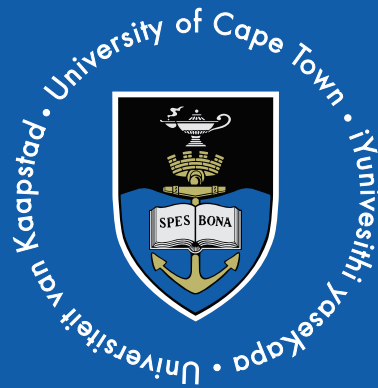




GRADUATION CEREMONY

Faculty of Engineering & the Built Environment

SARAH BAARTMAN HALL

7 September 2026

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

ORDER OF PROCEEDINGS

Academic Procession.

(The congregation is requested to stand as the procession enters the hall)

The Presiding Officer will constitute the congregation.

The National Anthem.

Welcome by the Master of Ceremonies.

Musical Item.

The graduands and diplomates will be presented to the Presiding Officer by the Dean of the faculty.

The Presiding Officer will congratulate the new graduates and diplomates.

The Master of Ceremonies will make closing announcements and invite the congregation to stand.

The Presiding Officer will dissolve the congregation.

The procession, including the new graduates and diplomates, will leave the hall.

(The congregation is requested to remain standing until the procession has left the hall.)

NATIONAL ANTHEM

Nkosi sikelel' iAfrika
Maluphakanyisw' uphondolwayo,
Yizwa imithandazo yethu,
Nkosi sikelela, thina lusapho lwayo.

Morena boloka etjhaba sa heso,
O fedise dintwa la matshwenyeho,
O se boloke,
O se boloke setjhaba sa heso,
Setjhaba sa South Afrika – South Afrika.

Uit die blou van onse hemel,
Uit die diepte van ons see,
Oor ons ewige gebergtes,
Waar die kranse antwoord gee,

Sounds the call to come together,
And united we shall stand,
Let us live and strive for freedom,
In South Africa our land.

NAMES OF GRADUANDS/DIPLOMATES

An asterisk * denotes that the qualification will be awarded in the absence of the candidate

FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT

Dean: Professor A Mainza

BACHELOR OF ARCHITECTURAL STUDIES

*Lilianne Ndonga Sacramento Kiambe
Khanyiso Mawu
Victoria Ofentse Naidoo

BACHELOR OF SCIENCE IN CONSTRUCTION STUDIES

Kimberley Chikomba
*Nelo Castigo Matshenya
Likho Abraham Mbele
Tadiwa Lee Mugagami
Kudzwaiishe Amor Muronda
Tlakusani Paul Nkwini
Kgotso Nonyane
Veer Ramprosand
*Tanguy Mlingo Bruno Rouault
Siyamanga Abongile Zantsi

BACHELOR OF SCIENCE IN ENGINEERING IN CHEMICAL ENGINEERING

Bill Francois Ackermann
*Hailie-Jane Aspelung
Nosipho Charlotte Biyase
*Alex Booysen (with honours)
Tinashe Collet Dandara
Phiwayinkhosi Sizolwethu Dlamini
(with honours)
Mirriam Wadzanai Gurajena
Sonia Makwiranzou
Sipho Malebe
*Bonolo Matsemela
Nauthy Manare Ngoepe
*Jeremiah Arthur Rupprecht (with
honours)
Nicholas Shai
*Nkosingiphile Brian Yende

BACHELOR OF SCIENCE IN ENGINEERING IN CIVIL ENGINEERING

*Zenzele Velenkosini Cebekhulu
Tshegofatso Onalenna Moitsehang
Zwivhuya Muregu
Tumelo Edward Ndebele
Thabisile Noqa
Zainap Samuels

BACHELOR OF SCIENCE IN ENGINEERING IN ELECTRICAL ENGINEERING

Francisca Vimbainashe Gwinhi (with
honours)
Richard Boitumelo Mabvirakare
Sabelo Rupert Mathonzi
*Lorraine Cebile Nkosi
Nang'alelwa Sitwala
Tadiwa Daina Tanya Tanyanyiwa
Ronald Arthur Walters

