

FACULTY NEWSLETTER

ENGINEERING & THE BUILT ENVIRONMENT

MESSAGE FROM THE DEAN



I am happy to share the exciting news within our faculty from the first quarter of the year.

Our faculty has made significant strides in various areas of research and innovation. We celebrate the nominations of A/Prof Malibongwe Manono, A/Prof Joyce Mwangama, and Dr. Nodumo Zulu for the prestigious NSTF Awards, recognising their outstanding contributions to science, engineering, and technology. We also continue to lead in sustainable development, demonstrated by innovative projects like the GreenQUEST clean green, fuel project and the Future Water Institute's RRIP initiative.

Our students are making significant strides in sustainability. Chemical Engineering PhD candidate Mufudzi Chaza's recognition at the NGCSI3 symposium for advancing carbon neutrality research showcases the high quality of research within our student cohort.

We are also proud of the collaborative efforts of Global Digital Heritage Afrika to preserve and democratise architectural heritage. These achievements highlight our commitment to making a positive impact on society and the global environment. Thank you to everyone for your continued dedication and efforts. I look forward to seeing what we will achieve together as a faculty in the coming months.

STAFF WELCOME

- **Associate Professor Wei Hua Ho** joined the Department of Mechanical Engineering.
- **Dr Charles Mokwatlo** joined the Department of Chemical Engineering as a Senior Lecturer.
- **Cameron Lesalaise** joined the Department of Chemical Engineering as Technical Officer.
- **Matthew Church** joined the Department of Electrical Engineering as Chief Technical Officer.
- **Anthea Williams** joined the Department of Construction, Economics and Management as the Department Manager.
- **Asnath Tsita** joined the Department of Mechanical Engineering as a lecturer.
- **Adriaan de Villiers** joined the Department of Mechanical Engineering as a Senior Lecturer.
- **Nikheel Joshi** joined the School of Architecture, Planning and Geomatics as a lecturer.
- **Thomas Chapman** joined the School of Architecture, Planning and Geomatics as a Senior Lecturer.
- **Billy Mashele** joined the Department of Construction, Economics and Management as a lecturer.
- **Meghan Ho-Tong** joined the School of Architecture, Planning and Geomatics as a lecturer.
- **Danielle Cloete** joined the Future Water Research Group in Civil Engineering as a Research Admin Officer.
- **Rachelle Schneuwly** joined the Urban Water Management Research Unit as Senior Technical Officer.
- **Rayaanah Savahl** joined the School of Architecture, Planning and Geomatics as HR Business Partner.
- **Gadija Salie** joined the Faculty as the Dean's PA.
- **Grace Kumwenda** joined the Faculty Office as the Admin Assistant on the Curricula Review Project.

STAFF FAREWELLS

- **Professor Pieter Rousseau** left the Department of Mechanical Engineering.
- **Professor Amit Mishra** left the Department of Electrical Engineering.
- **Dr Reinier Weber** left the Catalysis Research Unit.
- **Warda Samaai** left the Department of Construction, Economics and Management.
- **Khaya Salman** left the Faculty Office.
- **Miranda Waldron** retired from the Electron Microscope Unit.
- **Belisa Rodrigues** left the Klaus Jurgen Leadership Programme.

AWARDS AND HONOURS

2023/2024 NSTF-South32 Awards Nominees

Three academics in EBE have been nominated for their outstanding contributions to science, engineering, and technology (SET) and innovation in South Africa. The National Science and Technology Forum (NSTF) South32 Awards are the largest SET and innovation awards in South Africa and have grown to be the most prestigious public SET and innovation awards in the country.



Category: TW Kambule-NSTF Award: Emerging Researcher

A/Prof Malibongwe Manono

Deputy Dean: Undergraduate Studies



Category: TW Kambule-NSTF Award: Emerging Researcher

A/Prof Joyce Mwangama

Associate Professor in Department of Electrical Engineering and Head: Telkom Centre for Broadband Networks



Category: TW Kambule-NSTF Award: Emerging Researcher

Dr Nodumo Zulu

Junior Research Fellow: Centre for Bioprocessing and Environmental Research, Department of Chemical Engineering

AWARDS AND HONOURS

Empowering tomorrow's STEM leaders: Associate Professor Sunetra Chowdhury, Mentor in the STEM MentHER Programme



Associate Professor Sunetra Chowdhury has been selected as a mentor in the STEM MentHER Programme, which is an initiative aiming to produce a pipeline of South African women scientists.

The mentorship programme connects mentees (learners) with accomplished academics (mentors) at partner universities around the country. The mentors provide learners with the support and guidance they need as they decide on their field of study, begin the university application process, and ultimately make the daunting school-to-university transition.

