



Dear UJ Graduate

The single most audible truth that emanates from the University of Johannesburg (UJ) since opening our doors, is the importance of including the most marginalised, and embracing diversity, transformation, perseverance, excellence and success. When you believe, when you focus your efforts, and when you put your very best foot forward, extraordinary things occur.

The University's graduation season has arrived, where we will hold 43 ceremonies during this first of three graduation series, beginning on 27 March. I applaud our successful undergraduate degree and diploma students who worked consistently to achieve academic success and who will leave these doors to impact society and their communities, and create meaning for their own lives. We celebrate all our graduates today, who proudly walk across this stage to have their diplomas and degrees conferred.

I beam with pride and congratulate you on this remarkable achievement. Your perseverance and determination have yielded positive outcomes, not only for yourselves, but also for the University, your families and the economic stability of South Africa.

UJ has grown steadily into a world-class, internationally recognised university, with more than 50 000 students registered. Our programmes, provided on four campuses within nine faculties, are designed to prepare students for the world of work, innovation, entrepreneurship and society, and for global citizenship.

As we move into an important era of transformation and decolonisation in Higher Education, we will continue to focus on building this world-class institution carefully and purposefully. We are witnessing the fruit of our determined vision in the research institutes and with our flagship teaching and learning programmes. We support these efforts with distinguished visiting professors. We have also elevated our programmes with outstanding postdoctoral fellows and doctoral and master's students.

We have deliberately built a richly diverse and inclusive senior scholarly community at this University. We continue to build UJ as an international *university of choice*, anchored in Africa, dynamically shaping the future. Despite having to grapple with the societal context we work in, we continue to inspire our academic community to transform and serve humanity through innovation and the collaborative pursuit of knowledge. These are the cornerstones upon which the University is anchored.

Together, we engage challenges and hurdles along the journey, because we believe they enable us to reach new summits and destinations. Together we rise. Today, we celebrate our achievements and the impact we make in our own lives, in the communities we serve and in the world. No matter who you are, where you are from, or what you do – all of our futures are inextricably intertwined.

That is why, at UJ, we are not afraid of the future – because we're making it. This is our future. Reimagined.

Yours sincerely,
Ihron Rensburg
Vice-Chancellor and Principal

**Welcome to the
Graduation Ceremony
of the
University of Johannesburg
6 April 2017 at 17:00**

**Welkom by die
Gradeplegtigheid
van die
Universiteit van Johannesburg
6 April 2017 om 17:00**

**Le a Amogelwa
Moletlong wa Dikapešo wa
Yunibesithi ya Johannesburg
6 Moranang 2017 ka 17:00**

**Niyamukelwa
eMcimbini wokweThweswa kweZiqu
weNyuvesi yaseJohannesburg
6 kuMbaso 2017 ngele-17:00**

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 IL Rensburg
BPharm (Rhodes), MA, PhD (Stanford USA)

DEPUTY VICE-CHANCELLOR: ACADEMIC

Prof A Parekh
BA, BA Hons, MA (UDW), MA (Kansas USA), DPhil (UDW)

DEPUTY VICE-CHANCELLOR: RESEARCH AND INTERNATIONALISATION

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

REGISTRAR

Prof IC Burger
BA, HEd, BA Hons, MA, PhD (RAU)

DEPUTY VICE-CHANCELLOR: FINANCE

Mr J van Schoor
BCom, BCom Hons (RAU), CA (SA)

DEPUTY VICE-CHANCELLOR: EMPLOYEES AND STUDENT AFFAIRS

Ms KC Mketi
BA (Bophut), BA Hons (RAU), MBL (Unisa)

GENERAL COUNSEL

Prof PH O'Brien
BCom, LLB, LLM, LLD (RAU)

EXECUTIVE DEANS

FACULTY OF ART, DESIGN AND ARCHITECTURE

Prof F Freschi
BA (Wits), BA Hons (UCT), PhD (Wits)

FACULTY OF ECONOMIC AND FINANCIAL SCIENCES

Prof A Dempsey
BCom, BCom Hons, MCom (RAU), CA (SA)

FACULTY OF EDUCATION

Prof SJ Gravett
BA, HEd (PU for CHE), BEd, MEd, DEd (RAU)

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Prof S Sinha
BEng, MEng, PhD (UP)

FACULTY OF HEALTH SCIENCES

Prof A Swart
NDip, NHDip (TWR), BEd, MEd (RAU), DTech (TWR)

FACULTY OF HUMANITIES

Prof AB Broadbent
BA, BA Hons, MPhil, PhD (Cambridge UK)

FACULTY OF LAW

Prof LG Mpedi
B Juris, LLB (Vista), LLM (RAU), LLD (UJ)

FACULTY OF MANAGEMENT

Prof D van Lill
BSc, BSc Hons, MSc, PhD (US)

FACULTY OF SCIENCE

Prof D Meyer
BSc, BSc Hons, MSc (RAU), PhD (California USA)

MEMBERS OF COUNCIL

CHAIRPERSON

Prof RD Marcus

DEPUTY CHAIRPERSON

Mr MS Teke

MEMBERS

Mr H Abdullahi
Prof H Abrahamse
Mr FM Baleni
Prof IC Burger
Mr JP Burger
Mr D Bvuma
Ms S Dlamini
Mr TJ Dikgole
Mr CR Gebhardt
Prof D Hildebrandt
Mr G Khosa
Prof C Landsberg
Dr DSS Lushaba
Dr J Manyaka
Ms Z Matlala
Ms BJ Memela-Khambula
Dr P Mjwara
Mr RM Mkhonto
Mr M Mnye
Prof A Mohammadali-Haji
Dr Y Ndema
Prof A Parekh
Prof IL Rensburg
Dr WP Rowland
Mr KB Sibiya
Mr K Thomas
Mr J van Schoor
Mr M White

PRESIDENT OF CONVOCATION

Mr RM Mkhonto

Programme

Thursday, 6 April 2017 at 17:00

To ensure good order during the ceremony all those present are requested to leave the Auditorium only after the ceremony has been concluded.