BACHELOR OF SCIENCE IN ENGINEERING IN ELECTRICAL AND COMPUTER ENGINEERING

*Olufisayo Alexander Akingbohunge
(with honours)
Bongani Lefty Chauke
Kwanele Mabanga
*Tilal Zaheer Mukhtar
Morris Sandile Nkomo
Manare Emission Rammutla
Anson Benjamin Vattakunnel

BACHELOR OF SCIENCE IN ENGINEERING IN MECHANICAL ENGINEERING

Chisehwe Friday Chalamba
Jasper Chifagume
Nothando Dhlamini
Lubabalo Azola Goniwe
Oli David Henderson
Sphesihle Hlongwane
Joshua James Kearns
Siyabonga Victor Mabena
Luyanda Siphosethu Mahlangu
Moses Ashley Rudairo Mareya (with
first class honours)
Sinenhlanhla Mbanga
Aseza Meji
Asantesana Sibusiso Nthatho Motsa
*Mfundo Calliot Msana

Vuhwawho Thersia Muzhambi
Clean William Ndimande (with
honours)
Somila Siviwe Ntsunguzi
Stuart Alexander Omand
Sahil Aryan Samlal
Henry Ralph Strydom
Lungisa Casandra Zondo

BACHELOR OF SCIENCE IN ENGINEERING IN MECHANICAL AND MECHATRONIC ENGINEERING

*Julian Andrew Boule
Mkhangisi Bizisizwe Dlamini
Shaphan Govender
Sean Francois Joubert
Byung Hwi Lee
Tinomuda Edson Madzore
Justice Karabo Motaung
*Mmuso Goboitshepo Pheto (with
honours)
Suhail Ahmad Sayed (with honours)
Yaseen Schrueder
Omphulusa Sumbana
Yamukelwa Zungu

BACHELOR OF SCIENCE IN ENGINEERING IN MECHATRONICS

Rifuwo Chavalala
Zainodine Dawood
Lawrence Gananda Hawke
Khanyisa Alecia Hlungwani
Zameer Mahomed
Molise Kenneth Mokhakala (with
honours)
Mpilonhle Ngcoya
Boikanyo Tselane Ntsimane
Mitra Sen Ramchuran
Laurie Ann Shaw

BACHELOR OF SCIENCE IN GEOMATICS

Siphelele Mahlaza
Banele Twala

BACHELOR OF SCIENCE IN PROPERTY STUDIES

Matt Bouman-Hughes
Harry William Davidson

Osiphayo Jali
 Rourke Michael Luscombe
 Shaleen Mokgadi Masombuka
 Ngcali Mcimeli
 Emihle Mgwangqa
 Isaac Baxter Kalopa Mhone
 Ngcwalisa Siwisa
 Thomas Stroud
 *Quennell Manana Tshabadira

POSTGRADUATE DIPLOMA IN POWER PLANT ENGINEERING

Sydwell Siyabonga Buthelezi
 Vusi Warden Lukhele
 *Monde Manzini
 Sondlo Mazibuko
 *Shirley Nomsa Tintshwalo Mbazima

BACHELOR OF ARCHITECTURAL STUDIES HONOURS

Thaafier Gasant
 Nikokuhle Nicole Mdakane
 Taahir Ismail Sardiwalla
 *Lungiswa Sibisi

BACHELOR OF CITY PLANNING HONOURS

*Ruby Kapeluschnik
 Sibusiso Mangciphu

BACHELOR OF LANDSCAPE ARCHITECTURE HONOURS

*Helen Marie Brooke
 Helena Johanna Gildenhuys
 Tshepiso Makgetla
 Naeema Warasally
 Jonathan Williams

BACHELOR OF SCIENCE HONOURS IN CONSTRUCTION MANAGEMENT

*Tatenda Chireshe
 Carl Sebastian Leathwhite

BACHELOR OF SCIENCE HONOURS IN GEOGRAPHICAL INFORMATION SYSTEMS

Silindelo Thabile Langa
 Esihle Nosimilo Mngomezulu
 Tsheamo Moropa
 Noxolo Duduzile Ndlovu
 Phathiswa Ngwazi
 Gift Thakasani Nyawo
 Msizi Sanele Xaba

