NELSON MANDELA UNIVERSITY

iDEATE

Issue 4, 2024

Staff, Alumni, and Students Shaping the World: From Campus to a Global Stage

A publication of the

Faculty of Engineering, the Built Environment and Technology

CONTENTS

We are Nelson Mandela University

We are **Nelson Mandela University**.
We are the only university in the world to be named after Nelson Mandela.
Our iconic South African statesman, humanitarian and leader is known globally for what he achieved.
We are honoured as **Nelson Mandela University** to carry his name.
In return, we honour our namesake by endeavouring to live his legacy.
We honour him by using his name in full.
We are Nelson Mandela University.

Trailblazers empowering tomorrow

This issue follows the first iDEATE in 2021 which focused on *Entities in Service of Society*, the second issue in 2022 focusing on *Professors and Associate Professors in the Faculty* and iDEATE issue 3 in 2023 covered *Pursuing Sustainable Futures for a Better World*.

With great pleasure and enthusiasm, I present the iDEATE volume 4 for 2024: *Staff, Alumni, and Students Shaping the World: From Campus to a Global Stage*.

This issue starts by acknowledging the extensive knowledge, experience and contributions of a visionary leader who has taken eNtsa, an engagement entity in the faculty, to become a leading technology and innovation entity that is globally recognised.

It then highlights the careers of our three 2024 Alumni Rising Star award recipients, followed by some of the innovative and creative research work of our April 2024 postgraduate students, and closes with a few stories of student excellence. They are from diverse backgrounds and all are making a difference in their work, learning and teaching, research environments and disciplines.

Through innovation, technology, education and participation, these stories showcase their strengths, experience, resilience, creativity and commitment to disrupting industries and shaping the world.

The stories in this issue highlight and purposefully align with the faculty's strategic themes:

1. Advanced Manufacturing
2. Cyber Security and Privacy
3. Humanising Innovation and the Digital Economy
4. Indigenous Knowledge Systems and Sustainable Development
5. Marine and Maritime Engineering, Technology and Sciences
6. STEAM Education and Pedagogies for the Digital Economy
7. Sustainable Environments and Infrastructure

This issue explores how our staff, alumni and students are breaking barriers, challenging the norms and pioneering new paths. This would not have been possible without the partnerships and collaboration with a range of external stakeholders and collaborators, to whom we are extremely grateful.

As you flip through the pages, let us be inspired and motivated by their courage and determination to make a positive impact. I extend my heartfelt gratitude to the academics, supervisors and PASS staff in the schools, departments and entities who have played a role. Thank you for contributing to these success stories, and for continuing to do so for our students. May these stories inspire our current students to become their best selves and shape their own future stories.

Professor Marshall Sheldon
Executive Dean: Engineering, the Built Environment and Technology

About Professor Sheldon

Prof Sheldon has a Doctoral Degree in Chemical Engineering combined with a Bachelor's Degree in Business Administration. She has more than 25 years' experience in higher education; of which more than 10 years have been in management positions, including five years of senior and executive management experience. She is registered with the Engineering Council of South Africa (ECSA) and is member of South African Institution of Chemical Engineers (SAIChE); Water Institute of Southern Africa (WISA); South African Society for Engineering (SASEE), and the Global Engineering Dean's Council (GEDC). She currently serves on the GEDC Diversity Awards panel. Prof Sheldon is a C2 NRF-rated researcher, and her area of research is membrane technology and membrane bioreactor systems for wastewater treatment and resource recovery.

Honouring the founder of eNtsa

Professor Danie Hattingh, the founder of the technology innovation station and celebrated institutional engagement entity, steps down as the director of eNtsa the end of 2024

At the end of 2024, Professor Danie Hattingh will step down as the director of eNtsa, the esteemed engagement institute he founded in 2017. Originally named the Automotive Components Technology Station when it was established in May 2002, the institute was renamed eNtsa in 2017 to reflect its broader role as an institutional engagement entity.

Prof Hatting's extensive involvement and visionary direction have shaped eNtsa into a beacon of technological innovation and excellence, earning respect both locally and internationally.

Under his guidance, eNtsa has maintained its position as the leading technology innovation station funded by the Technology Innovation Agency (TIA) and expanded its impact, particularly in the automotive sector and broader transformation agendas.

Prof Hattingh's leadership extends beyond eNtsa, encompassing his role as an academic and researcher. He has been an academic in Mechanical Engineering at Nelson Mandela University (and the former Port Elizabeth Technikon) since 1989 and was appointed as a full Professor of Mechanical Engineering in 2002.

In 2012 he was awarded a Distinguish Professorship for five years, which was renewed in 2018 and extended to the end of 2023.

In June 2024 Prof Hattingh was honoured with the Special Award during Nelson Mandela University's Alumni Relations Office award ceremony. This year also his status of B3-rated researcher was re-affirmed by the National Research Foundation (NRF).

His clear vision and commitment to innovation have led to the establishment of two research entities, namely the Manufacturing Research Centre and the Automotive Components Technology Station, both now integral parts of eNtsa.

"His pioneering work in friction processing research, particularly in friction stir welding, has garnered international recognition."

Special award

Name: Professor Danie Hattingh
Department: Mechanical Engineering

Project: eNtsa

Department: Mechanical Engineering

Strategic Focus Area 1: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.

Strategic Focus Area 2: Pursue impactful, pioneering research, innovation, and internationalisation to address grand societal challenges and promote sustainable futures.

Strategic Focus Area 3: Engage with all public in equalising partnerships to co-create transformative, contextually responsive solutions in pursuit of social justice and equal.

Strategic Focus Area 4: Catalyse dynamic, student-centric approaches and practices that provide life-changing student experiences within and beyond the classroom.