The academic procession enters the Auditorium and the members of the procession take their seats on the stage.

The choir sings Gaudeamus Igitur (or a CD is played) while those present remain standing.

The Chancellor constitutes the congregation.

Choir.

Welcome.

The relevant Executive Dean presents the candidates to the Chancellor for the conferment of a degree/diploma/certificate.

Singing of the National Anthem.

The Chancellor dissolves the congregation.

The academic procession leaves the Auditorium while those present remain standing.

Lenaneo

Labone, 6 Moranang 2017 ka 17:00

Go kgonthiša gore dilo di sepela ka tshwanelo nakong ya moletlo, bohle bao ba tilego moletlong ba kgopelwa go tšwa ka Holong ya kopano feela ka morago ga ge moletlo o phethilwe.

Sehlopha sa dirutegi se tsena ka Holong ya kopano gomme maloko a sehlopha se a dula ditulong tša ona sefaleng.

Khwaere e opela Gaudeamus Igitur (goba CD e tlo bapalwa) mola bao ba lego gona ba tšwela pele go ema.

Mokhanseliri o kopanya phuthego.

Khwaere.

Dikamogelo.

Hlogophethiši ya maleba ya lefapha e hlagiša dialoga go Mokhanseliri gore di newe tikrii/diploma/setifikeiti.

Go opelwa ga Koša ya Setšhaba.

Mokhanseliri o phatlalatša phuthego.

Sehlopha sa dirutegi se tšwa ka Holong ya kopano mola bao ba lego gona ba tšwela pele go ema.

Program

Donderdag, 6 April 2017 om 17:00

Ter wille van die ordelike verloop van die plegtigheid
word alle aanwesiges vriendelik versoek
om die Ouditorium nie voor die einde van die plegtigheid te verlaat nie.

Die akademiese proses kom die Ouditorium binne en neem op die verhoog plaas.
Die koor sing Gaudeamus Igitur (of 'n CD word gespeel) terwyl die aanwesiges staan.

Die Kanselier stel die kongregasie saam.

Koor.

Verwelkoming.

Die betrokke uitvoerende dekaan stel die kandidate aan die Kanselier voor vir die
toekenning van 'n graad/diploma/sertifikaat.

Sing van die volkslied.

Die Kanselier ontbind die kongregasie.

Terwyl die aanwesiges bly staan, verlaat die akademiese proses die Ouditorium.

Uhlelo

uLwesine, 6 kuMbaso 2017 ngele-17:00

Ukuze kuqinisekwe ukuthi konke kuhamba kahle ngesikhathi somcimbi, bonke abakhona
bacelwa ukuba baphume eHholweni kuphela lapho umcimbi usuphuthuliwe.

Udwendwe lezifundiswa lungena ehholweni bese amalungu odwendwe ahlala phansi
esiteji.

Ikwaya icula i-Gaudeamus Igitur (noma kudlalwa iCD) ngalenkathi labo abakhona
besamile.

UShansela uhlanganisa ibandla.

Ikwaya.

Ukwamukelwa.

Izinhloko Eziyiziphathimandla ezithintekayo zethula abafundi kuShansela weNyuvesi
ukuze bathole idigiri/idiploma/isitifiketi.

Kuculwa iHubo Lesizwe.

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!

QUALIFICATIONS

1. National Diploma (NDip): Town and Regional Planning

Bitijula, Samuel
Bokgobelo, Kopano Malcan
Chiloane, Ratanang
Dube, Pray
Kekana, Sepopoduma Tumisho
Khumalo, Thandekile Nqobile
Kunene, Bukiwe Nyankwabe
Mabuza, Mzwandile Mlungisi Griffton
Madonsela, Nkosinathi Emmanuel
Magagane, Shego Marcus
Mahlaba, Lindokuhle Nondumiso Felicia
Makhaye, Lungani
Manukha, Fhumulani
Modimola, Ofentse Godwill Letlhogonolo
Mollo, Thato Alice
Moloto, Jim Rita
Molotsi, David Kgatliso Branden
Moroaswi, Lebogang Stephinah
Mosehlane, Modibu Jack
Mtsweni, Sfiso Piet
Mulder, Mirna Ann
Munwana, Phathutshedzo
Nekokwane, Rolivhuwa
Ngomana, Ntwanano
Nthathe, Keleabetswe Keodiretse Ontiretse
Seate, Onkarabile Engela
Sebule, Thabane Yuten
Sefako, Adelaide Mankatudi
Setati, Matlou Agnes
Shapo, Leanett Makgere
Shisana, Nyiko
Sokhulu, Bhekani Bryan
Thomas, Thandeka Precious
Tsie, Kamohelo Petrus
Twala, Matimba Khensani Sophie
Vollenhoven, Jason Nicholas

2. **Baccalaureus Technologiae (BTech): Engineering: Industrial**

Bilankulu, Kurhula Benedictus
Bilibana, Ongeziwe Liza
Dunn, Kyle Daryl (**with distinction**)
Hleza, Nhlakanipho Ntuthuko
Jack, Awonke
Jubai, Shudufhadzo
Kgoale, Keneilwe Dorah
Khoza, Marcia Sibongile
Khuto, Goitseone Dietridge
Khwinana, Ronnet Lesetsa
Kubeka, Nqobile Innocentia
Lebopa, Sepelone Penelope
Ledwaba, Lebogang Alice
Legopelo, Priscilla Bontle
Mabela, Willy Mahlokwe
Mahobye, Lebogang Lizzy
Mapetla, Gloria Mafedile
Mashamba, Tshisikhawe Ian
Masingi, Suzen
Mawela, Latoya Billy
Mbuyane, Lungile Pearl
Mdletshe, Nqobile Victor
Mehlomakhulu, Pamela Mbali
Mhlanga, Vuyiso
Miankodila, Christian Luzunia
Mkhatshwa, Banele Zipho
Mnyandu, Nosipho Snempilo
Modjadji, Kholofelo Precious
Mothupi, Kgaugelo
Motlapema, Delight Monnye
Mouko Ovey, Fevral
Mthabela, Mmangazi Cuthbert
Mthethwa, Mthokozisi
Mthimunye, Bhekifundo Inocent
Munyai, Fhumulani
Muthige, Lalamani Mukonazwothe
Mutsila, Fhatanani
Ndou, Karabo Olga
Negogogo, Riphuluse
Nemaguyhuni, Khuliso
Nethavhani, Kundani
Ngcobo, Senamile Mbali
Nkonzo, Onke
Nyathi, Anna Patient