In this year's programme, nine learners from schools across Cape Town will be mentored in their goals to pursue careers in the fields of science, technology, engineering, and mathematics (STEM). The programme aims to create opportunities for departments and faculty to contribute to STEM education in the country and to induct more female learners. The programme was formally launched in April.

Leading the way: Professor Alison Lewis joins prestigious National Academy of Engineering



Professor Alison Lewis was elected as an International Member of the National Academy of Engineering (NAE) for her contributions to crystallization processes for saline water treatment and extraction metallurgy, as well as her leadership in engineering education.

The mission of the National Academy of Engineering is to advance the welfare and prosperity of the nation by providing independent advice on matters involving engineering and technology, and by promoting a vibrant engineering profession and public appreciation of engineering.

AWARDS AND FACULTY NEWS

EBE receives registration Recognition Award

The EBE Faculty Academic Administration team received a Resilience Award 2024 at the University Project Harambee workshop for their hard work in reaching enrollment targets. Congratulations to the team and everyone who supported the efforts.



Securing a sustainable future through resource efficiency, minerals and metals



UCT and EBE is a leader in research that focuses on resource efficiency to maximise social value and minimise waste, drives sustainable development through responsible resource beneficiation, and leverages nature to protect and restore ecosystems on our continent.

Research is integral to finding innovative practices and pathways to a sustainable future. When it comes to how resources are used for sustainable development, including minerals and metals, how a just transition is achieved and how mining communities are impacted, these South African Research Chairs Initiative (SARChI) chairs and a Centre of Excellence (CoE) at the University of Cape Town (UCT) have made invaluable contributions.

Working to create a platform for sustainable development in Africa through minerals and metals is the NRF SARChI Chair in Minerals Beneficiation, held by Professors JP Franzidis, the late Dee Bradshaw and Jochen Petersen over its 15-year tenure. The chair has enabled innovative practices in mining, mineral attainment and metal extraction that consider both complex social dynamics and the future of the planet.

[Read more](#)

FACULTY NEWS



Global Digital Heritage Afrika partners with UCT

In a move to preserve and democratise architectural heritage, the University of Cape Town's (UCT) Faculty of Engineering & the Built Environment (EBE) has partnered with Global Digital Heritage Afrika (GDHA), a research grouping dedicated to the digital documentation of heritage. GDHA is an affiliate of Global Digital Heritage, an international non-profit organisation based in the United States and Europe, which works collaboratively with the faculty on projects in Africa and around the world. [Read more](#)



Taking Africa from biomass to green gas

In March, The Catalysis Institute welcomed the German Federal Ministry of Education and Research (BMBF) state secretary, Professor Dr Sabine Döring. The state secretary's visit was focused on providing an update on the progress of the BMBF-funded GreenQUEST clean household fuel project.

GreenQUEST was born from the realisation of the positive effects of using clean and cost-effective fuels, on society, the environment and the economy.

[Read more](#)



Elections 2024: 'Dose of scepticism' needed as personal data becomes vulnerable

Personal data becomes susceptible to being used across political parties and polling companies. A "dose of scepticism" will be required to mitigate falling victim to getting your personal data in nefarious hands. This is but one piece of advice from Dr Daniel Ramotsoela, a senior lecturer in the Department of Electrical Engineering.

[Read more](#)

FACULTY NEWS

Reducing the carbon footprint of planes



Professor Arnaud Malan in the Department of Mechanical Engineering has developed a team to explore the possibility of using liquid hydrogen in the aeronautical industry. This is a fuel that could reduce carbon emissions by up to 40% and make a significant contribution to measures to combat climate change.

While South Africa has long been a leader in knowledge production in Africa its impact has seldom been obvious in the aeronautical industry.

Professor Malan's work in Industry Computational Fluid Dynamics (CFD) provides evidence that South Africa can join the global project of significantly reducing carbon emissions in commercial jetliners. He realises that to be successful requires highly-motivated teams, extensive funding and international collaboration.

The effects of climate change are increasingly evident. One of the major areas of engagement has been to reduce carbon fuel emissions. There has been a shift to electrical cars and solar panels. The aeronautical industry, particularly large passenger aircraft, has been a harder nut to crack.

South Africans are now participating in cutting edge aeronautical innovations. Malan's research unit links South Africa to Europe and across the Atlantic with the US. This is good news not just for work on climate change but for the global South and its mission to be included in global research developments.

[Read more](#)

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FACULTY NEWS

Reorienting Research, Innovation & Practice to Address Future Water Challenges in Africa

The "Reorienting Research, Innovation & Practice to Address Future Water Challenges in Africa (RRIP)" project, part of the Future Water Institute and funded by the UCT Vision 2030 Grand Challenges program, is launching on 27 -28 June. Led by A/Prof David Ikumi and Dr. Amber Abrams, RRIP aims to transform water systems and resource management through interdisciplinary collaboration. The launch will outline the program's long-term goals, highlight progress, and present ongoing student research. RRIP focuses on sustainable water practices, resource recovery, and improving water efficiency, addressing economic, environmental, and social aspects to foster equitable water distribution and support marginalized communities.