Through these initiatives, he has fostered collaboration between academia, industry and research, driving advancements in engineering technology and providing invaluable opportunities for postgraduate students.

Pioneering work

Prof Hattingh's immense contributions to the field of mechanical engineering are diverse. His pioneering work in friction processing research, particularly in friction stir welding (FSW), has garnered international recognition, and led to significant industry funding for research and technology development.

The development of WeldCore®, a patented core removal and repair procedure, is a testament to his innovative prowess and its impact on industry efficiency and reliability.

As a researcher, Prof Hattingh has consistently pushed the boundaries of knowledge in structural integrity and reliability, with numerous publications in esteemed international journals and presentations at prestigious conferences.

He was Council Member of the South African Institute for Mechanical Engineering until May 2024, and a member of the Editorial Board of the International "Journal of Fatigue", "Journal for Theoretical and Applied Fracture Mechanics" and the "Research and Development Journal of South Africa".

Global significance

His involvement in international experiments and collaborations, such as those at the Institute Laue-Langevin and the European Synchrotron Radiation Facility, highlights his commitment to advancing engineering science globally.

Beyond his research achievements, Prof Hattingh's dedication to teaching and curriculum development has enriched engineering education at Nelson Mandela University. His teaching philosophy, focused on conveying real-life engineering experience and fostering holistic engineering outlooks, has empowered countless students with essential skills and perspectives.

He has served as a member of the NRF Specialist Committee for Engineering, responsible for overseeing rating applications nationally until 2022.

In recognition of his outstanding contributions, Prof Hattingh has received numerous awards, including the National Science and Technology Forum (NSTF) prize for Research Innovation and the Southern African Institute of Welding's Gold Medal.

The Faculty of EBET would like to thank Prof Hattingh for his leadership, innovation and unwavering commitment to advancing engineering knowledge and practice.

FACULTY ALUMNI

RISING STARS

Developing the profession of quantity surveying

Janita Stroebel graduated cum laude from Nelson Mandela University with a Bachelor of Science Honours degree in Quantity Surveying. Stroebel currently holds the position of director, quality manager, and lead consultant at BTKM Quantity Surveyors EC.

She has been the Chairperson of the Association of South Africa Quantity Surveying Eastern Cape chapter since June 2023, exemplifying her outstanding performance and dedication in her field.

At the beginning of July 2024, Stroebel was invited to represent her chapter on the National Association of South African Quantity Surveyors (ASAQS) board for a two-year term.

ASAQS has been instrumental in advancing the profession of quantity surveying, and her dual roles as chairperson and national board member are key to this.

Her leadership is set to rejuvenate the Eastern Cape Chapter of ASAQS and strengthen its relationships with industry stakeholders. Under her guidance, the chapter aims to foster best practices, ethical standards, continuous professional development, and innovative approaches within the profession.

In alignment with Nelson Mandela University's strategic focus on liberating human potential, Stroebel's professional journey reflects the University's commitment to preparing graduates for public service and societal impact.

Her involvement with the ASAQS aligns with her vision of promoting corporate social responsibility, sustainable practices, and community involvement. These initiatives resonate with the values she embraced during her time with EBET.

Stroebel is committed to revitalising the chapter and ensuring that quantity surveyors maintain and build upon the relationships necessary for growth and advancement in the industry.

2024 Alumni Rising Star

Name: Janita Stroebel
Department: Quantity Surveying
Strategic Focus Area 1: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.

She believes that the Quantity Surveying Department has played a pivotal role in equipping her, and her peers, to become socially conscious and responsible global citizens. This foundational support has been crucial throughout, enabling her to contribute effectively to the profession and the broader community.

Within BTKM Quantity Surveyors EC, Stroebel's career trajectory from candidate quantity surveyor to her current role as director shows her leadership and project management skills.

She has expertise in ISO 9001 standards and technical tools, manages significant budgets, and leads with integrity.

Stroebel also is involved in the ASIDI 47 Schools Programme, reflecting her commitment to community development, and her efforts to create opportunities for local workers and recent graduates.

Her dedication to continuous learning is seen in her roles as a lecturer and mentor at Nelson Mandela University, contributing to the development of future professionals.

In June 2024, the University's Alumni Relations Office named Stroebel as one of its 2024 Rising Stars.

As she continues to advance in her career, Stroebel remains committed to fostering professional development, advocacy, and stakeholder engagement, ensuring that the quantity surveying field remains at the forefront of industry advancements.

Stroebel's professional journey is a testament to her dedication and leadership within the quantity surveying profession.

Industrial engineer Jeannie: 'challenge accepted'

From her earliest exposure to the world of engineering, Jeannie Serfontein has encountered the notion of engineering being a traditionally male-dominated field. However, while some might view this as a negative aspect, her response has consistently been "challenge accepted!"

She passionately believes that success in engineering, regardless of gender, hinges on tenacity and work ethic.

This Industrial Engineering alumna is the Solutions Engineering Manager at Jendamark Automation in Gqeberha. With a solid foundation in her field, she designs efficient processes and manages intricate projects.

Serfontein ensures tailored solutions for clients by leveraging her technical expertise and thoroughly understanding their needs. She also oversees sales for Odin Manufacturing and provides expert consulting, with her diverse skills driving continuous innovation and success. Her commitment to professional development is demonstrated by her Lean Six Sigma Greenbelt certification.

The journey to her current role as Solutions Engineering Manager at Jendamark Automation has not always been a smooth, paved road, but she believes in letting her work speak for itself.

From an early age, she has been fortunate to have strong male and female role models in both her personal and professional life. While their guidance has undoubtedly reinforced her confidence, nothing fuels her self-assurance more than her passion for working in this field.

