



Graduation Programme

The Future. Reimagined.



UNIVERSITY
OF
JOHANNESBURG

Dear UJ Graduates

Your journey to this point has been an important lesson in leadership. As I have iterated often, learning, knowledge and leadership are an essential mix and those who do not know, cannot lead. Our objective has been to empower you as leaders who are primed to face the challenges of the 4IR and explore the opportunities that this new era presents both locally and internationally. This is an exciting adventure, let me assure you that the world you are entering is abundant with opportunities, and of course, challenges.

This graduation is rather special. Though we still find ourselves in a strange setting, still fighting an invisible and relatively unknown threat and still gripped with a sense of uncertainty, there does seem to be a glimmer of hope on the horizon. This represents our first cohort of in-person graduations in two years. As we celebrate your attainment of a major milestone, we are cognisant of the sheer resilience you have demonstrated against a tumultuous context – one defined by loss, anguish and seismic shifts in the way we live and work. A graduation ceremony is an important precursor to the next chapter of your lives. It is warming to be able to celebrate this achievement today with you in person as opposed to the digital modes that have defined much of the pandemic so far.

I want to take this opportunity to remind you that as a graduate, you join a small elite in our country. This is really something to celebrate. Though the odds seemed stacked against you, you persevered and not have the potential to address some of the greatest scourges of our time. You have chosen well – a qualification from UJ will hold you in good stead!

UJ has grown into a world-class, internationally recognised university with

more than 50 000 students registered. Our global stature and academic depth and footprints are acknowledged by reputable higher education ranking systems in the world. You emerge today as the world including us in South Africa, is in a period of deep change. UJ is leading the charge in the Fourth Industrial Revolution (4IR) and creating a cohort of graduates who are agile, curious and able to be active participants in a technology driven and digital environment.

At UJ, you have encountered some of the finest South African and international academic minds. You have participated in technology-rich learning, which compares favourably to the very best in global higher education.

We welcome you as a new member of the global UJ alumni community where you will join a worldwide body of professionals, many of whom are leaders in their fields. I encourage you to join the UJ Alumni Network and become an active member of the University Convocation. By staying actively engaged with UJ, you can make a real contribution to our academic projects and to those who will study at UJ after you.

It is exciting to once again commence this time-honoured tradition. Congratulations on this inspiring achievement and the best of luck with your next chapter!



Prof Tshilidzi Marwala
Vice-Chancellor and Principal
University of Johannesburg

**Welcome to the
Graduation Ceremony of the
University of Johannesburg
12 April 2022 at 15:30**

**Welkom by die
Gradeplegtigheid van die
Universiteit van Johannesburg
12 April 2022 om 15:30**

**Le a Amogelwa
Moletlong wa Dikapešo wa
Yunibesithi ya Johannesburg
12 Moranang 2022 ka 15:30**

**Niyamukelwa
eMcimbini wokweThweswa kweZiqu
weNyuvesi yaseJohannesburg
12 kuMbasa 2022 ngele-15:30**

UNIVERSITY OF JOHANNESBURG

CHANCELLOR

Prof NS Ndebele

BA (Lesotho), MA (Cambridge UK), PhD (Denver USA)

SENIOR OFFICE-BEARERS OF THE UNIVERSITY

VICE-CHANCELLOR AND PRINCIPAL

Prof T Marwala

BS Eng (Case Western Reserve USA), MEng (UP), PhD (Cambridge UK)

DEPUTY VICE-CHANCELLOR ACADEMIC

Prof LG Mpedi

B Juris, LLB (Vista), LLM (RAU), LLD (UJ)

DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION

Prof S Sinha

BEng, MEng, PhD (UP)

REGISTRAR

Prof IC Burger

BA, HEd, BA Hons, MA, PhD (RAU)

CHIEF FINANCIAL OFFICER

Ms N Mamorare

BCom (Rhodes), BCom Hons (UKZN), CA (SA)

CHIEF OPERATING OFFICER

Dr M Ralephata

BSc Eng (Wits), MBA (UOVS), MSc (Heriot-Watt), DBA (Heriot-Watt)

SENIOR EXECUTIVE DIRECTOR

Dr N Vukuza

BA (Fort Hare), BA Hons (Rhodes), DTE (UNISA), MA (Wits),
PhD (Stellenbosch)

