

**Welcome to the  
Graduation Ceremony  
of the  
University of Johannesburg  
18 October 2018**

**Welkom by die  
Gradeplegtigheid  
van die  
Universiteit van Johannesburg  
18 Oktober 2018**

**Le a Amogelwa  
Moletlong wa Dikapešo wa  
Yunibesithi ya Johannesburg  
18 Diphlane 2018**

**Niyamukelwa  
eMcimbini wokweThweswa kweZiqu  
weNyuvesi yaseJohannesburg  
18 kuMfumfu 2018**

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

### **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)

### **DEPUTY VICE-CHANCELLOR: EMPLOYEES AND STUDENT AFFAIRS**

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

### **CHIEF OPERATING OFFICER**

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

### **GENERAL COUNSEL**

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

### **SENIOR EXECUTIVE DIRECTOR IN THE VICE-CHANCELLOR'S OFFICE**

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

## **EXECUTIVE DEANS**

### **COLLEGE OF BUSINESS AND ECONOMICS**

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

### **FACULTY OF ART, DESIGN AND ARCHITECTURE**

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

### **FACULTY OF EDUCATION**

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

### **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 Nalla (Acting)  
BSc (Wits), BSc Hons (Wits), Certificate ELLD (UJ), PhD (Wits)

### **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 SCIENCE**

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

# **MEMBERS OF COUNCIL**

## **CHAIRPERSON**

Mr MS Teke

## **DEPUTY CHAIRPERSON**

Ms Z Matlala (Acting)

## **MEMBERS**

Prof H Abrahamse  
Mr FM Baleni  
Ms S Dlamini  
Ms K Gugushe  
Prof D Hildebrandt  
Ms X Kakana  
Mr G Khosa  
Ms B Madikizela  
Mr M Mahlasela  
Prof T Marwala  
Ms BJ Memela-Khambula  
Prof A Parekh  
Mr C Phetla  
Dr WP Rowland  
Prof A Strydom  
Dr M Tom

# Programme

**Thursday, 18 October 2018 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.

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## Lenaneo

**Labone, 18 Diphlane 2018 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, 18 Oktober 2018 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 prosessie 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 prosessie die Ouditorium.

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# **Uhlelo**

**uLwesine, 18 kuMfumu 2018 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/iploma/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)

**Bapela**, Ursula (Operations Management)  
**Dauids**, Alistair Carl (Engineering: Civil)  
**Ganare**, Lebo Venessa (Operations Management)  
**Keetile**, Rebaone Goodwill (Engineering: Civil)  
**Khotle**, Keorapetse Hope (Operations Management)  
**Mabuza**, Londiwe (Operations Management)  
**Mabuza**, Simphiwe Senzeko (Operations Management)  
**Mayisela**, Sifiso Mfundo (Operations Management)  
**Mdletshe**, Nokuthula (Engineering: Civil)  
**Melamane**, Sanele (Operations Management)  
**Mhlophe**, Lovejoy Sphiwe (Management Services)  
**Mmbi**, Vhutali (Engineering: Civil)  
**Mojela**, Thabang Sebastian (Operations Management)  
**Mtshiza**, Mpumelelo Lerato (Engineering: Civil)  
**Mulaudzi**, Lindelani (Operations Management)  
**Mzekandaba**, Phakamile (Engineering: Metallurgy)  
**Nangammbi**, Masala (Operations Management)  
**Nefuri**, Mukovhe (Operations Management)  
**Netshisaulu**, Mulweli (Engineering: Civil)  
**Nkosi**, Bussie Trudy (Operations Management)  
**Nsele**, Siqu Wesley (Operations Management)  
**Phalakatshela**, Cedrick Tebogo (Engineering: Civil)  
**Phefadu**, Nakedi Hastings (Engineering: Civil)  
**Pitse**, Kelebogile Kamogelo (Operations Management)  
**Ramawa**, Karabo Given (Operations Management)  
**Taylor**, Oluwayemisi Deborah (Engineering: Civil)  
**Tsatsi**, Kabelo (Management Services)  
**Tshangana**, Solami (Engineering: Civil)

## 2. Baccalaureus Technologiae (BTech)

**Bya Mungu**, Kajangu Josue (Quality)  
**Dlamini**, Wethu Vuyanni (Engineering: Civil :Structural)  
**Dumezweni**, Avela Zandise (Engineering: Civil: Transportation)  
**Edward**, Davison (Engineering: Civil: Construction Management)  
**Ekoret Ngnamendoume**, Marlene (Operations Management)