BACHELOR OF SCIENCE HONOURS IN PROPERTY STUDIES

Tshepang Makgoba
 Busisiwe Silevu

BACHELOR OF SCIENCE HONOURS IN QUANTITY SURVEYING

Samuel Johan De Witt
 Mpho Veronica Mabilane
 Khali Mahlangu
 Khaya Mahlangu
 Lisoletu Nokhanga
 *Olwethu Luyanda Shabangu
 Van Breda John Van Der Linde

MASTER OF ARCHITECTURE

*Ayla Asad
 Erin Anne Coertzen
 Kita Ayla Engelbrecht
 *Nabeelah Gangraker
 Anrique Marlon Johnson
 Adam Johann Oosthuizen (with
 distinction)

MASTER OF CITY AND REGIONAL PLANNING

*Kyaterekera Madeleine
 Mugerwa-Sekawabe
 Nomsa Nana

MASTER OF ENGINEERING

Luke Alexander Bodenstein (with
 distinction)
 Prinola Moodley (with distinction in the
 dissertation)

Ray Mwafurirwa
 Bekithemba Ncube
 Anthony Opolot (with distinction)
 Kamiel Velloo

MASTER OF ENGINEERING IN CIVIL INFRASTRUCTURE MANAGEMENT AND MAINTENANCE

Nhlamulo Charmaine Ritshuri

MASTER OF PHILOSOPHY

Melissa Leigh Akoue Mve (with
 distinction)
 Avinesh Dhevdat
 *Siana Jessica Garrido-Mirapeix
 Shantell Gavhure (with distinction in
 the dissertation)
 Chane Herman
 Pavneet Kaur
 Dylan Adam Kesler
 Dagnachew Amberbir Ketema (with
 distinction in the dissertation)
 Justine Kojo
 Conrad Kuzooka
 Lelia Nelson Lelia (with distinction in
 the dissertation)
 Martin Kensani Maluleke
 Lotangamwaki Mollel
 Nosibongo Dumisile Ramatlhape
 Debby Frances Searle
 Gabriela Alejandra Seco
 *Hendrik Schalk Visser
 Laina Ndapewa Wilhelm
 *Carin Zvandasara (with distinction)

MASTER OF SCIENCE IN ENGINEERING

*Zaina Abrahams
 Avin Rwehikiza Adolf (with distinction)
 Chiamaka Amejuma Amony (with
 distinction in the dissertation)
 Cameron Karl Andrews
 Matthew James Arnot (with distinction
 in the coursework component)
 *Hastings Mclazarus Banda (with
 distinction in the coursework
 component)
 Zachariah Bloemstein (with distinction
 in the coursework component)
 Dinesh Chottu (with distinction)
 Willis De Ronde
 *Brenald Matonga Dzonzi (with
 distinction)

Candace Petra Eslick (with distinction)
 Tristyn Ferreira (with distinction)
 *Daniel Robert Fraser
 Kai Goodall
 *Michael John Hoyle
 Munashe Jambawo
 Mohamed Zaid Karjika (with distinction in the dissertation)
 Samir Roshen Koovarjee (with distinction in the coursework component)
 Dylan Kuming (with distinction)
 Haoran Liu
 *Jacques Daniel Lombaard (with distinction)
 *Relebohile Anna Mabathoana
 *Isaac Kirika Macharia (with distinction)
 Palesa Tapiwa Madziwa (with distinction)
 Comfort Nyiko Mahlabela
 Dean Makoni
 Koketso Same Malatji
 *Sinelizwi Malindi
 Nonkosi Elizabeth Maqina (with distinction)
 Arnold Mashego
 Tiana Elizabeth Mathew (with distinction in the dissertation)
 Meghan Claire McClarty (with distinction)
 Phelokazi Mdwadube
 Kabeli Irvin Mohapi (with distinction)
 Ngokoana Mokakabye (with distinction)
 Ndapandulah Muradzika
 Rufaro David Musabayana (with distinction)
 Aadil Abdullah Musbally (with distinction)
 Erick Romanus Mwang'ingo (with distinction)
 *Kelsi Naidoo (with distinction)
 Anand Nair (with distinction)
 Chisambo Kakoma Ng'ambi (with distinction)
 Isaac Ngwata (with distinction)
 Thapelo Nthite
 Anthony Opus (with distinction)
 Jessica Lyn Reimers (with distinction)
 Richard David Ribbans (with distinction)
 Luke John Richardson (with distinction)
 Damien Nelson Schütz
 Tumelo David Selialia (with distinction)
 Dimpho Bonolo Selomane (with distinction)

