Management 5*	20
EBAFD5A	Business Finance 5*	20

Please note: All modules must be done at VUT. This is an NQF level 8 qualification with 140 credits.

2.3 JOB OPPORTUNITIES

Operations Management offers a challenging and exciting career in the private sector. The expertise and skills that you will achieve find their optimum applications and growth in the manufacturing industry as Production Assistant / Production Planner, Production Scheduler / Head Planner, Production Superintendent, Production Manager and Operations Manager. People with Operations Management qualifications and experience are also well equipped to be in many other industries or to start their own business.

Tel: (016) 950 9287

Fax: (016) 950 9797

e-mail: madeleine@vut.ac.za or thomas@vut.ac.za

Website: www.vut.ac.za

DEPARTMENT: MECHANICAL ENGINEERING

**Diploma in Mechanical Engineering, Advanced Diploma in Mechanical Engineering ,
Postgraduate Diploma in Mechanical Engineering, Master of Engineering in Mechanical Engineering
Doctor of Engineering in Mechanical Engineering**

DIPLOMA: MECHANICAL ENGINEERING

1.1 Duration of Programme: Three-year full-time (six semesters 5 to 56) qualification at the Vaal University of Technology.

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
HKCOX1A	Applied Communication Skills 1.1	8
AAECH1A	Engineering Chemistry 1	10
EEESK1A	Engineering Skills 1	5
ASICT1A	ICT Skills 1	10
AMMAT1A	Mathematics 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
HKCOY1A	Applied Communication Skills 1.2	8
EMCOA2A	Computing Applications 2	7
AAECH2A	Engineering Chemistry 2	10
EMEDR1A	Engineering Drawing 1	10
AMMAT2A	Mathematics 2	10
APHYT2A	Physics 2 (Theory)	5
APHYP2A	Physics 2 (Practical)	5
EMSPA1A	Safety Principles and Law 1	5

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
EMMEC1A	Mechanics 1	10

EMPR1A	Project 1 (WIL Mechanical)	7
EPEEN1A	Electrical Engineering 1	10
AMMAT3A	Mathematics 3	10
HKCOX2A	Applied Communication Skills 2.1	8
EMMEN1A	Mechanical Manufacturing Engineering 1	10
EMEDR2A	Engineering Drawing 2	10

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
EMMED2A	Mechanical Engineering Design 2	10
EMMOM2A	Mechanics of Machines 2	10
EMSOM2A	Strength of Materials 2	10
EMFMM2A	Fluid Mechanics 2 (Mechanics)	10
EMTHE2A	Thermodynamics 2	10
EMPRJ2A	Project 2 (WIL Mechanical)	8
HKCOY2A	Applied Communication Skills 2.2	8
EMCA11A	Computer Aided Draughting 1	10

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EMMOM3A	Mechanics of Machines 3	10
EMSOM3A	Strength of Materials 3	10
EMFME3A	Fluid Mechanics 3	10
EMTHE3A	Thermodynamics 3	10
EMMED3A	Mechanical Engineering Design 3	10
EMMEN2A	Manufacturing Engineering 2	10
EMMAE1A	Maintenance Engineering 1	10
EMPRJ3A	Project 3 (WIL Mechanical)	15



SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EMTOM3A	Theory of Machines 3	10
EMAOM3A	Applied Strength of Materials 3	10
EMHYM3A	Hydraulic Machines 3	10
EMSPL3A	Steam Plant 3	10
EMMDE3A	Machine Design 3	10
EMMAE2A	Maintenance Engineering 2	10
EMMEC2A	Modelling and Engineering Computation 2	10
EMEXM1A	Workplace Based Learning 1 (Mechanical)	30

ADVANCED DIPLOMA: MECHANICAL ENGINEERING

1.2.1 Admission Requirements: Diploma or National Diploma in Mechanical Engineering with an average of at least 60% in the following subjects: Hydraulic Machines 3, Steam Plant 3, Theory of Machines 3, Applied Strength of Materials 3 and Mathematics 3. All other equivalent qualifications will be treated on an ad hoc basis.