GENERAL COUNSEL

Mr D Pretorius

BCom, LLB, LLM (NWU)

EXECUTIVE DEANS

COLLEGE OF BUSINESS AND ECONOMICS

Prof D van Lill

BSc, BSc Hons, MSc, PhD (US)

FACULTY OF ART, DESIGN AND ARCHITECTURE

Prof S Laurent

BFA (l'Ecole Boulle, Paris), MFA (ENS, Paris-Saclay),
MPhil, PhD (Université Panthéon-Sorbonne, Paris),

FACULTY OF EDUCATION

Prof N Petersen

BA Ed (UNISA), BEd Hons (RAU), MEd (RAU), DEd (UJ)

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Prof DJ Mashao

BSc Eng (UCT), MSc Eng (UCT), MSc AM (Brown, USA), PhD (Brown, USA)

FACULTY OF HEALTH SCIENCES

Prof S Khan

BSc, BSc Hons, MSc, PhD (UWC)

FACULTY OF HUMANITIES

Prof K Naidoo

BA, BA Hons, MA, PhD (University of Manchester, UK)

FACULTY OF LAW

Prof W Domingo

B SoSc (UCT), LLB (UWC), LLM (Columbia, USA),
SJD (Winsconsin-Madison, USA)

FACULTY OF SCIENCE

Prof D Meyer

BSc, BSc Hons, MSc (RAU), PhD (California USA)

DEAN

JOHANNESBURG BUSINESS SCHOOL

Prof R Carolissen

MSc (UWC), MBA (SUN), MCom (NWU), PhD (UWC)

MEMBERS OF COUNCIL

CHAIRPERSON

Mr MS Teke

DEPUTY CHAIRPERSON

Dr Y Ndema

MEMBERS

Prof H Abrahamse

Mr FM Baleni

Ms S Dlamini

Ms K Gugushe

Prof D Hildebrandt

Ms X Kakana

Mr G Khosa

Mr M Khoza

Ms K Khumalo

Ms B Madikizela

Mr M Mahlasela

Mr M Manana

Prof T Marwala

Prof LG Mpedi

Ms N Molope

Ms Z Mthembu

Dr WP Rowland

Prof A Strydom

Ms C Tshilande

PRESIDENT OF CONVOCATION

Prof BM Diale

Gaudeamus Igitur

Gaudeamus igitur,
Juvenes dum sumus;
Post iucundum iuventutem,
Post molestam senectutem
Nos habebit humus.
Vivat academia,
Vivant professores,
Vivat membrum quodlibet,
Vivat membra quaelibet;
Semper sint in flore!

English

Let us rejoice, therefore,
While we are young.
After a pleasant youth
After a troubling old age
The earth will have us.
Long live the academy!
Long live the professors!
Long live each student;
Long live the whole fraternity;
For ever may they flourish!

Sesotho sa Leboa

Ka gona, a re thabeng,
Re sa le ba bafsa.
Ka morago ga bofsa bjo bo bose
Ka morago ga go tšofala mo go nago
le mathata
Lefase le tla ba le rena.
Phela thuto phela!
Phelang diprofesa phelang!
Phelang baithuti phelang;
Phela kagišano ka botlalo phela;
O ka re ba ka phela gabotse
goyagoile!

Afrikaans

Laat ons dan vrolik wees,
Terwyl ons jonk is;
Na 'n aangename jeug.
Na 'n onaangename oudag,
Sal die aarde ons hou.
Lank lewe die universiteit,
Lank lewe die professore,
Lank lewe elke student,
Lank lewe al die studente,
Mag hulle vir ewig hul jeug behou!

Zulu

Ngakho, masithokoze
Sisebasha nje.
Emva kobumnandi bobusha
Emva kwezinkinga zobudala
Umhlaba uzosithatha.
Phambili ngemfundo!
Phambili boSolwazi!
Phambili nakuwe mfundi;
Phambili ngenhlangano yonke;
Maziqhubeke ngonaphakade!