**Ellapen**, Sidony Ellen (Engineering: Civil: Transportation)  
**Hlongwane**, Thembinkosi Bothwick (Management Services)  
**Kgomo**, Thatego Tryphina Phuti (Engineering: Civil :Structural)  
**Leslie**, Craig Dominic (Engineering: Civil: Construction Management)  
**Lotz**, Freddie Melchior (Engineering: Civil :Structural)  
**Lukhuleni**, Obert Khulani (Engineering: Civil :Structural)  
**Machaka**, Mahlodi Mamafa (Management Services)  
**Mahlangu**, Phiwokuhle (Engineering: Civil :Structural)  
**Mahomed**, Nawaaz (Engineering: Civil :Structural)  
**Malatsi**, Motlakadibe Ena (Engineering: Civil: Transportation)  
**Marumo**, Tebogo Brian (Engineering: Civil: Construction Management)  
**Mazibuko**, Melisizwe (Engineering: Civil :Water)  
**Mohlala**, Gideon Mashianoke (Engineering: Civil :Structural)  
**Moropane**, Surprise Mphezulu (Engineering: Civil :Water)  
**Mthimkulu**, Nonkululeko Renee (Engineering: Civil :Structural)  
**Mthombeni**, Sonto Saint (Engineering: Civil :Water)  
**Mwanamputu**, Nathan (Operations Management)  
**Ndeve**, Musa (Engineering: Civil: Transportation)  
**Ndlovu**, Nokukhanya Gugu (Operations Management)  
**Ngobeni**, Nhlanhla (Engineering: Civil :Structural)  
**Ngubane**, Sboniso Vincent (Engineering: Civil :Structural)  
**Parley**, Mzukisi Arnold (Quality)  
**Piko**, Kwanele (Operations Management)  
**Pillai**, Lynesha (Engineering: Civil :Water)  
**Sibanda**, Mpendulo (Engineering: Civil :Structural)  
**Simelane**, Nonhlanhla Sweetness (Engineering: Civil: Construction Management)  
**Sinxezi**, Thembinkosi (Engineering: Civil: Transportation)  
**Sobantu**, Violet Thabile (Operations Management)  
**Teffo**, Lesiba Wilmah (Engineering: Civil: Construction Management)  
**Thai**, Griffith Steven (Engineering: Civil :Structural)  
**Tjale**, Khutso Nakedi (Engineering: Civil :Structural)  
**Tshifura**, Mushumi Kevin (Engineering: Civil: Construction Management)  
**Wangi**, Asanga Pierre (Engineering: Civil: Construction Management)  
**Zuma**, Nompumelelo (Management Services)  
**Zungu**, Sibongokuhle (Quality)

### **3. Baccalaureus Ingeneriae (BIng)**

**Legodi**, Pakgadi Stanford (Civil Engineering)  
**Sewpersad**, Nikisha (Civil Engineering)  
**Sykes**, Michelle Kim (Civil Engineering)

#### 4. **Magister Technologiae (MTech)**

**Chauke, Sindisiwe** (Operations Management)

**Dissertation:** Investigating the impact of Environmental Sustainability in South African Chemical Industry

**Supervisor:** Dr K Sobiyi

**Co-Supervisor:** Prof C Mbohwa

**Conduah, Joyce Ama** (Operations Management)

**Dissertation:** The impact of occupational role stress on employee's performance in the banking sector – a comparative study of two banks in Johannesburg.

**Supervisor:** Prof PA Kholopane

**Co-Supervisor:** Mr J Mabiza

**Moswane, Mangakane Retsebile** (Operations Management)

**Dissertation:** Location-based services to determine the movement patterns of commuters between Sandton and Park stations