Emer Prof Cyril O' Connor celebrates his 80th birthday

Emer Professor Cyril O'Connor, former HoD for Chemical Engineering, EBE Dean and Acting DVC celebrated his 80th Birthday in early May. Seen here with close working associates from the two research entities he founded – the Centre for Minerals Research (CMR) and the Catalysis Institute.



From left to right: Cyril O'Connor, Heather Sundstrom, Kirsten Corin, Nico Fischer (Director, Catalysis Institute), Jack Fletcher, Eric van Steen, Martin Harris, Klaus Möller, Dave Deglon (Director, CMR) and André van der Westhuizen (front centre).

FACULTY NEWS

UCT CPD Programme offers housing finance course to tackle Sub-Saharan Africa's housing crisis

UCT's Continuing Professional Development (CPD) Programme is stepping up to address the Sub-Saharan Africa's Housing Crisis challenge with its Housing Finance Course for Sub-Saharan Africa. The Housing Finance Course is a collaborative effort between UCT's Urban Real Estate Research Unit (URERU) and the Zell/Lurie Real Estate Center of the Wharton School at the University of Pennsylvania. It also receives valuable support from the Centre for Affordable Housing Finance in Africa, the Kenya Mortgage Refinance Company (KMRC), and FSD Kenya. This year's programme had a diverse group of attendees from Kenya, South Africa, Botswana, Nigeria, Tanzania and Uganda.

This intensive six-day programme, held at the Pride Inn Flamingo Beach Resort in Mombasa, Kenya, equipped attendees with the skills and knowledge needed to build robust and inclusive housing finance systems and solutions.

The programme is designed for senior decision-makers, including policymakers, bankers, investors, developers, and housing professionals. Participants gained practical knowledge on building strong housing finance systems that can:

- **Offer a wider range of loan products:** This includes everything from traditional mortgages to micro-loans, tenant-purchase contracts, and construction loans.
- **Withstand economic volatility:** The course addresses strategies for navigating challenges like inflation and economic downturns.
- **Embrace sustainability:** Participants explore "green" financing solutions that promote environmentally friendly housing development.



Pictured are delegates who attended the Housing Finance Course. Also in attendance were A/Prof Francois Viruly from the Department of Construction, Economics and Management, and Heidi Tait, Manager of the CPD Programme.

RESEARCH VISITS

Civil Engineering hosts University of Alberta



Lita Nolutshungu, from the Department of Civil Engineering hosted a delegation from the University of Alberta (Canada).

This delegation was led by Dr. G Ward Wilson (Professor of Geotechnical & Geoenvironmental Engineering in the Department of Civil and Environmental Engineering) who is involved in mine waste management systems for numerous sites worldwide and currently serves as the subject matter expert for the GeoStable Tailings Consortium.

He was accompanied by other members of the department; Dr Nicholas Beier (Associate Professor of Geoenvironmental Engineering) and Vivian Giang (Strategist in Communications, Grants and Events).

Part of the visit included a tour of the department's facilities, including the Geotechnical Engineering Laboratory, and an open lecture by Dr G Ward Wilson. The lecture was on designing commingled tailings and waste rock deposits for physical and geochemical stability, which Dr Wilson is heavily involved in research with.

UCTGeotech and University of Alberta Geotechnical centre will be formalising their coordinating and collaboration opportunities emanating from this visit.

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RESEARCH VISITS AND COLLABORATIONS

Makerere University delegation engages in strategic talks and facility Tour



Professor Denis Kalumba and the Department of Civil Engineering hosted a distinguished delegation from Makerere University (Uganda). The primary objective of the visit was to shape a strategy that will guide Makerere University's journey toward developing a comprehensive concept of research and innovation.

Throughout the visit, the delegation engaged with the university's leadership. They held discussions with Prof. Elelwani Ramugondo, Deputy Vice-Chancellor responsible for Transformation, Student Affairs, and Social Responsiveness. Additionally, they met with Prof. Mark Zuidgeest, the Head of Civil Engineering. These interactions provided a valuable opportunity for the exchange of insights and perspectives on academic and institutional matters.

The primary objective of the visit was to further shape a robust strategy that will guide Makerere University's ambitious journey toward building a comprehensive concept of research and innovation. As part of their visit, the delegation toured our Geotechnical Engineering Laboratory. This allowed the Makerere University team to gain firsthand experience of our state-of-the-art facilities and capabilities.

