

Faculty Newsletter

Message from the Dean

Thank you to all the staff who have played a role in the life of our graduating students. Your ongoing support and input into the lives of our students have helped them navigate their way through their studies and graduate on 13 July. The virtual graduation ceremony is certainly not the same as the celebration in the Sara Baartman Hall, but it was a tribute to their hard work and success. They will undoubtedly be a resilient group that will go out there and make us proud.

This year has certainly been a challenging year. We have learnt many lessons and will continue to adapt and improve our systems. I am so grateful for all the amazing staff who are working around the clock to find a suitable alternative to the delayed June exams. The current planning is that we will use the first week of the second semester to cover the June exams. If Level

4 has been lifted, we can run these as face-to-face invigilated examinations. However, if this is not possible, we will convert selected exams to online proctored exams.

This is going to be another tough year. But I think that we have what it takes to survive and get through. What really works is when we pull together and strive towards a common purpose in the midst of the uncertainty and challenges of this crisis. Remember to use the services offered by [ICAS](#) if you are struggling.

Our thoughts and prayers are with all our colleagues who have lost family members or close friends.

The newsletter is full of outstanding achievements of our staff, students and alumni.

National accolade for Dr Kirsty Carden

Interim Director for the Future Water Institute Dr Kirsty Carden has been awarded a Senior Fellow Membership of the Water Institute of South Africa (WISA). The award is for the dedication and support that Dr Carden has shown WISA and the Water Sector throughout her career.

Dr Carden has over 30 years of experience in water quality management and has worked in industry, the South African Department of Water Affairs and an engineering consultancy. She is a Senior Research Officer in the Department of Civil Engineering and recently took up the Interim Director post for the Future Water Institute. Her research interests

include urban water management and service provision in a South African context, sustainability assessment in water management, and integrated approaches geared towards sustainable urban development and water-sensitive cities (including social learning related to water-sensitive design). She completed her PhD at UCT in 2012, with a thesis entitled "A measure of sustainability in the context of integrated urban water management in the cities of southern Africa".

Dan Naidoo, WISA Board Chair, said, "This exceptional honour is not bestowed lightly and takes into account the consistency of support



that you have shown WISA over a large number of years. It is, however, not restricted to support for WISA, but also takes note of the contributions you have made to the enhancement of the Water Sector overall and the esteem that your actions have brought to the stature of the South African water industry." [Read more](#)

Strong focus on sustainability in 10th edition of Fulton's Concrete Technology

Prof Mark Alexander, Emeritus Professor in the Department of Civil Engineering, a Senior Research Scholar in the faculty, and a member of CoMSIRU, edited the 10th edition of *Fulton's Concrete Technology*, commonly regarded as the South Africa "concrete bible", and globally recognised as a definitive handbook on concrete. The book was launched on 10 June by Cement and Concrete SA (CCSA).

Prof Alexander is a past president of the global body RILEM (the International Union of Laboratories and Experts in Construction Materials, Systems, and Structures), and is the author of several respected concrete-technology publications. His experience has been widely used in a consulting capacity both here and abroad.

The latest edition of *Fulton's Concrete Technology* comprises 37 chapters and features topics such as materials and mixes, concrete properties, manufacture, site practice, quality

control and testing, as well as special concrete and techniques.

Bryan Perrie, CEO of CCSA, says several years of intensive research and coordination preceded the publication of the revised and updated *Fulton's Concrete Technology*, which was last published in 2009. The authors of the different chapters, selected to offer a combination of experienced and young professionals, were drawn from a wide range of backgrounds: academics and researchers, concrete producers and manufacturers, construction-materials specialists, and consulting engineers.

"The 2021 *Fulton's* contains a wealth of new reference material and – with ten new chapters - represents a significant update on the previous edition. There is, for example, strong emphasis on sustainability – an issue of global concern in all sectors of industry," Perrie states.

In the preface to the book, Professor Alexander says, "This edition of the



book comes at a time of unprecedented change and challenge in the world, including South Africa. Tremendous demands will be made of professionals in ensuing years, to address issues such as sustainability of concrete construction, impact of climate change, population growth, and the like. What remains constant is the need for authoritative, relevant, accurate and up-to-date information on concrete – the world's most used construction material. This edition of *Fulton* aims to do just that, as in the past."

International recognition for CEM

The Department of Construction Economics and Management (CEM) has received the 2021 Corporate Leadership award from the International Real Estate Society (IRES). The award recognises outstanding leadership at international level in support of real estate research and education. It also acknowledges the department's support of the African Real Estate Society (AfRES).

The IRES is a federation of regional real estate societies that encourages global cooperation on research and education. The organisation encourages communication,

collaboration and coordination in regard to real estate research and education globally, and assists with establishing real estate education and research programmes.