**Supervisor:** Prof T Gumbo

**Co-Supervisor:** Ms. K Mushavhanamadi

**Moukita Koumba, Urla Darlyne** (Operations Management)

**Dissertation:** Life cycle assessment of Artisanal Sandstone Mining: A case study of Qwaqwa, South Africa

**Supervisor:** MR JF Agwa-Ejon

**Co-Supervisor:** Dr A Prdhan

**Ramasu, Tlotlo Keatletse** (Operations Management)

**Dissertation:** The effect of TOC adoption in South Africa: A Case Study

**Supervisor:** Prof P Kholopane

**Co-Supervisor:** Dr K Sobiyi

#### 5. **Magister Ingenieriae (MIng) - Master of Engineering (MEng)**

**Arum, Charles Ifeanyi** (Engineering Management)

**Minor Dissertation:** Assessment of occupational health and safety compliance in the Nigerian construction industry

**Supervisor:** Prof CO Aigbavboa

**Crossman, Kurt** (Engineering Management)

**Minor Dissertation:** Design-build delivery: A method to reduce delays in the South African construction industry

**Supervisor:** Prof A Marnewick

**Co-Supervisor:** Prof I Musonda

**Dlamini, Asanda Eric** (Engineering Management)  
**Minor Dissertation:** Evaluating systems engineering capability of the Systems and Automation Department in a Transportation Infrastructure Organisation  
**Supervisor:** Dr J Erasmus  
**Co-Supervisor:** Prof JHC Pretorius

**Kwinika, Kellie Nhlamulo** (Engineering Management)  
**Minor Dissertation:** Stakeholders' compliance and accountability with Health and Safety in the construction industry  
**Supervisor:** Dr H Nel  
**Co-Supervisor:** Prof A Marnewick

**Lesisa, Tumelo Gift** (Engineering Management)  
**Minor Dissertation:** Strategic supplier selection criteria during supplier selection process in sourcing  
**Supervisor:** Prof A Marnewick

**Mabeba, Motlatso Sophie** (Engineering Management)  
**Minor Dissertation:** Schedule risk analysis of railway using Monte-Carlo simulation  
**Supervisor:** Prof JHC Pretorius  
**Co-Supervisor:** Prof L Pretorius

**Magae, Thomas Otsile** (Engineering Management)  
**Minor Dissertation:** Engineering requirement elicitation for inventory management system of electrical locomotive maintenance shop  
**Supervisor:** Prof J Meyer

**Masopoga, Moloko** (Engineering Management)  
**Minor Dissertation:** Project constraints in a manufacturing environment - beyond the Iron Triangle  
**Supervisor:** Prof JHC Pretorius  
**Co-Supervisor:** Dr A Wessels

**Moselakgomo, Madumetja Jeremea** (Civil Engineering)  
**Dissertation:** Impacts of Urban Spatial Policies on commuting in Gauteng Province  
**Supervisor:** Prof FN Okonta

**Motsepe, Yolisa Andi** (Engineering Management)  
**Minor Dissertation:** Exploring the impact project definition readiness index on capital projects for coal generation power projects  
**Supervisor:** Prof JHC Pretorius  
**Co-Supervisor:** Mr B Makhanya

**Ndlovu, Leonard** (Engineering Management)

**Minor Dissertation:** A review on effective maintenance strategies and management for optimising equipment systems

**Supervisor:** Prof A Telukdarie

**Ramagaga, Thakane Stephina** (Engineering Management)

**Minor Dissertation:** Critical success factors for the implementation of reliability centred maintenance

**Supervisor:** Prof A Telukdarie

**Tshambo, Neo Theodora** (Engineering Management)

**Minor Dissertation:** Upgrade of coal using dry X-Ray transmission sorting

**Supervisor:** Prof J Meyer

**Whalley, Geoffrey Llewellyn** (Engineering Management)

**Minor Dissertation:** Establishing the criteria that determine when to appoint an engineering manager

**Supervisor:** Mr D Kruger

## 6. **Magister Philosophiae (MPhil)**

**Adams, Pascalis** (Engineering Management)

**Minor Dissertation:** The influence of leadership on innovation in the telecommunications industry

**Supervisor:** Dr H Nel

**Co-Supervisor:** Prof AL Marnewick

**Bajinath, Varun** (Engineering Management)

**Minor Dissertation:** The impact of a lean approach on maintenance of large centrifugal pumps

**Supervisor:** Dr L Erasmus

**Co-Supervisor:** Prof JHC Pretorius

**Fakir, Muhammad** (Civil Engineering)

**Dissertation:** A holistic approach to open-pit slope stability using artificial neural networks and rock engineering systems approach