Ragoja, Cathrine Masema
Sithole, Portia Anele
Tikwayo, Lihle Neo
Tshabalala, Nthabiseng Portia
Tshabalala, Vutomi
Tsukudu, Mpho Jabulile

3. **Baccalaureus Technologiae (Blng):**

Andrews, Jason Paul (Civil Engineering)
Barnes, Devon Craig (Civil Engineering)
Bitandi, Louissette Kazadi (Civil Engineering)
Bowman, Ricky Lance (Electrical and Electronic Engineering)
Brooks, Egan Denton (Civil Engineering)
Bukasa, Marc Cedric Ngeleka (Civil Engineering)
Chirnside, David Mark (Mechanical Engineering)
Creasey, Ross David (Civil Engineering)
Croucamp, Margaret Patricia (Civil Engineering)
Date Chong, David Phillip (Civil Engineering)
De Carvalho, Jose Roberto (Mechanical Engineering)
Dibodu, Lerato Sebongile (Civil)
Dlamini, Luvuyo Khutwako (Civil Engineering)
Dos Reis, Marcus (Mechanical Engineering)
Dube, Nhlanhla (Mechanical Engineering)
Engelbrecht, Jacques Gavin (Civil Engineering)
Fourie, Eric (Mechanical Engineering)
Fuzile, Thulani Shaun (Electrical and Electronic Engineering)
Gharehbaghi, Rezvan (Mechanical Engineering)
Govender, Edwin (Electrical and Electronic Engineering)
Grobler, Francois (Mechanical Engineering)
Hlongwani, Mintirho (Mechanical Engineering)
Holloway, Jessica Johanna (Mechanical Engineering)
Hoogenbosch, Candice Cheryl (Civil Engineering)
Huma, Reatile (Civil Engineering)
Illos, Mishak Avner (Electrical and Electronic Engineering)
Ilunga, Kanyane (Electrical and Electronic Engineering)
Jarbandhan, Tashia (Civil Engineering)
Kapota, Alan Takudzwa (Mechanical Engineering)
Kasalu, Clement Sibusiso (Civil Engineering)
Kekana, Hlologelo Maesela (Mechanical Engineering)
Kgarose, Marufa Alpheus (Mechanical Engineering)
Kobo, Rachel Boijane (Electrical and Electronic Engineering)
Kuwane, Noninzi Amelia Nokwanda (Electrical and Electronic Engineering)
Lebotse, Motsathebe Katlego Bethuel (Mechanical Engineering)
Letlape, Kutloano Kagiso (Electrical and Electronic Engineering)

Lopes, Ricardo Jose Pereira (Civil Engineering)
Mabena, Sithembiso (Civil Engineering)
Mabotsha, Thapelo Eric (Electrical and Electronic Engineering)
Maeteletsa, Mashilo Solly Thema (Civil Engineering)
Mafef A Key, Dan (Civil)
Makalima, Mzolisi Justinias (Electrical and Electronic Engineering)
Makolana, Vhahangwele Brucey (Electrical and Electronic Engineering)
Malatji, Emily Motlalepula (Civil Engineering)
Maluga, Ndikundisani Lesley (Mechanical Engineering)
Maluleke, Mhleketso Sinah (Civil Engineering)
Maluleke, Vongani Judas (Electrical and Electronic Engineering)
Mangcu, Mhlali Olwethu (Mechanical Engineering)
Mangole, Lawrence Neo (Mechanical Engineering)
Mapholo, Thakamangana Hlabirwa (Mechanical Engineering)
Marais, Callan (Mechanical Engineering)
Masher, Monica Rosaline (Electrical and Electronic Engineering)
Mashilo, Bethuel Mphephu (Electrical and Electronic Engineering) **(with distinction)**
Masola, Gift Shimane Mpho (Electrical and Electronic Engineering)
Matlou, Omolemo Godwill (Electrical and Electronic Engineering)
Matshidze, Khuliso (Mechanical Engineering)
Mazibuko, Sanele (Mechanical Engineering)
Mbatha, Marianne Keketso (Civil)
Mhlabane, Kholofelo Paulina Sarah (Electrical and Electronic Engineering)
Mjwara, Sipiwe Mfundo (Electrical and Electronic Engineering)
Mkundlu, Simphiwe (Mechanical Engineering)
Mlilo, Bonginkosi Eugene (Civil Engineering)
Mmako, Surprise Pontsho (Electrical and Electronic Engineering)
Modise, Karabo Vincent (Electrical and Electronic Engineering)
Mokgethi, Eliphus Karabo (Electrical and Electronic Engineering)
Molelekwa, Edwin Buang (Electrical and Electronic Engineering)
Moosajee, Raesa (Civil Engineering)
Mostert, Christiaan (Electrical and Electronic Engineering)
Mothibi, Kgauelo Ishmael (Electrical and Electronic Engineering)
Mothosi, Kgabo Lucky (Mechanical Engineering)
Mtimkulu, Themba (Mechanical Engineering)
Mukuna, Christiane Mbuyi Masengu (Mechanical Engineering)
Musetha, Khathutshelo Tyrone (Electrical and Electronic Engineering)
Muthakhi, Thilivhali Easy (Civil Engineering)
Nchabeleng, Tlabane (Electrical and Electronic Engineering)
Netsianda, Rofhiwa Emmanuel (Electrical and Electronic Engineering)
Ngele, Lebogang Joshua (Civil Engineering)
Ngeleza, Sandile Mabeka (Civil Engineering)
Ngwamba, Thulani Thokozani (Civil Engineering)
Nkosi, Phindile Precious (Civil Engineering)
Nomaphelane, Jimmy (Mechanical Engineering)