Associate Professor François Viruly, the director of the Urban Real Estate Research Unit in CEM and the executive director of AfRES, said he is thrilled by the news. He said the award demonstrates the department's strong commitment to engaged scholarship and to the African built environment academic community.

Professor Manya Mooya, Head of



A/Prof Francois Viruly and Prof Manya Mooya

CEM, said, "This recognition is thanks to Professor Francois Viruly and his team in the Urban Real Estate Research Unit."

[Read more](#)

ChemEng finalists for NSTF awards

On 29 July 2021, the NSTF will host its 23rd annual awards gala in partnership with South32. This year, eight researchers and research groups from UCT are finalists for the awards, of which two are from EBE.

Also known as the 'Science Oscars' of South Africa, the NSTF Awards were established in 1998 to recognise outstanding contributions to science, engineering, technology and innovation by professionals, teams and organisations in South Africa.

The theme for 2020/2021 is creative economy in the 2021 International Year of Creative Economy for Sustainable Development as declared by the United Nations. A special theme award will go to the researcher who has made an outstanding contribution to this field.

Prof Michael Claeys
Department of Chemical Engineering



Engineering Research Capacity Development Award

Claeys is a professor in Chemical Engineering at UCT and director of the DSI-NRF Centre of Excellence in Catalysis (c*change). His research focuses primarily on catalysis for energy applications including the Fischer-Tropsch process, a technology which lies at the heart of South Africa's synthetic fuels and chemicals industry. It is also a technology playing an increasingly important role worldwide in the production of green future fuels and chemicals from sustainable resources such as CO₂ and hydrogen.

Catalysis significantly shapes modern society and is indispensable in 90% of production processes for chemicals, fuels and pharmaceuticals.

Through his research, which has been supporting a large number of postgraduate students and young researchers, Claeys seeks to understand catalyst stability and improve these for energy applications using specifically developed unique tools that allow characterisation at harsh industrial conditions.

**Dr Rein Weber – Chief Executive Officer,
 Cape Catalytix (Pty) Ltd**



Innovation Award: Small, Medium and Micro Enterprise (SMME)

Cape Catalytix (Pty) Ltd was established as a UCT spinoff company that creates functional, custom-made, turnkey laboratory products to suit each client's performance expectations and provide greater veracity and quality of research data.

Among other devices, they have commercialised an in-situ x-ray reaction chamber (iKEY® Reaction Cell). It is also this device that led to their nomination for the NSTF-South32 2020/2021 awards.

Standard commercial X-ray chambers offer limited environmental capabilities without the rigorous control of reaction flow path necessary for proper catalyst development. The iKEY® Reaction Cell facilitates real-time characterisation of materials and permits the rapid structural changes to be observed as they happen, increasing understanding of the changes which they undergo during exposure to different environments. It is well-suited to controlled-environment studies of engineering materials and heterogeneous catalysts.

This year, the NSTF Awards Gala Event will take place as a hybrid event broadcast from both Johannesburg and Cape Town. The usual Gala Dinner will be reintroduced with the addition of a celebration in Cape Town livestreamed via the [NSTF YouTube channel](#).

[Read the full article](#)

CEM celebrates its prize winners

On Tuesday, 18 May, the Department of Construction Economics and Management held its annual prize-giving event on MS Teams. Staff worked hard to make this a special occasion, seeing they could not have a physical event on campus. The week before the event, they arranged for the prizewinners to come on to campus for short videos to be made of each one.

The guest speaker was Jess Cleland, COO: Africa for the Broll Property Group. Jess leads Broll's businesses across Africa (excluding South Africa) and the Valuations and Research divisions. She shared her life story and the amazing trips she has done worldwide, the lessons she learned along the way, and how they assisted her in her career. Jess was very inspiring. Her ambition is to travel



to every country globally, and so far, she has visited 100. She has undoubtedly made some amazing trips, like canoeing down the Congo in the DRC, and cycling across West Africa and Central America to raise funds for her favourite animal rescue charity.

Exploring a circular economy in South Africa

As the longevity of our planet hangs in the balance, a shift toward more sustainable practices within global economies has become imperative. As a result, the concept of the circular economy has gained traction and become an important topic for discussion. A recent collaborative study by researchers at UCT and the University of Natural Resources and Life Sciences (BOKU) in Austria maps the level of circularity in South Africa's economy and sheds some light on the prospects for a sustainable future.

Prof Harro Von Blottnitz from the Department of Chemical Engineering and Dr Willi Haas from BOKU were the lead researchers on the project titled *Assessing economy-wide prospects for a more sustainable circular economy in South Africa*.

