



**VAAAL UNIVERSITY  
OF TECHNOLOGY**

*Inspiring thought. Shaping talent.*



# **AUTUMN GRADUATIONS - 2026**

**MOKETE WA DIKAPESO TSA BAITHUTI WA SEHLA SA LEHWETLA - 2026**

**DIKAPEŠO TŠA BAITHUTI TŠA SEHLA SA LEHLABULA - 2026**

**THE 60<sup>TH</sup> GENERATION OF VUT GRADUATES**

**APR · 16 · 2026**



**VAAL UNIVERSITY  
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VAAL UNIVERSITY  
OF TECHNOLOGY

**ENGINEERING &  
TECHNOLOGY**

**THURSDAY,**  
APR · **16** · 2026

## ***VUT Road to 60 campaign***

The VUT Road to 60 campaign is an exciting initiative leading up to the university's diamond jubilee in June 2026. Running from August 2025 to June 2026, the campaign is designed to:

- Celebrate VUT's 60th anniversary by honouring its history and legacy.
- Strengthen institutional pride and identity among staff, students, alumni, and external stakeholders.
- Mobilise resources and partnerships to support the university's long-term sustainability and growth.
- Enhance VUT's reputation and visibility locally, nationally, and internationally.

The campaign includes a series of activations, events, and communications across the university, such as alumni engagement, donor mobilisation, student and staff activations, and outreach to external stakeholders. It is not only a commemorative activity but also a strategic positioning platform that aligns VUT's brand with its long-term ambitions.

### **CAMPAIGN LOGO**



### **FLOW OF LEGACY 1966–2026**

Designed by Ms Lerato Makhetha, a student in the Department of Visual Arts and Design, this emblem celebrates 60 years of strength, unity, and purpose at the Vaal University of Technology. The '6' and '0' are seamlessly connected by a ribbon, symbolising an institution that has stood firm and connected for six decades. Incorporating the VUT shield, the four lines complement the original logo. The ribbon, inspired by the Vaal River, flows from the '0' to the base of the '6', representing a gateway to the future. The design captures VUT's forward-looking vision while honouring its enduring legacy.

Join us as we celebrate the university's past, present, and future.



# SESOTHO

## *Letsholo la VUT la Tsela e lebisang dilemong tse 6o*

Letsholo la VUT la Tsela e lebisang dilemong tse 6o ke mohato o thabisang o lebisang ho jubile ya taemane ya yunivesithi ka Phuptjane 2026. Ho tloha ka Phato 2025 ho isa Phuptjane 2026, letsholo le etseditswe ho:

- Keteka sehopotso sa bo6o sa VUT ka ho hlompha nalane le lefa la yona.
- Matlafatsa boikgantsho le boitsebahatso ba setheo hara basebetsi, baithuti, baithuti ba kgale le bankakarolo ba kantle.
- Kopanya disebediswa le dilekane ho tshehetsa yunivesithi e tsitsitseng le kgolo ya nako e telele.
- Ntlafatsa serithi le ponahalo ya VUT sebakeng sa heno, naheng ka bophara le matjhabeng.

Letsholo lena le kenyelletsa letoto la tshebetso, diketsahalo le dikgokahano ho pholletsa le yunivesithi, jwalo ka boitlamo ba baithuti ba kgale, ho bokella bafani, tshebetso ya baithuti le basebetsi le ho fihlella bankakarolo ba kantle. Ha se ketsahalo ya sehopotso feela empa hape ke sethala sa maemo a leano se hokahanyang letshwao la VUT le ditabatabelo tsa lona tsa nako e telele.

## LETSHWAO LA LETSHOLO



## PHALLOYA LEFA 1966–2026

Letshwao lena le entswe ke Mof. Lerato Makhetho, moithuti Lefapheng la Bonono le Boqapi ba tsa Pono, le keteka dilemo tse 6o tsa matla, bonngwe le morero Yunivesithing ya Thekenoloji ya Lekwa. '6' le 'o' di hoketswe ka lente, ho tshwantsha setheo se ileng sa ema se tiile mme se hokahane ka dilemo tse mashome a tsheletseng. Ho kenyelletsa thebe ya VUT, mela e mene e tlatsana le letshwao la mantlha. Lelente, le buduletsweng ke Noka ya Lekwa, e phalla ho tloha 'o' ho ya botlaaseng ba '6', e emelang monyako wa bokamoso. Moralo ona o hapa pono e shebileng pele ya VUT ha o ntse o hlompha lefa la wona le tshwarellang.

E ba le rona ha re ntse re keteka yunivesithi ya nakong e fetileng, ya hona jwale le ya bokamoso.

# SEPEDI

Lesolo la leeto la VUT la go ya mengwageng ye 60

Lesolo la leeto la VUT la go ya mengwageng ye 60 ke kgato ye e kgahlišago yeo e lebišitšego go taemane ya jubilee ya yunibesithi ka kgwedi ya Ngwatobošego 2026. Go tloga ka kgwedi ya Phato 2025 go fihla ka kgwedi ya Phupu 2026, lesolo le le hlametšwe go:

- Go keteka segopotšo sa ngwaga wa bo 60 sa VUT ka go hlomphe histori le bohwa bja yona.
- Go tliša boikgantšho le boitšhupo bja setheo magareng ga bašomi, baithuti, baithuti ba kgale, le bakgathatema ba ka ntle.
- Go kgoboketša methopo le ditirišano go thekga go tšwelapele le kgolo ya nako ye telele ya yunibesithi.
- Go godiša seriti le ponagatšo ya VUT mo selegaeng, nageng, le boditšhabatšhabeng.

Leeto le le akaretša tthatlamano ya meletlo, ditiragalo, le dikgokagano go ralala le yunibesithi, bjalo ka tlemano le baithuti ba kgale, go hwetša baabi, meletlo ya baithuti le bašomi, le go fihlelela bakgathatema ba ka ntle. Ga se fela mošomo wa segopotšo eupša ke sefala sa go beakanya maemo a maano ao a kopanyago leina la VUT le phišagelo ya yona ya nako ye telele.

## LESWAO LA LESOLO



## TŠWETŠOPELE YA BOHWA 1966–2026

Leswao leo le hlamilwe ke Mohumagadi Lerato Makhethe, moithuti ka Lefapheng la Bokgabo bja go Bonwa le Bohlami, le keteka mengwaga ye 60 ya maatla, kopano le maikemišetšo Yunibesithing ya Theknolotši ya Vaal. Dinomoro tše '6' le '0' tšeo di kgokagantšwe gabotse ka lelente, di laetša setheo seo se emego se tiile ebile se kgokagane mengwagasome ye tshela. Go akaretša seka sa tšhireletšo sa VUT, methaladi ye mene e tlaleletša leswao la mathomo. Lelente, le hlohleleditšwe ke Noka ya Vaal, le elela go tšwa go 'o' go ya motheong wa '6', go emela kgoro ya go ya go bokamoso. Moakanyetšo o laetša pono ya VUT ya go lebelela pele mola o hlomphe bohwa bja yona bjo bo sa felego.

Eba le rena ge re keteka tša moragorago, tša bjale, le bokamoso bja yunibesithi.



**VAAL UNIVERSITY  
OF TECHNOLOGY**



# MESSAGE TO THE CLASS OF 2026

*Esteemed Graduates, Distinguished Guests, Faculty Members, Families, and Friends*

Today we gather not only to celebrate an academic milestone, but to honour a journey of perseverance, discipline and hope. Graduation is never merely the conclusion of study. It is the beginning of responsibility. It is the moment when knowledge meets the world and must prove its worth.

To the Class of 2026, you arrive at this stage at a defining moment in the history of the Vaal University of Technology (VUT). In June 2026 the University celebrates its Diamond Jubilee, marking sixty years of academic excellence, innovation and service to society. Your cohort therefore holds a special place in this historic journey. You are the Jubilee graduates, the generation that steps forward as the University marks six decades of shaping talent and transforming lives.

