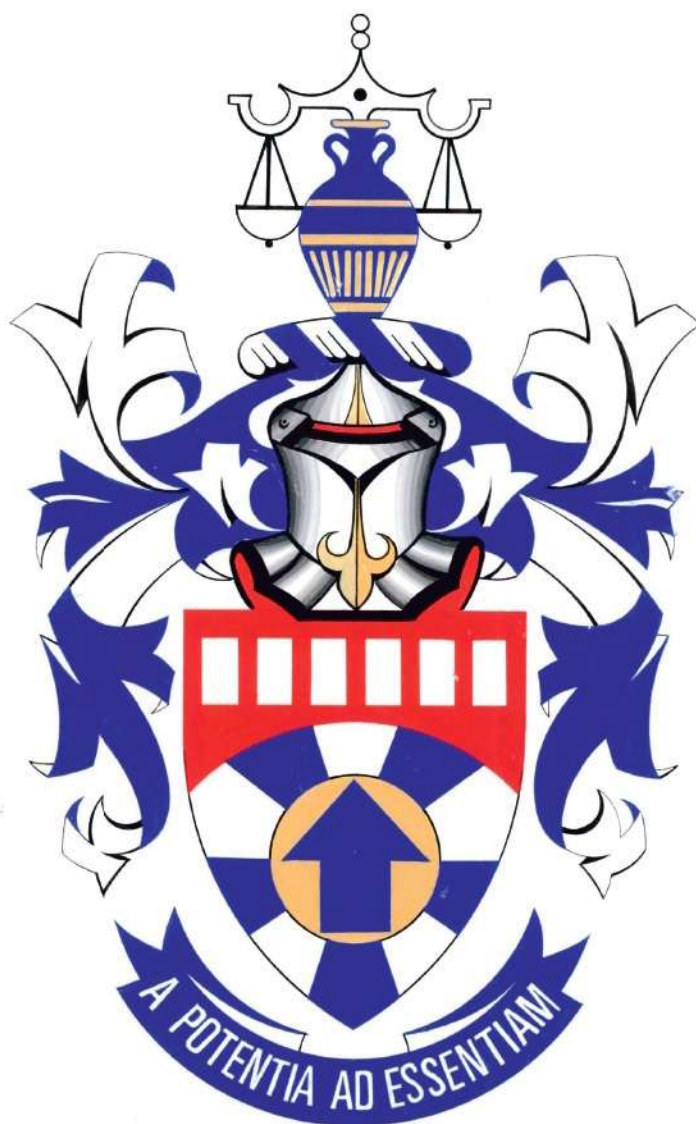




SAIIE Awards and Gala Dinner

14 Aug 2024

DEPARTMENT OF INDUSTRIAL ENGINEERING

Postgraduate offerings

Postgraduate Diploma in Industrial Engineering

FOCUS: DATA SCIENCE

Develop innovative optimisation and machine learning techniques to produce novel, efficient and robust data science technologies, for use in Industrial Engineering, Engineering Management and related applications.

- Structured module-based degree on NQF level 8
- Part-time and full-time study options available
- 8 core modules
- 1/2 year commitment

For more information contact Dr Martina Frei at mfrei@sun.ac.za

Masters in Industrial Engineering

FOCUS: DATA SCIENCE (STRUCTURED)

Develop an in-depth understanding of machine learning models and learn applications in real-world problems.

- Structured module-based degree on NQF level 9
- Part-time and full-time options available
- 8 modules (5 core, 2 electives, and 1 specialisation module) and a research assignment in industry relevant topics.
- 2/3-year commitment

For more information contact Dr Martina Frei at mfrei@sun.ac.za

Masters in Engineering Management (STRUCTURED)

Educating innovative, future-focused leaders to solve the world's complex sociotechnical challenges.

- The MEM is composed of 7 core modules to enhance engineering and management skills.
- The curriculum can be customized with an elective and special interest research assignment, to support individual professional goals and curiosities.
- Designed with early to mid-career engineers and scientists in mind.
- 2-3 year part-time programme with a hybrid online delivery mode that allows students to study from anywhere in the world.