Commissioned by the Department of Science and Innovation (DSI), the project was launched at the beginning of 2020 and set out to assess the status quo of the South African economy.

Earlier this week, Von Blottnitz and Haas presented their main findings during a webinar hosted by the Council for Scientific and Industrial Research (CSIR). It drew more than 100 attendees, indicating the relevance of the subject matter.



"This work is critical for the DSI, because we're at a stage now in developing a much bigger emphasis on the circular economy," said Imraan Patel, Deputy Director General of Socio-Economic Innovation Partnerships at the DSI. "It helps us get a much clearer sense on this concept that is gaining a lot of traction."

He added that work like this is crucial to evidence-based planning and will assist the DSI in conceptualising a theory of change.

"It's a real step forward in the kind of research I've been able to do as an industrial ecologist in South Africa," said Von Blottnitz. [Read more](#)

International award for Transport Studies

The Transport Sector Leadership Development Programme developed by staff in the Centre for Transport Studies in the Department of Civil Engineering together with partners in the United Kingdom and Ghana is one of two projects shortlisted for the Chartered Institution of Highways and Transportation International Award 2021. The award recognises outstanding examples of developing highways and transportation services or infrastructure from outside the UK and Ireland which have made significant contributions to communities and society. Professor Zuidgeest, the UCT team leader and Educational Management specialist on this project, together with his postdoc Dr Obiora Nnene and Professor Marianne Vanderschuren worked on the project for two and a half years.

The project was conceptualized after the Association of Southern African Road Agencies identified the lack of support to develop future leaders as a long-term risk to achieving efficient and equitable transport systems in Africa. They conceptualised the leadership programme and got the interest of UK Aid, who subsequently engaged with the Research for Community Access Partnership. A Mott MacDonald UK-led team was subsequently commissioned to scope and develop a capacity-building programme to address the inherent need for transport leaders across sub-Saharan Africa. In 2020, the Centre for sub-Saharan Transport Leadership was established at Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi in Ghana.

Professor Zuidgeest and his team were members of the consortium that was appointed to develop the programme in two phases. Their primary responsibility in Phase 1 was to do a scoping study (needs assessment and gap analysis) to confirm the need for the programme in Africa. Dr Nnene said, "We found the programme was



Professors Mark Zuidgeest and Marianne Vanderschuren, and Dr Obiora Nnene

going to address a major gap in developing leaders for Africa's transport sector. Existing civil engineering and transportation studies programmes focus on technical skills which do not necessarily equip people for leadership. We also designed an initial curriculum for the programme."

For Phase 2, the UCT team's responsibilities were to identify a host university for the programme and work with them to obtain the necessary approvals within the institution's policy framework and apply for national and international accreditation for the programme. Following a competitive selection process involving visits to various African universities, they decided to work with KNUST in Ghana to further refine and finalise the curriculum and its pedagogy as well as develop a business plan for the programme's resources and long-term sustainability.

Professor Zuidgeest "Even though the programme has been set up as a blended learning programme, the Covid-19 pandemic has delayed the first intake of mid-career professionals from across the continent. As soon as the first students are there, we hope to continue working with the great team of academics at KNUST to make the MSc in Transport Leadership the success it deserves."

[Read more](#)

International award for two Geomatics alumni

Voyc, a speech-analysis quality-management solution for contact centres, has recently won the internationally acclaimed 2021 Blue Tulip Award hosted by Accenture in the Netherlands. The co-founders of Voyc, Matthew Westaway and Lethabo Motsoaledi are both Geomatics alumni. "We're delighted to receive this important award for tech start-ups in Europe. This award will allow us to scale our efforts as we continue on our journey to empower contact centres to handle every interaction with consistency and care," concludes Westaway. [Read more](#)

Special Jury Award for two architecture students

Last year, while in their third year of architectural studies, Mila Ashton and Sasha Czech came second in the national Multi Comfort Student Contest, an international competition based on the principles of Saint-Gobain's Multi Comfort Programme.

The challenge was to convert the post-industrial area of the Coignet company in Saint-Denis (France) into a living, learning and leisure area in the heart of a large green space, respecting both the historical heritage and the sustainable development needs of modern neighbourhoods, in collaboration with the city of Saint-Denis. The 1st and 2nd place student teams were invited to represent South Africa in the 2021 international competition. More than 200



universities from 38 countries participated.

Ashton and Czech received the Jury Special "Coup de Coeur" prize for their project Mont Verte. In the citation for the award, it said, "The special prize of this edition was given to the South African team from the



University of Cape Town. The jury was won over by the excellence, audacity, and originality of the "Mont Verte" project, which reinvents collective housing around a wetland park to regenerate local biodiversity. The very pure architecture offers a sense of security and conviviality while guaranteeing the comfort of the inhabitants. Well connected to the rest of the city, the project imagines, beyond an island of renewed nature, a lively neighbourhood with shopping streets."