1.2.2 Duration of Programme: This is a one-year full-time programme.

1.2.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EMEPR4A	Engineering Professionalism	10
EMECN4A	Engineering Economics	10
EMAEM4A	Applied Engineering Mathematics	15
EMMTS4A	Material Science	15

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EMTFM4A	Thermo-Fluids and Turbo Machinery	15
EMHMT4A	Heat and Mass Transfer	15
EMSMS4A	Solid Mechanics and Stress Analysis	15
EMVCE4A	Vibration and Control Engineering	15

YEAR MODULE

SUBJECT CODE	SUBJECT	CREDITS
EMRMD4A	Research Methods and Engineering Design Project	30

POSTGRADUATE DIPLOMA: MECHANICAL ENGINEERING

1.3.1 Admission Requirements: Advanced Diploma in Mechanical Engineering and equivalent qualification.

1.3.2 Duration of Programme: This is a one-year full-time programme.

1.3.3 Curriculum:

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EMEAM5A	Advanced Engineering Mathematics	15
EMEMS5A	Engineering Modelling and Simulations Module 1	15

EMEIC5A	Internal Combustion Engine Analysis	8*
EMEMM5A	Maintenance Management	7*

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EMECM5A	Continuum Mechanics	15
EMEES5A	Energy Systems	15
EMEMSSB	Engineering Modelling and Simulations Module 2	15

EMEPM5A	Production and Manufacturing	8*
EMERES5A	Refrigeration and Air-conditioning	7*

YEAR MODULE

SUBJECT CODE	SUBJECT	CREDITS
EMEAR5A	Applied Research Methodology in Mechanical Engineering	30

* Elective: total credit 15 required

MASTER OF ENGINEERING IN MECHANICAL ENGINEERING

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year full-time study, comprising of a Master's dissertation only.

DOCTOR OF ENGINEERING IN MECHANICAL ENGINEERING (DEng. Mechanical)

1.5.1 Admission Requirements: Master of Engineering in Mechanical Engineering or equivalent. Ad hoc cases will be treated on merit.

1.5.2 Programme Structure: At least two years full-time research, concluded with a Doctoral Thesis.

2. CAREER OPPORTUNITIES:

In any heavy or light manufacturing industry, e.g. the chemical industry, iron and steel manufacturing industry, mining industry, power stations, transport services, provincial and government services, etc. Technicians are much sought after and a career in this field is lucrative and rewarding.

3. ENQUIRIES

Enquiries may be addressed to:

The Head of Department:

Mechanical Engineering

Vaal University of Technology

Private Bag X021

VANDERBIJLPARK 1900

Tel: (016) 950-9287/9302

Fax: (016) 950-9797

e-mail: madeleine@vut.ac.za or alfayoa@vut.ac.za

Website: www.vut.ac.za

DEPARTMENT: METALLURGICAL ENGINEERING

Diploma in Metallurgical Engineering, Advanced Diploma in Metallurgical Engineering
Postgraduate Diploma in Metallurgical Engineering
Master of Engineering in Metallurgical Engineering



DIPLOMA: METALLURGICAL ENGINEERING

1.1 Duration of Programme: Three-year full-time qualification. Five semesters, S1 to S5 at the Vaal University of Technology. One semester Workplace Based Learning (WBL).

1.1.2 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
AMMAT1A	Mathematics 1	10
AAECH1A	Engineering Chemistry 1	10
APHYS1A	Physics 1	10
EESIN1A	Social Intelligence 1	3
EEESK1A	Engineering Skills 1	5
ASICT1A	ICT Skills 1	10
HKCOX1A	Applied Communication Skills 1.1	8

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
AMMAT2A	Mathematics 2	10
EMEDR1A	Engineering Drawing 1	10
APHYS2A	Physics 2	10
AAECH2A	Engineering Chemistry 2	10
EYSPA1A	Safety Principles and Law 1	5
EYCOA2A	Computing Applications 2	7
HKCOY1A	Applied Communication Skills 1.2	8

SEMESTER 3

SUBJECT CODE	SUBJECT	CREDITS
EYPHT1A	Process Thermodynamics 1	10
EYEME1A	Extractive Metallurgy 1	10
EYPME1A	Physical Metallurgy 1	10
EYMPR1A	Mineral Processing 1	10
EYMAM1A	Manufacturing Metallurgy 1	10
EYEGE1A	Engineering Geology 1	10
HKCOX2A	Applied Communication Skills 2.1	8