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT QUALIFICATIONS

1. National Diploma

Chauke, Livers Winston (Engineering: Mechanical)

Chuene, Matsobane Perseverence (Industrial Engineering)

Lesenyeho, Liteboho James (Industrial Engineering)

Mabasa, Shoni (Industrial Engineering)

Mahlangu, Nonkululeko Pertunia (Industrial Engineering)

Matete, Rampoi Azariel (Engineering: Mechanical)

Minyuku, Israel (Engineering: Mechanical)

Mkhwanazi, Mlungisi Lawrence (Engineering: Mechanical)

Morapedi, Erasmus Tshwarelo (Industrial Engineering)

Nggaba, Phillip Kaduka (Engineering: Mechanical)

Nkosi, Sfiso Godfrey (Engineering: Mechanical)

Nkwini, Nhlanhla Innocent (Engineering: Mechanical)

Nxumalo, Thabiso Phiwe Brendon (Engineering: Mechanical)

Sakela, Onele (Engineering: Mechanical)

Sikhalela, Khamimambo Rilaveta (Engineering: Mechanical)

2. Bachelor of Engineering Technology

Abrahams, Uriel Walter (Mechanical Engineering)

Babe, Itemogeng Bernatt (Mechanical Engineering)

Baloyi, Nkosinathi (Industrial Engineering)

Bham, Ebrahim (Industrial Engineering)

Chimedza, Ian Panashe (Mechanical Engineering)

Cholo, Amanda (Mechanical Engineering) **(with distinction)**

Cossa, David (Mechanical Engineering)

Dau, Dakalo (Industrial Engineering)

Dube, Leon (Industrial Engineering)

Ebrahim, Huzaifa (Industrial Engineering)

Gladile, Pumlanani (Industrial Engineering)

Gojo, Asiphe (Industrial Engineering)

Hills, Dewalt Richard (Mechanical Engineering)

Hlakudi, Fortune (Industrial Engineering)

Hlangwani, Neftal (Mechanical Engineering)

Hooper, Sean Allen (Mechanical Engineering) **(with distinction)**

Hoosen, Muhammed (Industrial Engineering)

Kadima, Jonathan Kayembe (Mechanical Engineering)
Kgaditsi, Morwape Diego (Mechanical Engineering)
Kgobalale, Kgetsepe (Industrial Engineering)
Khoza, Khensani (Industrial Engineering)
Khumalo, Sbusiso (Industrial Engineering)
Koko, Nthabiseng Happy (Industrial Engineering)
Kunene, Simphiwe (Mechanical Engineering)
Kuwane, Kebitsamang Paballo Bertha (Industrial Engineering)
Lephoi, Petros Lebohang (Industrial Engineering)
Leseilane, Pearl Mankopodi (Industrial Engineering)
Leshike, Kgotlello Mmanyane (Industrial Engineering)
Letsoalo, Thabiso Marumo (Mechanical Engineering)
Linde, Katileho (Mechanical Engineering)
Lubisi, Given (Industrial Engineering)
Luthuli, Mndeni Leroy (Industrial Engineering)
Mabaso, Cebile Patience (Mechanical Engineering)
Mabowa, Mahlatse (Mechanical Engineering)
Madimabe, Difakwana (Industrial Engineering)
Mafanya, Khosi (Mechanical Engineering)
Mafundza, Solly (Mechanical Engineering)
Magokolo, Butinyana Daniel (Industrial Engineering)
Mahlangu, Nonhlanhla (Industrial Engineering)
Mahlangu, Sinqobile Busi (Industrial Engineering)

Maimela, Karabo Petronel (Mechanical Engineering)
Makgaka, Precious Olebogeng (Industrial Engineering)
Makgoba, Lesiba (Industrial Engineering)
Makhetho, Emmanuel Langelihle (Industrial Engineering)
Makuya, Onndwela (Mechanical Engineering)
Malatsi, Lebogang Kgwadiamotse (Mechanical Engineering)
Malesa, Matome (Industrial Engineering)
Malinga, Bongani Benedict (Mechanical Engineering)
Maluleka, Tshegofatso (Mechanical Engineering)
Mantshwane, Kgotatso (Industrial Engineering)
Maphosa, Gcinile Cordecia (Industrial Engineering)
Marilele, Hlulani Gladwell (Mechanical Engineering)
Masangu, Mpimo Magnificent (Mechanical Engineering)
Mashaba, Cebelihle Abigail (Mechanical Engineering)
(with distinction)
Mashweu, Kagiso Lenala (Mechanical Engineering)
(with distinction)
Masilela, Sebongile (Industrial Engineering)
Mateza, Loyola Rob (Industrial Engineering)
Mathebula, Sibusiso Dylan (Industrial Engineering)
Mathebula, Wandile Fortune (Mechanical Engineering)
Mayimele, Terror Tivani (Mechanical Engineering)
Mazibuko, Sifundo Mana (Mechanical Engineering)