Nyandeni, Mxolisi Godfrey (Mechanical Engineering)
Nyathi, Graishen Thobile (Electrical and Electronic Engineering)
Papala, Nthai Martin (Electrical and Electronic Engineering)
Phalatse, Tshidi Stephanie (Civil Engineering)
Phasha, Charlotte (Civil)
Pillay, Shanesh (Electrical and Electronic Engineering)
Quaynor, Paanii Michael (Civil Engineering)
Ramaremela, Thapedi Karabo (Mechanical Engineering)
Ramatladi, Kheseke Fidel (Civil Engineering)
Range, Reinhard (Civil Engineering)
Ranketsi, Teboho (Civil Engineering)
Sequeira, Jose (Mechanical Engineering)
Sham, Robin (Civil Engineering)
Sigabi, Mkhosana Lonwabo (Mechanical Engineering)
Sikwela, Jabulile Gladys (Electrical and Electronic Engineering)
Smith, Andrew Mark (Electrical and Electronic Engineering with endorsement Information Technology)
Stoop, Celeste Karyn (Civil Engineering)
Swanepoel, Renier (Electrical and Electronic Engineering with endorsement Information Technology) **(with distinction)**
Tlounyane, Thapelo Nicholas (Electrical and Electronic Engineering)
Verachia, Mohammed Zubair Hussain (Civil Engineering)

4. **Magister Technologiae (MTech)**

Bakana, Sibusiso Reuben (Engineering Electrical)
Dissertation: Investigation and mitigation of technical electric power losses within Johannesburg City Power distribution network
Supervisor: Prof B Twala

Cebekhulu, Bongumusa Mansuette Bhekamalin (Operations Management)
Dissertation: Quality Control in a University Laboratory: A Study of ISO-17025 Implementation in the Thin Section Laboratory
Supervisor: Mrs. C Mugova
Co-Supervisor: Prof C Mbohwa

Fish, Shaun Trevor (Engineering Electrical)
Dissertation: Design and performance evaluation of a high speed synchronous machine
Supervisor: Dr DC Pentz

Lourens, Werner (Construction Management) **(with distinction)**
Dissertation: Implementation of value management in the South African construction industry
Supervisor: Prof CO Aigbavboa

Mabote, Katlego Arnold (Industrial Engineering)

Dissertation: The effective application of the theory of constraints Rowland Mine Shaft – Marikana- Lonmin

Supervisor: Dr P Kholopane

Co-supervisor: Mr. J Mabiza

Mahlatji, Mashabela Justice (Operations Management)

Dissertation: Evaluating the Implementation of the ISO 9001 Standard to Company Operations: Case Study of a Catering Equipment Company in South Africa

Supervisor: Mrs. C Mugova

Co-Supervisor: Prof C Mbohwa

Mdlalo, Xolile Michael (Engineering Mechanical)

Dissertation: The characterisation of laser metal deposited functionally graded titanium alloy

Supervisor: Prof ET Akinlabi

Co-supervisor: Prof S Pityana

Motau, Tshepo Canny (Engineering Civil)

Dissertation: Performance of pozzolana as partial replacement for fine aggregate and cement in concrete

Supervisor: Prof GC Fanourakis

Seku, Luthando Mthetheleli (Construction Management)

Dissertation: Evaluation of risk management in the South African construction industry

Supervisor: Prof CO Aigbavboa

Co-Supervisor: Prof WD Thwala

Sibiya, Noxolo Thandeka (Engineering Chemical) **(with distinction)**

Dissertation: Enhancing biogas production from lawn grass by optimising selected factors involved in anaerobic digestion

Supervisor: Prof E Muzenda

Co-Supervisor: Dr. HB Tesfagiorgis

5. **Magister Ingenieriae (MIng)**

Bruwer, Carl Pieter Cronje (Civil Engineering)

Dissertation: Structural behaviour of composite concrete-steel slabs

Supervisor: Dr. JM Roberts

Jivan, Pritesh Prakash (Electrical and Electronic)

Dissertation: Digital implementation of the Pound-Drever-Hall technique at 1556 nm making use of a Fabry-Perot etalon filter

Supervisor: Dr. RM Martinez

Co-supervisor: Mr. MG Grobber and Dr. A van Brakel

Hluyo, Munyaradzi Elias (Mechanical Engineering)

Dissertation: Investigation of Fatigue failure and damage development in carbon fibre epoxy resin composites

Supervisor: Dr. D Madyira

Co-Supervisor: Mrs. N Janse van Rensburg

Lam, Lap Lung Theren (Electrical and Electronic Engineering)

Dissertation: Reduction of common mode electromagnetic interference in a buck converter for LEDS

Supervisor: Dr. AS De Beer

Co-Supervisor: Dr ALJ Joannou

Lekhuleni, Menson Teddy (Electrical and Electronic Engineering) **(with distinction)**

Dissertation: Optimal placement of a distributed generator on a medium voltage distribution feeder

Supervisor: Prof B Twala

Loubser, Coert Johannes (Electrical and Electronic Engineering) **(with distinction)**

Dissertation: Performance of cognitive radio MAC protocols using simulations and software defined radio