Across those six decades, thousands have walked these halls before you. Engineers who designed bridges and factories. Technologists who powered industries. Educators, entrepreneurs and innovators who shaped communities across South Africa and beyond. Today you

join that lineage. You become part of the living legacy of the University.

Your achievement is not yours alone. Behind every graduate stands a constellation of support. Parents who sacrificed. Families who encouraged. Lecturers who guided and challenged. Friends who walked the journey with you. Today we honour them as well, because their belief helped carry you to this moment.

Yet graduation does not take place in isolation from the realities of the world around us. South Africa continues to face profound challenges. Unemployment remains high. Poverty still shadows many communities. Inequality continues to test the promise of our democracy. These are not abstract statistics. They are lived realities that call for courage, innovation and leadership.

But history teaches us that societies are changed not only by policies and institutions. They are changed by people who refuse to accept that things must remain as they are.



At VUT, you were prepared for precisely such a moment. You were trained not simply to memorise knowledge but to apply it. To question. To design. To build. To solve problems that matter. Whether you enter laboratories, boardrooms, classrooms, factories or start your own enterprises, the education you received here equips you to turn ideas into impact.

The world you enter is one of profound transformation. Technology is reshaping industries. Artificial intelligence is redefining the nature of work. Sustainability and responsible innovation are becoming central to the future of our planet. In such a world, your qualifications are not merely credentials. They are instruments of change.

As the University walks the Road to 60, we reflect not only on where we have come from, but on where we must go. A Jubilee is not simply a celebration of years passed. It is a moment of renewal, a reaffirmation of purpose. For VUT, that purpose remains clear: to produce graduates who are builders of society, creators of opportunity, and custodians of ethical leadership.

You, the Class of 2026, embody that mission. You are the engineers who will design smarter cities and resilient infrastructure. You are the technologists who will build the industries of the future.

You are the innovators who will create businesses that generate employment.

You are the thinkers who will challenge complacency and inspire progress.

In years to come, when the history of this Diamond Jubilee is told, your generation will be remembered as the graduates who stepped forward at a decisive moment. The generation that carried sixty years of legacy and transformed it into possibility.

So walk into the world with confidence. Let curiosity guide you. Let integrity define you. Let service to society remain your compass.

May you build boldly.

May you lead with courage.

And may the knowledge you carry from this University illuminate the path ahead.

Congratulations, Class of 2026.

The future now calls your name.



# SESOTHO



## VC MOLAETSA HO SEHLOPHA SA 2026

Baithuti ba phethetseng dithuto ba Hlomphehileng, Baeti ba Kgabane, Ditho tsa Difakhalithi, Malapa le Metswalle.

Kajeno re bokana eseng feela ho keteka kगतokgolo ya thuto, empa ho hlomphelele la tiisetso, boitshwano le tshepo. Ho phethela dithuto ha ho bolele feela pheletso ya thuto. Ke qalo ya boikarabelo. Ke motsotso oo tsebo e kopanang le lefatshe mme e tlameha ho hapa boleng ba yona.

Ho Sehlopha sa 2026, le fihla boemong bona ka nako e bohlokwa naneng ya Yunivesithi ya Lekwa ya Thekenoloji (VUT). Ka Phupjane 2026 Yunivesithi e keteka Selema sa yona sa Jubilee sa Taemane, se supang dilemo tse mashome a tshelentseng tsa bokgabane ba thuto, boqapi le tshebetso ho setjhaba. Sehlopha sa lona ka hona se na le sebaka se ikgethang leetong lena la nalane. Le baithuti ba phethetseng dithuto ba Selema sa Jubilee, moloko o hatelang pele ha Yunivesithi e tshwaya dilemo tse mashome a tshelentseng (60) tsa ho bopa talente le ho fetola maphelo.

Ho phatlalla le dilemo tseo tse mashome a tshelentseng (60), ba dikete ba ile ba tsamaya diholong tseo pele ho lona. Dienjinieri tse radileng marokgo le difeme. Dithekenoloji tse matlafaditseng diindasteri. Mesuwe, borakgwebo le baqapi ba bopileng ditjhaba ho phatlalla le Aforika Borwa le ho feta. Kajeno le ikgokahanya le leloko leo. Le ba karolo ya lefa le phelang la Yunivesithi.

Phihlelo ya lona ha se ya lona le le bang. Ka mora moithuti e mong le e mong a phethetseng dithuto ho eme sehlopha sa dinaledi sa tshehetso. Batswadi ba ileng ba itela. Malapa a ileng a kgothalletsa. Barupelli ba ileng ba tataisa le ho phephetsa. Metswalle e ileng ya tsamaya leeto le lona. Kajeno re a ba hlomphelele le bona, hobane tumelo ya bona e thusitse ho le tliša motsotsong ona.

Leha ho le jwalo, ho phethela dithuto ha ho etsahale ka ho itsheka thejana dinthong tsa nnete tsa lefatshe le re potolohileng. Aforika Borwa e ntse e tobana le diphephetso tse tebileng. Tlhokeho ya mesebetsi e ntse e phahame. Bofutsana bo ntse bo aparetse ditjhaba tse ngata. Ho se lekane ho ntse ho leka tshepo ya demokerasi ya rona. Tsena ha se lipalopalo tse sa bonahaleng. Ke dinnete tse phelwang, tse hlokanang sebete, boqapi le boetapele.

Empa nalane e re ruta hore ditjhaba di a fetoha e se feela ka melao le dibaka. Di fetolwa ke batho ba hanang ho amohela hore dintho di tlameha ho dula di le jwalo.

VUT, le ne le hlophiswa hantle bakeng sa motsotso wa mofuta ona. Le ne le kwetliswa eseng feela ho hopola tsebo empa ho e sebedisa. Ho botsa lipotso. Ho rala. Ho aha. Ho rarolla mathata a bohlokwa. Hore

na le kena dilaborathoring, dikantoro tsa boto, dikantoro tsa thuto, difeme kapa ho qala kgwebo ya hao, thuto eo le e fumaneng mona e le hlomella ho fetola mehopollo hore e be kgahlamelo.

Lefatshe leo le kenang ho lona ke le leng la phetoho e tebileng. Thekenoloji e ntse e fetola diindasteri. Bohlale ba maiketsetso (AI) bo ntse bo hlalosa boemo ba mosebetsi ka ditsela tse fapaneng. Boithlhomelo le boqapi bo nang le boikarabelo di ba bohareng ba bokamoso ba polanete ya rona. Lefatsheng le jwalo, mangolo a lona a thuto ha se phihlelo ya thuto feela. Ke disebediswa tsa phetoho.

Ha Yunivesithi e tsamaya tsela ya ho ya mashomeng a tshelentseng (60), re hopola eseng feela moo re tswang teng, empa le moo re tlamehang ho ya teng. Mokete wa Selema sa Jubilee ha se feela ho keteka dilemo tse fetileng. Ke motsotso wa ntjhafatso, ho tiisa botjha nnetefatso ya morero. Bakeng sa VUT, morero oo o ntse o hlakile: ho hlalisa baithuti ba phethetseng dithuto bao e leng baahi ba setjhaba, bathehi ba menyetla le batshireletsi ba boetapele ba boitshwano bo botle.

Lona, Sehlopha sa 2026, le emela mosebetsi oo.

Le dienjinieri tse tla rala metse e bohlale le meralo ya motheo e matla.

Le borathekenoloji ba tla aha diindasteri tsa bokamoso.

Le baqapi ba tla theha dikgwebo tse thehang mesebetsi.

Le banahani ba tla phephetsa boikaaketsi mme le kgothalletse tswelolepele.

Dilemong tse tlang, ha nalane ya Selema sena sa Jubilee sa Taemane e phethwa, moloko wa lona o tla hopolwa e le wa baithuti ba phethileng dithuto ba ileng ba hatela pele ka nako e bohlokwa. Moloko o nkileng dilemo tse mashome a tshelentseng (60) tsa lefa mme wa le fetola kgoneho.