Makoanyane Setemere (with distinction in the dissertation)
 Akshi Singh
 *Lan Lin Wang (with distinction)
 Dylan Patrick White (with distinction in the coursework component)
 Timothy Vladimir Young

MASTER OF SCIENCE IN PROJECT MANAGEMENT

Fayyaadh Bassier
 Darryll James Daniel
 Ayesha Ismail (with distinction in the dissertation)
 *Zamanje Nokwanda Khumalo
 Nqobile Penelope Mokheithi
 Chido Annitta Joyce Musendo (with distinction in the dissertation)
 Xhantilomzi Ntshokoma
 Sanele Sityata (with distinction in the dissertation)
 Pitso Sidney Tebele (with distinction in the dissertation)
 Nthethe Irene Tlale

MASTER OF SCIENCE IN PROPERTY STUDIES

Alister Kahn Human (with distinction in the dissertation)
 Olebogeng Mokoena
 Romanie Gavin Smithdorf (with distinction in the dissertation)
 Salomon Stephanus Daniel Terblanche
 Kazlin Warner

MASTER OF SUSTAINABLE URBAN PRACTICE

Manfred Christian Braune (with distinction)
 Clain Tallis Kallanje
 Diana Muthoni Murigu
 *Igeny Kuziwakwashe Shone
 Mpaai Bernice Ts'eole

MASTER OF TRANSPORT STUDIES

Tunomukumo Thikusho

MASTER OF URBAN DESIGN

Nompumelelo Keamogetswe Vilakazi

MASTER OF WATER ENGINEERING

*Mohamud Adan Abdilatif
 Justina Ndinela Mwalinalo Haihambo (with distinction)
 Emmanuel Matei Ndithya
 Sinawo Nqiwa
 Brave Jensen Twahirwa

DOCTOR OF PHILOSOPHY

Davina-Nelson Apiyo
 Thesis Title: *Design of an engineered model for in vitro testing of biotherapeutics for treatment of bacterial vaginosis*

Davina-Nelson Apiyo completed her BEng and MEng qualifications in Chemical Engineering at Stellenbosch University. She commenced her doctoral studies at the University of Cape Town's Department of Chemical Engineering in 2020, where she was affiliated with the Centre for Bioprocess Engineering Research (CeBER). Davina-Nelson Apiyo's doctoral research focuses on the development of a human-relevant in vitro model of the cervicovaginal environment to study bacterial vaginosis, a common and recurrent condition affecting women of reproductive age. She utilises a mechanistic approach to establish a representative system, through the integration of physiologically relevant environmental conditions, epithelial barriers and microbial communities. Her findings, based on the systematic evaluation of bacterial growth behaviour, epithelial viability and barrier integrity in in vivo-like conditions, underscore the critical influence of medium composition, epithelial context and cellular/microbial metabolic state on model performance. Overall, this research provides a robust experimental framework for investigating cervicovaginal host-microbe interactions and supports

the future development of improved treatment strategies aimed at reducing bacterial vaginosis recurrence.

Supervisor: Associate Professor MA Fagan-Endres (Chemical Engineering)
Co-supervisor: Dr AR van Zyl (Chemical Engineering)

Nicholas Stuart Featherstone
Thesis Title: *The effect of conversion on iron-based CO₂-hydrogenation*

Nicholas Featherstone completed his BSc (Eng) with first class honours in Chemical Engineering at UCT in 2021. He began an MSc in 2022 and upgraded his project to a PhD at the beginning of 2023.