Mbatsane, Felicity Nomakhosi (Mechanical Engineering)
Meka, Katleho (Industrial Engineering)
Mhaule, Njabulo (Mechanical Engineering)
Mhlungu, Nkosinathi Thembinkosi (Mechanical Engineering)
Mkhabela, Mikateko Shylanse (Industrial Engineering)
Mlotshwa, Syabonga Thabiso (Industrial Engineering)
Mngomezulu, Sibusiso Mdumisi (Industrial Engineering)
Mnguni, Sphelele Goodenough (Industrial Engineering)
Mokagane, Oreneilwe (Mechanical Engineering)
Mokhethi, Tladi (Mechanical Engineering)
Molale, Aron Tumelo (Mechanical Engineering)
Molekwa, Matlhatsi Bryan (Industrial Engineering)
Mongwe, Lehlohonolo (Mechanical Engineering)
Moshapho, Tshilidzi (Industrial Engineering)
Moshwana, Lebogang (Industrial Engineering)
Mpakathe, Paballo Innocentia (Industrial Engineering)
Mphahlele, Thabang Joel (Mechanical Engineering)
(with distinction)
Mphephu, Francis Nkhumeleni (Industrial Engineering)
Mugweni, Tanaka Basil (Mechanical Engineering)
Mukombami, Alex Kudzai (Mechanical Engineering)
Munasi, Andrew (Industrial Engineering)
Nakawombe, Rose Charlotte (Industrial Engineering)
(with distinction)

Ndlovu, Sibusiso Benedict (Industrial Engineering)
Ndwandwe, Sbusiso Fortune (Mechanical Engineering)
Nemushungwa, Murabeli Enocent (Mechanical Engineering)
Nene, Nozipho Felicia (Industrial Engineering)
Ngcamu, Sifundo (Industrial Engineering)
Ngcobo, Thabo Innocent (Industrial Engineering)
Ngubane, Wandile (Industrial Engineering)
Nkosi, Nkosingiphile Innocent (Mechanical Engineering)
Nongqayi, Inga (Industrial Engineering)
Ntimane, Merium Tekani (Industrial Engineering)
Parbhoo, Krishna Prakash (Mechanical Engineering)
Pendu, Vuyolwethu (Industrial Engineering)
Pudi, Setlabocha (Industrial Engineering)
Ramaila, Thakgatso (Mechanical Engineering)
Ramasenya, Tshepiso (Industrial Engineering)
Rivombo, Singita Armstrong (Mechanical Engineering)
Rono, Yolokazi (Mechanical Engineering)
Sathekge, Johannes (Mechanical Engineering)
Sekwakwa, Peleki (Mechanical Engineering)
Selepe, Tshepo Phillip (Mechanical Engineering)
Shaikh, Mohmed Sohel (Industrial Engineering)
Sibeko, Nkosinathi Thapelo (Mechanical Engineering)
Siima, Mapula Pretty (Industrial Engineering)

Sithole, Joshua (Mechanical Engineering)
Siziba, Tshegofatso Roselyn (Industrial Engineering)
Thobejane, Oletile Lucia (Industrial Engineering)
Tiro, Oratile Godwill (Mechanical Engineering)
Tivane, Thomson Thingahangwi (Mechanical Engineering)
Tshifura, Thendo (Mechanical Engineering)
Ubisi, Khanyisa (Industrial Engineering)
Wort, Jeohn Albert (Industrial Engineering)

3. Baccalaureus Ingeneriae Bachelor of Engineering

Chipiro, Nyasha Savon (Mechanical Engineering) **(with distinction)**
De Raay, Dylan (Mechanical)
Dludlu, Lindumenzi Zethembiso (Mechanical Engineering)
Hailu, Merhawi Getachew (Mechanical Engineering)
Kalipa, Tshepiso Sthembiso (Mechanical)
Kamusono, Tatenda Bruce (Mechanical)
Maboa, Seemole Gertrude (Mechanical Engineering)
Mancoba, Kanyisa (Mechanical Engineering)
Mankge, Kalaba Karabo (Mechanical Engineering)