Ka hoo, tsamayang lefatsheng ka boitshupo. Dumellang thahasello ya tsebo e le etelle pele. Dumellang botshepehi bo le hlalose. Dumellang tshebetso setjhabeng e dule e le khamphase ya lona. E ka le ka aha ka sebete.

E ka le ka etella pele ka ho hloka tshabo.

Mme e ka bohlale boo le bo jereng ho tswa Yunivesithing ena bo ka kgantsha tsela e ka pele.

Re a le lebohisa, Sehlopha sa 2026.

Bokamoso bo bitsa lebitso la hao.

# SEPEDI



## MOLAETŠA WA VC GO SEHLOPHA SA 2026

Dialoga tše di Hlomphegago, Baeng, Maloko a Difakhalthi, Meloko le Bagwera.

Lehono ga re kgobokane fela go keteka kgato ye bohlokwa ya thuto, eupša go hlompha leeto la go phegelela, boitshwara le kholofelo. Go aloga ga se feela phetho ya thuto. Ke mathomo a maikarabelo. Ke motsotso wo tsebo e kopanago le lefase moo e swanetše go hlatsela mohola wa yona.

Go Sehlopha sa 2026, o fihla mo nakong ye ka motsotso wo o hlaloša go histori ya Yunibesithi ya Theknolotši ya Vaal (VUT). Ka Ngwatobošego 2026 Yunibesithi e keteka Jubilee ya yona ya Taemane, e swaya mengwaga ye masometshela ya bokgoni bja tša thuto, boithlamelo le tirelo go setšhaba. Ka fao sehlopha sa gago se swere lefelo le le kgethegilego leetong le la histori. Le dialoga tša Jubilee, moloko wo o gatelago pele ge Yunibesithi e swaya mengwagasome ye tshela ya go bopa talente le go fetoša maphelo.

Mengwagasomeng yeo e tshela, ba dikete ba sepetše dihlole tše pele ga gago. Baentšeneere bao ba hlamilego maporogo le difeme. Ditsebi tša theknolotši tšeo di matlafaditšego diintasteri. Barutiši, bagwebi le bahlami bao ba bopilego ditšhaba go ralala Afrika Borwa le ka ntle ga yona. Lehono o tsenela lešika leo. O ba karolo ya bohwa bjo bo phelago bja Yunibesithi.

Phihlelelo ya gago ga se ya gago o nnoši. Ka morago ga sealoga se sengwe le se sengwe go eme sehlopha sa dinaledi sa thekgo. Batswadi bao ba ilego ba itima. Malapa ao a be go a hlohletša. Bafahloši bao ba go hlahlilego le go go hlohla. Bagwera bao ba sepetšego leeto le wena. Lehono re hlomphe wena le bona, ka gobane tumelo ya bona e thušitše go go rwala go fihla motsotsong wo.

Lege go le bjalo go aloga ga go direge ka go ikarola go dilo tša kgonthe tša lefase leo le re dikologilego. Afrika Borwa e tšwela pele go lebana le dihlotlo tše di tseletšego. Go hlokega ga mešomo go sa dutše go le godimo. Bodiidi bo sa dutše bo aparetše ditšhaba tše dintši. Go se lekalekane go tšwela pele go leka tshepišo ya temokrasi ya rena. Tše ga se dipalopalo tšeo di sa kwagalego. Ke dilo tša kgonthe tšeo di nyakago sebetse, boithlamelo le boetapele.

Efela histori e re ruta gore ditšhaba ga di fetošwe fela ke dipholisi le ditheo. Di fetošwa ke batho bao ba ganago go amogela gore dilo di swanetše go dula di le bjalo.

Mo VUT, o be o lokišetšwa motsotso o bjalo ka o. Ga se wa hlahlwa go no swara tsebo ka hlogo efela o tlwaetšwa go e diriša. Go botšiša. Go hlama. Go aga. Go rarolla mathata ao a lego bohlokwa. Go sa

šetšwe gore o tseba dilaborathoring, diphapoši tša boto, diphapošing tša borutelo, difeme goba o thoma dikgwebo tša gago, thuto yeo o e hweditšego mo e go hlomela go fetoša dikgopolo go ba khuetšo.

Lefase leo o tsenago go lona ke la phetogo ye e tseletšego. Theknolotši e bopa diintasteri lefesa. Bohlale bja maitirelo bo hlaloša leswa tlhago ya mošomo. Go swarelela le boithlamelo bjo bo nago le maikarabelo di fetoga dilo tše bohlokwa go bokamoso bja pholanete ya rena. Lefaseng le bjalo, mangwalo a gago ga se fela mangwalo a go hlatsela. Ke didirišwa tša phetogo.

Ge Yunibesithi e sepela Tsela ya go ya go 60, ga re naganišise fela ka moo re tšwago gona, eupša le moo re swanetšego go ya gona. Jubilee ga se fela keteko ya mengwaga e fetilego. Ke motsotso wa mpshafatšo, le tiišetšo gape ya morero. Go VUT, morero woo o dula o le molaleng: go tšweletša dialoga tšeo e lego baagi ba setšhaba, bahlami ba dibaka, le bahlokomedi ba boetapele bja maitshwara a mabotse. Lena, Sehlopha sa 2026, le akaretša thomo yeo.

Ke lena baentšeneere bao ba tlogo hlama ditoropo tše bohlale le mananeokgoparara ao a tiilego. Ke lena ditsebi tša theknolotši tšeo di tla agago diintasteri tša ka moso. Ke lena bahlami ba dilo tše mpsha bao ba tla hlola dikgwebo tšeo di tšweletšago mešomo. Ke lena batho ba go nagana bao ba tla hlohlogo go ikgotsofatša le go hlohletša tšwelopele.

Mengwageng ye e tlogo, ge histori ya Jubilee ye ya Taemane e anegwa, moloko wa lena o tla gopolwa bjalo ka dialoga tšeo di ilego tša gatelapele ka motsotso wa mafelelo. Moloko wo o rwelego mengwaga ye masometshela ya bohwa gomme wa e fetoša gore e be kgonagalo.

Ka fao sepela lefaseng ka boitshepo. Anke go rata go tseba go go hlahle. Anke potego e go hlaloše. A tirelo setšhabeng e dule e le tlhahlo ya gago.

Eke o ka aga ka sebetse.

Eke o ka etela pele ka sebetse.

Gomme tsebo yeo o e rwelego go tšwa Yunibesithing ye e boneše tselo yeo e lego ka pele.

Re a le leboģiša, Sehlopha sa 2026.

Bokamoso bjale bo bitša leina la gago.



# VAAL UNIVERSITY OF TECHNOLOGY

## OFFICE BEARERS

BALAODI | BALAODI BA OFISI



**Mr VZ Mntambo**  
*Chancellor*

LL.M (Yale), LLB (Unibo);B.Iuris.



**Prof MJ Radebe**

*Chairperson of Council : 2025 – 2027*

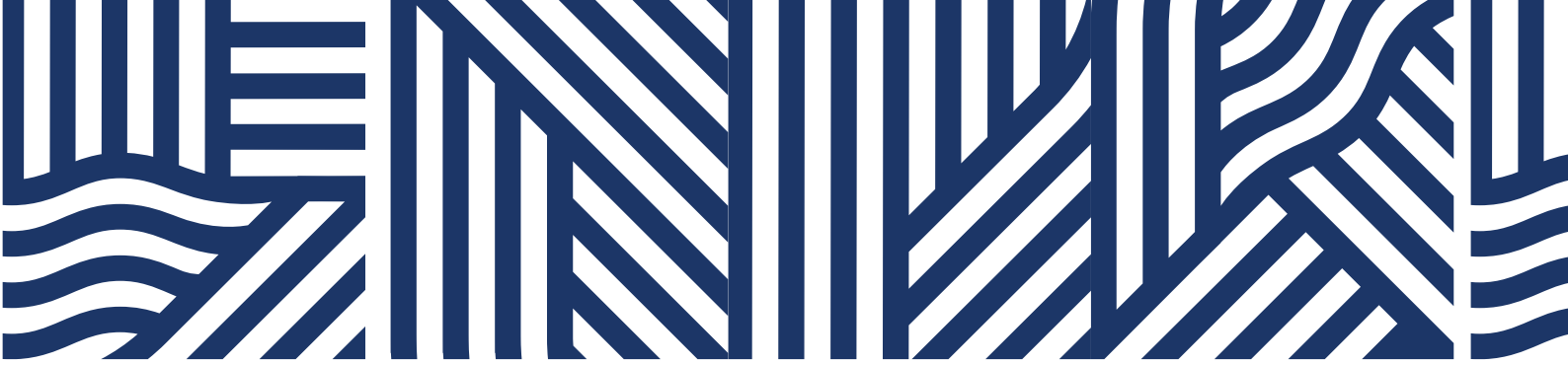
PhD : Media Studies (WITS), MA and BA Hons :  
Journalism and Media Studies (WITS),  
BSc : Computer Sciences (VISTA)