**Supervisor:** Dr M Ferentinou

**Kgosi, Tshepo Damian** (Engineering Management)

**Minor Dissertation:** Establishing the causes of delays in Eskom construction projects

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof AL Marnewick

**Kubheka, Hlengiwe Lorraine** (Engineering Management)

**Minor Dissertation:** Suitability of the project organisational structure and culture on implementing a sustainable ISO 9001 in the Water Sector

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Vermeulen

**Kwaso, Mthetheleli Joseph** (Engineering Management)

**Minor Dissertation:** Evaluating the Impact of total productive maintenance elements on a manufacturing process

**Supervisor:** Prof A Telukdarie

**Martinus, Aroon** (Engineering Management)

**Minor Dissertation:** The advantages of predictive maintenance as a means to maximize the availability of centrifugal slurry pump at Ergo City Dep Plant

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Wessels

**Masombuka, Bongani** (Engineering Management)

**Minor Dissertation:** Project management as a tool for organisational strategy development

**Supervisor:** Prof AL Marnewick

**Co-Supervisor:** Prof C Marnewick

**Mnqonywa, Sixolile** (Engineering Management)

**Minor Dissertation:** A systematic literature review of the agile methodology applied during construction project design

**Supervisor:** Dr S von Solms

**Co-Supervisor:** Prof AL Marnewick

**Molabe, Phaladi Piet** (Engineering Management)

**Minor Dissertation:** Reliability assessment of transmission transformers in South Africa

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Mr B Makhanya

**Mukuwari, Ernest** (Engineering Management)

**Minor Dissertation:** A framework for automation control systems selection in long steel hot rolling plants

**Supervisor:** Dr BW Botha

**Mukwena, Mulalo** (Engineering Management)

**Minor Dissertation:** Analysis of factors undermining the reliability of permanent way infrastructure in the South African Railway industry

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Wessels

**Naledi, Thabo Edwin** (Engineering Management)

**Minor Dissertation:** Exploring the causes of premature failures of water pipeline systems in South Africa

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Mr B Makhanya

**Ndlovu, Buhlebethu Mfundo** (Engineering Management)

**Minor Dissertation:** An assessment of the factors that influence the delivery of independent power producer's projects

**Supervisor:** Prof A Telukdarie

**Novela, Maqhawe Bennito** (Engineering Management)

**Minor Dissertation:** Factors contributing to the failure of emerging construction companies

**Supervisor:** Prof AL Marnewick

**Nyambe, Bangixhanti Gift Siyambulela** (Engineering Management)

**Minor Dissertation:** Application of Project management methodologies in the execution of Medical Gases installations to improve synergy within South Africa

**Supervisor:** Prof JC Mbohwa

**Seletlo, Theophilus Tiki** (Engineering Management)

**Minor Dissertation** The reliability of 43D diesel locomotives on the Phalaborwa to Richards Bay corridor

**Supervisor:** Prof A Telukdarie

**Shisane, Fanie Alan** (Engineering Management)

**Minor Dissertation:** Investigating the factors, risks and challenges impacting cloud computing services adoption rate

**Supervisor:** Prof A Telukdarie

**Sibotho, Mzwandile** (Engineering Management)

**Minor Dissertation:** Challenges and benefits of agile project management in a South Africa bank: A case study

**Supervisor:** Dr J Erasmus

**Silaule, Cleopatra** (Engineering Management)

**Minor Dissertation:** Infrastructure project failure caused by the lack of project management planning

**Supervisor:** Prof AL Marnewick

**Sindane, Nkosinathi Nicholas** (Engineering Management)

**Minor Dissertation:** Challenges of enterprise architecture: A systematic review

**Supervisor:** Prof AL Marnewick

**Wilson, Thamsanqa Thato** (Engineering Management)

**Minor Dissertation:** A comparative study of soft skills amongst the Washington Accord engineering degree graduates with industry expectations