Maseko, Pretty Phindile (Mechanical Engineering)
Mashiane, Lunga Vusi (Mechanical)
Mashiloane, Boy Tshepo Fortune (Mechanical)
Mathunyane, Mmabatho Johannah (Mechanical)
Mbedzi, Gudani (Mechanical)
Mfazwe, Sivuyisiwe (Mechanical Engineering)
Mokwana, Sydney Dinos (Mechanical Engineering)
Molula, Musa Mbekezeli (Mechanical)
Mpai, Tiego Malesela (Mechanical Engineering)
Mwamuka, Blessed (Mechanical Engineering)
Mxabo, Sainile Sanele (Mechanical Engineering)
Phiri, Keamogetswe Rachel (Mechanical)
Rambuda, Naledzani (Mechanical Engineering)
Siyaya, Thando Selby (Mechanical)
Theron, Christo (Mechanical Engineering)
Van Gool, Daniel Gerard (Mechanical)
Williams, Julian Kyle (Mechanical)

4. Bachelor of Engineering Technology Honours

Chimedza, Kevin Tinotenda (Mechanical Engineering)
Cibi, Vutlharhi Patronise (Mechanical Engineering)
Dhludhlu, Sbusiso Nelson (Mechanical Engineering)

Diphofa, Marcus Seakwane (Industrial Engineering)
Dlamini, Mbali (Industrial Engineering)
Dube, Mncedisi Khulekane (Industrial Engineering)
Dzai, Yolanda (Industrial Engineering)
Gaven, Phila (Industrial Engineering)
Khosa, Khensani Ruth (Mechanical Engineering)
Khumalo, Oscar (Mechanical Engineering)
Lebea, Lesedi (Mechanical Engineering)
Madikizela, Siphumelele (Industrial Engineering)
Maduma, Andani Wilson Donald (Industrial Engineering)
Magandini, Thabelo (Industrial Engineering)
Mahlabela, Mahlatse Theodrin (Industrial Engineering)
Mahlangu, Fikile Ellen (Mechanical Engineering)
Makane, Mosiwa (Mechanical Engineering)
Makhubele, Jabulani (Mechanical Engineering)
Malapane, Rebeccah Maite (Mechanical Engineering)
Malesele, Phenyio Steven (Mechanical Engineering)
Manugu, Ndivhuwo (Industrial Engineering)
Mashele, Thulisile Lucky (Industrial Engineering)
Masindi, Oswald Mukhethwa (Mechanical Engineering)
Mathenjwa, Mandisi Terance (Mechanical Engineering)
Mathipa, Ledile Lellian (Mechanical Engineering)
Mathys, Tamiah Keziah (Industrial Engineering)

Mazwi, Ikgantseng Tshamano Desree (Mechanical Engineering) **(with distinction)**

Mbhiza, Remember (Mechanical Engineering)

Mdakane, Sanele Brian (Industrial Engineering)

Mdhluli, Sibusiso Kingsley (Industrial Engineering)

Mobaisane, Mosethe Joseph (Mechanical Engineering)

Modise, Kelebogile Mmaselapo (Industrial Engineering)

Moeng, Lebogang (Industrial Engineering)

Mokhele, Motsiri Jacob (Industrial Engineering)

Mokoena, Given Makomane (Mechanical Engineering)

Molahloe, Boitumelo Mabel (Industrial Engineering)

Moyo, Nkosinathi Bryton (Industrial Engineering)

Mphoka, Maama (Mechanical Engineering)

Mpoko, Prince (Mechanical Engineering)

Mthethwa, Nduduzo (Mechanical Engineering)

Mudau, Fhumulani Boitumelo (Industrial Engineering)

Mukoma, Robin Dakalo (Industrial Engineering)

Muremi, Khalirendwe (Industrial Engineering)

Murivhami, Tshedza Confidence (Mechanical Engineering) **(with distinction)**

Muvhali, Rendani (Mechanical Engineering)

Ndove, Timoty (Industrial Engineering)

Nemadzivhanani, Kgothatso Lorencia (Industrial Engineering)