Congratulations to Mila and Sasha together with Albert van Jaarsveld and the third-year design and theory staff.

"The dynamics of Saint-Denis is emblematic of the changes taking place in cities today, and the project proposed to candidates this year is fully in line with the spirit of the Multi Comfort competition. It is also

aligned with Saint-Gobain's vision to be the worldwide reference in sustainable construction. I hope that this event will be a springboard for the students and an enriching experience both professionally and personally. On behalf of all the Saint-Gobain teams, I would like to extend my sincere congratulations to the winners and to all the candidates," said Pierre-André de Chalendar, Chairman and CEO of Saint-Gobain, as he presented the awards.

Created in 2004, this competition, aimed primarily at architecture, engineering and design students, is designed to highlight the expertise of students around a project based on the real needs of a neighbourhood or city, using Saint-Gobain's sustainable-construction approach to create living spaces that respect the planet and the well-being of residents.

Successful accreditation reviews



CRYSTALLIZATION
& PRECIPITATION
RESEARCH UNIT

Congratulations to the Crystallisation and Precipitation Unit in the Department of Chemical Engineering, which had a successful URC five-year review, and has been endorsed for another five-year cycle of accreditation. The unit is headed up by Professor Alison Lewis and was formally accredited in 2006. Visit the [website](#) to find out more about their research work.



URBAN REAL ESTATE
RESEARCH UNIT

Congratulations to the Urban Real Estate Research Unit in the Department of Construction Economics and Management, which had a successful URC five-year review, and has been endorsed for another five-year cycle of accreditation. The unit is headed up by Professor Francois Viruly. Visit the [website](#) to find out more about the unit.

Three awards at annual transport conference

Three postgraduate students from the Centre for Transport Studies in the Department of Civil Engineering received awards at the annual South African Transport Conference, which took place online from 5 to 7 July 2021. The conference is Southern Africa's premier transport conference, bringing together over 700 transport professionals to discuss, debate and learn about relevant topics relating to the exciting world of transport.

It is South Africa's longest-standing transport conference and over the last 38 years it has become an important contributor to and influencer in the national debate about transport in Southern Africa.



Lerato Molefe and Alex Newlands, MScEng students, received awards for the Student Essay Competition which was open to all registered students (undergraduate and postgraduate) at tertiary

institutions. Students needed to prepare a five-page essay on Sustainable Transportation through enabling Partnerships. Lerato also presented a paper on *The Social Perception and Holistic Assessment of Bus Rapid Transit in Soweto*, which she co-authored with Professor Marianne Vanderschuren.

Gail Jennings is a research consultant in sub-Saharan Africa. Her fields of expertise include transport, gender and social inclusion; walking and cycling; and transport-related behaviour. She is a PhD candidate in the Centre for Transport Studies and received the Best peer reviewed paper award for her paper co-authored with Emma Arogundade, a PhD candidate in the Department of Sociology. Emma is a consulting



researcher, writer, editor and educator. Her fields of expertise include gender, gender violence, HIV, human rights and social justice issues more broadly. The paper was titled *Women were put on the back-end: COVID-19 mobility constraints and their lessons and implications for gender-equity in Sub-Saharan Africa*.



National innovation award

A/Professor Dyllon Randall received the South African Institution of Chemical Engineers 2021 Innovation Award for his work on developing a fertiliser-producing urinal and the urine bio-brick process. Dyllon was nominated by Hamied Mazema, a UCT chemical engineering alumnus.

In his congratulatory message Mazema said, “As a long-standing member of the Institution of Chemical Engineers (IChemE), I first read about Dr Randall’s fascinating work, which was truly innovative, and for which he received the prestigious international Sir Frederick Warner Award from IChemE.

“I was really thrilled to see that one of our UCT alumni and a SAIChE member had been the first African to win



one of the IChemE suite of awards, and when SAIChE called for nominations for the Innovation Award, I promptly called Dr Randall to ask his permission to nominate him.

Read more at [UCT News](#)

VC scholarship for two architecture master’s students

This year Sisonke Mgwebi and Bongwiwe Sithole, two master’s students in architecture, were recipients of the 2021 Mamokgethi Phakeng Scholarship. In 2020 Professor Phakeng launched her scholarship aimed at financially deserving black South African women postgraduates studying science, technology, engineering and mathematics. Prof Phakeng committed herself to donate 10% of her salary to finance the initiative, and her contribution will provide wrap-around funding covering tuition, accommodation and a monthly stipend.