Serfontein graduated as an Industrial Engineer from Nelson Mandela University and received the highest academic achievement in BTech Engineering (all disciplines) in 2020.

2024 Alumni Rising Star

Name: Jeannie Serfontein
Department: Industrial Engineering
Strategic Focus Area 1: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.

So far in her career she has worked across various industries and interacted with people from around the globe. She has had the opportunity to train people and to meet and interact with high school learners and undergraduates following the same career path. She also works with the latest technologies and shares those advancements with her customers.

More recently, in June 2024, Serfontein's achievements were recognised with a Rising Star Alumni Award from the Nelson Mandela University Alumni Relations Office. In times when it is challenging to put in the effort to further oneself and one's career, such as pursuing a Master's degree, such recognition serves as a powerful motivation to persevere.

Serfontein says that she feels like she is just getting started but already she has learned that having a go-getter attitude in the industry may be intimidating but it is also rewarding.

"Unleash your superpower through passion, determination, and tenacity in the engineering field. The world is your oyster!" she says.

She believes that the engineering world needs diverse individuals with unique strengths for the greater good of the field.

Adair leads the way in construction management

Caitlin Adair, the Regional Director at Turner & Townsend Cape Town, epitomises innovation and leadership in construction project management. From landmark projects like the Grain Silo Redevelopment to overseeing transformative initiatives across sectors, her journey reflects a commitment to excellence.

Promoted to regional director of this global consultancy at just 32, Adair takes a strategic problem-solving and client-focused approach. Precision, innovation and dedication are hallmarks of her work and her promotion speaks volumes about her leadership potential and her trajectory within the organisation.

As head of the Turner & Townsend Cape Town office, Adair oversees a team of 51 staff members.

She started to work in the field of construction project management after completing her Honours year in 2012 at Nelson Mandela University.

During her tenure with the Mace Group (Sub-Saharan Africa), she distinguished herself as a Construction Project Manager (CPM), overseeing landmark projects such as the historic Grain Silo Redevelopment in the V&A Waterfront, Cape Town. Her expertise in managing complex projects and her commitment to excellence earned her recognition.

Her involvement in iconic developments within the V&A Silo Precinct, including the Zeitz Museum of Contemporary Art Africa and Boutique Hotel, Radisson Red Hotel, and Silo residential development, highlights her versatility and expertise across various sectors.

2024 Alumni Rising Star

Name: Caitlin Adair
Department: Construction Management
Strategic Focus Area 1: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.

Following the completion of the V&A Waterfront Silos precinct development, Caitlin transitioned to large mixed-use projects, including Growthpoint's Site B development and the refurbishment of heritage properties like Winchester Mansions.

Her commercial acumen is evident in her management of refurbishments for clients such as Sage, the German Consulate, and Growthpoint DTPW.

In September 2017, Adair moved to Turner & Townsend, where she assumed leadership roles in programme and project management, cost management, and project advisory services.

Notably, she spearheaded the Rack Centre Expansion Project Phase 2 in Nigeria, a substantial undertaking valued at approximately R708 million. Her strategic vision and hands-on approach ensured the successful completion of this critical infrastructure project.

Beyond her professional responsibilities, Adair is committed to nurturing future talent in her industry. She actively mentors Nelson Mandela University Honours Construction Management graduates, instilling in them the values of leadership and excellence.

Whether refurbishing heritage sites or managing data centre projects, she already has played an integral role in shaping the landscape of iconic projects across South Africa.

Adair's contributions are not only shaping the built environment but also inspiring future generations of leaders in construction and beyond.

FACULTY ALUMNI

MAKING THEIR MARK

Groundbreaking dissertation leads to book on skills development

Alumni making their mark

Name: Cynthia Sibanda
Department: Construction Management
Supervisor: Prof Brink Botha
Co-supervisors: Roy Cumberlege, Prof Dean Els
Strategic Focus Area: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.
Sub-categories: Education and awareness; innovation

Cynthia Sibanda graduated with her Master's of Science in Construction Economics, cum laude, with the dissertation title: "A Skills Development Framework for the Built Environment". This was published as a book, *Successful Skills Development for a Sustainable Built Environment: A Practical Framework for Transformation,* making her the first person in the world to publish a dissertation-turned-book before graduation.

Sibanda's study aimed to develop a performance framework for the perceived success of skills development within the built environment.

She conducted a descriptive survey among participants of past and present Infrastructure Skills Development Grant programmes, and graduates from the following built environment disciplines: Electrical Engineering, Construction Project Management, Architecture, Town and Regional Planning, Environmental Science, Chemical Science, Quantity Surveying, Civil Engineering, and Built Environment Alumni of Nelson Mandela University in South Africa.

The rationale for her study was that the built environment plays a crucial role in providing employment and contributing to the gross domestic product of many countries worldwide. It is instrumental in the socio-economic development of every nation, irrespective of geographical differences. Graduates in the field of the built environment therefore need to identify key indicators of competitiveness if they hope to thrive and succeed in this constantly evolving industry.

Furthermore, inadequate performance management within a skills development framework for the built environment leads to non-performance relative to accredited, exit-level outcomes. The educational system is responsible for absorbing, assimilating, and delivering new knowledge. Therefore, the quality of education delivered by higher education institutions is paramount.

With that in mind, Sibanda's study aimed to create an effective skills development framework for the built environment. The study used a literature review and an empirical study that involved research questionnaires distributed to the sample population.

The study identified the following variables as having a positive influence on the perceived success of skills development within the built environment: education, transformational decolonisation in education, accelerated advanced training, emotional intelligence, self-empowerment skills, research, corporate governance, transformation in the industry, and project management.