**Supervisor:** Prof AL Marnewick

## 7. Doctor Ingeneriae (DIng)

**Green, Jeremy** (Engineering Management)

**Thesis:** Requirements elicitation techniques for the development of an underground remote piloted aerial system

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof A Marnewick

**Gudukeya, Loice Keresia** (Engineering Management)

**Thesis:** Towards green manufacturing: improving environmental sustainability in the Zimbabwean steel industry

**Supervisor:** Prof C Mbohwa

**Co-Supervisor:** Prof P Mativenga

## 8. Doctor Philosophiae (DPhil)

**Coffie, George Harrison** (Engineering Management)

**Thesis:** Development of a cost predicting model for construction projects in Ghana

**Supervisor:** Prof CO Aigbavboa

**Eyiah Botwe, Emmanuel** (Engineering Management)

**Thesis:** Sustainable stakeholders' management framework for construction projects in Ghana

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof WD Thwala

**Co-Supervisor:** Prof CO Aigbavboa

**Muyengwa, Goodwell** (Engineering Management)

**Thesis:** Business sector analysis: The case study of motor body repair in South Africa

**Supervisor:** Dr K Battle

**Co-Supervisor:** Prof C Mbohwa

**Mwanza, Bupe Gertrude** (Engineering Management)

**Thesis:** An African reverse logistics model for plastic solid waste

**Supervisor:** Prof C Mbohwa

**Co-Supervisor:** Prof A Telukdarie

**Nyakala, Kgashane Stephen** (Engineering Management)

**Thesis:** Developing a road construction quality assurance process measurement tool: The case of Mopani district municipality

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Vermeulen

**Ramovha, Ntshengedzeni Thomas** (Engineering Management)

**Thesis:** A model for sustainable delivery of housing in South Africa

**Supervisor:** Prof CO Aigbavboa

**Co-Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof WD Thwala

**Viljoen, Albert Japie** (Engineering Management)

**Thesis:** Critical success factors for six sigma design and deployment to complement Lean operational strategy towards capability maturity

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Vermeulen

**Wanda, Andrew Petros Lumka** (Engineering Management)

**Thesis:** Evaluation of forecasting methods for critical maintenance spare parts for the bus operating companies in South Africa

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Wessels

**Zaayman, Leon Crous** (Engineering Management)

**Thesis:** Optimisation of mechanised maintenance management of railways track infrastructure

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof P Veit





## **Green, Jeremy (DIng) Engineering Management**

Jeremy Green completed his BIng (1996) and MIng (2001) degrees in Mechanical Engineering at Stellenbosch University. He then worked for DebTech, the R&D division of DeBeers, primarily in minerals processing. His work culminated in the development of an industrial robot system with three cooperating robots processing sub-millimetre exploration samples. Jeremy then moved to the CSIR Centre for Mining Innovation to develop and lead a team to investigate robotics as a possible platform for safely mining South Africa's ultra-deep gold mines. In 2014, he left the CSIR and began his PhD entitled: "*Requirements elicitation techniques for the development of an underground remote piloted aerial system*".

This research describes the development of a requirement elicitation process for the development of a prototype underground Remote Piloted Aerial System for inter alia, the scanning and unblocking of rock passes in underground mining. The contribution of the work was twofold, firstly in the development of a generalised requirement elicitation guideline for use in academic based technology development projects that will enable the better alignment between academic research outputs and industry requirements; secondly, to prove the guidelines' success in a technology development case study by determining the exact requirements of, and producing a prototype system for an underground Remote Piloted Aerial System for rock pass scanning. This will improve the safety and productivity of underground gold mining by potentially preventing ore pass blockages.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof A Marnewick

**Co-Supervisor:** Prof H Grobler



**Gudukeya, Loice Keresia (DIng) (Engineering Management)**

Loice Gudukeya did her primary and secondary education in Zimbabwe. In 1999, she enrolled with the National University of Science and Technology (Bulawayo, Zimbabwe) and attained a Bachelor of Engineering Honours degree in Industrial and Manufacturing in 2004. In 2010, working as a teaching assistant at the University of Zimbabwe, she enrolled for the Master of Science degree in Renewable Energy, which she attained in 2012. In 2013, she embarked on her PhD studies with the University of Johannesburg. Her research focused on improving the environmental sustainability in the Zimbabwean steel industry.

This research work involved industrial surveys and experiments. The industrial surveys identified current processes and environmental impact mitigation methods in place in the Zimbabwean steel industry to reduce emissions of toxic gases. The results were shared with all participants and implementation done to introduce environmentally friendly practices. One of the implementation projects looked at the greening of the calcination process for a new start-up company. The usage of cupola furnace slag as a lubricant in the cutting of steel was investigated. Samples of the cupola furnace slag from two different companies were experimented on. The results showed that cupola furnace slag has good properties that qualify it as a lubricant in the cutting of steel and was found to be capable of inhibiting heat diffusion. This study contributes to finding new solutions that involve the reuse of waste in manufacturing and in value addition activities. The work also contributes to understanding how a steel industry circular economy can be developed within the context of an industrialising country.