Nicholas Featherstone's thesis focuses on the catalytic utilisation of carbon dioxide and the chemical storage of renewable hydrogen. This is achieved by reacting carbon dioxide and hydrogen to produce liquid fuels, targeting fuels suitable for the transportation sector. He investigated the effect of altering the carbon dioxide conversion in the reaction, as it is known to influence both product selectivity and catalyst evolution. He first directly investigated the effect of conversion and made two interesting observations: a limitation on the catalyst's maximum conversion and an unexpected, marked improvement in catalyst performance, linked to a novel phase, tetraferriannite. He extended the research to better understand these two effects. This investigation helps understand the potential for high conversion operation towards the industrialisation of the reaction. During his PhD Nicholas Featherstone helped to develop a new course on Renewable Energy in the Process Industry.

Supervisor: Professor E van Steen (Chemical Engineering)

Samira Gholizadeh
Thesis Title: *Changes in mechanical and microstructural properties in steel alloys as a result of blast loading*

Samira Gholizadeh holds BSc and MSc degrees in industrial design and

manufacturing systems engineering from institutions in Iran and Malaysia. She also holds a PG diploma in artificial intelligence from the National Institute of Technology, Warangal, India. She commenced PhD study in 2021 in the UCT Department of Mechanical Engineering.

Samira Gholizadeh's doctoral research explores the evolution of mechanical properties and microstructural changes in stainless steel alloys with different crystal structures under blast loading, through developing advanced experimental approaches, such as micro-tensile testing (M-TT) and electron backscatter diffraction (EBSD). She investigates how variations in crystal structures (single-phase body-centred cubic (BCC) and face-centred cubic (FCC), and dual-phase FCC+BCC)) and loading conditions (localized versus uniform blast loads) affect the mechanical response, strain distribution, deformation mechanisms, and microstructural evolution within the materials. Her findings establish clear correlations between microstructural mechanisms and macroscopic mechanical behaviour, advancing the understanding of material performance under extreme conditions. Ultimately, her research contributes to the development of safer and more resilient materials for safety-critical applications.

Supervisor: Professor S Chung Kim Yuen (Mechanical Engineering)
Co-supervisor: Dr S George (Mechanical Engineering)

*Michael Andrew Hills

Thesis Title: *Machine learning approach to predict the fatigue strength of additively manufactured parts*

Michael Hills, Pr.Eng., holds a BEng and a Master's degree in Mechanical Engineering from North-West University, and a second Master's degree from the University for Continuing Education Krems in Austria. He joined the Centre for Materials Engineering at UCT in 2022 for his PhD studies. Additive manufacturing enables engineers to produce complex metal components, but predicting their lifespan under repeated loading is challenging.

Michael Hills developed a machine-learning approach to predict the fatigue strength of additively manufactured titanium parts. The study combined experimental tests with computer-simulated data describing the material's properties and inherent defects. By incorporating physics-based rules into the machine-learning model, the approach ensures that engineering predictions remain realistic and scientifically sound. The result is a more efficient and reliable way to assess the durability of additively manufactured components, helping engineers design safer parts for aerospace and medical applications.

Supervisor: Professor TH Becker (Mechanical Engineering)

*Mostafa Hosseinzadeh

Thesis Title: *Development and experimental validation of a counter-current ion exchange system for platinum group metal recovery from spent automotive catalyst chloride leachates*

Mostafa Hosseinzadeh holds a BSc in Mining Engineering (2010) and an MSc in Mineral Processing Engineering (2012), both from Universities in Iran. He began his PhD in Chemical Engineering at UCT in 2021, following professional experience in mineral processing and hydrometallurgical projects.

Mostafa Hosseinzadeh's thesis examines the recovery of platinum group metals (PGMs) from spent automotive catalysts, an important secondary source of these scarce and valuable metals. He investigated three ion exchange resins with distinct chemical functionalities to determine how platinum, palladium, and rhodium can be selectively captured from chloride-based leach solutions and subsequently released under controlled elution conditions. His work combined laboratory adsorption studies, kinetic and isotherm modelling, continuous column experiments, and pilot-scale counter-current ion exchange trials. The research shows how resin chemistry, solution conditions, and eluant selection influence metal separation outcomes,

enabling selective fractionation of platinum group metals and predictable impurity behaviour. These findings contribute to the development of scalable and more sustainable hydrometallurgical recovery processes for industrial application.