Sibanda will conduct future research in the form of an international PhD study in Construction Management. For this, she plans to adopt a mixed-methods research methodology that includes a larger sample population.

Sibanda is making remarkable strides in her field. Her groundbreaking work not only sets a new standard for academic achievement but also provides a practical framework for skills development that can transform the industry.

Her commitment to continuous learning and her forward-thinking approach positions her as a leader poised to drive significant advancements in the construction management sector.

Impact of late payment to building contractors

Piliso Zhane is a Master of Science graduate in the Built Environment, specialising in Project Management. Her dissertation, titled "The Effects of Late Payment by Government to Building Contractors", addresses a critical issue within the construction industry.

Zhane's research provides valuable insights into how delayed payments from government entities affects the operations and financial stability of building contractors. The study examined the experiences of building contractors in the Eastern Cape.

Alumni making their mark

Name: Piliso Zhane
Department: Construction Management
Supervisor: Roy Cumberlege
Strategic Focus Area: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.

Her work not only highlights the challenges faced by contractors but also underscores the need for improved payment practices to ensure the sustainability and efficiency of construction projects.

In the South African construction industry, contractors typically experience delinquent payments from clients, leading to serious cash flow problems, particularly for building contractors. This has a ripple effect throughout the payment chain, resulting in late project completions, bankruptcies, increased total project costs, inadequate quality work and reduced on-site productivity.

Improper payment methods, such as using contractors' own funds for capital and then claiming reimbursement, significantly impact the construction industry. Long payment processes compel consultants to meticulously evaluate contractors' payment claims, and any disruption in cash flow can potentially force a contractor into bankruptcy.

The study found that work delays are common in the construction industry. The "pay-if-paid" system is problematic for contractors as they may not receive full payment if a project is incomplete or defective. Interruptions in the contractor's income can lead to bankruptcy.

Overdue payments also can cause conflicts between contractors and other service providers, resulting in reduced productivity, delays in work completion, and more instances of overdue payments.

The results of Zhane's study suggest that inadequate client finance, prolonged processing times for payment documentation, and non-standard payment methods all contribute to delayed payments to contractors.

Despite the lack of specific laws or regulations governing payment systems in the construction industry, the sector uses several common guidelines to guide payment practices.

The primary focus of this study was on the effects of the government's delayed payments to building contractors in the Eastern Cape. However, further research is required to investigate contractual remedies that might ensure building contractors continue to reap the anticipated benefits from their projects.

With her expertise and dedication, Zhane is poised to make significant contributions to the field of project management and the built environment.

Removing barriers to female leadership in the public service

Zelda Khoza is a Master of Science graduate in the Built Environment (Construction Health and Safety Management). Her treatise, "Barriers Faced by Women in the Public Sector Leadership Roles", critically examines the barriers that prevent women from attaining senior leadership positions in the public sector. It also proposes strategies to overcome these challenges.

In her study, Khoza identifies actionable strategies to assist women aspiring to senior leadership roles who face significant obstacles in their career progression.

Her findings highlight how, despite efforts to bridge the gender gap, women remain under-represented in leadership positions. Key barriers identified include the ineffective implementation of policies due to insufficient support from Human Resource Management (HRM) and line managers, as well as a lack of organisational backing. This significantly hinders women's advancement to senior leadership roles.

The study also contributes to the existing literature by offering insights into women's development programmes and their positive impact. It emphasises the importance of policy changes, professional practices, and strategic initiatives to support women in leadership positions.

Khoza highlights how women's contributions are crucial to building a sustainable future. By advancing female leaders in sustainability, a more inclusive, equitable and resilient world can be achieved.

Adopting a pragmatic research paradigm, Khoza used both quantitative and qualitative methods, gathering data through survey questionnaires and in-depth interviews.

The research findings underline the need for effective policy implementation and robust monitoring by HRM to address the barriers identified. Organisations are encouraged to build strong connections, engage diverse stakeholders, and foster a culture of support to drive positive organisational change.

Furthermore, the study suggests that organisations should develop programmes and initiatives that promote women's career advancement and skills development. Flexible working conditions and mentorship opportunities are recommended.

Alumni making their mark

Name: Zelda Khoza
Department: Construction Management
Strategic Focus Area 3: Engage with all the public in equalising partnerships to co-create transformative, contextually responsive solutions in pursuit of social justice and equality.
Sub-category: Sustainability

The research underscores the importance of strengthening partnerships between communities and universities to address social justice and equality in a rapidly changing world.

To prevent the collapse of strong collaborations due to changes in leadership or reliance on a single individual, the study advocates for shared leadership and process, or governance, factors. Successful partnerships should genuinely benefit the community, addressing real problems, building trust and enhancing access to resources and higher education.

Higher education institutions and communities should view each other as partners, working together beyond the mere rhetoric of collaboration. Institutions should adopt a cooperative rather than a top-down approach, ensuring meaningful engagement with communities.

The research also explores business sustainability, and emphasises the importance of reducing adverse environmental and social impacts.

Khoza's research offers vital insights and practical strategies to address the barriers faced by women in public sector leadership roles. Her work provides a foundation for future research, policy development, and organisational practices aimed at supporting women's advancement in leadership positions.

Digital modelling empowers students with critical thinking

Dr Basson holds a Doctorate in Construction Management. His thesis, titled "Using Building Information Modelling to Initiate Criticality to Promote Built Environment Student Collaboration at Nelson Mandela University", addresses a crucial gap in Architectural, Engineering and Construction (AEC) education.

The traditional lack of interdisciplinary collaboration in AEC education leads to fragmented learning experiences. Dr Basson's project integrates a digital Building Information Modelling (BIM) environment in the design studio to foster the co-creation of knowledge among students, preparing them for the highly collaborative industry they will enter.