To find out more send an email to masterseng@sun.ac.za or visit <https://mem.sun.ac.za/>.

Masters in Industrial Engineering / Masters in Engineering Management (RESEARCH)

The luxury of two years' dedicated skills development on a topic of your choice, with a topic guru as supervisor.

- Deliverables: 180 credit Thesis and finalized journal paper
- Thesis hand-in due dates:
- End August for December graduation
- Middle November for March graduation
- NQF level 9 qualification
- Full-time or part-time registrations possible

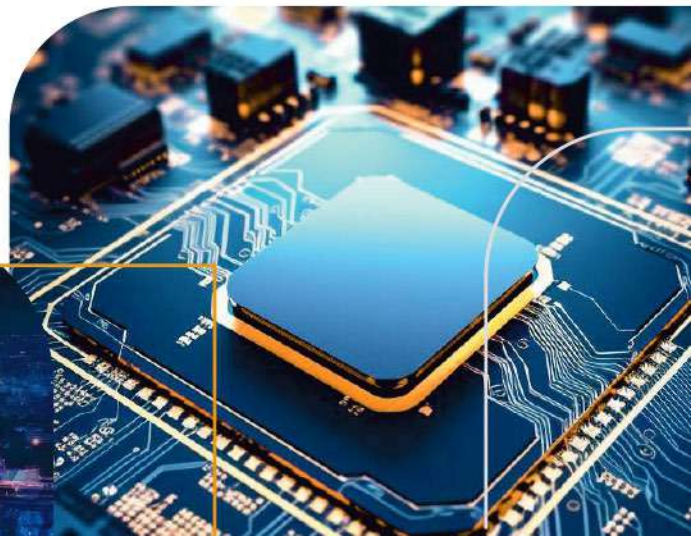
For more information contact Melinda Rust mrust@sun.ac.za

PhD Industrial Engineering and Engineering Management programmes

- Industrial Engineering offerings includes PhD studies.
- Research programme comprising 240 project-work credits in the form of a research dissertation.
- Minimum residency of 2 years.

For more information contact Dr Megan Forster meganforster@sun.ac.za

FIND OUT MORE: www.ie.sun.ac.za



Evening Programme

18h30 Arrival of guests and welcoming drinks -

Wallenberg Conference Centre @ STIAS

19h00 Welcoming by the Master of Ceremonies

- Dieter Hartmann

19h10 Word by President - Teresa Hattingh

19h15 Serving Starters

19h30 Keynote Address - Colin Mkosi

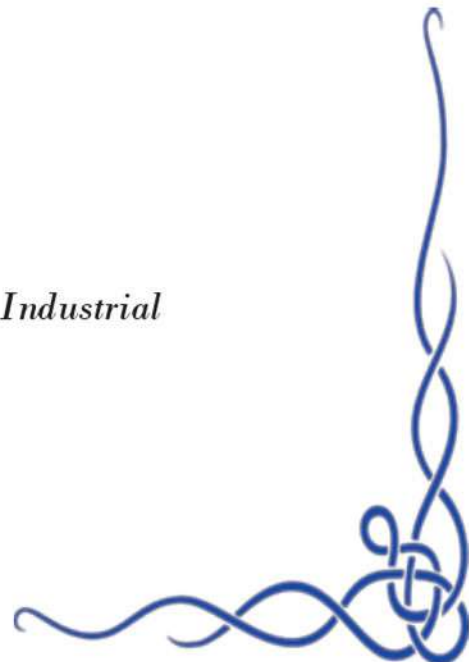
19h45 Serving Main Course

20h15 Presentation of SAIIE Awards:

- Prof Paul Kruger Award for Excellence in Teaching & Learning*
- Best Industrial Engineering Paper Published in the SAJIE*
- SAJIE Editor's Award*
- Best Industrial Engineering Work conducted in Industry*
- Best Industrial Engineering Practitioner - Employer's Choice*
- Heart of IE*
- Best Final Year IE Students for 2023*
- Most Active/Vibrant Student Chapter*
- SAIIE President's Award*
- Kris Adendorff Award for most Prominent Industrial Engineering Professional*