**Supervisor:** Prof C Mbohwa

**Co-Supervisor:** Prof P Mativenga



**Coffie, George Harrison (DPhil) Engineering Management**

George Harrison Coffie graduated from the Department of Building Technology, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, with a BSc (Hons) in Building Technology in 2003 and completed his MSc in Construction Project Management at HANS University of Applied Science, the Netherlands, in 2009. He is a lecturer at Ho Technical University, Ho, Ghana, and is currently the acting Director of Works and Physical Development of the university. He enrolled for his doctoral studies at the University of Johannesburg, South Africa, in 2016. The candidate has two journal manuscripts currently under review based on his doctoral studies.

The candidate's research focused on the development of a cost-predicting model for construction projects in Ghana. The candidate employed multiple linear regression and extreme learning machine with the use of R-software and MATLAB in the analysis of 12 predictive variables from already completed construction projects. The variables were used to develop cost-predicting models for completed construction projects. The developed models, which were compared in terms of the two algorithms, revealed that the Extreme Learning Machine (ELM) outperforms the multiple linear regressions. This research contributes to the existing knowledge in cost prediction/modelling advances of construction projects. It reveals the use of ELM with multiple regressions for developing cost-predicting models built on historical data from completed construction projects. The research has a practical contribution, with the potential to predict construction completion cost for use by stakeholders in the Ghanaian construction industry and beyond.

**Supervisor:** Prof CO Aigbavboa



## **Eyiah-Botwe, Emmanuel (DPhil) Engineering Management**

Emmanuel Eyiah-Botwe holds a BSc (Honours) Degree in Design and a Postgraduate Diploma in Architecture, both from the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, and an MSc in Construction Project Management (*cum laude*) from the University of the West of England, Bristol, UK. He is currently a lecturer at the Kumasi Technical University. He is a member of the Ghana Institute of Architects (GIA), the Chartered Institute of Builders (CIOB) and was the Vice-President of GIA (2014-2016). He enrolled for his doctoral studies in 2015 and has published two peer-reviewed book chapters, three journal papers and nine articles in conference proceedings based on the research.

The candidate's research focused on stakeholder management success for enhanced project delivery in developing countries. A sustainable stakeholder management framework for construction projects in Ghana was thus developed. The candidate employed mixed-method research, using a qualitative Delphi study technique and a quantitative questionnaire survey for the primary data collection, which were analysed using structural equation modelling through a confirmatory factor analysis (CFA) approach. The results were validated using the robust analytical structural equation modelling (SEM) for the model fit. The result confirmed the theory that sustainable stakeholder management success was influenced by the latent constructs validating the postulated six-factor sustainable SM model. The significant contributions of the study are the use of the mixed methods approach, the robust SEM analytical method and the development of a holistically six-factor SM framework for stakeholder management success for enhanced construction project delivery in Ghana.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof WD Thwala

**Co-Supervisor:** Prof CO Aigbavboa



## **Muyengwa, Goodwell (DPhil) Engineering Management**

Goodwell Muyengwa worked in the airline industry from 1988 to 1991 before training as an apprentice fitter-machinist. He worked in the steel manufacturing industry as a maintenance technician and design draughtsman from 1992 to 1994 before joining the University of Zimbabwe as Chief Mechanical Engineering Technician in 1995. He obtained his National Craft Certificate in 1989 with distinction, the Advanced Craft Certificate in 1991, the City and Guilds Mechanical Engineering Technician T4 in 1991 and T5 in 1992 with distinction. Goodwell obtained his Engineering Council (UK) Part 2 Examination Certificate in 2002, which enabled him to meet the requirements to register as a Chartered Engineer in the UK. He earned an MSc in Manufacturing Systems and Operations Management from the University of Zimbabwe in 2005. Goodwell joined UJ as a lecturer in April 2008.

The candidate investigated the impact of business models, entrepreneurship, managerial capacity and technical capability framework on business performance of SMMEs operating in the South African motor body repair sector. Survey data were obtained through an integrated framework and were analysed through a multiple regression model. The study presents two detailed case studies. It also presents results of a simulation of workshop processes to identify constrained resources and establish throughput capacity using ARENA software. The major contribution of the study was the development of a performance driven business model and technical capability framework for the motor body repair sector. The work has contributed to the understanding of the structure and direction of businesses in the South African motor body repair sector. The third contribution is to performance measurement theory using an integrated performance measurement framework. The study also presents empirical evidence on how a business model affects business performance.