Supervisor: Professor J Petersen
(Chemical Engineering)

Luthando Obakeng Jona
Thesis Title: *A bioprocess engineering Investigation into the cultivation of vaginal Lactobacillaceae for Bacterial Vaginosis treatment*

Obakeng Jona holds a BSc (Eng) in Chemical Engineering from the University of Cape Town and undertook a MSc (Eng) in the Centre for Bioprocess Engineering Research (CeBER) in 2018. This was upgraded to a PhD, which was completed while also being a lecturer in the Department of Chemical Engineering.

Obakeng Jona's thesis used a bioprocess engineering framework to inform production of select South African vaginal Lactobacillaceae isolates, identified as probiotic candidates for bacterial vaginosis treatment. The bioprocessing potential of five strains were characterised and benchmarked against two commercial isolates. Low pH and lactic acid accumulation were identified as key growth inhibitors. Hybrid kinetic-stoichiometric modelling captured growth and product formation, while agitation and bioreactor scale-up studies linked hydrodynamics to strain-specific stress responses. Fed-batch operation improved growth rates and lactic acid yield but product accumulation inhibited biomass yield, indicating that feeding alone is insufficient without product-removal strategies. A plant-based Soytone Medium was developed and validated, improving maximum biomass densities of the majority of strains by up to 45% and reducing growth medium cost by 44% as compared to the animal-derived MRS Broth. Collectively, the work establishes a pathway to scalable, cost-effective probiotic production aligned with women's health needs in Southern Africa.

Supervisor: Associate Professor MA Fagan-Endres (Chemical Engineering)
Co-supervisor: Emeritus Professor STL Harrison (Chemical Engineering)

David Kitulazzi
Thesis Title: *Sustainable real estate investment and firm performance: A focus on real estate firms in South Africa*

David Kitulazzi holds a Bachelor of Real Estate Business Management from Makerere University, Uganda. He also holds an MA in Valuation and Property Management from the University of Nairobi, Kenya. David joined the Department of Construction Economics and Management at UCT in 2022 for his PhD studies.

David Kitulazzi's thesis examines the link between the Environmental, Social and Governance (ESG) sustainability initiatives and the performance of listed firms on the Johannesburg Stock Exchange, with a special focus on real estate firms. The thesis uses different panel datasets of firms with ESG scores and their performance metrics of return on assets, return on equity and Tobin's Q obtained from Bloomberg. Data was analysed mostly using the Generalised Method of Moments. The findings of the various empirical studies are mixed, with some ESG metrics having a positive impact on firm performance while others have a negative impact. Notably, although composite ESG had a negative association with firm performance for listed real estate firms, several individual ESG pillars had a positive association. The thesis emphasises that ESG is increasingly being incorporated in the investment decision-making of investors and so firms should improve on their ESG reporting and accountability.

Supervisor: Dr AK Ametefe
(Construction Economics & Management)

Mochelo Mackson Lefoka
Thesis Title: *Modelling the impact of the adoption of digital technologies on productivity in the South African construction industry*

Mochelo Lefoka completed his BSc in Construction Studies, BSc (Hons) in Construction Management, and MPhil in Construction Economics and Management, all at the University of Cape Town. Before joining UCT, he worked in the South African construction industry.

Mochelo Lefoka's thesis focuses on the integration of Digital Technologies into construction projects to optimise construction productivity. The study finds that a statistically significant relationship exists between the adoption of digital technology and construction productivity. The findings reveal that shorter planning times, improved risk identification, and reduced re-work and cost overruns are the expressed benefits of digitising construction processes. The study further finds that there is no significant relationship between the adoption of digital technologies and construction productivity when moderated by environmental, organisational and technical factors. The research finds that significant barriers to digitisation include the organisation's unwillingness to adopt digital technologies, lack of investment, legislative complexity, lack of skills, and cybersecurity concerns. Mochelo developed a strategic digital framework that amalgamates capability improvement, skill competency, organisational procurement framework, and legislative restructuring to digitise the productivity matrix for project success.