Supervisor: Prof TG Swart

Medoh, Chuks Nnamdi (Engineering Management) **(with distinction)**

Dissertation: Enhancing Enterprise Resource Planning and Manufacturing Execution System efficiency with simulation-based decision support

Supervisor: Dr A Telukdarie

Mmbengwa, Muhumbulo (Engineering Management)

Minor Dissertation: Evaluating the level of project management maturity within a transport company and its effect on market demand

Supervisor: Prof JHC Pretorius

Molapo, Makhabane Lawson (Electrical and Electronic Engineering)

Dissertation: Effective allocation of multifunction radar resources

Supervisor: Prof B Twala

Ngomseu Mambou, Elie (Electrical and Electronic Engineering) **(with distinction)**

Dissertation: Balancing of non-binary sequences using Gray code prefixes

Supervisor: Prof TG Swart

Co-supervisor: Prof HC Ferreira

Pillay, Sedge (Engineering Management)

Minor Dissertation: Selection of renewable energy technologies: A case study of South Africa

Supervisor: Prof JHC Pretorius

Co-supervisor: Mr. D de Canha

Yusuf, Ajibola Sarafadeen (Engineering Management)

Minor Dissertation: Conflict management in projects

Supervisor: Prof JHC Pretorius

Co-supervisor: Mr J van Wyngaard

6. Magister Philosophiae (MPhil)

Dludhlu, Nokuthula Isabella (Engineering Management)

Minor Dissertation: Risk evaluation in project management implementation: the case of infrastructural development projects in Transnet

Supervisor: Prof JHC Pretorius

Co-supervisor: Mr. J van Wyngaard

Hlakola, Mmatselagale Marcus (Electrical and Electronic Engineering)

Dissertation: EMI mitigation in AC-DC transfer measurement system

Supervisor: Prof DV Nicolae

Co-Supervisor: Dr E Golovins

Makhanya, Bhekabantu Stanley (Engineering Management) (with distinction)

Minor Dissertation: Sustainability optimisation for Transnet Freight Rail electric locomotives operating on the Natal Corridor

Supervisor: Prof JHC Pretorius

Co-supervisor: Mr. R Mathew

Rooplall, Nishaal (Engineering Management)

Minor Dissertation: Trends preventing engineers from obtaining professional registration with ECSA in the required time

Supervisor: Dr. A Marnewick

Shiburi, Nyiko (Engineering Management) (with distinction)

Minor Dissertation: Unstructured technology decision making: A case study

Supervisor: Dr A Marnewick

Ubisse, Sizwe Phillip (Engineering Management)

Minor Dissertation: Management of productivity in a service call centre

Supervisor: Dr. A Marnewick

7. Doctor Ingeneriae (DIng)

Akinlabi, Stephen Akinwale (Mechanical Engineering)

Thesis: Experimental study and finite element analysis of laser beam formed steel for enhanced structural integrity

Supervisor: Prof M Shukla

Co-Supervisor: Prof T Marwala

Bhamjee, Muaaz (Mechanical Engineering)

Thesis: Mathematical modelling of Physics in multiphase flows applied to Cyclone Separators with experimental validation of models

Supervisor: Prof SH Connell

Co-supervisor: Prof AL Nel

Cieslakiewicz, Waldemar (Mechanical Engineering)

Thesis: An experimental and computational investigation of a hybrid photovoltaic and solar thermal cell.

Supervisor: Dr CR Bester

Co-Supervisor: Prof AL Nel

Longe, Omowunmi Mary (Electrical and Electronic)

Thesis: Optimisation algorithms for energy management in the smart grid

Supervisor: Prof K Ouahada

Co-supervisor: Prof HC Ferreira/Dr S Rimer

Madyira, Daniel Makundwaneyi (Mechanical Engineering)

Thesis: The effect of high speed machining on the fatigue performance Ti6A4V

Supervisor: Prof RF Laubscher

Narain Singh, Shanil (Engineering Management)

Thesis: Semi-quantitative and fuzzy logic based approach for risk-based inspection and maintenance in thermal power plant components

Supervisor: Prof JHC Pretorius

Ogbeifun, Edoghogho (Engineering Management)

Thesis: Evaluating and aligning facilities management operations in a South African higher education institution: A case study

Supervisor: Prof JHC Pretorius

Co-supervisor: Prof C Mbohwa

Robinson, Gavin Stuart (Engineering Management)

Thesis: A systematic approach for the implementation of an effective management model for gland service

Supervisor: Prof JHC Pretorius

Co-supervisor: Prof L Pretorius

8. Doctor Philosophiae (DPhil)

Agbenyeku, Emmanuel Emem-Obong (Civil Engineering)

Thesis: Buffering efficacy and interaction of minerals in Clayey Soil with contaminants from landfilling and acid mine drainage

Supervisor: Prof E Muzenda

Co-supervisor: Dr IM Msibi

Barbosa Junior, Marcos Alvares (Electrical and Electronic Engineering)
Thesis: Tolerance to complexity: Automatic prioritisation_of testing on large scale and distributed software development projects
Supervisor: Prof T Marwala
Co-supervisor: Prof F Buarque

Ojo, Elizabeth Motunrayo (Engineering Management)
Thesis: Assessment of green supply chain management in South African and Nigerian construction firms.
Supervisor: Prof C Mbohwa
Co-supervisor: Prof E Akinlabi

9. Doctor Technologie (DTech)

Tshilenge, Kabuba John (Extraction Metallurgy)
Thesis: Application of neural network techniques to the ION-Exchange process and prediction of abrasiveness characteristics of thermal coal
Supervisor: Prof AF Mulaba-Bafubiandi
Co-Supervisor: Dr K Battle



Akinlabi, Stephen Akinwale (DIng)

Stephen Akinlabi graduated from the Department of Mechanical Engineering, Federal University of Technology, Akure, Nigeria in 1997 with a BEng Mechanical Engineering and completed his MEng degree in Mechanical Engineering at the University of Port Harcourt, Port Harcourt, Nigeria in 2005. He later enrolled for doctoral studies at the University of Johannesburg, South Africa in 2011.