20h50 Acknowledgement - Freddy Tshikala

21h00 Dessert & Coffee





**SAIIE Awards
and Gala Dinner**

14 Aug 2024



Welcoming by the Master of Ceremonies: Dieter Hartmann

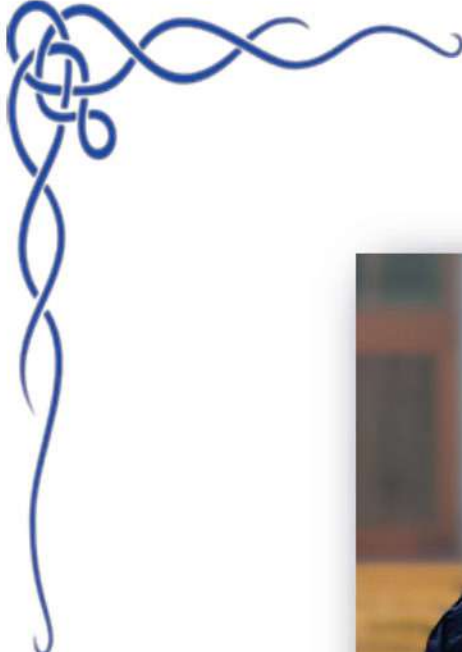


Word by President - Teresa Hattingh



<u>Table 1</u> Matthys de Wet & partner Andries Gous Edward Mathews Shelly Thandwe Mona Bongumenzi Mncwango Manchala Sithole Jean Van Laar	<u>Table 2</u> Sarna Yadavalli & partner Colin Mkosi Jacques Fauré Edward Rukobo Dieter Hartmann Teresa Hattingh Freddy Tshikala Ninett Hesse	<u>Table 3</u> Suné Jacobs Annelize Clasen Chris Van Dyk Tarren Van Dyk Lindelani Nethamba Schalk Grobbelaar Markus Bosch Martha Mmebe Nrebatse Ramakgolo Joe Paradza	<u>Table 4</u> ≡ spatialedge.ai
<u>Table 5</u> Eduan Naudé Sara Grobbelaar Ben Peters Rene Peters Joubert Van Eeden Corné Schutte Rene Schutte Leon Pretorius	<u>Table 6</u> Taryn Barnard Jacomine Grobler Euodia Vermeulen PJ Vlok Makgona Sebatjane Imke De Kock Carl De Kock Philani Zincume Nomthetho Zincume	<u>Table 7</u> Micelle Smit Rynhardt Smit James Bekker Thuli Mkhahlephi Siboniso Somkhanda Clint Steed Simone Tommy Mia Mangaroo-Pillay	<u>Table 8</u> Ben Pieterse Lynette Pieterse Anel De Beer Dean Johnson Amelia Henning Natalia Duiker Kagiso Matlala Martina Frei Melissa Williams
	<u>Table 9</u> Ignus Dreyer Tenashe Tendayi Stephen Bosman Rumbidzai Muvunzi Mlondolozzi Gxamza Nompumelelo Mncwabe Rhulani Charles Saka Daught Madzivadondo Tshegofatso Kekana	<u>Table 10</u> Rilwele Tshikgofhi Martie Bothma Jacques Visagie Tertius Van Wyk Holly Cadle Jamie Burt Boitumelo Ramatsetse Jane Monama	





Keynote Speaker



Colin Mkosi

Colin Mkosi, 26, from Langa, Cape Town, is the founder of Cloudy Deliveries, a bicycle delivery service for local restaurants, supermarkets, and stores. His business not only supports local commerce but also creates jobs for young people in the community of Langa.

Colin holds an LLb degree from the University of the Western Cape. He was honored as one of News24's 100 Mandelas and was part of the Desmond and Leah Tutu Foundation's Leading for Humanity cohort in 2023.