**Prof SK Ndlovu**

*Vice-Chancellor & Principal*

DEd (UZ), M Ed (UKZN), B Ed (UZ), B Paed (UZ),  
SSTD (UZ), EDP (SU)



**Adv S Vilakazi**  
**Registrar (Acting)**

MBL (UNISA), M.Phil (UP), M.Com (UDW),  
LLB (UDW), B.Iuris (UDW)



**Mr SA Mahlalela**

**Deputy Vice-Chancellor: Resources & Operations**  
Executive Leadership Development (Harvard University),  
MBA(Regent Business School), CA(SD), FCCA(UK).



**Dr MG Kanakana-Katumba**  
**Deputy Vice-Chancellor Teaching & Learning**

Dphil (UJ), MSE (CWU), MBA (NMMU),  
BTECH (TUT) and ND (TUT)



**Prof SM Nelana**

**Deputy Vice-Chancellor:**  
**Research, Innovation, Commercialisation and**  
**Internationalisation**  
PhD (UJ), MSc (UWC), BSc Hons (UWC), BSc (UWC)



**Ms N Dhumazi CA(SA)**  
**Chief Financial Officer**

MBA (Henley Business School), MCOM (UP); BCOMPT  
Hons (UNISA), BCOM (UNIVEN)



# VAAL UNIVERSITY OF TECHNOLOGY

## EXECUTIVE DEANS

DIDINI TSA PHETHAHATSO | DIDINIPHETHIŠI



**Dr N Mkhumbeni**

*Executive Dean: (Acting)  
Applied & Computer Sciences*

PhD (TUT), MTech (VUT), PGDip (RBS),  
BTech (CPUT), NDip (PT)



**Prof C Mafini**

*Executive Dean:  
Management Sciences*

PhD (NWU), DTech: (VUT), ADHE (UFS),  
MSC (CUT), BBA (MSU), ADP (UFS)



**Prof K Abou-El-Hossein**

*Executive Dean:  
Engineering And Technology*

PhD: Eng (NTU, Ukraine), MSc: Eng (NTU, Ukraine),  
Grad.Cert: (Curtin, Aus)



**Prof L Maleho**

*Executive Dean:  
Human Sciences*

DTech: (TUT), MTech: (VUT), BTech (VUT),  
N.Dip: (VUT)



## HONORARY DOCTORATES

**2002:**

**Archbishop Emeritus D Tutu** - Humanities

**2006:**

**Prof M Hinoul** – Extraordinary Professorship

**Dr Adv PDF Tlakula** - Legal Studies

**Dr M Oliphant** - Sports Management

**2008:**

**M Mangena** - Applied Sciences

**Adv IA Semanya** - Law

**DN Koloane** - Fine Arts

**SM Pityana** - Humanities

**Adv G Bizos** - Law

**Archbishop WHN Ndungane** - Humanities

**2011:**

**H Masekela** - Human Sciences

**2012:**

**Reverend BE Lekganyane** - Human Sciences

**M Mohapi (posthumously)** - Human Sciences

**2013:**

**Judge MM Mabesele** - Human Sciences

**G Immelman** - Engineering

**2016:**

**B E E Molewa** - Applied Sciences

**T Tebeila** - Business Administration

**I I Sooliman (Dr)** - Humanities

**J B Irkhede** - Arts and Design Human Sciences

**Mme C M Nku (posthumously)** - Human Sciences

**2018:**

**M Meyer** - Management Sciences

**T Makgoe** - Human Sciences

**2019:**

**Z V Sobukwe (posthumously)** - Humanities



# VAAL UNIVERSITY OF TECHNOLOGY

## ORDER OF PROCEEDINGS

MOKGWA WA TSAMAISO YA MOSEBETSI | TATELANO YA LENANELO

### **The Academic Procession enters the Desmond Tutu Great Hall**

Mokoloko o kena setsing sa kopanelo Desmond Tutu  
Molokoloko wa Dirutegi o tseba ka Holong ya Desmond Tutu

### **The Vice-Chancellor & Principal Constitutes the Congregation**

Motlatsa-Motjhanselara le Mosuwehlooho o Bula Mosebetsi Semmuso  
Motlatša Mokhatshelara le Hlogo o Bula Kopano Semmušo

## NATIONAL ANTHEM

PINA YA SETJHABA | KOŠA YA SETŠHABA

## PRAYER AND WELCOME

THAPELO LE KAMOHELO | THAPELO LE KAMOGELO

## PRESENTATION OF GRADUANDS

DIKAPESO | DIKAPEŠO

### **Executive Dean**

Dini ya Phethahatso | Diniphethiši

## CONGRATULATORY MESSAGE TO STUDENTS

TAKALETšo YA MAHLOHONOLO HO BAITHUTI | MOLAETŠA WA DITEBOGIŠO GO BAITHUTI

### **Vice-Chancellor & Principal**

Motlatsa-Motjhanselara le Mosuwehlooho | Motlatša Mokhantshela le Hlogo

### **Vice-Chancellor & Principal Dissolves the Congregation**

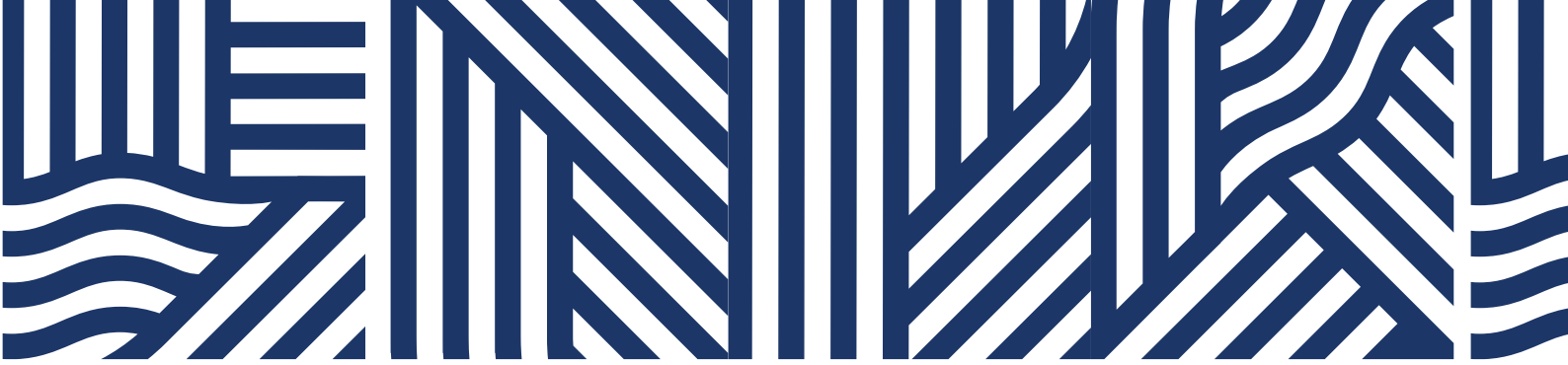
Motlatsa-Motjhanselara le Mosuwehlooho o Qhala Kopano | Motlatša Mokhatshelara le Hlogo o Phatlalatša Kopano

### **The Academic Procession leaves the hall, followed by Guests.**

Mokoloko o tswa setsing sa kopanelo, o latelwa ke baeti ba bohlokwa. | Molokoloko wa Dirutegi o tšwa ka holong, o latelwa ke Baeng

### **The congregation is requested to rise and remain standing when the academic procession enters and leaves the hall.**

Phutheho e koptjwa ho ema ha Mokoloko o tswa setsing sa kopanelo | Batho ba kgopelwa go ema ge molokoloko wa dirutegi o tseba le go tšwa ka holong.