His study investigates whether a BIM-based approach in architectural design projects can enhance undergraduate students' critical thinking, self-reflection, and collaborative skills.

The research involves a cohort comparison study of qualitative data collected from two groups of students: the 2022 cohort, which used traditional design processes, and the 2023 cohort, which adopted the BIM process to support interdisciplinary collaboration.

A total of 14 students took part, each engaging in a project and submitting a narrative self-reflection essay. Data was analysed through three coding cycles, focusing on linguistic acts, evidence of critical reasoning, self-reflection, and action, followed by Habermasian validity claims of truth, comprehension and sincerity.

BIM is a digital representation describing the building process by involving design, construction and facility management, facilitating the exchange of project information in a digital format among industry professionals. It is a tool that creates a virtual model containing information about the construction process and building functions, which can be shared and augmented by professional team members.

The traditional design process allows students to express their architectural ideas through various communication techniques, including drawings, physical models, computer models, photography and video clips. The educational design project involves students resolving design problems outlined by the teacher within a set period.

The conventional method, characterised by manual drafting or CAD, involves generating two-dimensional drawings where each building component is manually created by the architect and then sent to relevant experts for completion. This manual process is time-consuming and directly impacts the building process and decision-making period.

Dr Basson's study aligns with Nelson Mandela University's strategic focus on innovative education and societal impact.

The BIM process mirrors the AEC industry's collaborative nature and prepares students to become critical thinkers and global citizens.

Findings of this study indicate that the BIM process significantly promotes higher levels of criticality compared to traditional methods, enhancing students' readiness for the professional world, and addressing a key gap in current AEC education.

Future work will expand the study to include larger cohorts and diverse educational settings. Additionally, Dr Basson plans to develop and integrate more comprehensive BIM training modules to further enhance interdisciplinary collaboration and critical thinking skills in AEC education.

Alumni making their mark

Name: Dr Jean-Pierre Basson
Department: School of Architecture
Strategic Focus Area 1: Liberate human potential through humanising, innovative, lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.
Strategic Focus Area 4: Catalyse dynamic, student-centric approaches and practices that provide life-changing student experiences within and beyond the classroom.
Sub-categories: Education and Awareness; Collaboration and Partnerships

Young design architect notches up another award

Luzuko Funda has achieved significant milestones in his architectural career, marking a period of extraordinary success and recognition. The recent Master of Architecture graduate, cum laude, has again made headlines by being honoured at the 37th edition of the Corobrik Student Architecture Awards.

His academic and professional achievements underscore his dedication and excellence in architecture. Funda's journey in architecture began with the accolade of being a recipient of the Corobrik Student Architecture Award, an honour he secured earlier in his academic career.

He distinguished himself by winning the grand prize at the 2022 Corobrik Awards for his innovative design project focusing on the Faculty of Agriculture at the University of Fort Hare in East London. His project was celebrated for its forward-thinking approach and sensitivity to the educational environment.

Funda is registered with the South African Council for Architectural Professions and has gained valuable experience as a junior design architect. He has worked collaboratively with various teams, including senior design architects and project architects, on diverse development projects within the hospitality sector.

His role has involved contributing to high-profile projects that enhance both aesthetic appeal and functional efficiency, highlighting his versatility and expertise.

Funda's achievements reflect a combination of academic excellence, professional skill and a deep commitment to the field of architecture. His recent graduation with honours, coupled with his accolades from the Corobrik Awards, highlight his capabilities.

Alumni making their mark

Name: Luzuko Funda
Department: School of Architecture
Strategic Focus Area 4: Liberate human potential through humanising, innovative lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.
Sub-category: Innovation

As he continues to advance in his career, Funda remains a prominent figure in architecture, whose innovative work and collaborative spirit will undoubtedly contribute to shaping the future of the industry.

EBET

STUDENTS SHINE

EBET students shine

Name: South African Institution of Mechanical Engineers Student Chapter
School: Mechanical Engineering
Strategic Focus Area 4: Catalyse dynamic, student-centric approaches and practice that provide life-changing student experiences within and beyond the classroom.
Sub-category: Education and Awareness
mecheng.mandela.ac.za/SAIMechE-Student-Chapter-NMU

Our vibrant Mechanical Engineering student society

The South African Institution of Mechanical Engineers (SAIMechE) Student Chapter in the Faculty of Engineering, the Built Environment and Technology at Nelson Mandela University is a vibrant student society supporting Mechatronics and Mechanical Engineering students. Through events, workshops, career expo and site visits, the chapter provides opportunities for academic and professional development.

Led by a diverse and motivated executive committee, the chapter operates under the guidance of SAIMechE and in collaboration with the Engineering Department in the Faculty of EBET.

Its mission is to create an environment where students can share information and strategies to overcome academic challenges, fostering unity within the community.

Initiatives include exam preparation sessions and panel discussions, such as an event held with learners from the Ethembeni Enrichment Centre in 2023.

A key objective of the chapter is to prepare members for the engineering industry and the chapter regularly invites companies for workshops.

In 2023 and 2024, for example, automotive lighting and specialised injection moulding manufacturer Lumotech and turnkey automation and industrial software solutions firm S4 Integration visited the campus.

Additionally, industry site visits, including those to Lumotech and SAR, ensure that all students, regardless of background, have equal exposure to industry opportunities.

Major activities planned for 2024 have included:

- Engineering career forum
- Industry site visit
- An event for final year students
- Screening the John Orr Lecture

The chapter has previously held activities such as a roadshow in 2023, a workspace safety workshop and industry site visit at Lumotech; a student mental health workshop; a panel discussion with Ethembeni Enrichment Centre, and a workshop with S4 Integration.

