

CUT ALUMNI NEWS

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Central University of
Technology, Free State



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Welcome...

We are happy to share with you the Central University of Technology, Free State's (CUT's) very first Alumni Newsletter. We hope that you will enjoy this publication as much as we did in putting it together. Learning about our alumni's successes is always heart-warming, especially when they actively contribute to bettering their communities. Paying it forward is one of the aims of our alumni network – not only in supporting one another in the world of work, but also by paving the way for the next graduate cohort as with our alumni mentoring programme.

In this edition, you will read about CUT alumni excelling in various industries ranging from agriculture, tourism, entrepreneurship, creative writing, to marketing and the beauty industry. Each one of these individuals took what they had and multiplied it towards realising their dreams. Behind their achievements are many months and years of committed studying, working hard and dreaming big. We commend them all and hope that their stories will inspire you to share your own journey in the editions to come.

You will also find more information about the research, collaborations and community services of CUT. As an institute of higher learning, we have a responsibility to help create a better world of knowledge, skills and kinship. This is only possible through the commitment of our staff, students and alumni. Thank you for your efforts in this regard.

We hope that the extraordinary image of our Bethuel Setai Library on the Bloemfontein Campus will bring back memories of your dedication and resilience. In future editions, we will continue to

feature spaces on both our campuses and share stories of our activities as well as that of our alumni.

In conclusion, CUT is indeed a healthy university that adds so much value, in a number of positive ways, to our stakeholders and the society at large. We want to invite you to get involved with CUT alumni endeavours to help us build a strong and supportive unit that reflects our brand identity. Our alumni are a critical stakeholder on our journey towards Vision 2030, which states that "By 2030, Central University of Technology, Free State will be a leading African university of technology, shaping the future through innovation".

Take care and stay safe!

Kind regards / Ditumediso tse mofuthu / Vriendelike groete

Prof. Henk de Jager

Vice-Chancellor and Principal



Letter from the President of the Alumni Association

Dear Fellow Alumni

The COVID-19 pandemic continues to wreak havoc in every facet of our lives. Many of us continue to lose loved ones. Due to a lack of adherence to the necessary protocols, economic opportunities are destroyed by stiling restrictions. We wish to commend our resilience and fighting spirit as people. Our collective sacrifices have assisted us. However, we are not out of the woods yet. We once again call upon you to be at the forefront of the fight against the pandemic, and to refrain from being complacent.

We were thrilled by the significant growth in our community as we welcomed more alumni, despite the fact that there were no graduation ceremonies due to the pandemic. The recent cohort of graduates enter the labour market or corporate world facing a dire environment. Statistics South Africa states that the unemployment rate has increased by 7.5 percentage points, to 30.8% of the labour force in the third quarter of 2020. This translates into an unemployment increase of 543 000 to 14.7 million in the third quarter. We, as CUT alumni, need to play a critical role in providing solutions to the challenge.

Our country does not perform very well in terms of creating a conducive environment for entrepreneurship to thrive. There is much bureaucracy, and a lack of funding for small-, medium- and micro-sized enterprises (SMMEs). Hence, you need to continue to break these barriers towards creating employment opportunities for our people. We should work to support and develop the entrepreneurship ecosystem in order to contribute meaningfully to the achievement of sustainable development.

We would also like to take this opportunity to inform you that graduates' debt will be an item on the agenda of the next ordinary Council meeting, so that there is a lasting solution to this matter. We are still of a firm view that no university should withhold graduates' certificates, and use them as a tool to collect outstanding balances.

In addition, as part of our endeavour to cultivate alumni participation, we have prioritised the launching of Alumni Chapters as a platform from which alumni can

participate and support the university. We want to walk side by side with you, and encourage you to continue to make a positive contribution to the brand of CUT. We will be hosting activation campaigns in your areas, and initiating crowdfunding systems to help the institution to reduce more than R1.8 billion student debt. Your involvement in these will be greatly appreciated.

Furthermore, the institution has recently adopted Vision 2030, which seeks to establish CUT as a leading African university of technology, shaping the future through innovation. The alumni should be at the centre of this vision, to facilitate developmental programmes responding to the challenges faced by the job market. We have a responsibility to ensure that the vision is implemented by the university.

The Alumni will be launching CUT Alumni Awards to appreciate the good work that alumni are doing in our community. The launch will coincide with the launch of an Alumni Blazer that will be worn only by CUT alumni and the proceeds from the blazers and other brand merchandise will go to our fundraising coffers. The blazer will be a badge of honour and a symbol of dedication and service to the brand of CUT,FS.