## NATIONAL ANTHEM

*Nkosi sikelel' Afrika  
Maluphakanyisw' uphondo lwayo,  
Yizwa imithandazo yethu,  
Nkosi sikelela, thina lusapho lwayo.*

*Morena boloka setjhaba sa heso,  
O fedise dintwa le matshwenyeho,  
O se boloke, O se boloke setjhaba sa heso,  
Setjhaba sa South Afrika - South Afrika.*

*Uit die blou van onse hemel,  
Uit die diepte van ons see,  
Oor ons ewige gebergtes,  
Waar die kranse antwoord gee,*

*Sounds the call to come together,  
And united we shall stand,  
Let us live and strive for freedom,  
In South Africa our land.*





# VAAL UNIVERSITY OF TECHNOLOGY

## GENERAL ANNOUNCEMENTS

Ditsebiso | Ditsebišo

In order to maintain the dignity of the ceremony, you are requested to take note of the following:

- The congregation is requested to rise and remain standing when the academic procession enters and leaves the hall.
- Do not move around during the ceremony in order to take photographs.
- Please refrain from unacceptable actions such as whistling.
- Please switch off your cellphone.
- We strive to conduct the ceremonies in a dignified manner, please do not leave the hall before the graduation proceedings have been concluded.
- Qualifications of candidates who are unable to attend the graduation ceremony will be conferred in absentia.





## FACULTY OF ENGINEERING AND TECHNOLOGY

09H00 - 16 APRIL 2026

### DIPLOMA IN INDUSTRIAL ENGINEERING

M+3

**CHIBURRE** Andrew  
**KGWADI** Tsholofelo Precious  
**LEKOLOANE** Mogau Lemorosa  
**MACHABA** Moraba Mahlodi  
**MAKHELANE** Kgaugelo Karen  
**MALEPE** Chantelle Tswarelo Duduzile  
**MOFOKENG** Teboho Easy  
**MOKOAKOE** Mojalefa Edwin  
**MOLOTO** Keamogetswe Phillipine  
**MOSIA** Nthonisela Colio  
**MOYO** Rod Kaila  
**MUNYAI** Awelani

**MUSOLIWA** Tondani Ifordia  
**NGOBENI** Ntwanani  
**NGWADLA** Ayabulela Gift  
**NKAMBULE** Kamohelo Sibusiso  
**PANDELANI** Dakalo  
**RADEBE** Nhlakanipho Mxolisi  
**RAMARU** Tumelo Moses  
**SHAI** Ntebaleng  
**THABO** Tshepo Leslie  
**TJALE** Mohau Seemakapatla  
**TONGA** Carrol Naledi

### DIPLOMA IN OPERATIONS MANAGEMENT

M+3

**BRONKHORST** Princess Sinothile  
**CHAUKE** Enetelo Nathashia  
**DALI** Ndivho  
**DLAMINI** Kholeka  
**GUMEDE** Ronel Ntando  
**HLONGOANE** Tenyeko  
**KALEKALE** Naledi Elizabeth  
**KATS** Naledi Precious  
**KHOZA** Moses  
**KUBHEKA** Samkelo Lazarus  
**LUBISI** Appreciate  
**MABOTHO** Shane Leseho  
**MAGASHULE** Glen Mpumelelo  
**MAKHOBOTLOANE** Mpho  
**MAKUNGO** Phumudzo  
**MAMATHABA** Vhulenda Lesly  
**MAPHANGA** Debrah  
**MASEKO** Phumla Hope  
**MASEMOLA** Prudence

**MASHAVA** Shuvai Njabulo  
**MASIMONG** Kagiso  
**MATLABA** Ulenda  
**MATLALA** Moagi Kagiso  
**MATLONYA** Ngwako Tshepang  
**MBOBO** Odwa  
**MDLETSHI** Silindokuhle Nelisiwe  
**MOFOKENG** Londiwe Aqhuma  
**MOFOKENG** Nthabiseng  
**MOFOKENG** Palesa Bathabile  
**MOKHETHI** Keneilwe  
**MOKWENA** Naledi  
**MOLEKWA** Tshegofatso  
**MOLOI** Ategang Austine  
**MOREMI** Tshidi Betchu  
**MOTETE** Mpho Given  
**MOTHA** Zanele Pretty  
**MOTLHODI** Oboitshepo  
**MPHELE** Tshepo



## DIPLOMA IN OPERATIONS MANAGEMENT

M+3

**MUTAVHATSINDI** Rinae  
**NDHLOVU** Innocentia Andile  
**NEMALAMANGWA** Mulalo Patience  
**PAILE** Mahlatsi Refiloe  
**PAYAZI** Innocent Freedom  
**RADEBE** Lebohang Collen  
**RAMAVHALE** Selaelo  
**SEABI** Tebogo Francina Mmapula  
**SEBASHA** Nthabiseng Joyce

**SEJAKE** Gladwin Malefo  
**SHABANGU** Nkosinathi  
**SHANDU** Mfanimpela Gift  
**SIGAGAMMBA** Ndamulelo  
**SINGWANE** Sinenhlanhla  
**SITHOLE** Vunene Frolic  
**THOBAKGALE** Themba Brilliant  
**TSHUKUDU** Bonolo  
**TSWAI** Lilford Maboya

## ADVANCED DIPLOMA IN INDUSTRIAL ENGINEERING

M+4

### **CUM LAUDE\***

**MORENA** Thapelo Adolph\*

**DIPHARE** Lerato Lydia  
**DZIVHAMBELE** Munzhedzi  
**ILUNGA** Kolombo Freddy  
**KHUMALO** Lunga Sihle  
**KOLOBE** Phello  
**LEKGORO** Tebogo Keith  
**LIDZHADE** Olugaho Veracious  
**MABASO** Ntshembo Ostin  
**MABELANE** Bokamoso Dikole  
**MABUNDA** Singita  
**MAINGANYA** Ronewa  
**MANENZHE** Adivhaho  
**MATHONSI** Pardon  
**MFOLO** Lebone  
**MMOTONG** Boitumelo  
**MNGUNI** Alwande Ndumiso  
**MNISI** Sibusiso  
**MOKONE** Hopolang Keitumetse  
**MONTSHO** Letlhogonolo  
**MPHIGALALE** Shonisani  
**MTHIMUNYE** Moses Sunday  
**MUAVHA** Zwavhudi

**MUDAU** Blessing Unarine Oratile  
**MUFAMADI** Rotondwa  
**MUKONA** Rendani Candice  
**NETSHITUKA** Tshivhandekano Thabang  
**NKOSI** Moses Significance  
**NTLANI** Spesihle  
**PILUSA** Ngwako Mak  
**RAMATHUTHU** Fhulufhelo  
**RAMATLO** Johnson Lephaphe  
**RASUBA** Muano Witness  
**RAUDZINGANA** Thama  
**SEKITI** Kgotlelelo Sefefe  
**SHIVURI** Syabonga  
**SIMBINI** Sam  
**SIPHUMA** Pfunzo  
**SITHOLE** Lunghani  
**SIWADA** Mulindi  
**THANGO** Bongwiwe Nompumelelo  
**TSHIKOMBA** Avharilwele  
**TSHIPORO** Rofhiwa  
**TSIAME** Nthabiseng Jeanet  
**ZWANE** Linda Siboniso