The candidate's research study focused on manufacturing curved steel components for enhanced structural integrity, using laser beam for automotive and ship industries tailored applications. The ability to manufacture curved components using laser technology in this field of research is a new innovation. The candidate employed the Taguchi Orthogonal Array experimental approach and validated the experiments using finite element methods. From this study, the candidate has published three ISI-listed journal articles, one book chapter, and five peer-reviewed conference articles.

Supervisor: Prof M Shukla

Co-supervisor: Prof T Marwala



Bhamjee, Muaaz (DIng)

Muaaz Bhamjee was born on 18 August 1985. He matriculated from the UJ Metropolitan Academy (formerly RAUCALL) in 2003 with academic colours. He received a BEng degree in Mechanical Engineering Science in 2008, a BSc (Hons) degree in Applied Mathematics (*cum laude*) in 2010, and an MEng degree in Mechanical Engineering Science (*cum laude*) in 2011 all from the University of Johannesburg. He is currently a lecturer in the Department of Mechanical Engineering Science at the UJ. His research focus is in the fields of multiphase flow and solar energy.

The main objective of the candidate's study was to compare the predictions of Navier-Stokes and Lattice Boltzmann Method based models of the multiphase flow in a hydrocyclone in terms of accuracy when benchmarked to experimental measurements and in terms of computational efficiency. Accurate and computationally efficient modelling of such phenomena is vital to the design of hydrocyclones, which are crucial to the mining industry. The major contribution of this study was the demonstration that the Lattice Boltzmann Method can provide predictions of the multiphase flow and interactions in a hydrocyclone that are at least comparable to, and in some cases superior to, the Navier-Stokes based approach, whilst remaining more computationally efficient (or comparable) to the Navier-Stokes based approach. Based on the results from this study, it is recommended that the Lattice Boltzmann Method should be used for single phase flow modelling as well as particle interactions and separation modelling, whereas the Navier-Stokes based Eulerian-Eulerian model should be used for air-core modelling in the hydrocyclone.

Supervisor: Prof SH Connell

Co-supervisor: Prof AL Nel



Cieslakiewicz, Waldemar (DIng)

Waldemar Cieslakiewicz was born in Höckendorf (Germany) on 5 June 1945. He obtained a Polish Abitur in Gdańsk (Poland) in 1963. In 1969 he obtained an MSc in Engineering from the Technical University of Gdańsk. In 1973 to 1974 he completed postgraduate studies in Mechanical Engineering at the University of Warsaw (Poland). He obtained a BSc (Hons) degree in Computer Science from UNISA in 1990. In 1990, he completed postgraduate studies in Industrial Statistics at the WITS University. The candidate is a member of the IT Professionals in South Africa, South African Institution of Mechanical Engineering (SAIMEchE) and is an Expert of the Association of Polish Mechanical Engineers and Technicians (SIMP). He has been registered as a Professional Engineer in South Africa since 4th of December 1984 and in Poland since 1975. He has two journal articles and eight conference papers. The candidate has 46 years of local and international experience in design, construction, supervision, assessment and consultation on various projects in many sectors in the engineering industry.

The research focused on solar energy, namely hybrid photovoltaic (“PV”) and solar thermal cells. A system comprising two PV panels at the bottom of a rectangular glass duct. In order to improve the thermal efficiency of the system, several factors had to be investigated. Firstly, the optical properties of transparent materials which were determined in terms of the solar radiation wavelength and incident angle of the sun. Angular positions of the sun and solar spectral irradiance were modelled and validated by measurements. Secondly, it was found that, in order to improve the total heat efficiency of the system, a better understanding of the flow/ thermal properties of the system was required. A combination of experimental data analysis and numerical simulations yielded satisfactory results. It was found that the flow was turbulent, unstable, strongly stratified and incompletely developed, with strong heat radiation from the PV panels. The air flow structure was simulated using various steady-state type Computational Fluid Dynamic models. The research showed that the efficiency of the system could be improved by increasing flow turbulence. It was recommended to further investigate, for example, the use of swirling generators in order to improve convection heat transfer and system thermal efficiency

Supervisor: Dr CR Bester

Co-Supervisor: Prof AL Nel



Longe, Omowunmi Mary (DIng)

Omowunmi Mary Longe obtained her Bachelor of Engineering (BEng) Hons and Masters of Engineering in Electrical and Electronics Engineering from the Federal University of Technology, Akure, Ondo State, Nigeria. Her research interests include demand side management, energy management optimisation algorithms, energy expenditure optimisation, (smart) microgrid design, distributed energy storage, distributed energy generation, rural electrification, smart grid communication, and wireless sensor network applications in smart grid.

The candidate worked on demand side management in smart grids. She designed and formulated optimisation algorithms for reduced energy consumption and expenditure in a smart grid. These algorithms offered reduced energy consumption and expenditure by consumer, grid stability and sustainability while also mitigating household-level energy poverty. She further designed and formulated a fair-to-all energy trading algorithm for effective energy management in a smart (micro) grid with Distributed Energy Generation (from solar panels and wind turbines) and Distributed Energy Storage (from batteries and electric vehicles). These algorithms applied knowledge from the fields of mathematical optimisation and demand side management in an innovative manner for application in the smart grid with consumer preferences and satisfaction taken into consideration. The algorithms also included a user-friendly interface that could enhance technology adoption and better consumer participation and satisfaction. Elements of the research findings have been published in eleven international prestigious journals and conferences.