Through Cloudy Deliveries, Colin combines his entrepreneurial spirit and commitment to community upliftment, making a significant impact in Langa.



Keynote speaker: Colin Mkhosi

Prof Paul Kruger Award for Excellence in Teaching & Learning

Bongumenzi Mncwango



Dr Bongumenzi Talent Mncwango, known as Menzi, is an energetic academic and a member of the Southern African Institute of Industrial Engineering (SAIIE). He is passionate about lecturing and interacting with students at all levels of study. Menzi holds a PhD in Industrial Engineering from the University of South Africa (UNISA), an MSc in Management and Optimisation of Supply Chains and Transport from Ecole des Mines de Nantes, France, and a Bachelor of Technology in Industrial Engineering from Durban University of Technology (DUT).

Currently, Menzi teaches a diverse range of courses including Industrial Design 1, Industrial Design II, Industrial Drawing and CAD, and Manufacturing Engineering. His teaching approach emphasizes hands-on experience and industry collaboration. In addition to his teaching responsibilities, he mentors postgraduate students, guiding them through projects that span a wide spectrum of Industrial Engineering tools and techniques. With a career that spans across different industries, Menzi brings a comprehensive understanding of industry dynamics into both his teaching and research. His professional journey underscores his commitment to preparing students for the challenges of modern industry through practical education and innovative curriculum development.

Dr. Philani Nduma Zincume, commonly referred to as Dr. Zee, is a lecturer with a strong focus on operations management and organisational behaviour. He currently holds positions at Stellenbosch University, the University of Stellenbosch Business School, and SKEMA International Business School. Dr. Zee's research primarily explores the human elements of engineering management. Prior to his academic career, he accumulated ten years of valuable experience in the rail industry, working in operations and maintenance management as a production manager.

Philani Zincume



Prof Paul Kruger Award for Excellence in Teaching & Learning



And the winner is: Dr. Philani Nduna Zimbume



And the runner-up is: Bongumenzi Talent Mncwango

SAIIE Award for Best Industrial Engineering Paper Published in the SAJIE

A Dynamic Simulation Model for Optimal Deep-Level Mine Cooling Management and Operational Decision-making for ESKOM's Load Curtailment



Author: Shamy Manchala Sithole

Co-Authors: Andries Gous & Corné Schutte

Affiliation: Stellenbosch University

The South African mining sector depends on intensive energy usage to extract minerals. Most of this energy is used to enhance underground working conditions through cooling. Electricity costs have been on the rise, reducing the profitability of mines. Mines must invest in management systems that optimise energy usage while maintaining underground conditions. Dynamic simulation models are critical for systems analysis, optimal management, and improved decision-making. This paper presents an integrated dynamic simulation model for deep-level mine cooling systems. The model was developed using Process ToolBox simulation software, and a Mean Average Percentage Error of 3.53% was achieved. The impact of load curtailment on underground services was simulated. Eight working areas exceeded the legal limit of 32.5 °C, and the steady state simulation underestimated the impact, as only three working areas were affected. The simulation was sensitive to the ambient conditions; high temperatures were noted in the working areas when the ambient temperatures peaked.

The Development of an Action Priority Matrix and Technology Roadmap for the Implementation of Data-Driven and Machine-Learning-Based Predictive Maintenance in the South African Railway Industry

Author: Lindelani Nethamba

Co-Author: Schalk Grobbelaar

**Affiliation: Department of Engineering and
Technology Management, University of Pretoria**



In improving railways for the future, artificial intelligence and machine learning were identified as top-priority technology systems that enable data-driven methods and predictive maintenance. A local survey using semi-structured interviews showed that the railway industry lags behind in adopting and implementing data-driven and machine-learning methods for predictive maintenance. Insights from international studies were found to be relevant in South Africa. Other implementation barriers were identified in the socio-economic and socio-political areas of South Africa. An action priority matrix and technology roadmap was developed to guide the South African railway industry towards the implementation of data-driven and machine learning-based predictive maintenance. The action priority matrix was developed by using a two-round Delphi technique to rank the prioritisation of the required activities. The research showed the importance of considering insights from both international studies and the local context when adopting and implementing technology systems to improve business objectives.