Supervisor: Professor AO Windapo
(Construction Economics and Management)

Mashaka Audry Lubenga

Thesis Title: *Systems Modelling for Sustainable Mining: Addressing electricity demand and supply for Copper and Cobalt extraction in the DRC*

Mashaka Audry Lubenga completed his BSc (Hons) in chemical engineering in 2018 at the University of Lubumbashi in the Democratic Republic of Congo and began full-time study towards his PhD at UCT in 2023.

Mashaka Audry Lubenga's thesis evaluates the current and projected electricity required for copper and cobalt mining in the Democratic Republic of Congo, globally the 2nd and 1st producer respectively of these two critical energy transition metals. Within the context of the DRC's electrification deficit, it also determines the optimal mix of electricity generation technologies to meet that demand. It combines geological resource demand and supply modelling with an analysis of specific electricity consumption of Congolese-based mines, concentrators, refineries and smelters, with special attention to expected ore grade decline and mineralogical changes. An open-source energy system modelling tool is used to explore the least-cost mix of electricity supply technologies best suited to meet the electricity demand projected in various scenarios, and to estimate the associated greenhouse gas emissions.

Supervisor: Professor H von Blottnitz (Chemical Engineering)

Bongekile Judith Matsenjwa

Thesis Title: *The manufacturing sector in industry 4.0: Experiences of engineering managers*

Bongekile Judith Matsenjwa is a chemical engineer in the energy sector with more than eleven years of experience in process engineering, project management, business development, continuous improvement and people management across the manufacturing industry and oil and gas industries.

Her doctoral research explores the lived experiences of engineering

managers in the manufacturing sector as they navigate the adoption and implementation of technologies associated with the Fourth Industrial Revolution (Industry 4.0). Employing an Interpretative Phenomenological Analysis (IPA) methodology, the study draws on data gathered through semi-structured interviews with engineering managers who contributed to Industry 4.0 initiatives within their organisations. The findings provide insights into how engineering managers understand and experience technological change, highlighting the interplay between technical requirements, organisational contexts, and human dimensions of transformation. The study extends existing research by focusing on the perspectives and experiences of engineering managers, an area that has received comparatively less attention than competency-based approaches. As a practical contribution, the research develops a socio-technical model to support technology implementation and organisational change within manufacturing contexts.

Supervisor: Associate Professor C Shaw (Mechanical Engineering)

Co-supervisor: Professor B Collier-Reed (Mechanical Engineering)

Jason Alexander Minnie

Thesis Title: *Development of an integrated activated sludge-secondary settling tank model incorporating filamentous bacteria dynamics*

Jason Minnie completed his bachelor's degree at the University of Cape Town in the Department of Civil Engineering in 2020, after which he undertook studies towards a master's degree, which was upgraded to a PhD in the Water Research Group.

Jason Minnie's thesis addresses a critical gap in wastewater treatment plant modelling by developing an integrated mathematical framework that dynamically links filamentous bacteria populations with both activated sludge biological processes and secondary settling tank performance. Filamentous bacteria proliferation causes poor sludge settleability, compromising treatment

efficiency, yet existing models fail to capture these dynamics. He extends the Plant-Wide Model of South Africa by incorporating filamentous bacteria as a distinct biomass group and develops a reactive secondary settling tank model. Using nine months of laboratory-scale experimental data from Cape Town's Bellville Wastewater Treatment Plant, he establishes relationships between filamentous bacteria abundance and settling behaviour. His integrated model successfully demonstrates that filamentous bacteria exhibit poor settling performance and that biological reactions within settling tanks significantly impact nitrogen transformations. These findings provide municipal wastewater treatment operators with a powerful tool for predicting and preventing bulking events and improving overall treatment efficiency.

Supervisor: Professor DS Ikumi (Civil Engineering)

HISTORICAL SKETCH

Founded as the South African College in 1829, the University was established as the University of Cape Town in 1918.

The institution was a boys' school that aimed to provide higher education as well. The early history was one of great expectations and hard times and it was not until the early years of the twentieth century that the University was developed into a fully-fledged tertiary institution. University status was conferred in 1918. A significant and pioneering development in the 19th century was the admission of women as degree students in 1886, many years ahead of most universities in the world.