SEMESTER 4

SUBJECT CODE	SUBJECT	CREDITS
EYHYD2A	Hydrometallurgy 2	10
EYPYR2A	Pyrometallurgy 2	10
EYPME2A	Physical Metallurgy 2	10
EYMPR2A	Mineral Processing 2	10
EYMAM2A	Manufacturing Metallurgy 2	10
EBQCO2A	Quality Control 2	10
HKCOY2A	Applied Communication Skills 2.2	8

SEMESTER 5

SUBJECT CODE	SUBJECT	CREDITS
EYHYD3A	Hydrometallurgy 3	10
EYPYR3A	Pyrometallurgy 3	10
EYPME3A	Physical Metallurgy 3	10
EYMPR3A	Mineral Processing 3	10
EYMAM3A	Manufacturing Metallurgy 3	10
BHMAN1A	Management 1	8
EYENC1A	Environmental Geochemistry 1	8

SEMESTER 6

SUBJECT CODE	SUBJECT	CREDITS
EYWBL1A	Workplace Based Learning 1	60

ADVANCED DIPLOMA: METALLURGICAL ENGINEERING

1.2.1 Admission Requirements: A Diploma in Metallurgical Engineering or the old National Diploma: Engineering Metallurgy.

1.2.2 Duration of Programme: It is a one year programme.

1.2.3 Curriculum

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
AMMAT3A	Mathematics 3	10

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EBQCO3A	Quality Control 3	10

YEAR MODULE

SUBJECT CODE	SUBJECT	CREDITS
EYHYD4A	Hydrometallurgy 4	20
EYPYR4A	Pyrometallurgy 4	20
EYPME4A	Physical Metallurgy 4	20
EYMIP4A	Mineral Processing 4	20
EYMAM4A	Manufacturing Metallurgy 4	20
EYPRO2A	Metallurgical Research Methods and Project 2	20

POSTGRADUATE DIPLOMA: METALLURGICAL ENGINEERING

1.3.1 Admission Requirements: Admission requires a 120 credit Advanced Diploma (NQF level 7) in Metallurgical Engineering.

1.3.2 Duration of Programme: This is a one-year programme.

1.3.3 Curriculum:

PHYSICAL METALLURGY OPTION

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EYPHT2A	Process Thermodynamics	10
EYMKR5A	Corrosion Engineering	10

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EYHMT5A	Heat and Mass Transfer	10

SEMESTER 1 + 2 (YEAR SUBJECTS)

SUBJECT CODE	SUBJECT	CREDITS
EYMA55A	Advanced Modelling and Simulation	20
EYPRO5A	Physical Metallurgy Research Project	30
EYPMES5A	Physical Metallurgy	20
EYMA55A	Manufacturing Metallurgy	20
EYMAE5A	Materials Engineering	20

EXTRACTIVE METALLURGY OPTION

SEMESTER 1

SUBJECT CODE	SUBJECT	CREDITS
EYPHT2A	Process Thermodynamics	10
EYMKR5A	Corrosion Engineering	10

SEMESTER 2

SUBJECT CODE	SUBJECT	CREDITS
EYHMT5A	Heat and Mass Transfer	10

SEMESTER 1 + 2 (YEAR SUBJECTS)

SUBJECT CODE	SUBJECT	CREDITS
EYMA55A	Advanced Modelling and Simulation	20
EYPRO5A	Extractive Metallurgy Research Project	30
EYMIP5A	Mineral Processing	20
EYHYD5A	Hydrometallurgy	20
EYPYR5A	Pyrometallurgy	20

MASTER OF ENGINEERING IN METALLURGICAL ENGINEERING

1.4.1 Admission Requirements: A BEng degree or equivalent level 8 qualification including the Postgraduate Diploma.

1.4.2 Programme Structure: At least 1 year full-time study, comprising of a Master's dissertation only.

2. CAREER OPPORTUNITIES:

Many opportunities exist at primary producers of both ferrous and non-ferrous metals as well as in the manufacturing industry.