SAIIE Award for Best Industrial Engineering Paper Published in the SAJIE



And the winner is: Lindelani Nethamba



And the runner-up is: Shamy Manchala Sithole

SAIIE Award for Best Industrial Engineering Work conducted in Industry

Suné Jacobs - FlySafair

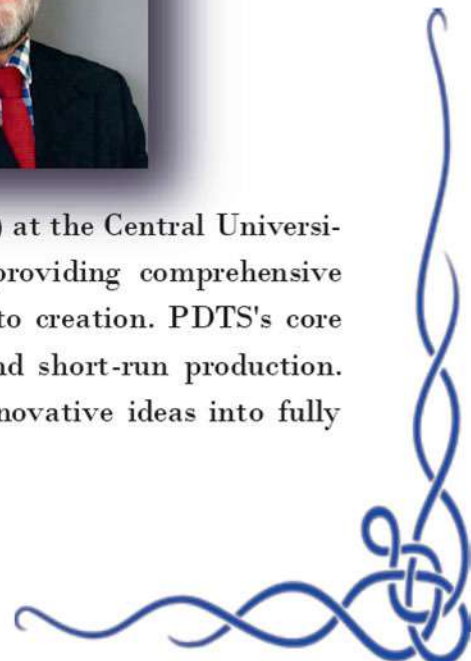


A feasibility study was conducted for FlySafair to test the viability of a Self Bag Drop System at major airports. Discrete event simulation modelling was used to simulate utilisation to determine the number of Self Bag Drop stations that are required based on user behaviour. The feasibility study also analysed the corresponding time reduction for customers queuing in Priority & Economy fare classes. The purpose of the work conducted was to test the feasibility of implementing a solution that requires a capital outlay and a multi-vendor project. The business used this feasibility study as a Business Case for the Self Bag Drop functionality.

Shelly Mona & Deon de Beer - PDTS team @ CUT



The Product Development Technology Station (PDTS) at the Central University of Technology, Free State (CUT) specializes in providing comprehensive product development services, ranging from concept to creation. PDTS's core competencies include product design, prototyping, and short-run production. The station takes pride in its ability to transform innovative ideas into fully functional products through meticulous engineering.



SAIIE Award for Best Industrial Engineering Work conducted in Industry



And the winner is: Suné Jacobs - FlySafair



And the runner-up is: Shelly Monna - PDTN team @ CUT

SAIIE Award for Best Industrial Engineering Practitioner - Employer's Choice

Holly Cadle



Holly Cadle is a Systems Analyst at PEP with a degree in Industrial Engineering. She played a key role in implementing a Warehouse Management System at a greenfield distribution centre and employed an interactive training tool for effective training. She focuses on enhancing business value and ensuring timely, data-driven decision-making.

Chris van Dyk

Chris van Dyk received his degree in Industrial Engineering in 2021. While completing his degree, he observed a growth in data and technology usage in the Agricultural industry. He then decided to participate as an Industrial Engineer with the purpose of using data and technology to help farms become more efficient.

He has published two conference papers, one at SAI-EE33 and the other at ISEM2023. Currently, he is completing a Master's degree addressing the problematic relationship between farm administration and Quality Management while working as a Business Analyst for Taai Bosch Piggery.