INDUSTRY COLLABORATIONS

UCT co-hosted the launch of the Built Environment National Logbook



UCT and the Council for the Built Environment (CBE) co-hosted the official launch of the Built Environment National Logbook (BENL) in March. This significant launch coincided with International Women's Day under the theme "Inspire Inclusion", highlighting the BENL's potential to benefit women in the male-dominated built environment sector.

The BENL will revolutionise the industry by addressing the slow pace of transformation, standardising the professional registration process in South Africa, and tracking candidates on their journey to professional registration. It will also provide centralised statistical data for the built environment's professionally registered persons, candidates, students, artisans, and mentors, while offering career pathing support and guidance for unemployed built environment graduates. EBE students, staff and members of the external media were invited to attend the launch.

Electrical Engineering student presents UCT Formula Student Africa Initiative at Africa's Green Economy Summit

Aadil Eyasim, a current master's student in electrical engineering and the team principal of UCT's Formula Student Africa team (FSA), had the opportunity to speak to delegates at Africa's Green Economy Summit. He presented the Formula Student Africa initiative.

At the summit, he highlighted the important shift towards electric vehicles in the global automotive landscape, focusing on the FSA UCT Team's role as universities promote sustainability and innovation. By participating in initiatives like the Formula Student competition, students gain invaluable hands-on experience in designing and building formula-style cars from scratch. The launch of the team at UCT demonstrates a commitment to setting trends in African universities. Through structured work experiences, interdisciplinary collaboration, and engagement with industry professionals, the team equips UCT students with essential skills for the future while contributing to the global drive for eco-friendly automotive solutions.

STUDENT NEWS

Chemical Engineering PhD candidate Mufudzi Chaza awarded at NGCS13 for advancing carbon neutrality research



Professors Yong Wang and Keiichi Tomishige presenting the Chemical Science Best Oral Presentation Awards to Mufudzi Chaza (3rd from the left) and 4 other winners at the 13th Natural Gas Conversion Symposium. Mufudzi is under the supervision of Professor Michael Claeys and Dr. Thulani Nyathi.

Mufudzi Chaza, a PhD candidate of the Catalysis Institute in the Department of Chemical Engineering, was honoured as one of the recipients of the Chemical Science Best Oral Presentation awards during the 13th edition of the Natural Gas Conversion Symposium (NGCS13). This prestigious event took place from the 21 to 25 April in Xiamen, China. Amidst a total of 180 oral presentations, receiving this award holds profound significance, underscoring the exceptional quality and pertinence of the research showcased in Mufudzi's presentation at NGCS13.

NGCS13 drew in more than 800 participants from 29 countries in diverse fields of catalysis, in industry and academia, all united by a shared objective of progressing "Towards Carbon Neutrality." This focal point resonated deeply with the research Mufudzi undertook and presented, which is within South Africa's CoalCO₂-to-X initiative funded by the Department of Science and Innovation. This initiative shares the overarching aim of achieving carbon neutrality through Power-to-Liquids technology. Specifically, it involves harnessing carbon dioxide emissions from effluent streams in coal plants to produce valuable commodities, such as diesel, using catalysts developed in the Catalysis Institute laboratories. Mufudzi is under the supervision of Professor Michael Claeys and Dr. Thulani Nyathi.

FACULTY EVENTS

EBE Welcome back event

The faculty held its annual 'Welcome Back to Staff' event early in the year, during which new faculty staff were introduced, and colleagues had an opportunity to engage with one another.



FACULTY EVENTS

EBE First-year orientation

The EBE First-year orientation programme took place in January and introduced students to the academic, social, and cultural environment at UCT. Every year, the EBE faculty welcomes hundreds of first-year students onto campus. The orientation programme, led by Associate Professor Bruce Klood and a vibrant group of Orientation Leaders, ensures that our first-year students feel welcome in the faculty and across their respective departments.



MARCH GRADUATION

The March graduation ceremony celebrated 602 graduates across two faculty ceremonies. A big congratulations to all our graduates for reaching this incredible milestone in their academic journey.



GRADUATION NEWS



EBE Graduate Mthokozisi Msezane represented in umBlaselo

Witness the poignant tribute of UCT's EBE graduate Mthokozisi Msezane, who adorned himself in vibrant umBlaselo and dedicated the day to his late mother.

Msezane graduated with a Bachelor of Science degree in Civil Engineering.

[Read more](#)



EBE Graduate Siphokazi Nkonde's Swati pride

EBE graduate, Siphokazi Nkonde, hailing from Eswatini, proudly represented her heritage in traditional Swati attire.

Supported by her family, Nkonde's choice to wear her country's attire underscores the importance of cultural representation on this momentous occasion.

[Read more](#)

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