3. ENQUIRIES

Enquiries may be addressed to:

Head of Department:

Metallurgical Engineering

Vaal University of Technology

Private Bag X021

VANDERBIJLPARK 1900

Tel: (016) 950 9243

Fax: (016) 950 9796

E-mail: rethav@vut.ac.za or peter@vut.ac.za

Website: www.vut.ac.za



VUT Sport Academy

Where champions meet

WELCOME

The VUT Sport 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	Rugby
Track and Field	Basketball
Cross Country	Softball
Road Running	Volleyball
Tennis	Netball
Table Tennis	Body Building
Dance	Aerobics
Karate	Chess
Cricket	Football
Hockey	

Head: Sport 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
Hockey/cricket open pavilion
6 netball courts (floodlit)
6 tennis courts (floodlit)
3 basketball courts (floodlit)
Weight training room
VUT radio station

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
2. Representation in any South African Junior teams and/or USSA representation.
3. SA and/or USSA and/or Provincial representation.
4. School Honourary 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.

ENQUIRIES

Sport Academy

Vaal University of Technology

Private Bag X021

Vanderbijlpark 1900

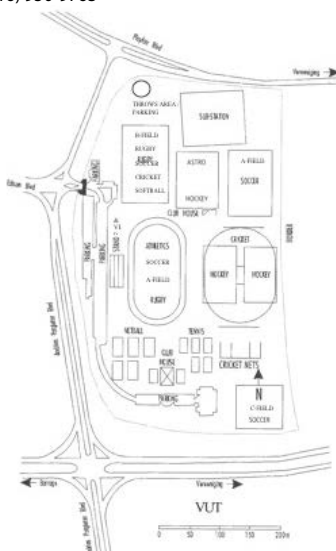
Tel: (016) 950-9917

Fax: (016) 950-9763

Sport & Recreation

Tel: (016) 950-9282

Fax: (016) 950-9763



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

Grade 12 Results

%	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 disadvantage.

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.

Student Counselling and Support Career Services



Student or teacher, nurse or manager.
Apply for an education loan today
and we'll help you realise your ambition.

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 guidance and support.

Career services that are offered within Student Counselling and Support

The Career Centre Support Services include:

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

1. The initial interview (40-60 minutes) and parents are welcome to sit in on the interview
2. 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
3. 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:
Contact number:

P-Block (P021-ground floor)
(016) 950 9244



VUT- Student Counselling and Support



@ScsVut

www.vut.ac.za

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 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.

FACULTY OF ENGINEERING & TECHNOLOGY

CHEMICAL ENGINEERING

Tel: (016) 950 9243, Fax: (016) 950 9796,
e-mail: rethav@vut.ac.za.

CIVIL ENGINEERING AND BUILDING

Tel: (016) 950 9241, Fax: (016) 950 9957,
e-mail: rosaliat@vut.ac.za

ELECTRONIC ENGINEERING

Tel: (016) 950 9416, Fax: (016) 950 9796
e-mail: refilwem1@vut.ac.za

POWER ENGINEERING

Tel: (016) 950 9929, Fax (016) 950 9795,
e-mail: hendrickl@vut.ac.za

PROCESS CONTROL AND COMPUTER SYSTEM

Tel: (016) 950 9323, Fax: (016) 950 9727,
e-mail: refilwem1@vut.ac.za

INDUSTRIAL ENGINEERING AND OPERATIONS MANAGEMENT

Tel: (016) 950 9287, Fax: (016) 950 9797
e-mail: madeleine@vut.ac.za

MECHANICAL ENGINEERING

Tel: (016) 950 9287, Fax: (016) 950 9797,
e-mail: madeleine@vut.ac.za

METALLURGICAL ENGINEERING

Tel: (016) 950 9243, Fax: (016) 950 9796,
e-mail: rethav@vut.ac.za

Vaal University of Technology, Private Bag X021 VANDERBIJLPARK 1900,
Tel: (016) 950-9323; Fax: (016) 950-9727 e-mail: marcelo@vut.ac.za, website: www.vut.ac.za

Whilst every effort has been made to present the relevant information in this brochure, programme 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.

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:

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

Admission Enquiries: (016) 950 9356

Application Status: Self-check

Go to VUT 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

Click "submit"

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

Contact details: Tel: (016) 950 9496

Fax: (016) 950 9759

E-mail: wil@vut.ac.za

The institution makes every attempt to accommodate students with disabilities.

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