SAIIE Award for Best Industrial Engineering Practitioner - Employer's Choice



And the winner is: Chris van Dyk



And the runner-up is: Holly Cadle

SAIIE Award: Heart of IE

Daught Madzivadondo

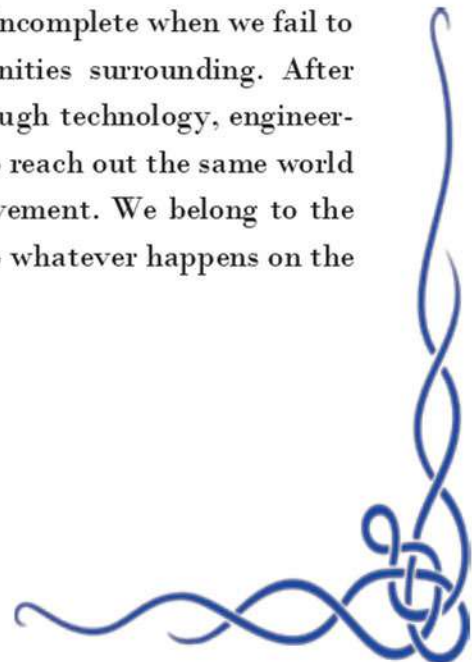


One of the key factors that enhance productivity at an organization is the physical well-being of workers. A healthy body has a positive bearing on the output of every company. In 2009, I embarked on male circumcision local campaign at SINO Zimbabwe Cement Company (SZCC).

Due to having one of the highest HIV prevalence rates, Zimbabwe adopted a voluntary medical male circumcision (VMMC), as a method of HIV prevention. According to the WHO and UNAIDS, men who have been circumcised might have a lower risk of certain sexually transmitted infections. This was my main message through my campaign workshops, working closely with the SHE department.

At first, we faced resistance from colleagues. There was also a lack of education, and also, our nearest health institution involved was Kwekwe General Hospital, which is one hour away from the plant site. When the message was well relayed, 120 workers subscribed to the circumcision program.

As an industrial engineer, I do believe that our work is incomplete when we fail to take responsibility on processes that affects communities surrounding. After transforming our world to become more habitable through technology, engineering innovations and ingenuity, it is our responsibility to reach out the same world through charitable works and health campaigns involvement. We belong to the global village where our professional etiquettes count to whatever happens on the peripheries.



SAIIE Award: Heart of IE



And the winner is: Daught Madzivadondo



SAIIE Award: Heart of IE

Tshegofatso Kekana



In 2021, the COVID pandemic was still affecting many organisations in South Africa, and it wasn't easy for the Tshwane University of Technology to find organisations that were willing to support students with industrial projects to fulfil their industrial engineering qualification requirements. We managed to get hold of Mr. Tshegofatso Kekana from Weir Minerals, and we

presented the challenge we were facing in terms of placing the students. In total there were 39 students in need of placement.

Tshegofatso Kekana and Weir Minerals were kind enough to give all 39 students an opportunity in their organisation to do practical's. The students were taken onboarded under well controlled measures of Covid 19 by Weir Minerals. There were a lot of technical requirements that had to be completed prior to onboarding the students which if not done could compromise the process. Thankfully commitment demonstrated by the team ensured smooth integration of the students at Weir.

The activities that the students gained during the practical's were aligned with the university's industrial engineering department requirements. Practical exposure included learning from industrial engineering and other professionals with years of experience.

The opportunity enabled these students that enrolled at Weir to complete their qualifications and in addition they gained invaluable industry experience setting them up for future employment.