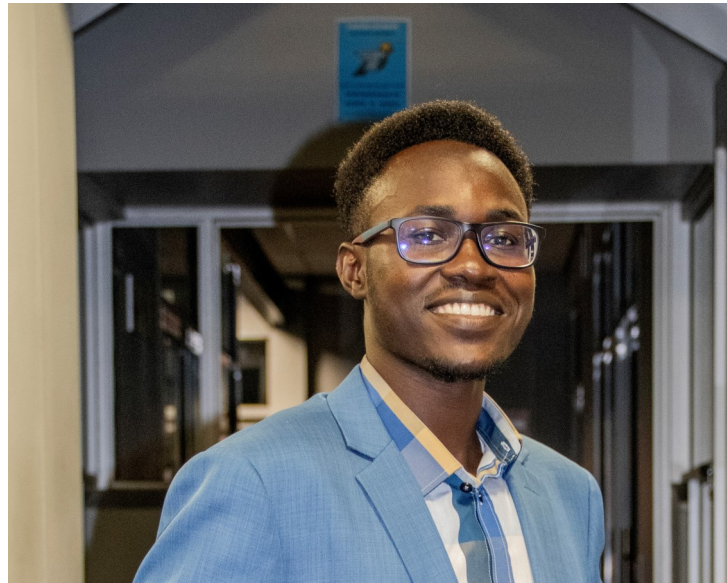
VC with Bongwiwe Sithole



VC with Sisonke Mgwebi

Winner of the Young Talent Challenge

Kingsley Akpeji, a PhD candidate in the Department of Electrical Engineering, was announced as the winner of the Initiate programme's Young Talent Challenge, held on 24 June 2021. Initiate is the Enlist Africa hub for start-ups, innovators, postgraduate students and young talent to meet the utility professionals, corporate executives, public-sector innovators and investors to discuss, share and pilot ideas.



The Young Talent Challenge is an annual competition aimed at postgraduate students from around Africa to encourage learning from and networking with the energy sector beyond their textbooks.

For the first round, students were asked to send in their abstracts. Twelve students made it to the final round, where, unfortunately, one student dropped out due to COVID. In the finale of 11 finalists, the top four were announced. Two were from the University of Pretoria, one from Stellenbosch, and Kingsley from UCT.

The finalists had to present a five-minute overview of a business solution, originally presented in a comprehensive abstract entry to the Young Talent Challenge. A viable business solution had to be contextualised on the supposition that an intra-continent energy

committee for Africa is a reality. Within that context, finalists were asked to present a plan for setting up an energy business focusing on renewable energy that would take advantage of such a strategy.

Kingsley was announced as the winner and received a R3,000 cash prize and local and international mentorship from the South African Institute of Electrical Engineer's Entrepreneurship & Innovation chapter.

ESI Africa and Initiate will keep a close eye on Kingsley as he develops his business idea. Kingsley's idea springs from understanding the paradox of the energy sector in Africa: "the continent is blessed with abundant energy resources,

especially renewables, but is energy poor".

Mrs Kehinde Awodele and Professor Komla Folly are his supervisors in the Department of Electrical Engineering. Kehinde said, "His win at the initiate competition is well deserved, it is a win not only for the Department of Electrical Engineering but for the Faculty of Engineering and the Built Environment, and UCT. I am very proud of Kingsley and wish him brilliant success as he pursues his PhD research." Nazlee Fredericks, the Initiate project lead, said, "Thank you for investing in your students the way you do."

New SAAE fellow

Congratulations to Professor Harro Von Blottnitz for being elected as a Fellow of the South African Academy of Engineering (SAAE). He joins 213 Fellows who are considered thought leaders in their fields. The vision and mission of SAAE is: "To promote the technological welfare of the nation by marshalling the knowledge and insights of eminent members of the South African engineering profession, elected by their peers and to be a source of expert advice on matters pertaining to global competitiveness and quality life for the nation." Harro joins 15 other SAAE Fellows in EBE.

Role of engineers in future society

In April, for the third-year mechanical engineering course Engineer in Society (MEC3083W), Dr Bruce Kloot, the course convenor, organised a programme for the students at the District Six Museum. To comply with the COVID regulations, the class was divided into three groups over three days. The course explores engineering in the context of society, and we want to focus on South African society. Visiting District Six is a very powerful way of bringing home to the students how history still has an impacts on us, and we want to use it to get them to think about their role as engineers in future society.



Londani Tshikhudo at the District Six Museum

Developing creative and innovative thinkers

As part of the CIV1005W course, the first-year civil engineering class were given a project to encourage them to think out of the box, and to think creatively on how they would create sustainable communities.