CLEAN SWEEP FOR ARCHITECTURE STUDENTS IN

NATIONAL DESIGN COMPETITION

EBET students shine

School: Architecture
Strategic Focus Area 4: Liberate human potential through humanising, innovative lifelong learning experiences that prepare graduates to be socially conscious, responsible global citizens who serve the public good.
Sub-category: Innovation

The Faculty of Engineering, the Built Environment and Technology is thrilled to announce that nine student groups from the School of Architecture achieved outstanding results at the CIB International Council for Research and Innovation in Building and Construction City Centre Sustainable Housing Design Competition.

The prestigious City Centre Sustainable Housing Design Competition, held in July 2024, recognises and promotes innovation in sustainable architecture and urban design.

In a stunning display of creativity and expertise, the range of awards won by Nelson Mandela University submissions highlights the students' exceptional ability to tackle complex design challenges. With sustainability and community impact to the fore, each project not only showcased individual brilliance but also reflected the collective vision and dedication of the entire architectural school.

The competition was supported by sponsors including CIB, the National Home Builders Registration Council and The South African Council for the Project and Construction Management Professions, whose contributions were integral to the event's success.

The awards are a testament to the hard work and creativity of the EBET School of Architecture, marking a significant milestone in their ongoing commitment to excellence in architectural design.

The names of the winners and descriptions of their projects are listed below.

First prize: Building as an Eco-System

Among the many successes on the night, a team of four students from Nelson Mandela University took overall first place in the City Centre Sustainable Housing Design Competition in July. This group consisted of:

- Elethu Mchwechwi (Bachelor of Architectural Studies)
- Elijah Luutu (Bachelor of Architectural Studies)
- Hlonela Qothelo (Bachelor of Architectural Studies)
- Travis Nagadu (Advanced Diploma in Architectural Technology: Design)

Their project, titled "City as an Eco-System: A Vision for Sustainable Social Housing", secured first place in the highly competitive event. This groundbreaking design envisions a housing complex that operates as a self-sustaining ecosystem, reducing dependency on external resources and fostering a vibrant, collaborative community.

Key features of their project included:

- **Renewable energy:** integrating solar, wind and other renewable sources to power the community sustainably
- **Closed-loop waste management:** implementing systems for waste reduction and recycling to minimise environmental impact.
- **Urban agriculture:** incorporating green spaces and community gardens to support local food production and enhance urban biodiversity
- **Community engagement:** designing spaces that encourage social interaction and collective participation
- **Resource management:** using shared facilities and circular economy practices to optimise resource use and reduce waste.

This remarkable achievement not only highlights the exceptional talent and dedication of the four students but also underscores the School of Architecture's commitment to advancing innovative and sustainable design practices.

Their success reflects the high calibre of our students and their potential to make significant contributions to the future of sustainable urban living.

Second prize: A Place to Stay

Submission 325 from the School of Architecture earned notable recognition.

The project features contributions from:

- Jordan Mwenda
- Christian Storm
- Dumo Nxumalo
- Keketso Sehloho

The team won a cash prize of R7 500 for second place. They also won an additional R7 500 as the winners of the Self-Build and Sufficiency Award.

Head judge Jeremy Gibberd praised the submission, highlighting its unique approach encapsulated in the subheading "*We provide a roof and floor; you provide a home*".

This concept underscores a large, framed structure designed to allow self-builders to personalise their homes using either found or purchased materials. The entry effectively used a variety of perspectives, plans, elevations and illustrations to depict dynamic, responsive and evolving living spaces.

Competition judge Dr Jennifer Mirembe took announced the project to a broader audience, commending it for its innovative and compassionate design. She described "A Place to Stay" as a transformative project that redefined the concept of home in South Africa.

Emphasising its originality, she noted that the project transcended an imitation of global architectural trends, and instead reflected South Africa's creativity and identity.

Dr Mirembe also noted the project's commitment to sustainability, detailing its incorporation of cutting-edge energy solutions that minimise environmental impact.

The design features renewable energy sources, efficient water collection systems, and intelligent design principles, collectively reducing the ecological footprint and ensuring that the needs of both present and future generations are met.

Third prize: Off the Grid

Student submission 332 was awarded third prize in the City Centre Sustainable Housing Design Competition, earning a cash prize of R5 000.

The team included:

- Sonika Ferreira
- Alyssa van Leeve
- Josh Kriega
- Zachary Muniz

Judge Heleen Grimsehl, from sponsor Boogertman + Partners Architects, said the panel was "highly impressed by the thorough resolution of this entry, from the overall site plan down to the detailed design of the units".

"The planning effectively integrates various aspects of daily life, including commercial, educational, health, social, arts, sports and transport facilities, creating a cohesive community," she said.

"The design's aesthetic appeal is enhanced by a prominent external grid that incorporates vegetation, solar panels, rainwater harvesting, and natural ventilation systems, which left a significant impression.

"The project's ability to communicate spatial functions through outstanding perspectives was noted, as well as its focus on fostering a vibrant community through gardens, a market and public spaces. This submission truly exemplifies excellence in creating a dynamic and interconnected living environment."

The project's exceptional integration of community-focused design and sustainable principles marked it as a standout entry.