Finally, this year, we will be electing the new leadership of the Alumni Association. The details will be published on the CUT website. We are happy to report that the institution is working very hard to ensure that the elections are free and fair. We also encourage you to regularly visit the alumni page on the CUT website, and to update your details, so that you can receive regular correspondence from the Alumni Executive Committee.

We wish you nothing but prosperity this year. May you continue to be blessed!

Kind regards

Chabana Chabana

CUT Alumni President



Chabana Chabana
CUT President of the Alumni Association

Institutional Renewal and Transformation Unit

The Central University of Technology, Free State (CUT)'s Institutional Renewal and Transformation Unit was established in 2019 to enhance the institutionalisation of transformation and the broader focus of institutional renewal, by shaping the transformation agenda and institutional renewal of the university in line with national imperatives and international trends.

Headed by Prof. Percy Sepeng as Director in the Office of the Vice-Chancellor and Principal, the Institutional Renewal and Transformation Unit focuses on monitoring and evaluating all transformation agendas within the university.

Transformation of the university is a long-term goal, with engagement with staff and students constantly being redefined. This started with several important consultations, involving concept proposals for the Next Generation Women in Leadership Programme and the University Transformation Committee (UTAC).

After this, the first Transformation Summit was launched, providing the university community with an opportunity to renew their commitment to the Transformation Plan 2016 – 2020. In November 2019, CUT hosted its second

Transformation Summit, which pursued to educate both internal and external stakeholders about the institution's Transformation Plan and commitment, and to give a broader reflection on what has been achieved in this regard. Recently, the third Transformation Summit on Gender-Based Violence and Gender Equality was held from 9 to 10 June 2021, hosted by the Welkom campus.

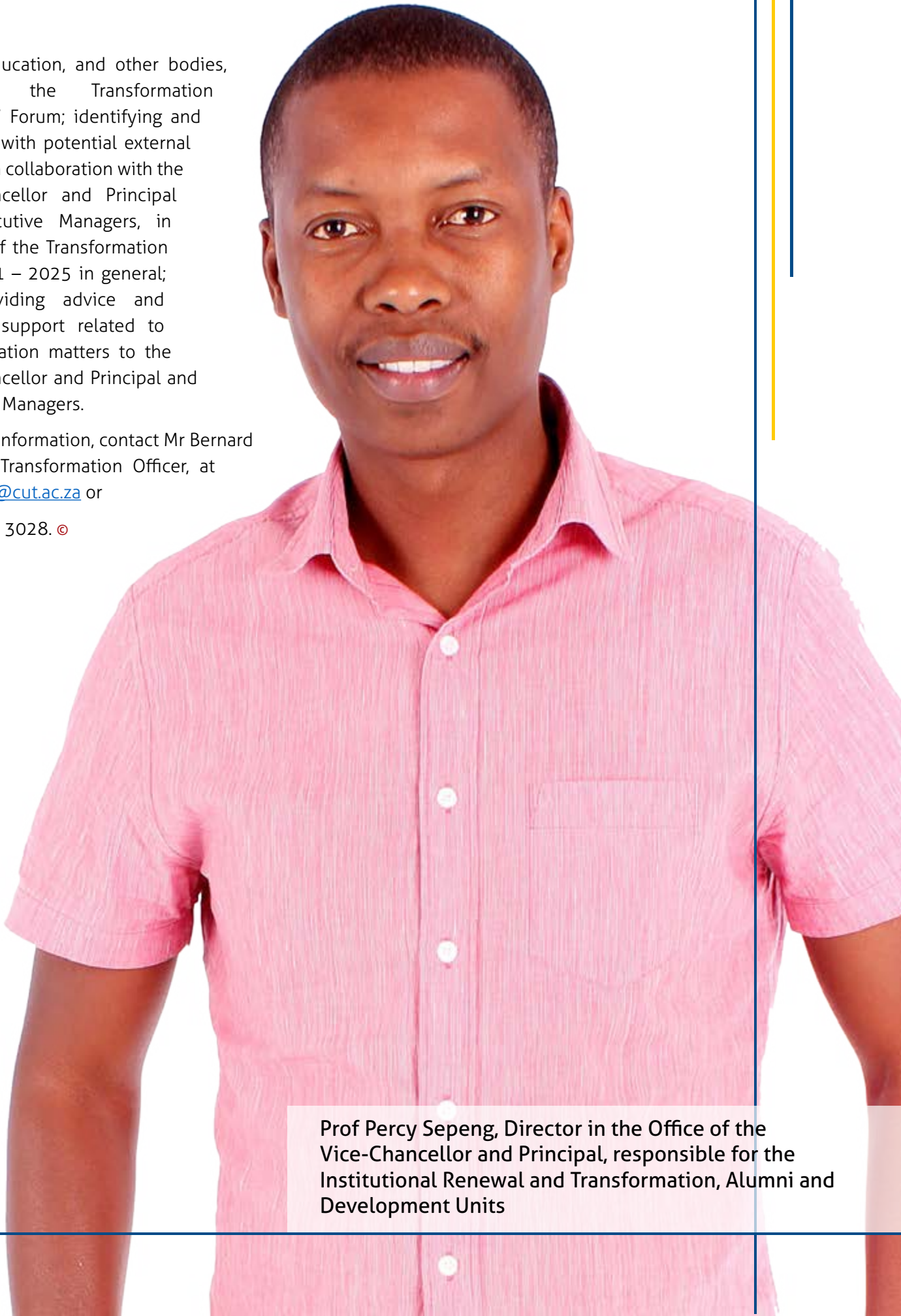
Roles and functions of the unit include monitoring and evaluating the implementation and roll-out of the CUT Transformation Plan 2021 – 2025 by the relevant Managers; coordinating and providing advice on the development of transformation policies and procedures for CUT, in line with the university's Vision 2030; monitoring the implementation of the various transformation projects; providing the implementation of the various transformation projects; providing advice and strategic support related to transformation matters to the Vice-Chancellor and Principal, and Executive Managers; leading all transformation-related special projects; serving as the university's representative on external bodies related to transformation in