## ADVANCED DIPLOMA IN OPERATIONS MANAGEMENT

M+4

**CHABALE** Leponesa Katleho  
**KGABI** Mogomotsi Arthur  
**KHOZA** Mkatoko Canisha  
**LUBISI** Vusi Hope  
**MAMELASIGIDI** Rinae  
**MANZINI** Agreebeth Thandiwe  
**MARELETSE** Thoriso Katlego  
**MASETHE** Abram Kgashane  
**MBONANI** Constance Bobo  
**MFUMBA** Nobuhle  
**MKHONTO** Andrie Tshepiso  
**MNISI** Risuna  
**MOFOKA** Kekeletso Elliot  
**MOKGEHLE** Moyahabo Ephrat  
**MOKOENA** Piet Pitso

**MUREMI** Ronewa Lucia  
**MZOBE** Nkosingiphile Sfiso  
**NDABA** Siphoh  
**NDLAZI** Sanele Shadow  
**NETHAVHANI** Khathutshelo Johannes  
**NSUNGU** Reguy  
**NYATHII** Natash Sibonokuhle  
**PAPOLA** Boitumelo  
**RABAMBI** Divhani Comfort  
**SHILUVANE** Nokuthula Portia  
**SHIPALANA** Bongani  
**SKOSANA** Phenda Meshack  
**TSHIFULARO** Muano  
**ZWANE** Ayanda Innocentia

## POST GRADUATE DIPLOMA IN INDUSTRIAL ENGINEERING

M+5

**BOGOPA** Maphale Bonolo  
**BOGOPA** Paballo Mathabathe  
**CHAVALALA** Lamiace  
**JUDE** Micheal  
**KABEYA** Katanga Amos  
**KADZINJA** Godwill  
**MAKOFANE** Phoka Tshegofatso  
**MALEJANE** Delia  
**MALINDI** Thandiwe Elizabeth  
**MASUKU** Nqobile Neliswa  
**MGIBA** Ntokozo  
**MKHATSWA** Goodlucky

**MOREKI** Kefilwe Hlohonolofatso  
**MPOFU** Joseph  
**MUKUTA** Kapenda Joseph  
**NDABA** Bonginkosi Emmanuel  
**NGOBENI** Kulani Ledrick  
**NGOVENI** Ntsako Faith  
**PHALA** Mmolawa Cleopatra  
**RAMAGOMA** Vhugala  
**RAMATSEA** Khwathani  
**SEKOTI** Mainjawe Goodness  
**TSHADULI** Tshudufhadzo



VAAL UNIVERSITY  
OF TECHNOLOGY  
**ENGINEERING &  
TECHNOLOGY**



## POST GRADUATE DIPLOMA IN **OPERATIONS MANAGEMENT**

M+5

**KAZADI** Mulengama Daniel  
**MABASA** Eugene Hetisani  
**MABASA** Nsovo  
**MAHLALELA** Xolani Bethuel  
**MAKHUBELE** Ntwanano Ophelia  
**MAKWAKWA** Beauty Busisiwe  
**MAPHANGA** Bongani  
**MASINGA** Precious Mikateko  
**MATSANENG** Mamello Annah  
**MAWASHA** Christopher  
**MBULAHENI** Victor  
**MOLOI** Lehasa

**MOTHOBI** Lebohang  
**MPHEGO** Mogau Ennocencia  
**MVUBU** Thando  
**NETSHITANGANA** Ronewa  
**NGOIE** Kiteng Marie  
**NTESO** Kekeletso Caroline  
**NTONE** Tshekgofatso Pulane  
**RADZHADZHI** Thanyani Duran  
**RAMALIDA** Michael  
**SELEPE** Cynthia Palesa  
**VANSTAD** Itumeleng Clement

**CUM LAUDE\***

**TSITSI** Omolemo Gordon\*

**BALOYI** Nhlahla

**BHANI** Nompumelelo

**CELE** Themba

**CHIVUNGA** Lloyd Tanaka

**DLAMINI** Mighty Xitsundzusho

**DUBAZANE** Sibongiseni Goodlove

**GUMEDE** Motley Megan

**KAUNDA** Sphehile

**KGANYAGO** Tinyiko David

**KUBEKA** Thandolwethu Gift

**LETEBELE** Sechaba Romeo

**LETENO** Ramosoou Esau

**MADONSELA** Itumeleng Hezekiel

**MADZIVHE** Languta Lamek

**MAHLANGU** Thando Enie Machia

**MAHLOBOGOANE** Tshepho Ivan

**MAKHOSHI** Takalani Prince

**MAKOFANE** Junior Tsibishi

**MANYAMA** Elisa

**MASHATANE** Fhatani

**MASHEGO** Clifford

**MASHILE** Reliance

**MASULUKE** Shilaveko Cyril

**MATHE** David Babusi

**MATLALA** Eugen Lesego

**MAZIBE** Caizy Mpilo

**MDLULI** Andile Khayelihle

**MHLANGA** Ntombenhle Portia

**MOHLAHLA** Kabelo Kgoroshi

**MOKGALAKA** Kgothatso

**MOKOTONG** Lesedi Dawn

**MOLEFI** Mojalefa Jacob

**MPHAHLELE** Orekgahlile Maredi

**MPHUTHI** Moeketsi Michael

**MTHABINI** Josh

**MTHOMBENI** Nsovo Gladman

**MTHOMBENI** Vukosi Advise

**NDLOVU** Thokozane Lovers

**NELWAMONDO** Livhuwani

**NGUBENI** Sakhile Mzimkhulu

**NKABINDE** Thando

**NKUNYANE** Mpinane Ernestina

**PARKER** Zaahir

**RANTHAKO** Mpho

**RAPHASHA** Seja Clement

**SEKOSANA** Thabang Galgath

**SHABANGU** Pearl

**SIBUYI** Trust

**SKOSANA** Thulani Leon

**TALANA** Tumiso Boysie

**TFWALA** Siphosethu Derick

**THABEDE** Simangaliso Philasande

**TLAMAMA** Tshephang

**TSOTETSI** Rethabile

**TUGE** Setshedi Kibiti Kingsley



NATIONAL DIPLOMA : **MECHANICAL ENGINEERING**

M+3

**MBA-ONU** Chinedu Victor

ADVANCED DIPLOMA IN **MECHANICAL ENGINEERING**

M+4

**CHAUKE** Brain Vusi  
**DLAMINI** Joel Kabeya Malengela  
**FONSECA** Dick  
**KABAMBA** Kalonji Samy  
**KGATLHANE** Thato Paulose  
**KGOMO** Khutso Matildah  
**LETSELA** Mmabotle  
**LUBANGI** Mugalu Yves  
**MABOTJA** Mogamotshi Mamphaka  
**MABUZA** Zandile Mawethu Ashly  
**MACHETE** Lethabo Bruters  
**MAHLANGU** Siyabonga Ndimande  
**MAKASELA** Tshembo Success  
**MALATJI** Mathews kgashane  
**MAMAFHA** Khuliso Wesley  
**MAMBU** Benjamin  
**MAMELASIGIDI** Dzivhuluwani Esrom Kabelo  
**MAMIDZHA** Ndinannyi  
**MASETLE** Rethabile Raymond  
**MASHAMAITE** Karabo Ismael  
**MASHELE** Eunicia  
**MASINDI** Mulanga Justin  
**MASWANGANYI** Honour  
**MATHEBULA** Lethweinkosi  
**METSING** Selloane Euice  
**MLAMBO** Mduduzi Julius  
**MMBUSHI** Thabelo  
**MOHLALA** Kgodiso  
**MOHUBEDU** Thabang  
**MOKOAPE** Tshgefotso  
**MORAKE** Maanakoena