**Supervisor:** Dr K Battle

**Co-Supervisor:** Prof C Mbohwa



## **Mwanza, Bupe Gertrude (DPhil) Engineering Management**

Bupe Gertude Mwanza (née Mutono) was born in Zambia in 1982. She obtained her Bachelor of Science degree in Production Management from the Copperbelt University in Zambia in 2006. In 2011, she graduated with her Masters of Engineering in Manufacturing Systems and Operations Management from the National University of Science and Technology in Zimbabwe. Bupe has over eight years of lecturing and research experience. She has worked for the Copperbelt University in Zambia and the Harare Institute of Technology in Zimbabwe. She has presented and published research works in the areas of Engineering Management, Operations Management and Sustainability. She is a member of the Engineering Institute of Zambia, the Southern African Institute of Industrial Engineers, and the Zambia Network for Environmental Educators and Practitioners (ZANEEP).

The study investigated the integration of the key stakeholders in the waste management arena and identified the key levers that influence their participation in recovery and recycling programmes in Zambia. The study provided new contributions to the existing theory on reverse logistics, waste management and sustainability from a developing economy perspective. The study further provided strategies, developed a model and proposed ideas on the way forward in order to achieve sustainable resource utilisation and waste management in Africa. This was done by focusing on implementation in plastic manufacturing and recycling companies. The model was successfully tested. It determines and optimises the amount of recyclable plastic solid waste using a scenario based approach. This reverse logistics model is applicable to other types of recyclable wastes as well as to different contexts influenced by similar levers within the context of African and industrialising countries.

**Supervisor:** Prof C Mbohwa

**Co-Supervisor:** Prof A Telukdarie



**Nyakala, Kgashane Stephen (DPhil) Engineering Management**

Kgashane Stephen Nyakala was born in Tzaneen, Limpopo, in 1980. He completed his secondary school education at Seboye Senior Secondary School, Tzaneen, in 1998. In 2009, he obtained a BTech degree in Operations Management from the Tshwane University of Technology, and in 2014, he obtained his MTech in Operations Management from the University of Johannesburg. He enrolled for a doctorate degree part time at the University of Johannesburg in 2014, and he is currently employed as a lecturer at the Tshwane University of Technology.

The candidate identified the factors causing quality or work process failure and analysed constructability specifications and drawings within various project-based organisation units to implement quality assurance processes in the construction industry. This study showed that the small- and medium-enterprises (SMEs) construction project lacks a quality strategic plan and inadequate development within the local government road construction projects built by the SME contractors. The findings propose that the SME construction organisations would benefit from adopting a programme of product quality for the construction of long-term relationships with local authorities and communities. The study developed a construction industry assessment measurement tool executing gap analysis and willingness of SME contractors to implement quality assurance processes.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Vermeulen



**Ramovha, Ntshengedzeni Thomas (DPhil) Engineering Management**

Thomas Ramovha graduated from the Technikon SA (now Unisa) with a National Diploma in Organisation and Work Study (Factories). He completed his BTech degree in Management Services at the Technikon Witwatersrand (now University of Johannesburg), and completed his MCom degree in Leadership Studies at the University of KwaZulu-Natal. He worked for the following organisations in the private sector and three spheres of government in South Africa: Gencor Mining, AECI, SAPPI, Ekurhuleni Metropolitan Municipality, the Provincial Department of Local Government and Housing in Limpopo, Eskom, and the National Department of Human Settlements. He worked in the fields of industrial engineering, process engineering, organisational development and capacity development. He is currently the director responsible for technical capacity development in the National Department of Human Settlements. He enrolled for his doctoral studies at the University of Johannesburg in 2012.

The research study was focused on the development of a model for the sustainable delivery of housing in South Africa. In his study, the candidate employed a mixed-method and exploratory factor analysis (EFA) approach. The results indicated that the sustainable delivery of low-income housing in South Africa is a nine-factor model. The primary value and contribution of the study is the development of a new holistic model for the sustainable delivery of low-income housing in South Africa. Also, the research has methodical, theoretical and practical contributions which have the potential to significantly contribute to the delivery of sustainable low-income housing in South Africa.