The design brief was that all municipal waste-management services would be withdrawn by 2026. Communities would become completely responsible for managing all the waste generated in their precinct. No solid waste or sewage could leave the site in the form of waste.

The students in groups had to develop a decentralised waste management plan for their assigned precinct. On Friday 18 June, they presented their projects face-to-face to Dr Nicky Wolmarans, the course convenor, and Nailah Conrad from the D-School. The students presented their plans on how the community would organise their recycling, wastewater, solid waste, organic waste, etc., and came up with innovative ideas on how they could meet the brief. Annie van Niekerk and Etienne Mostert from the D-School also assisted with the project.



Mail & Guardian Top 200

Athenkosi Nzala - Civil Engineering 2017 graduate

Since graduating with a BSc honours in civil engineering and a master's in educational technology from the University of Cape Town, Athenkosi Nzala has gained years of experience in leadership and development from working with companies like the Mandela Rhodes Foundation, Investec, McKinsey & Company, Young African Leaders Initiative and Pearson South Africa. Nzala has worked with the Engineers Without Borders on the Engineering for People Design Challenge aimed at delivering a global engineering curriculum that helps graduates make positive social and environmental engineering decisions.



Beyond engineering, Nzala aims to revolutionise the way people learn, train, collaborate and assess online with Limitless Online Learning Solutions, the e-learning company he founded. "I see myself adding value to the youth not only through entrepreneurship, but through creating platforms for them to receive quality education so they can be empowered to create opportunities for others and themselves."

Through my scientific research, I endeavour to nurture novel, innovative and translatable research that is locally relevant and globally competitive.

Lebogang Diale - Electro-Mechanical Engineering 2017 graduate



Democratising education in South Africa is the task Lebogang Diale has set himself. As the cofounder and executive director of Gradesmatch, an ed-tech company using big data and artificial intelligence to create tools and technologies, Diale is helping young people and their families to make good decisions regarding their careers. His goal is to enable the journey from education to employment or entrepreneurship so young people can improve their prospects and realise their dreams. Diale completed a business science degree and followed it up with an engineering bachelor's in electro-mechanical engineering, both from the University of Cape Town. He says his proudest achievement is seeing how Gradesmatch was able to assist thousands of students in 2020, and has grown from supporting 34 students in 2018 to more than 7 000 three years later. He is passionate about solving problems that will have an impact on people's lives for decades to come.

I want to create a blueprint for the township to transform into the future self it needs to be.

ECSA medals

The ECSA medal is awarded to the top students who graduated with a BSc (Eng).

2019 ECSA medal

Elle Mouton

BSc in Electrical and Computer Engineering



After doing my final-year project on Bitcoin and the Lightning Network, I knew that I wanted to work on these technologies. So I applied for and got a job at Luno (a crypto exchange based in South Africa) as a software engineer on the crypto-operations team. I worked on this team for a year, and I enjoyed it thoroughly. However, near the end of 2020 I decided that I wanted to work only on Bitcoin and Lightning and not on other crypto-currencies and so I took a leap of faith and left my job at the start of 2021 with the aim of taking a few months to dive into the Bitcoin and Lightning open-source worlds. Since then, I have been contributing to open-source projects such as LND (one of the main Lightning implementations). I am currently busy with the interview process at the company that maintains LND.

2020 ECSA medal

Sam Ball

BSc in Electrical and Computer Engineering

Sam is currently studying towards her master's in Data Science and AI at the University of Witwatersrand . Her research involves the use of object detection to detect poachers using Unmanned Aerial Vehicles .



Simulated satellite camera to aid vegetation monitoring in SA

Brendon Maongera, a master's student in the Department of Electrical Engineering's SpaceLab, whose dissertation focuses on how a simulated satellite can aid vegetation monitoring in South Africa, was handpicked to present his paper at the 2021 SpaceOps Conference.

Brendon's paper, *South African Satellite Operations Testbench for Capacity Building in Space Operations Training and Research*,

became the focal point during an afternoon session at the conference.

"I am delighted that I was afforded the opportunity to share my research with delegates who work in the space industry and to engage with various people on the importance of capacity building in this industry in South Africa," he said. "I am disappointed that all of this could not be done in person though. It would've allowed me time



to engage a lot more and to increase exposure, especially with prospective partners."

[Read more](#)

Three EBE students fight the fire

Three EBE students were part of the brave team who battled the Smuts and Fuller Hall fires. Kealeboga Keretsetse (electrical engineering), and Siyabulela Ntuntwana (landscape architecture) subwardens at Smuts, and Dean Gibson (mechanical engineering), a volunteer who put their lives at risk to fight the fire.