**MORULEDI** Didintle Keamogetse  
**MOSHOANA** Tintswalo Portia  
**MOTAUNG** Phello Joseph  
**MSIZAZWE** Ronie Khayaletu  
**MTHOBENI** Siyabonga Vuyisile  
**MUNYADZIWA** Ratshilumela Peter  
**MUTOMBO** Biaya Cedrick  
**NDEBELE** Phumlani Confident  
**NDOUVHADA** Rendani Cliefort  
**NGOBENI** Bongani Lisborn  
**NGWENYA** Ayanda Xolisile Khanyisile  
**NTOMBELA** Thandoluni  
**PELUSA** Hope Bongi  
**PHASHA** Lefa  
**RABAMBI** Ontshidza Desmond  
**RAFAHLIMA** Mashau Junior  
**RAMAREMISA** Omphulusa  
**RAMMUTLE** Oageng Teboogo  
**RANTSOLASE** Boitumelo Elizannah  
**SEKGOLOLO** Kamogelo  
**SEMA** Ezekiel Lehlogonolo  
**SEMOLI** Andrew Mpho  
**SHIBE** Thandeka Perfect  
**SHONGWE** Andile  
**SITHOLE** Ntombiyenkosi Angel  
**THELA** Andile Lifa  
**TLATSA** Mamokekeng Melydah  
**TSHABALALA** Lindokuhle  
**VILAKAZI** Luyanda  
**WAMPANGA** Diese



POST GRADUATE DIPLOMA IN **MECHANICAL ENGINEERING**

M+5

**CUM LAUDE\***

**MULUMBA** Aaron Ntambo\*

**ABUBAKAR** Gracia Kakudji

**ALLY** Omari Luc

**FOOT** Emmanuel Zwelibanzi

**HLUBI** Tshepo Esaia

**KASONGO** Given Dishinka

**LECHESA** Ntholeng Engles

**MABUNDA** Matimu

**MAGALE** Allann Mphosi

**NSENGA** Tshimanga\*

**MALONGANE** Bonolo Kevin

**MAYOMBO** Ditalala Josue

**MENYATSO** Kgotso

**MWAPARADZA** Leon

**NARE** Siphon Niadoo

**NKALANGA** Siyabonga Enough

**THOBETHA** Lerato



MASTER OF ENGINEERING IN **MECHANICAL ENGINEERING**

M+6

**CUM LAUDE\***

**GILBERT** Emmauel Ophel\*

**DISSERTATION: DYNAMIC ANALYSIS OF COUPLED SHAFT-BEARING SYSTEM WITH AN OPEN CRACK IN THE INNER-RACE**

**SUPERVISOR:** Prof A.A Alugongo  
**CO-SUPERVISOR(S):** Prof B.X Tchomeni  
Mr D.F Sozinando

**LEKALAKALA** Thabisang syvester\*

**DISSERTATION: BALL-BEARING OUTER RACE SPALL DEFECT LOCALISATION USING VIBRATION ANALYSIS**

**SUPERVISOR:** Prof AA Alugongo  
**CO-SUPERVISOR(S):** Prof B.X Tchomeni,  
Mr D.F Sozinando

**HOMBANI** Siphokazi

**DISSERTATION: OPTIMISATION OF INTERGRATED MEMBRANE FEEDSTREAM TO IMPROVE MEMBRANE PERFORMANCE DURING OIL-WATER SEPARATION**

**SUPERVISOR:** Prof P.B Sob  
**CO-SUPERVISOR(S):** Prof A.A Alungongo  
Prof T.B Tengen

**KIPKORIR** Dennis Kippruto

**DISSERTATION: INVESTIGATION OF FUEL PROPERTIES AND ENGINE PERFORMANCE OF TERNARY BLENDS OF PETROLEUM DIESEL, DISTILLED WASTE ENGINE OIL AND BIODIESEL FROM WASTE COOKING OIL**

**SUPERVISOR:** Prof. H.L Rutto  
**CO-SUPERVISOR(S):** Prof AA Alugongo  
Mr F Nturanabo

**SOZINANDO** Desejo Filipeson**THESIS: MODELLING OSCILLATING BUTTERFLY VALVE FLUID INTERACTION IN A PIPE SYSTEM MOUNTED ON EXCITED ELASTIC FOUNDATION.****PROMOTOR:** Prof AA Alugongo**CO-PROMOTOR:** Prof. BX Tchomeni**ABSTRACT:**

Coupled fluid–structure interaction in an oscillating butterfly valve mounted in a pipeline on an excited elastic foundation was analysed using analytical and computational methods. The study addresses the lack of an analytical formulation describing valve dynamics under simultaneous turbulent flow excitation and foundation vibration. An analytical, numerical, and experimental framework was developed to examine nonlinear interaction between fluid flow, structural vibration, and external excitation in the butterfly valve–pipe system. A mathematical model of the oscillatory pipe–valve system was formulated using fluid-conveying pipe dynamics on an elastic foundation. Finite Element Analysis (FEA) was adopted to estimate valve resonance characteristics using modal mass participation factors. The X-direction exhibits dominant contributions to resonance frequencies of 1153.1 Hz and 912.21 Hz, with modal participation values of 0.2631 kg and 0.08161 kg, respectively. Moderate participation was found in the Y-direction at 392.06 Hz and 559.45 Hz with modal masses of 0.1239 kg and 0.08161 kg. The Z-direction displayed comparatively lower modal participation, with a maximum value of 0.1218 kg, indicating reduced susceptibility to vibration excitation in this direction. The model identified critical vibration modes with high participation factors, indicating that excitation frequencies close to these modes may trigger resonance and increase the risk of structural damage. The governing partial differential equation was approximated using a machine-learning framework based on a Physics-Informed Neural Network (PINN), where the physical laws were embedded directly in the loss function during the training process. Training showed excellent agreement with the analytical solution, with regression coefficients of  $R = 0.9999$  across all data partitions. Computational Fluid Dynamics (CFD) analysis was implemented to model the fluid flow through the pipeline and to evaluate the interaction between fluid forces and the valve structure. When valve opening at  $30^\circ$ , the peak velocity of the axial direction reached 25.85 m/s with dynamic pressure 333.356 kPa with *vi* intense turbulence and vortex formation. At  $60^\circ$  valve opening, the axial velocity decreased to 6.35 m/s and the dynamic pressure reduced to 20.089 kPa, representing approximately a 75% reduction relative to the  $30^\circ$  valve opening condition. Radial velocity at the smaller valve opening ranged between  $-15.07$  m/s and 21.23 m/s, indicating strong flow asymmetry and vortex-dominated behaviour. A conceptual analytical model of the dynamic of butterfly valve-pipe system was subsequently modelled based on 5-degree-of-freedom formulation that included the dynamic interaction between the valve and the pipe-bearing system. The Fast Fourier Transform (FFT) spectral analysis also demonstrated the relationship between the velocity of fluid flow and external excitation frequencies and their respective effects on the dynamic properties and energy distribution across frequency bands. Coupled fluid–structure interaction and nonlinear valve vibration make prediction of system performance and stability challenging under turbulent flow conditions. Thus, signal-processing techniques including Kernel Density Estimation (KDE), Hilbert–Huang Transform (HHT), and Wigner–Ville Distribution (WVD) were applied to extract nonlinear and non-stationary vibration features from the butterfly valve–pipe system. Strong nonlinear modulation and sideband structures were observed at  $30^\circ$  valve opening, indicating intensified interaction between turbulent fluid forces and structural motion. Experimental validation was conducted using a laboratory test rig equipped with flow and vibration measure-



ment instruments. It was observed that the highest amplitude of the vibration response was 0.5 mm/s at 18.9°. As the valve angle increased beyond this value, the magnitude of vibration slowly reduced, and was negligible at angles greater than 44.2°, which proved that the magnitude of vibration is greater at lower opening due to flow separation and vortex shedding. At larger valve openings both flow coefficient ( $C_v$ ) and discharge coefficient ( $C_d$ ) were found to increase significantly above 60°. The head loss reached its maximum between valve opening angles of 13° and 30°, with the large openings decreasing the resistance of the flow and promoted stable turbulent flow conditions.