Ngobeni, Fuek (Mechanical Engineering)

Nkanyane, Shaun Thabang (Industrial Engineering)
Nkosi, Themba Brutus Makepeace (Industrial Engineering)
Nkuna, Dzunisani Pollen (Mechanical Engineering) **(with distinction)**
Ramaru, Todani Adriel (Industrial Engineering)
Rampersad, Dhipika (Mechanical Engineering)
Rapolai, Kagoentle Reabetsoe Carmen (Industrial Engineering)
Saiyad, Shahbarz Mahammed (Mechanical Engineering)
Sehlabi, Regopotswe (Industrial Engineering)
Sibaya, Sihle Herold (Industrial Engineering)
Sithole, Thabani Lethukuthula Luyanda (Industrial Engineering)
Sivchurran, Rivag (Industrial Engineering)
Tsotsotso, Kamohelo Innocent (Mechanical Engineering) **(with distinction)**
Wati, Valentine (Mechanical Engineering)
Zulu, Celokuhle Witness (Industrial Engineering)

5. Master of Technology in Engineering: Mechanical

Nyathi, Xichabo Sheriff

Dissertation: Development of a 2-dof serial two-link flexible manipulator

Supervisor: Dr K Tekweme

Razwiedani, Thilivhali Vincent

Dissertation: Assessment of mechanical and physical properties of polypropylene composites reinforced by Cu/Al metal powders

Supervisor: Prof PM Mashinini

Co-supervisor: Dr BM Shongwe

Spambo, Samkelo

Dissertation: Development of a travelling-wave thermo-acoustic cooler driven by a standing-wave engine

Supervisor: Prof LK Tartibu

Co-supervisor: Dr S Gqibani

6. Master of Philosophy in Mechanical Engineering

Acquah, Simon Andoh

Dissertation: Assessing the conventional non-destructive testing methods for the inspection and testing of welded joints in fuel flow pipelines

Supervisor: Prof LK Tartibu

Bitire, Sarah Oluwabunmi (with distinction)

Dissertation: Transesterification of parsley seed oil using homogenous and heterogeneous catalyst: considering the optimization process and modelling

Supervisor: Prof M Belaid

Co-supervisor: Prof TC Jen

7. Master of Engineering in Mechanical Engineering

Molale, Tshepho Benedict

Dissertation: Numerical modelling of a low-pressure steam turbine's last stage rotating blade

Supervisor: Prof NA Ahmed

Co-supervisor: Dr M Bhamjee

Wiykiynyuy, Nyuytifo Emmanuel

Dissertation: The thermal effect of a tapered thermosiphon during dry drilling operations

Supervisor: Prof TC Jen

Co-supervisor: Dr PE Imoisili

8. Doctor of Philosophy in Mechanical Engineering

Balekwa, Bingo Masiza

Thesis: Studying the difference in track dynamics for tracks with concrete and steel sleepers to eliminate the wavelength fixing mechanism for rail corrugation

Supervisor: Dr D Kallon

Machesa, Mosa Georgina Kristen

Thesis: Analysis of mechanical and industrial systems using soft computational techniques

Supervisor: Prof LK Tartibu

Co-supervisors: Dr MO Okwu & Dr K Tekweme

Marazani, Tawanda

Thesis: Surface Engineering: Reinforcements of Pure Aluminium via Friction Stir Processing

Supervisor: Prof ET Akinlabi

Co-supervisor: Mr DM Madyira

Ogundimu, Emmanuel Olusegun

Thesis: Renewable energy: optimisation of a solar energy system

Supervisor: Prof ET Akinlabi

Co-supervisor: Dr C Mgbememe

Ogunlana, Musibau Olalekan

Thesis: Thin film coating: Experimental and simulation of magnetic sputtered titanium carbide on brass and copper substrates

Supervisor: Prof ET Akinlabi

Co-supervisor: Dr OP Oladuo

Olanipekun, Ayorinde Tayo

Thesis: Analysis and modelling of welded sintered duplex stainless steel

Supervisor: Prof PM Mashinini

Co-supervisor: Dr N Maledi

Olayode, Oyeyemi Isaac

Thesis: Development of a predictive approach for the modeling of vehicular traffic flow at road intersections