**Supervisor:** Prof CO Aigbavboa

**Co-Supervisor:** Prof WD Thwala

**Co-Supervisor:** Prof JHC Pretorius





## **Viljoen, Albert Japie (DPhil) Engineering Management**

Albert Japie Viljoen was born in Johannesburg in 1972. He completed his secondary school education at Rhodesfield Technical High, Kempton Park, in 1990. From 1991 to 1994, he pursued a military career after high school, serving on all the Navy's submarines as well as other naval vessels, which also saw him completing his Military Officers training at the SA Naval Academy in 1993. He then joined the private sector, working full time and studied part time and completed his Production and Operations Management Diploma at the University of Pretoria in 1998. His career advanced into several process engineering and management roles, which resulted in the completion of the Management Advancement Programme at Wits Business School in 1999, followed by completing his MBA at Milpark Business School in 2008. He then enrolled for a PhD degree in Engineering Management at the University of Johannesburg in 2014. He is currently employed as general manager for a prominent branding and corporate gift organisation.

The candidate identified five distinct research objectives of continuous improvement, which culminated into the development of a Capability Maturity Model. This maturity framework progressively assists organisations on how to improve their operations, based on capability maturity progression, while harnessing the technological advances presented when combined with the Fourth Industrial Revolution and the cyber physical system of a digital operational strategy. The study also confirms the contribution of leadership and the supply chain when developing a staged continuous improvement programme, which includes but is not limited to constituents such as Lean, Theory of Constraints, Six Sigma, and Design for Six Sigma, Agile and Scrum methodologies, staged on Capability Maturity Model Integration as the underlying framework.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr A Vermeulen



**Wanda, Andrew Petros Lumka (DPhil) Engineering Management**

Lumka Wanda was born in the Eastern Cape in September 1969. He has a Postgraduate Diploma in Business Administration from Wales University. He has Master's of Business Administration and Master's of Philosophy degrees in Engineering Management. He has 28 years of industry experience. He has held a number of functional positions during his career, such as managing executive, group production executive, customer services executive, business development manager, quality and environmental systems manager, research and development manager, international operations manager, regional business manager, industrial engineer, and trainee industrial engineer.

The research focused on the evaluation of the best forecasting techniques that can be used by the bus industry in South Africa, to forecast the need of critical maintenance spare parts. The research was motivated by the complexity of the forecasting problem in the buses and coaches operating environment, where spare parts are scarce to obtain and they are often required at the different locations of the business. The candidate explored various scientific forecasting techniques, such as vital, essential, and desirable spare parts analysis; fast moving, slow moving, and non-moving spare parts analysis; and activity based cost analysis, to recommended ways in which the South African bus and coaches companies can adapt them when forecasting the need for critical maintenance spare parts. His research incorporated the operating conditions of buses and coaches, when forecasting the need for critical maintenance spare parts.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Dr Arie Wessels



## **Zaayman, Leon Crous (DPhil) Engineering Management**

Leon started his academic career at the Tswane University of Technology in 1987, studying towards a National Diploma in Mechanical Engineering. He started his career in the Air Force engineering office, but it was not until 1996 when he joined Plasser South Africa, a supplier of mechanised railway track construction, maintenance and rehabilitation machines, that his destiny started taking shape. In 2008, he started consulting as an independent consultant. He furthered his studies by completing an MTech in 2015 and immediately pursued a doctorate. Leon published two textbooks on the subject of mechanised track maintenance.

Railway track infrastructure is a complex system that requires incremental maintenance from various engineering disciplines competing for the limited time and number of available maintenance windows. On high capacity, heavy haul lines, the headway between trains can be less than half an hour, 24 hours per day. Such a train grid does not allow for catch-up, once a train was cancelled due to the non-availability of the track. This necessitates a more scientific life cycle approach to infrastructure maintenance management. It also requires increased performance from mechanised construction, maintenance and renewal machines to keep the infrastructure reliable, available, maintainable and safe within short maintenance windows. Selecting the right mix of machines with regard to type, functions, features and production considering the vast influencing factors, was the subject of this thesis for which a bespoke model was developed.

**Supervisor:** Prof JHC Pretorius

**Co-Supervisor:** Prof P Veit



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



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