Environmental sustainability: Ikasimbizo

Head judge Jeremy Gibberd praised the students' Submission 334 for its innovative approach. It was developed by:

- Resetse Makhetha
- Abdur-Rahman Aroyewun
- Nomsa Bhengu
- Siphe Nazo

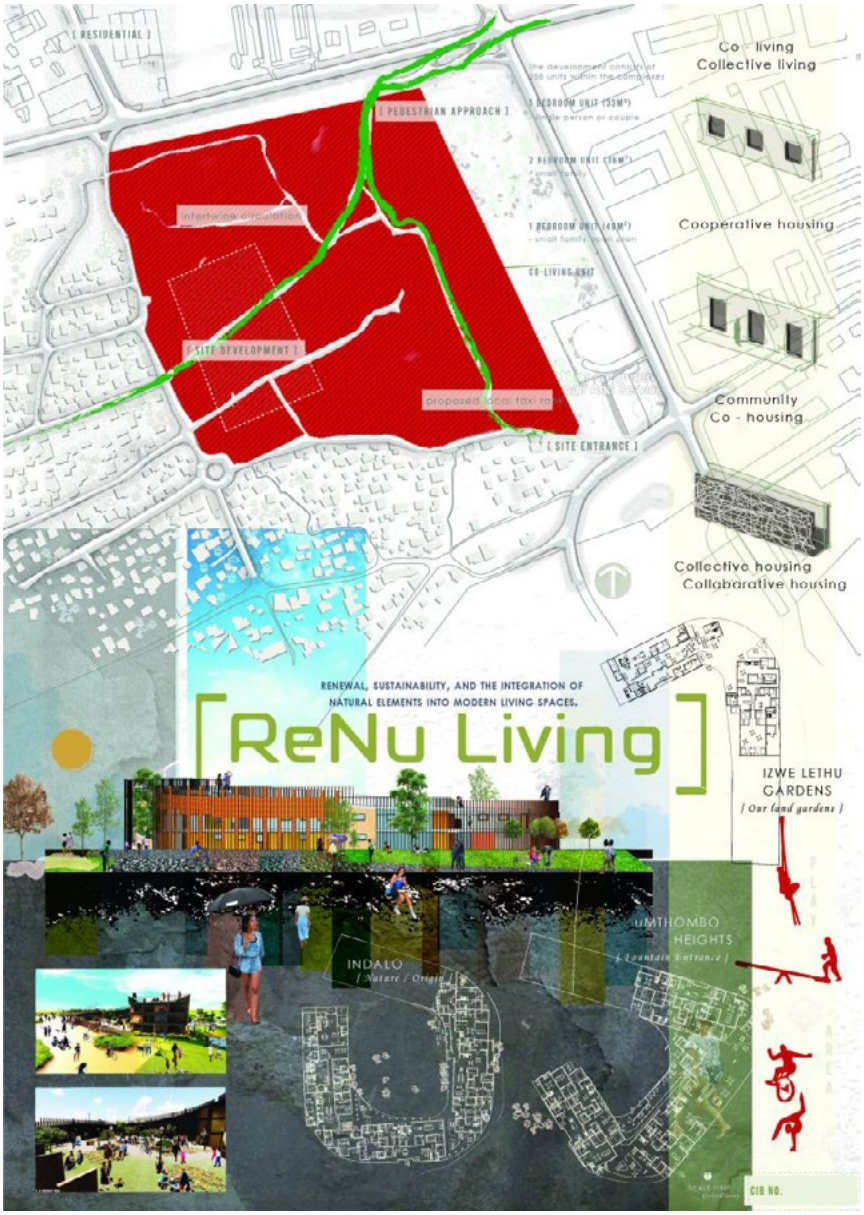
This group won the Environmental Sustainability Prize, taking home a cash award of R7 500.

Gibberd highlighted the effective use of modular design combined with renewable energy and rainwater systems to minimise environmental impact.

The design's flexibility accommodates various housing types and small enterprises, while the open structural frame enhances ventilation and sunlight access and supports planting. The rainwater and energy systems are seamlessly integrated into the architectural design, in keeping with the project's commitment to sustainability.

The award of the Environmental Sustainability prize reflects the innovative spirit and commitment to sustainable practices championed by the School of Architecture and the broader Faculty of EBET. The faculty's focus on forward-thinking, environmentally conscious design continues to set a high standard in the field.

Social sustainability: ReNu Living



Submission 331 from the School of Architecture was honoured with the Social Sustainability Award, receiving a cash prize of R7 500.

The project was developed by a team consisting of:

- Manzi Asiphe
- Khanyisa Seyisi
- Thapelo Dube
- Karabo Hlabane

Judge Mark Napier commented on the project's thoughtful integration with its surroundings. He noted that the design, while understated, harmoniously blended with the low-scale informal housing prevalent in the area.

The innovative use of wrap-around building shapes and massing created an inviting set of shared open spaces, offering a comfortable microclimate despite the harsh local weather conditions. Additionally, the design's combination of individual and co-living arrangements was highlighted as a strength.

As reflected by this submission – and award – the School of Architecture is dedicated to social sustainability, and commited to designing solutions that enhance community well-being and adapt to local conditions.

Economic sustainability: Biophilic Sustainable Community

Submission 329 from the School of Architecture won the Economic Sustainability category, and was awarded a cash prize of R7 500.

The team members were:

- Lienke Spies
- Evert Marais

Judge Heleen Grimsehl, from sponsor Boogertman + Partners Architects, shared her thoughts.

"The judging panel was impressed by the comprehensive application of biophilic design principles in this submission," she said.

"The project's urban design integrates constructed wetlands and tree planting while embracing green solutions like solar energy, rainwater harvesting, natural ventilation and deep patios for self-sustaining gardens. This encourages users to engage with nature.

"Although biophilic designs may have higher initial costs, their economic benefits are well-documented, including improved productivity, health and environmental impact. Properties with such designs also command higher market values due to their attractiveness.

"Additionally, the project features prefabricated walls that users can modify to fit their needs, introducing a unique economic principle of self-determination throughout a family's life cycle. The design also incorporates commercial spaces on the ground floor with elevated ceilings to support the local community. Overall, the submission stands out as an economically viable and community-focused design."