SAIIE Award: Heart of IE



And the winner is: Tshegofatso Kekana

Most Active/Vibrant Student Chapter



And the winner is: TUT SAIE Student Branch



SAIIE President's Award



And the winner is: Jacques Faure



SAJIE Editor's Award



And the winner is: Thinus Pretorius



Kris Adendorff Award for most Prominent Industrial Engineering Professional



And the winner is: Sarma Yadavalli



***SAIIE Award for Best Industrial Engineering
Final Year Students for 2023***



Thomas Winter
Stellenbosch University



Kamohelo Thomas
University of Johannesburg



Christiaan HG van de Merwe
University of Pretoria



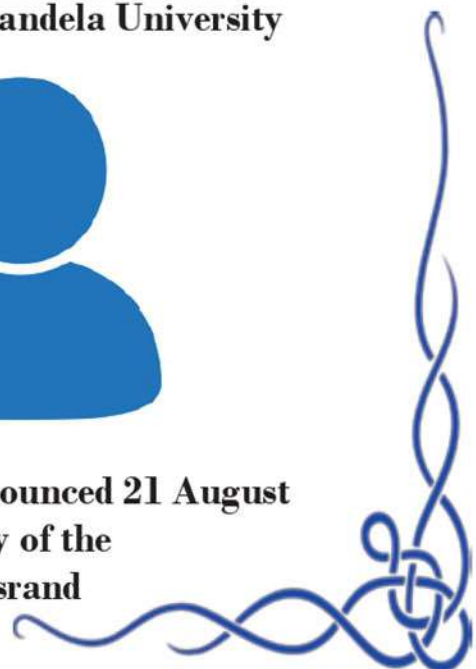
Fortune Nhliziyo
Nelson Mandela University



Roxanne van Rheede
van Oudtshoorn
North West University



To be announced 21 August
University of the
Witwatersrand



SAIIE Awards Evaluation Committee



Our sincerest appreciation to the following colleagues who made the time and their knowledge available to do the evaluation of the submitted documents of all the nominees. They did a sterling job in consolidating the group down to the finalists.

CONVENOR: Prof Corné Schutte

Evaluation Committee: Best Paper published in the SAJIE

Prof Jacomine Grobler is an Associate Professor in the Department of Industrial Engineering at Stellenbosch University in South Africa. Her main fields of expertise are supply chain optimization, optimization algorithm development, and data science applications in industrial engineering. She spent seven years in the industry before completing her PhD in 2015. She received the 2015 JD Roberts emerging researcher award and also the 2017 South African Institute for Industrial Engineering Most Outstanding Young Industrial Engineering Researcher Award. She regularly reviews papers for leading international journals and has presented various invited lectures, for example, a tutorial at the Seventh International Conference on Swarm Intelligence in Bali, Indonesia.



Dr Bongumenzi Talent Mncwango, known as Menzi, is an energetic academic and a member of the Southern African Institute of Industrial Engineering (SAIIE). He is passionate about lecturing and interacting with students at all levels of study. Menzi holds a PhD in Industrial Engineering from the University of South Africa (UNISA), an MSc in Management and Optimisation of Supply Chains and Transport from Ecole des Mines de Nantes, France, and a Bachelor of Technology in Industrial Engineering from Durban University of Technology (DUT). Currently, Menzi teaches a diverse range of courses including Industrial Design I, Industrial Design II, Industrial Drawing and CAD, and Manufacturing Engineering. His teaching approach emphasizes hands-on experience and industry collaboration. In addition to his teaching responsibilities, he mentors postgraduate students, guiding them through projects that span a wide spectrum of Industrial Engineering tools and techniques. With a career that spans across different industries, Menzi brings a comprehensive understanding of industry dynamics into both his teaching and research. His professional journey underscores his commitment to preparing students for the challenges of modern industry through practical education and innovative curriculum development.



Prof Wilna Bean is an associate professor in the Department of Industrial and Systems Engineering at the University of Pretoria, where she teaches optimisation, logistics, and supply chain management subjects to under- and postgraduate industrial engineering students. She studied at the University of Pretoria and obtained her bachelor's degree in Industrial Engineering in 2007. She obtained her Honours and Masters degrees in Industrial Engineering with distinction and received a PhD in Industrial Engineering from the University of Pretoria in 2019.

Prof Wilna Bean started her career at the CSIR, where she worked on various supply chain engineering and optimisation projects. After joining the University of Pretoria in 2013, she worked on a variety of logistics and supply chain optimisation projects and published various papers in these fields. She is also a registered professional engineer at the Engineering Council of South Africa, a rated researcher at the National Research Foundation, and a sectional editor for the South African Journal of Industrial Engineering.