**TLHABADIRA** Isaac**THESIS: FABRICATION, OPTIMIZATION, MODELLING AND SIMULATION OF A NOVEL  $\beta$ -SIALON CERAMIC INSERT USING SPARK PLASMA SINTERING FOR MACHINING OF HARD TO CUT MATERIALS****PROMOTOR:** Prof LM Masu**CO-PROMOTER:** Prof AA Alugongo**ABSTRACT:**

Titanium and its alloys, as well as other hard materials, have excellent properties for technical applications, but are problematic in terms of machinability. The mined elements used to manufacture cutting inserts have a particularly short life span and become scarce as the mine nears its period of operation, so new materials capable of performing similar operations must be investigated. This study aimed to optimize  $\beta$ -SiAlON composites for machining difficult-to-machine materials.

In this study, the initial powders were categorized after mixing different components of  $\beta$ -SiAlON.  $\beta$ -SiAlON samples were then fabricated with the HHPD25 (FCT Germany) Spark Plasma Sintering (SPS) machine using a response surface methodology experimental design. The developed samples were tested for various material strength, wear, and thermal properties. The model was developed with Design-Expert 13 software and verified experimentally.  $\beta$ -SiAlON optimization was then performed to obtain good response results.

SiAlON is the generic name for a large family of so-called ceramic alloys based on silicon nitride. There are two sialon phases of interest as engineering ceramics,  $\alpha$ -SiAlON, and  $\beta$ -SiAlON, which are solid solutions based on  $\alpha$ - and  $\beta$ -Si<sub>3</sub>N<sub>4</sub> structural modifications.  $\beta$ -SiAlON is formed by the simultaneous equivalent substitution of Si-N for Al-O and is most commonly represented by the formula Si<sub>6-z</sub>Al<sub>z</sub>O<sub>z</sub>N<sub>8-z</sub>. This formula allows z values to vary between 0 and 4.2. It is essentially used for phase relationships, microstructure design, and tuning properties for specific applications. In this work, z-values varied between 0.75, 1, 1.25 and 1.5.

Response surface methodology (RSM) experimental design comprising of three level-three-factor Box-Behnken was used to fabricate the test samples by varying the input parameters, sintering temperature (1400°C, 1430°C and 1450°C) heating rate (50 °C/min, 75 °C/min and 100 °C/min and the z-value (0.75, 1.25, 1.5). Optimum response values of the responses were, relative density 97.8, hardness 1610 N/mm<sup>2</sup>, fracture toughness 5,6 MPa.m<sup>1/2</sup>, wear rate 21x 10<sup>-6</sup>, compressive stress 362 Nm<sup>-2</sup> and thermal conductivity of  $\beta$ -SiAlON were obtained at input parameters of sintering temperature 1450°C, heating rate 75°C/m and z-value 0.75.



## VUT Shield Icon Breakdown: Images and Descriptions.



The icon breakdown is unique as the V represents the word Vaal, and indicates the graduation hood as a symbol of achievement.



The U represents the word University



and the Centre is filled with water waves that signify a source of life and our location.



## VUT BRAND MARKS/LOGOS

Faculty Brand Marks are differentiated by the colors of the V that symbolizes the faculty colour hood during graduations.



The **Academic Mark** is the purest form of the VUT brand.

The blue waves in the center represent the Vaal River and the university's location.

The gold represents academic excellence, achievement, success, and wealth.

The academic brand is only used in academic ceremonies and by the office of the Vice-Chancellor and VUT Council.



The **Marketing Brand Mark** communicates the brand voice as a person, which is Curious, Ambitious and Flexible.

Dandelion represents warmth and optimism.

Sapphire represents integrity, knowledge, power, and seriousness.



**Applied & Computer Sciences**  
Buttercup Yellow represents Happiness & Joy.



**Engineering & Technology**  
Beatle Green represents Nature, Environment, Health & Renewal



**Human Sciences**  
Union Jack Red represents Energy, Passion, and Heat.



**Management Sciences**  
Adonis Blue represents Harmony, Unity & Truth



The **Culture mark is the MaVUTi Mark**, a fingerprint modified in the shape of a U, symbolizing the uniqueness of VUT staff and students.



# AN BUILDING

## WELCOME TO CONVOCATION / ALUMNI NETWORK



**Mr Makhosonke Sangweni**  
**President of the Convocation**

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**Mr David Matsaung**  
**Deputy President of the Convocation**

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The Convocation of Vaal University of Technology (VUT) is a statutory body that serves as the university's largest constituency, comprising its alumni and key academic stakeholders. This body plays a pivotal role in the governance and strategic direction of the institution by facilitating alumni engagement and contributing to the preservation and enhancement of the university's academic reputation.

Membership to Convocation is automatic upon the conferral of a diploma, or credit-bearing certificate. Additionally, academic staff and selected emeritus professors are included, ensuring a broad and representative body that upholds the interests of both past and present members of the university.

### Roles and Responsibilities

Convocation is entrusted with the responsibility of deliberating on and providing input into matters concerning the university's development as stated in Chapter 10 (5.3) of the VUT Government framework. Its key functions include

- Electing the President of Convocation.
- Electing three Executive Committee of Convocation (Exco).

- Discussing and expressing opinions on issues affecting the university, including matters which may be referred to it by the council.
- Convocation ensures that alumni have a voice in shaping institutional policies, thereby safeguarding the credibility and value of a VUT qualification.
- Through its structured engagement, Convocation strengthens networks with donors and stakeholders to secure funding opportunities for alumni and convocants in need of financial support to fostering a collaborative and progressive academic environment.

### Eligibility for Membership in VUT Convocation

The Convocation of VUT comprises the following members:

- All graduates and holders of diplomas or credit-bearing certificates from the university.
- The Vice-Chancellor, Deputy Vice-Chancellors, and all academic staff.
- Former professors and associate professors who have been granted emeritus status by the Senate.



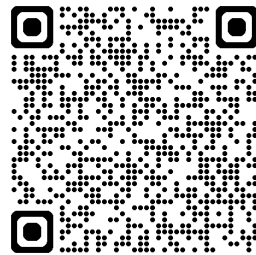
# VAAL UNIVERSITY OF TECHNOLOGY

VUT™  
**Ekhaya**  
alumni



**Mr Peter Masombuka**  
**Alumni Relations**

Marketing and Communications  
Telephone +27 (0)16 950 9973  
peterm@vut.ac.za



**SCAN** to update  
your contact details



**Mr Comfort Madalane**  
**Alumni Relations**

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The role of alumni relations in any institution is to manage the relationship between an institution and all its former students and graduates. VUT, like other institutions, is committed to enhance its relationship with its former students and graduates through formal and informal programs that are mutually beneficial in nature.

Each year we strive to reconnect more former students and graduates with the current students in their respective groups of interests and academic fields that helped them most in their careers / extramural activities. We affirm all segmented Networks; be it the Vaal College for Technical Advancement, Vaal Triangle Technikon or Vaal University of Technology indiscriminately.

We would like to invite all former students and graduates to share their success stories, job opportunities, career milestones, internships, bursaries, challenges faced and mostly inputs on the current development(s) of the university. With your participation, we support VUT in its endeavors to make sustainable impact in the immediate community and the broader society. On a collaborative effort with diverse stakeholders, Convocation

& Alumni Association, students and friends of VUT, we continue to promote the VUT brand through improved marketing and communications, meaningful alumni engagements guided by the Vaal University of Technology's 2033+ Strategy.

Like a unique puzzle piece, you are an ambassador of VUT, your participation to attract and hold interests of Alumni is valued.

**Welcome...**, you are a now part of VUT Alumni Network; more than 100k VUT graduates since its inception in 1966.

Welcome to a variety of interest groups and networking chapters; regionally, provincially, nationally and internationally. Check us on social media and meet your peers, former Ma-Vallies / MaVuti (classmates, Res mates, Sports mates, mentors, Lecturers, etc.)

Your meaningful participation or engagement is appreciated. Thank you for choosing VUT.



## **OUR FACULTIES:**

**APPLIED AND COMPUTER SCIENCES  
ENGINEERING & TECHNOLOGY  
HUMAN SCIENCES  
MANAGEMENT SCIENCES**

### **Vanderbijlpark Campus**

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