At the start of the 20th century the University incorporated the Diocesan College, the teacher training classes of the Normal College, the South African College of Music and the Cape Town Schools of Fine Art and Architecture. The Medical School was established and in the 1920s the University began a partnership with the local health authority (now the Provincial Government's health department) that saw the Medical School move from the Hiddingh Campus and the Green Point Somerset Hospital to Observatory. This partnership allowed for the construction of the first Groote Schuur Hospital on a University site. This partnership continues to this day and now involves not only Groote Schuur as a teaching hospital but Red Cross, Valkenberg and a growing number of primary health care sites. UCT's Upper Campus moved to its present site on part of Cecil Rhodes' estate in 1928.

The period between the end of World War II and 1994 was marked by two themes. Firstly, the University recognised that if it was to be fully South African, it would have to move beyond academic non-segregation to be fully inclusive. It would have to face the consequential and increasing clashes with a government determined to legislate for segregation and enforce the doctrine of apartheid. And secondly, the University intended to transform into a leading research institution.

Before World War II, the University was largely a teaching university and its students were mostly undergraduates. The research undertaken was sporadic, though in some cases notable. A research committee was appointed for the first time in 1945. The next decades saw a great expansion of research and scholarly work such that the UCT of today has a greater proportion of highly rated researchers and gains significantly more research grants and awards than any other South African University.

The 1980s and 1990s were characterized by the deliberate and planned transformation of the student body. This was aided by the establishment of the Academic Development Programme aimed at helping students from disadvantaged educational and social backgrounds to succeed and the desegregation of student residences. A significant proportion of our students come from the SADC states and we have students drawn from over 100 countries. Particular emphasis is placed on postgraduate studies with students enrolled in masters and doctoral programmes. A growing number of postdoctoral fellows (UCT has more than a third of the total number of post docs in South Africa) contribute substantially to the research endeavours and reputation of the University.

UCT continues to work towards its goal to be Africa's leading research university. Its success can be measured by the scope of study it offers and the calibre of its graduates.

VISION AND MISSION

UNIVERSITY OF CAPE TOWN

Vision

An inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship; enhancing the lives of its students and staff, advancing a more equitable and sustainable social order and influencing the global higher education landscape.

Mission

UCT is committed to engaging with the key issues of our natural and social worlds through outstanding teaching, research and scholarship. We seek to advance the status and distinctiveness of scholarship in Africa through building strategic partnerships across the continent, the global south and the rest of the world.

UCT provides a vibrant and supportive intellectual environment that attracts and connects people from all over the world.

We aim to produce graduates and future leaders who are influential locally and globally. Our qualifications are locally applicable and internationally acclaimed, underpinned by values of engaged citizenship and social justice. Our scholarship and research have a positive impact on our society and our environment.

We will actively advance the pace of transformation within our University and beyond, nurturing an inclusive institutional culture which embraces diversity.

OFFICERS OF THE UNIVERSITY

Chancellor

Precious Moloi-Motsepe, MBBCh DCH *Witwatersrand* Dip in Women's and Reproductive Health *Stellenbosch*

Vice-Chancellor

Matlagolo Mosa Moshabela, MBChB *Natal* Dip in HIV Management (SA) *CMSA* MMed *Limpopo (MEDUNSA)*
MSc *LSHTM* PhD *Witwatersrand* *MASSAf*

Chair of Council

Norman Martin Arendse SC, BA LLB *Cape Town* LLM *UCL*

President of Convocation

Yumna Moosa, MBChB *Cape Town* MMedSci PhD *KwaZulu Natal*

Deputy Vice-Chancellors

Brandon Ian Collier-Reed, PrEng BSc(Eng) MSc(Eng) PhD *Cape Town* FSAIMechE
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<i>Science:</i>	Hussein Suleman, MSc <i>Durban-Westville</i> PhD <i>Virginia Tech</i>

Dean of Higher Education Development

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We look forward to connecting with you as alumni of UCT.

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- Voluntary, takes 7 mins
- Helps current students and faculties with world-of-work insights



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