Evaluation Committee: Prof Paul Kruger Award for Excellence in Teaching & Learning

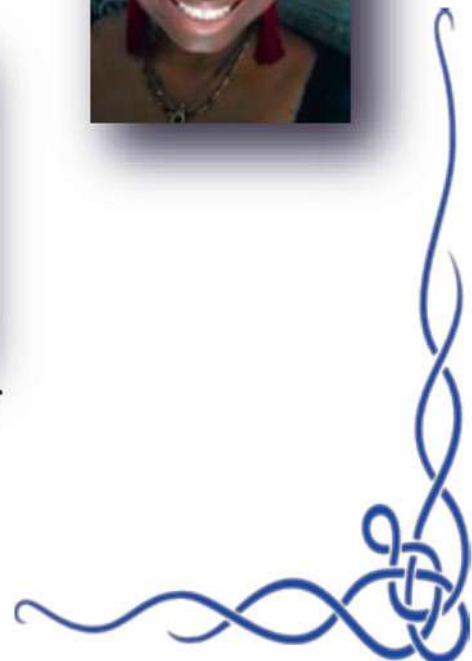
Bontle Tladi is Operations and Just Infrastructure Lab (JIL) Programme Manager at Engineers Without Borders South Africa (EWB-SA). She is an Industrial Engineer by training and a developing Social Design theorist and facilitator. Her research interests are broadly in the extension of design to the areas of social impact and social innovation. She is currently a PhD candidate at the University of Pretoria.



Prof Wilna Bean



Prof Jacomine Grobler





Evaluation Committee: Best Industrial Engineering Work conducted in Industry & Best Industrial Engineering Practitioner - Employer's Choice



Wessel van Heerden (Pr Eng Industrial) is the Managing Director of Fourier-E, a solutions-based consulting firm located in Centurion, Gauteng. Fourier-E predominantly provides inventory management and business intelligence solutions to clients located across Africa, the Americas and Europe. Wessel is excited to see the continuous flow of talented industrial engineers entering the market and making a difference in our country and beyond. In addition to an industrial engineering degree, Wessel also obtained a higher diploma in tax law

whilst working within the corporate transaction structuring department of KPMG prior to joining Fourier-E. Wessel, who is married with two boys, enjoys the occasional mountain biking challenge with his family.

Daisy Kgosi is a global leader currently serving as the Head of Supply Chain (Procurement) for Anglo American. She has a proven track record in the development and implementation of business strategies and transformation plans, particularly in global supply chains. Her strategies have delivered bottom-line savings and exceeded set targets across various industries, including mining, petrochemicals, automotive, defence, and the public sector.



Daisy holds a Masters in Industrial Engineering from the University of Pretoria and a Bachelors in Industrial Engineering from Wits University. As a collaborative leader with a strong passion for community development and empowerment, driving change and fostering growth, Daisy aims to make a significant impact through the transformation of supply chains in the region.



Ninett Hesse has a BEng Industrial Engineering (University of Stellenbosch), a BEng (Hons) Industrial Engineering (University of Pretoria) and completion of Risk and System Engineering programmes at German universities Steinbeis-Hochschule-Berlin and Hochschule Hof. She believes in lifelong learning through utilising various Online Learning platforms as well as engaging in community events and conferences.

Her professional experience includes over a decade working in the utility, manufacturing, mining, academic, ICT and logistics industry where she has been privileged to engage with several levels personnel, technologies and strategies to test and expand on her Industrial Engineering skillset.

**REGISTER
NOW**

THE 34TH SAIIE CONFERENCE

14 - 16 OCTOBER 2024

**Join us at the 34th SAIIE Conference from 14 - 16
October 2024 at the Riverside Sun,
Vanderbijlpark, Gauteng, South Africa.**

The event will feature renowned speakers such as:

- Simon Baloyi, President and CEO of Sasol
- Donovan Chimhandamba, CEO of Nyanza Light Metals
- Ahmed Mahmoud Deif, Professor at California Polytechnic State University
- Ronald King, Head: Public Policy & Regulatory Affairs at PSG

Don't miss this opportunity to gain insights from industry leaders!



A large industrial robotic arm is shown in a factory setting, performing a welding task. Bright sparks are flying from the point of contact between the electrode and the metal workpiece. The background shows the interior of a modern industrial facility with various pipes and structural elements.

GSTM congratulates the finalists

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