higher education, and other bodies, including the Transformation Managers' Forum; identifying and engaging with potential external funders in collaboration with the Vice-Chancellor and Principal and Executive Managers, in support of the Transformation Plan 2021 – 2025 in general; and providing advice and strategic support related to transformation matters to the Vice-Chancellor and Principal and Executive Managers.

For more information, contact Mr Bernard Matsoso, Transformation Officer, at tmatsoso@cut.ac.za or

(051) 507 3028. ©



Prof Percy Sepeng, Director in the Office of the Vice-Chancellor and Principal, responsible for the Institutional Renewal and Transformation, Alumni and Development Units

Inspired to become inspirational

Inspired by a high school teacher, Meghan Pearl Kurrama is not only passionate about education, but she has also used her modelling career to advocate for it. She recently received the Panache Woman of Wonder (Wow) Award and embodies hard work, perseverance, and dedication towards changing her community. The award recognises women of excellence who are striving to achieve their dreams and aspirations while also serving as a role model to other South Africans.

Born and bred in Bloemfontein, Meghan grew up in the Heidedal community, raised by her grandmother. She currently teaches at Dr Böhmer Special Skills School, while modelling part-time. "For the longest of time I wanted to study or be in a career where I get to work with people. When meeting my Mathematical teacher back in Grade nine, I decided to become a teacher because she made me feel special and capable – I wanted to be the same to someone else."

And her journey truly has been an inspirational one. "Nothing I've achieved has come easy for me. Every journey came with difficulty, even though it may look perfect from the outside. This year I'll be representing the country in Cambodia for Miss Planet International. Every country wants their representative to bring the crown home, the reigning queen is South African. So, I'll be going in knowing that it is a difficult to bring the crown back for a second year in a row. This is what I mean about nothing being easy – but I'm not complaining. That's what makes me feel so special about myself, not everyone is strong enough to handle constant mountains in front of them."

Having been in the modelling industry for just under five years, Meghan has tackled the challenge of breaking through the industry like a true champion. "I started modelling in 2016 after my accident when I broke my ankle and had to rehab my leg to function normal again. I started off with Miss Free State and was crowned the First Princess. Then I entered Miss Mamelodi Sundowns, the biggest soccer club on the African continent, in 2017 and was crowned the Free State princess."

Megan has become a favourite at the Free State Fashion Week and was crowned 'Model of the Year' in 2019. "In 2019 I was crowned Face of Beauty SA and went on to represent the county in the Philippines, competing with other countries and placing second. I also received the most difficult award which was 'Best in Interview' because the CEO herself had the final say on who gets it. My recent title, that comes with a big platform, is Miss Planet SA. Currently, I'm busy preparing to represent my country as best as I can and put us on the map once more."