Supervisor: Prof. K Ouahada



Madyira, Daniel Makundwaneyi (DIng)

Daniel Madyira was born on 3 March 1968. He completed his BSc (Hons) in Mechanical Engineering at the University of Zimbabwe in 1991 and his MSc in Design of Turbomachinery at Cranfield University in 1993. In 1994, he joined the Department of Mechanical Engineering at the University of Zimbabwe where he worked as a lecturer before joining the Department of Mechanical Engineering Science at the University of Johannesburg in 2008. He is a registered Professional Engineer with the Engineering Council of South Africa.

Ti6Al4V titanium alloy is an expensive and difficult material to machine. Aerospace titanium components usually require extensive and therefore time- consuming machining. The aim of the research was to investigate the effect of high speed machining on component performance with specific reference to fatigue life. In essence, the research was aimed at establishing the surface integrity state of the component when subjected to high performance machining. The resultant residual stress state of the surface was measured by various diffraction techniques and correlated with the fatigue life for different cutting strategies. Crack growth modelling was utilised to establish the theoretical base of the experimentally observed results. The results indicated the presence of an intermediate range of cutting speeds where the most conducive residual stress state for best fatigue life was found. This research advances the current state of technology as far as intelligent machining is concerned with the ultimate goal to design the cutting strategy during production to produce the best fit for purpose surface integrity. These results have been published through a number of conference proceedings and international journals.

Supervisor: Prof RF Laubscher



Narain Singh, Shanil (DIng)

Shanil Narain Singh was born in Newcastle in KwaZulu-Natal on 19 August 1977. He obtained his Degree in Chemical Engineering from the Durban University of Technology in 2002, his Honours Degree from the University of Pretoria in 2004 and his MEng (Engineering Management) from the University of Johannesburg in 2011. Throughout his career, he has been involved in Process, Risk and Reliability Engineering. He has worked for large multinational companies and in his current position as Chief Engineer at Eskom, Group Technology, he is the Technical Specialist for Risk-based Inspection and Pressure Equipment Inspection. He is recognised internationally as a Specialist in Risk-based Inspection and regularly attends international forums to discuss topics related to risk. He formed part of the European Union (EU) Advisory Board that dealt with issues surrounding ageing infrastructure. He currently serves the EU Advisory Committee that deals with resilience. He has advised on the new European Standard (EN 16991) that deals with the creation of a Risk-based Inspection Framework. He is professionally registered with ECSA.

New regulations came into effect for pressure equipment used in generation power plants and compliance to these regulations is mandatory. The regulations allow the users of pressure equipment to apply a Risk-based Inspection approach to the pressure equipment as opposed to fixed-term pressure testing. The Risk-based Inspection would give the user the latitude to make fitness for service decisions and determine the frequency of test and inspection. In the thesis, the candidate develops a Risk-based Inspection programme and determines whether certain processes can be applied within the power generation environment to ensure compliance with the Occupational Health and Safety Act. To achieve this, the candidate used Fuzzy Logic to determine risk plots for boiler valves in the power plant. He further contributed in the development of a Risk-based Inspection process for the fossil fired power generation industry. Typical maintenance processes followed by fossil fired power generating utilities do not include the risk component. The Fuzzy C Mean algorithm shows that the clustering process can be effectively used to predict component risk.

Supervisor: Prof JHC Pretorius



Ogbeifun, Edoghogho (DIng)

Edoghogho Ogbeifun had his former education in Nigeria, obtaining the Higher National Diploma (Structural Engineering) in 1982, the Postgraduate Diploma in Civil Engineering in 1990, and an MSc in Project and Construction Management from the University of the Witwatersrand, South Africa in 2011. His work experience spans the design, construction supervision, and maintenance of infrastructure in the built environment. He is a registered Civil Engineer with the Council for the Regulation of Engineering in Nigeria (COREN), and an Accredited Facilities Professional (AFP), registered with the South African Facilities Management Association (SAFMA).

The focus of his doctoral research was to evaluate the operation of the Facilities Management (FM) Unit in a higher education institution, with a view to determine how their operations are aligned towards achieving the strategic objectives of the institution. The research revealed that although the FM Unit was adequately resourced, the Unit was lagging behind in service delivery. In order to improve on its performance, suitable Key Performance Indicators were developed and the research suggests the use of performance management as a tool for performance improvement. Some specific contributions of this research include: demonstration of how detailed, customer friendly periodic reports can serve as a tool of effective communication between FM and their customers in Higher Education (HE) institutions; and the use of the instrument of performance management as a tool for both evaluation and alignment of the operation of FM to meet the business objectives of HE institutions. Edoghogho Ogbeifun has published several peer-reviewed academic papers presented in international conferences and two papers in reputable journals base on his doctoral studies.

Supervisor: Prof. JHC Pretorius

Co-supervisor: Prof. C. Mbohwa



Robinson, Gavin Stuart (DIng)

Gavin Robinson was born in Petit, Benoni, on 14 December 1984. He obtained his BIng (Mechanical Engineering and Manufacturing Specialist) degree in 2008 and his MIng (Engineering Management) in 2010, both from the University of Johannesburg. He was Director of the Soweto Science Centre from 2008 to 2010 and completed his MIng (Engineering Management) dissertation based on this experience. He then worked in the pump manufacturing engineering industry and is currently the Director of Engineering at Curo Pumps (Pty) Ltd.

Gland Service is a vital component in the operation of a mine – the entire mining process stops if there is a gland service failure. In the thesis, the candidate uses a systematic approach to develop a model for the effective management of a gland service system. To achieve this, the candidate had to use control systems applications such as Simulink and the Overall Equipment Effectiveness theory to create the foundation of the model. In a complex, severely constrained situation like this, a computer model makes a significant difference in keeping the plant operational and achieving positive financial outcomes. The model can predict the economic losses and downtime losses for a slurry system if incorrect gland service is being applied. Furthermore, the research also developed a strategy for solving the design, implementation, control and maintenance issues found onsite. The candidate's design is implemented in plants in many parts of Africa and has become a necessity for the correct operation of a slurry pump system in mining operations.