On the Smuts Facebook page it said, “We pay tribute to these individuals who went beyond what is expected of them. It must be noted that the only training they received was through a Microsoft Teams meeting, yet they still put their lives in danger fighting fires at Smuts Hall and Fuller Hall residence. They knew that they were not equipped to stop the wildfire but did everything they could to stop the fire from spreading and causing more damage to the residences. What was meant to be a duty to extinguish fires until firefighters arrived soon became



From left: Kealeboga Keretsetse, Prof Kelly Chibale, Kalaba Chibale, Brandon Badenhorst, Dean Gibson, Siyabulela Ntuntwana, Tafara Mkombe and Kyle Jira.

a job to aid outnumbered fighters but also direct them through the flats with no protective gear.”

Best presentation award for Geotechnical



Shade Sitwala Muluti, a postgraduate student from the Geotechnical Engineering Group in the Department of Civil Engineering, received the Huesker Best Presentation Award at the Geosynthetics Conference for Young Professionals 2021 which was held online in July. Shade received the award for his commendable research and articulation of his area of interest. He presented his paper titled *Shear Behaviour of Multiple Layer Interface of Components in a Typical Landfill Liner System* supervised by A/Professor Denis Kalumba and his co-supervisor Dr Laxmee Sobhee-Beetul.

Shade enrolled at UCT for his MSc. Eng., specialising in geotechnical engineering. He made a breakthrough in his research, consequently passing his dissertation with a distinction and will graduate in December 2021.

3rd MechEng graduate qualifies for the Olympics

Leo Davis, a 2014 mechanical engineering graduate, secured a qualification spot at the Finn Gold Cup in Portugal to join Benji Daniel and Alex Burger, who qualified in the 49er class last month. Benji and Alex are both undergraduate students in the Department of Mechanical Engineering.

The final selection for Team South Africa is now in the hands of the SA Sports Confederation and Olympic Committee (SASCOC). The Tokyo Olympics is scheduled to run from 24 July to 8 August.



NEW STAFF

Bettina Kaine Tawa joined HySA Technology Development in the Department of Chemical Engineering on 1 July 2021 as a technical assistant.

Lisa October joined the Department of Chemical Engineering on 1 July 2021 as a lecturer.

Resignations

Ms Firdaus Hendricks left HySA Technology Development in the Department of Chemical Engineering at the end of June.

Mr Graham Inngs resigned and left UCT at the end of June, after 13 years in Faculty IT.

Miss Andiswa Nyongwana from the Future Water Institute left at the end of May.

Mr Herrie Schalekamp from the Centre of Transport Studies in the Department of Civil Engineering left at the end of June after 13 years at the UCT.

Early Retirement

After 24 years at UCT Mrs Carol Carr took early retirement at the end of June.

Carol was with the Department of Chemical Engineering well before it moved into the new Chemical Engineering building. She ably supported the ground-breaking engineering education research work of Professor Duncan Fraser and later of Professor Jenni Case. Since around 2005, she has been the mainstay of administrative support for at least 60 postgraduate students in Professor Harro von Blottnitz's Environmental & Process Systems Engineering group. In the last couple of years, she reskilled quickly on two fronts – looking after the Energy Systems Research Group's needs as they settled into Chemical Engineering and navigating the transition from paper to

electronic systems. Her skills extend well beyond her research niche, and over the years she often stepped in to help out the larger department when there was a need.

Although Carol's main work was to carry out administrative functions for various research groupings over the years, she was always ready to step in and assist when the department required help with other core functions. She did all that with a smile and even went beyond the call of duty to make her place available for departmental teaching planning meetings during protests. She served the department diligently and always made herself available to work on many key department initiatives. She offered good advice on how certain administrative functions could be made more efficient. She worked well with both staff and students and quietly moved mountains



behind the scenes. Carol participated offering informal training to many admin personnel in the department and contributed to cohesion in the admin team.

We would like to extend our thanks to her and to Andrew for giving so much to the department over the years.

By Professor Harro Von Blottnitz and Professor Aubrey Mainza, on behalf of the Energy Systems Research Group and Chemical Engineering Department.

Celebrating our July graduates

Erick Arwa is graduating with his master's degree in electrical engineering (with distinction). He writes about his experience.

This photo reminds me of a lot. I had just left farming in the village after undergrad to take on machine-learning research in a strange land. The learning curve was so steep. I felt unprepared for the heavy maths and crazy coding. I felt the imposter syndrome, experienced the writer's block, felt stuck hundreds of times.