Supervisor: Prof LK Tartibu

Co-supervisor: Dr MO Okwu

Balekwa, Bingo Masiza (Doctor of Philosophy)

Bingo Masiza Balekwa completed his undergraduate studies in 2011 and joined the Department of Rolling Stock Maintenance in Transnet Freight Rail. In 2017, he completed an MTech degree at the University of Johannesburg, in which he studied the rail corrugation wavelength fixing mechanism and its relation to train and track geometry parameters. In 2021, he completed his PhD at the University of Johannesburg in the field of Railway Noise and Vibration. From his postgraduate research he successfully modelled the dynamic difference in the response of railway tracks supported on steel and concrete sleepers and how these influence the formation of railhead corrugations.

In this research study, the author successfully modelled the difference of dynamics in the response of railway tracks supported on steel and concrete railway sleepers and how these influence the formation of railhead corrugations. This was done through physical experiments and computational simulations.

Supervisor: Dr DVV Kallon

Machesa, Mosa Georgina Kristen (Doctor of Philosophy)

Mosa Georgina Kristen Machesa completed her Master's degree in Mechanical Engineering at the University of Johannesburg in 2019. Mosa is working as Parts Reporting Manager at Barloworld Equipment, supporting operations in over 52 parts warehouses across Southern Africa. Her experience lies mostly in the mining and construction sectors, while her academic work focused predominantly on soft computing techniques. Mosa is the proud recipient of the Best Doctoral Researcher award in the Department of Mechanical and Industrial Engineering Technology for the year 2021 as recognition for her outstanding academic work. Her PhD has produced three journal articles and four conference papers.

Mosa's thesis focuses on the development of computational models using soft computing techniques to address challenges associated with typical mechanical systems and industrial processes. Four different case studies were investigated in her thesis, namely the supplier selection in a manufacturing system, the blast-induced vibration in underground mining operations, the Stirling engine performance, and the oscillatory Heat Transfer of Thermo-acoustic systems. The proposed neural networks and metaheuristics models would address time-consuming experiment and support decision making.

Supervisor: Prof LK Tartibu

Co-supervisor: Dr MO Okwu,

Co-supervisor: Dr FK Tekweme

Marazani, Tawanda (Doctor of Philosophy)

Tawanda Marazani received a BTech in Mechanical Engineering from the University of South Africa in 2010 and a BSc Hons in Applied Science: Mechanics from the University of Pretoria in 2014. He further received an MEng in Mechanical Engineering from the University of Johannesburg in 2016, where he also gained admission for PhD in Mechanical Engineering in 2017. He is a registered member of SAIMEchE and SAIIE, and is currently a Mechanical Engineering Lecturer at Midlands State University, in Zimbabwe.

The candidate's research was on reinforcements of pure aluminium via friction stir processing. There is growing industrial use of aluminium-based composites fabricated via Friction Stir Processing, except for pure aluminium, which the candidate successfully reinforced with 17-4-PH-SS powder. The fabricated composites were characterised through force-torque online-feedback, optical microscopy, scanning electron microscopy, energy dispersive X-ray, microhardness, tensile testing, X-ray diffraction, ANOVA, Regression and ANN modelling. The research work is highly recommended since it provides a knowledge base for a hardly studied area, with potential applications in structural and corrosive environments. The research has yielded one book chapter and a peer-reviewed journal article, with three journal articles in progress.

Supervisor: Prof ET Akinlabi

Co-Supervisor: Prof DM Madyira

Ogundimu, Emmanuel Olusegun (Doctor of Philosophy)

Mr Ogundimu Emmanuel Olusegun received his Higher National Diploma (HND) Mechanical Engineering from the Federal Polytechnics Ado-Ekiti (Nigeria) in 2001, and Postgraduate Diploma in Education, and the BTech in Mechanical Engineering from the University of South Africa in 2012 and 2015, respectively. He obtained his MEng (*cum laude*) in Mechanical Engineering from the University of Johannesburg in 2017 and progressed to enrol for his PhD in Mechanical Engineering in 2018. His doctorate research was on 'Optimization of a solar energy system'. He published four peer-reviewed journal papers from the outcome of his research. He is a registered member of ECSA.