Supervisor: Prof JHC Pretorius

Co-Supervisor: Prof L Pretorius



Agbenyeku, Emmanuel Emem-Obong (DPhil)

Emmanuel Agbenyeku obtained his Honours Degree in Building in the School of Environmental Technology with a *magna cum laude* from the Federal University of Technology, Minna, Niger State, Nigeria. He had worked as a part-time lecturer and environmentalist for over two years prior to commencing his master's degree in 2012. He obtained his Master's Degree in Civil Engineering Science with a *cum laude* from the University of Johannesburg in 2015.

His research interest focuses on modifying and utilising locally available clayey soil for the containment of pollutants and contaminant species generated from landfilling and mining operations, as well as on the transformation of industrial and agricultural wastes into useful resources. During his doctoral studies, the candidate investigated the buffering efficacy and interaction of minerals in clayey soils from Johannesburg with contaminants from municipal solid waste (MSW) landfill. He also focused on acid mine drainage (AMD) for safeguarding soil, surface, subsurface and groundwater resources. The study led to the infusion and assessment of the potency of three subtropical clayey soils as natural buffers. It also checked their compatibility with AMD and MSW landfill leachate via geochemical, mechanical and soil percolation tests, batch sorption, column diffusion, and chemical and x-ray diffraction studies. The hydraulic conductivity performance values obtained satisfied the minimum geo-polymer parameters and soil acceptance criterion specified for clay liner construction in South Africa, irrespective of the physicochemical and mineralogical transformations in the respective soils. The outcomes of his study have resulted in four published ISI journals, four manuscripts accepted by ISI journals, one book chapter and twenty-five peer-reviewed conference papers.

Supervisor: Prof E Muzenda

Co-supervisor: Dr IM Msibi



Barbosa Junior, Marcos Alvares (DPhil)

Marcos was born in Recife in the state of Pernambuco in Brazil. He obtained his Bachelor's and Master's degrees in Computer Science, specialising in artificial intelligence, from the University of Pernambuco in Brazil in 2008 and 2011, respectively. During his doctoral degree studies he obtained additional training in software security from University of Maryland, College Park. He currently works as a Senior Security Researcher at FireEye, Inc. in the Netherlands and previously worked as a consultant on information security in Johannesburg.

Software testing has a fundamental role in all modern development methodologies. Ideally, in order to guarantee an acceptable level of reliability, the same amount of resources (human and financial) invested in writing source code should be applied for testing and verification. Programming failures can represent a high risk for companies and can cause relevant financial and reputation losses. In order to mitigate such risks, an increasing amount of resources have been applied to research on software verification and testing. Despite increasing investments in software testing methodologies, focusing on processes, and statistical analysis techniques, focusing on source code, there are still no techniques for predicting programming issues that also consider human aspects. Information related to developers should also be considered when trying to predict defective source code. In order to overcome this limitation, this thesis presents a new approach to systematically measure the capacity of development teams to handle source code complexity. The main insight of the proposed technique is the relation between historical data of issues and source code complexity. From this thesis, four refereed papers have been published.

Supervisor: Prof T Marwala

Co-supervisor: Prof F Buarque



Ojo, Elizabeth Motunrayo (DPhil)

Elizabeth Ojo graduated from the Department of Building Technology, Lagos State Polytechnic, Nigeria in 2003 with a Higher National Diploma. She then completed her Master's degree in Project Development and Implementation at the University of Ibadan, Nigeria in 2010. She enrolled for her doctoral studies at the University of Johannesburg, South Africa in 2012.

The candidate's research study focused on the assessment of green supply chain management in South African and Nigerian construction firms. She assessed the level of green supply chain management (GSCM) practices in the two countries and also compared the green practices in the two countries. Profound solutions were proffered for sustainable best practices. She used high level statistical analysis and triangulated the approach with multi methods. The study also provides guidance to stakeholders across the supply chain by proposing an optimised model for the selected case for GSCM practice and implementation. The study is a unique and first contribution on green supply chain industries in Africa with a focus on South Africa and Nigeria. She published one journal article and eight peer-reviewed conference papers based on her thesis.

Supervisor: Prof C Mbohwa

Co-supervisor: Prof ET Akinlabi



Tshilenge, Kabuba (DTech)

Kabuba is a lecturer in the Department of Chemical Engineering at Vaal University of Technology. His tertiary studies included a BEng in Chemical Engineering, University of Lubumbashi (DRC) (1998) and an MTech in Chemical Engineering, University of Johannesburg (2009). He has more than 12 years' experience in academia gained at the University of Johannesburg and the Vaal University of Technology. He has published more than 30 peer-reviewed and refereed journal articles, conference papers and book chapters. His research interests are in the broad areas of Hydrometallurgy, Modelling, Environmental Technology and Neural Network.

Kabuba's research work aimed at modelling the recovery of copper and cobalt from their hydrometallurgical solutions emanating from the dissolution of oxidised ores. Additionally, the researcher studied the variability of coal abrasiveness index values through analysing variance and feed-forward neural network with back-propagation. The non-linear behaviour of the ion-exchange process was successively modelled using the feed-forward neural network with pH, temperature and initial concentration as input parameters. The mean square error, correlation coefficient and mean square relative error were determined. The generalised regression neural network technique was used to study the variability of abrasiveness index values of South African coal. The influence of input variables (mineralogy of coal, silica content, ash content) was studied using sensitivity analysis. Results showed that quartz was the influential component in coal responsible for the higher abrasion characteristics of coal and wear of equipment. This research work showed that the feed-forward neural network could be used to predict and simulate the complex behaviour of the ion-exchange process, while the abrasiveness of coal (i.e. variability of the values and weight of contributing factors) could be analysed using the generalised regression neural network technique.

Supervisor: Prof AF Mulaba-Bafubiandi

Co-Supervisor: Dr K Battle



See the back cover for the words of the National Anthem.



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