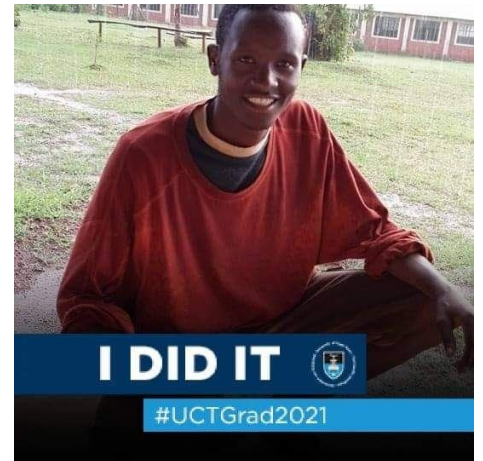
However, I challenged myself over and over again. Submitted my first paper to a top journal, received a rejection. Reorganised the paper and submitted to a conference; it was accepted and I got funding to attend the conference in Germany. COVID-19 and lockdowns happened. I lost the opportunity to attend the conference.

I sat back mournfully. Got back to

writing. Got two more conference papers accepted. Then I got confidence to write another journal paper. It was rejected. I reviewed it and resubmitted it. Another rejection. I reviewed and resubmitted, and finally it got accepted. Phew!

I then decided to combine thesis writing with the writing of another journal paper, following an invitation by a conference to upgrade my paper to a journal for their special issue.

The thesis results came while I was in dowry negotiations. The email came just at the time I was being told that the lady I was about to marry is an academic giant (normally used to negotiate for more for the dowry) and my uncle gave his response by telling them that I too am a giant. (We wed three months later, and we are happily married.)



The experience at UCT has taught me a lot. That you can achieve anything you put your mind on with laser-sharp focus and convince yourself that you are capable.

If you so desire to do something important enough, just do it. Do it whether in tears or with disappointments, do it whether in fears or in doubts, do it whether in heartache or in pain, do it with all it comes with. In the end, your output will speak for you.



Hlasoa Mahlelebe

Today I will officially graduate with the degree of BSc(Eng) in Civil Engineering with honours from the University of Cape Town. It has been very tough throughout the years, I must admit, but here we are today. I would like to thank everyone for your support throughout this exciting journey.

When **Wesley Chen** scored 8% on his first maths test in his first year as a chemical engineering student he was shocked; but as he admits, he was not surprised. As he walked out of the upper campus lecture hall, he promised himself that he would do better next time. But maths had never been his strong suit. Scoring a below-average grade in the subject in high school had meant he was unable to pursue his childhood dream to study medicine.

But he was committed; and in the lead-up to his second maths assessment, he spent hours studying at home and in the campus

library. Sadly, disappointment came knocking a second time – when Wesley received the results for his



second maths test, he felt all his hard work and late nights had been in vain. He did not come close to achieving an acceptable pass: his latest result (6%) was even worse

than the previous one.

“I was devastated. I couldn’t believe that the second result was lower than the first one. I really thought that I’d studied much harder the second time around, and that I would attain a much better result. A pass, at least,” he said.

But after a few stops and starts along the way, Wesley finally received his BSc degree in chemical engineering on 13 July, and he has never been more proud. This is his story – one of grit, determination, and a never-say-die attitude.

[Read more](#)

Daniel de Oliveira received his MSc Civil Engineering (cum laude), having completed his course in just 18 months, even though COVID-19 limited his access to laboratories.

His master’s research examined a process to turn mine tailings into bio-bricks; the same biological chemical process that created the world’s first bio-brick from human urine in 2018 in the laboratory of his supervisor, Associate Professor Dyllon Randall. Though Daniel managed to create a bio-solid from the tailings, the quest to develop a bio-brick is ongoing and is currently being investigated by a new PhD student, Emma Horn.

To complete his experiments in an intense four and a half months, Daniel said he worked “Mondays to Sundays” in a mini microbiology laboratory he created in



the Water Quality laboratory in the Department of Civil Engineering, which was partly funded through Associate Professor Randall’s Future Leaders – African Independent Research Fellowship. [Read more](#)



On 13 July, **Tinéo Galela** graduated with her BSc in chemical engineering. Graduation marks the culmination of a few years of sacrifice, sleepless nights, and nail-

biting moments. It signals the start of the rest of her life; and the university she has come to know and love has set a strong foundation for what’s to come.

Tinéo’s association with UCT started when she was just a young girl, in Grade 8 at Eunice High School in Bloemfontein. She still recalls the day her teacher handed her an EBE brochure, which contained the need-to-knows for completing an engineering degree at UCT. Tinéo

pinned the brochure up on her bedroom wall that afternoon, and committed to using it as her roadmap – a guide to where she was heading, and what she needed to get there.

“At 13 years old, I knew that I wanted to be an engineer. Some would call that crazy – what does a 13-year-old know? But I knew; and that brochure kept my dream of studying at UCT alive,” she said.

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