The accolade highlights the project's exceptional integration of sustainability and economic viability, showing a forward-thinking approach to creating thriving, adaptable communities.

Unit design: Hlaza Courtz

Submission 327 from the School of Architecture won a Unit Design Award, and a cash prize of R7 500.

The team members were:

- Aa-Iesha Beckett
- Natasha Jonasi
- Mwiche Nambeye
- Yvesse Namara

Judge Heather Dodd praised the entry, noting: "This submission is lauded for its thoughtful approach to designing unit typologies, addressing both planning and spatial volume considerations. The project effectively demonstrates how various family configurations can be accommodated within the design."

Honourable mention: Afrocentric Field

Submission 328 from the School of Architecture received an Honourable Mention in the competition.

The team included:

- Linati Madlakamela
- Buhle Nojoko
- Nosipho Mkhize

Judge Jennifer Mirembe highlighted the project's Afrocentic significance.

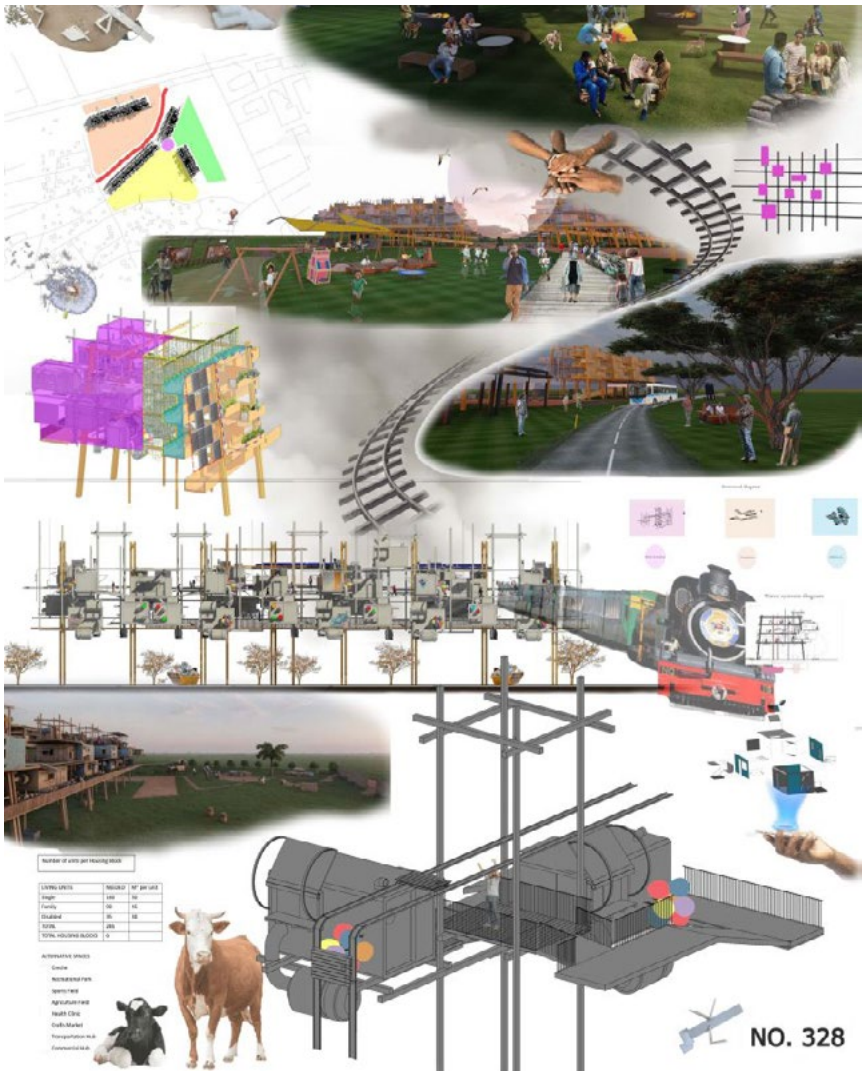
"Introducing the Afrocentric Field – more than just an architectural achievement, it stands as a beacon of hope, unity and a celebration of our creativity and resilience," said Dr Mirembe.

"This project merges our rich cultural heritage with innovative and sustainable design principles, bridging tradition with modernity. As we envision South Africa five years into the future, the Afrocentric Field represents a step towards a more inclusive, sustainable, and prosperous nation.

"Designed to adapt to society's evolving needs, it incorporates advanced water and energy systems to minimise environmental impact while fostering a strong sense of community and encouraging social interaction.

"In a world full of uncertainties, the Afrocentric Field provides a refuge, inspiring and supporting our well-being and aspirations. It embodies our capacity to innovate and thrive amid challenges."

The recognition of this project celebrates the ingenuity of its creators and also reflects a forward-thinking vision for sustainable and inclusive urban development. The 'Afrocentric Field' exemplifies how architecture can harmonise cultural heritage with modern needs.



Honourable mention: Strewn Terraces

Submission 338 from the School of Architecture earned an Honourable Mention in the competition.

The team members were:

- Chaneal Labercensie
- Coel Munna
- Madison Povey
- Emer Herwels

Judge Heleen Grimsehl, representing sponsor Boogertman + Partners Architects, praised the project for its meticulous design details and its focus on the interior architectural experience. She noted that the proposal thoughtfully examined how occupants will interact with, and thrive within, the space, emphasising the communal aspects of living.

The submission effectively addresses the spirit of togetherness and shared living, particularly in the context of student housing. The attention to the enjoyment of communal life and the inclusive design for all residents was highly commended.

Furthermore, this recognition underscored the project's success in blending functional design with a vibrant communal atmosphere. It highlights the team's ability to create spaces that not only serve practical needs but also enhance the quality of communal living.

Change the World

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