There is awesome potential for the utilization of Photovoltaic (PV) panels with high productivity in some regions with high power of solar radiation. The experimental setup was conducted with three 250 watts similar PV panels, which were installed at different tilt-angles over a period of time. The candidate successfully determined the optimum tilt-angle for the twelve months and also predicted the optimum tilt-angle for other locations using multiple-regression analyses model and Levenberg-Marquardt algorithm.

Supervisor: Prof. Esther T. Akinlabi

Co-Supervisor: Prof. Chigbo Mgbemene

Ogunlana, Musibau Olalekan (Doctor of Philosophy)

Musibau Olalekan OGUNLANA obtained his Bachelor of Science degree (BSc Hons) in Mechanical Engineering from Olabisi Onabanjo University, Ago-Iwoye, Nigeria, in 2009; and Bachelor of Science degree (BSc Hons) in Applied Science, Mechanics, from the University of Pretoria, South Africa, in 2014. He received his Master's degree (MEng) in Mechanical Engineering from the University of Johannesburg, South Africa, in 2016. He received a membership invitation for his academic excellence from Golden Key International Honour Society in 2017.

Mr Ogunlana's doctoral study was based on conducting experimental and simulation analyses for microstructural, corrosion, mechanical and tribological behaviours of fabricated Titanium Carbide (TiC) thin films using radio frequency magnetron sputtering technology on brass and copper substrates for surface engineering applications as found in cutting tools and the automotive industries. A numerical simulation approach was conducted to verify the experimental method whereby the mechanical and wear properties of the fabricated thin films on the metallic materials were simulated and found to be in agreement with samples produced from the experiments. The accomplished objectives of his research study are useful for the enhancement of surface engineering applications.

Supervisor: Prof Esther T Akinlabi

Co-supervisor: Dr Philip Oladijo

Olanipekun, Ayorinde Tayo (Doctor of Philosophy)

Ayorinde Tayo Olanipekun completed a MSc in Mechanical Engineering at the University of Ibadan, Nigeria, in 2014. He worked as a senior researcher for the National Agency for Science and Engineering Infrastructure in Nigeria for eight years. His career as a senior research engineer has helped him become a seasoned researcher, innovator, and design engineer. In his career, he has published eight peer-reviewed articles and three ISI-listed journals from the doctoral studies.

The development of new data-driven methods for the discovery of patterns among micro, meso and micro length scales and time-scales materials with structure-property relationships has become essential. Data-driven approaches show enormous promise within materials science in terms of prediction and analysis. The research focused on applying machine learning, to create models that effectively learn from experimental data and predict the mechanical properties of materials. Artificial Neural Network (ANN) and Support Vector Machine (SVM) learning algorithms were applied in predicting the mechanical properties at the Weld Zone of Nd:YAG welded sintered duplex stainless steel alloy. The results revealed that SVM and ANN are great tools to use in predicting the mechanical properties of metallic materials. The predicted results were very close to experimental data analysis. The research provided a foundation for research in machine learning on training materials science datasets and provided important lessons for both future researchers and practitioners in the field of material science.

Supervisor: Prof PM Mashinini (UJ)

Co-supervisor: Prof NB Maledi (Wits)

Olayode, Oyeyemi Isaac (Doctor of Philosophy)

Isaac Oyeyemi Olayode completed his MSc in Industrial and Production Engineering at the University of Ibadan, Nigeria. He is presently a Visiting Research Fellow at the University of Catania, Italy. His research interests are in the field of traffic congestion, artificial intelligence and autonomous vehicles. Nine conference papers and eight journal articles that have attracted more than 80 citations, have followed from his doctoral research. He is a reviewer for top transportation journals in Elsevier, Springer, Taylor and Francis. He is collaborating with both government and private transportation organisations to focus on how sensible transportation planning and management methods driven by 4IR can reduce real-life traffic congestion scenarios.

The candidate's thesis explores the use of soft computing techniques for modelling traffic flow at road intersections to alleviate traffic congestion. The traffic data were collected from seven road intersections connecting to the N1 road network using inductive loop detectors, video cameras, and GPS-controlled equipment. Neural networks and hybrid metaheuristics models were developed. This study demonstrates the potential of the proposed approaches for the analysis and the prediction of traffic flow patterns.

Supervisor: Prof LK Tartibu

Co-supervisor: Dr MO Okwu



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National Anthem of South Africa

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.