When she is not teaching or jet-setting across the globe, Meghan spends her time giving back to the community. "I run a charity called 'The Street Mall' with a partner, where we hand out clothes and shoes and really anything sponsored by individuals or companies. We also strive to hand out something to eat for those in need."

Her future endeavours include furthering her career in inclusive education and providing opportunities and a place in this world for people who fall under the umbrella of special needs. ©



Meghan Pearl Kurrama



Camagu Bacela

Making a name in marketing

Central University of Technology, Free State (CUT) alumnus, Camagu Bacela, is well on his way to making a name for himself in the Marketing domain. Having graduated from CUT with a degree in Marketing Management, Bacela has hit the career road running, being a part of launching many digital marketing firsts.

A bright, energetic, and often naughty child, Camagu was born in Port Elizabeth, and the family later moved to Welkom. His studies at CUT inspired him to establish a Poetry Society in 2012/2013. "I made the best with what I had at CUT Welkom, with lecturers such as Mr Jafta, Mrs Slabbert, and Ms Jordaan making learning fun and interactive," he says. In 2016 he was elected as Chairperson of the CUT Marketing Society.

"My career is only starting out, but I have already gained valuable experience in various marketing-related projects." Among others, Camagu was involved in sales, brand, product, and client focused endeavours."

Through his young career history, Bacela has been a part of launching big campaigns for many brands. "I was happy to be a part of many brands' first-time big campaigns while at Twitter, one of those being the IDC's First View when I was working at Ad Dynamo as a Twitter Account Executive. I was also fortunate enough to be part of launching Nankid 4's very first Podcasts."

Driven by the belief that every morning signals a new day to do better, Bacela has big dreams to fulfil. "I wish to lead the change in how people see shopping and I would love to grow immensely within this space - to eventually franchise the business." ©

CUT Alumni Entrepreneurship Mentoring Programme

One way to make a difference in the world, is to share your knowledge and expertise. Innovation and entrepreneurship play an important part in decreasing unemployment levels. Unfortunately, reports indicate that within five to seven years of being established, South African small and medium enterprises fail. Mentoring is an effective way to support entrepreneurs looking to gain skills and knowledge in a particular field of operation.

Mentor-supported entrepreneurs indicate that mentoring inspired them to enter the competitive world of entrepreneurship. Mentoring is an effective way for a mentor – with vast experience – to impart expertise to an entrepreneur.

Central University of Technology's (CUT's) Alumni Association has established an entrepreneurship mentoring programme, where alumni are linked with senior CUT students and/or graduates for the duration of one year. There is a pool of enthusiastic mentors who are passionate about assisting others.

Are you interested to invest in our emerging economy? Mentoring does not only benefit the mentee, but the mentor also evolves and learns while articulating their skills.

The role of the alumnus mentor is to be a sounding board for ideas and to steer the mentee in the right direction, sharing experiences with mentees. The alumnus should be a successful entrepreneur who has been in business for at least three years and running a business that is in the same field of the mentee.

Alumni are expected to take on a group of students (1-5 students) who are interested in the field in which they are involved. They will be requested to have a monthly discussion with these students that are focused on sharing experiences, and the obtainment of students' career goals, while providing one-on-one inputs for students as requested by them.

Please contact our Alumni Office if you fit the mentor requirements and wish to pay it forward.

For more visit: <https://www.cut.ac.za/idea-generator> ©



Looking to revive a love for tourism



Noxolo Tshonti

When Noxolo Tshonti registered for a National Diploma in Tourism Management in 2016, she was unsure if she had made the right choice. However, as she grows in her career the bigger picture is being revealed, and she plans to cement herself in the tourism industry.

Born and bred in Bloemfontein, Nxolo came to the Central University of Technology (CUT) straight from high school. "I registered for a National Diploma in Tourism Management, and now I am doing my final year in BTech: Business Administration. One of the challenges I faced throughout my diploma years was that it was never my first choice. For the longest time it felt like I was settling, but now, as the bigger picture is being revealed, I can see why I had to start there. What I regret the most about my student years is not taking part in any student activities or any organisations on campus. I think every student deserves that."

Although she regrets not taking part in any student activities or organisations on campus, she made sure her studies were her top priority. "During our third year we had to do six months' work-integrated learning, and I was placed at Sangiro Game Lodge which has been

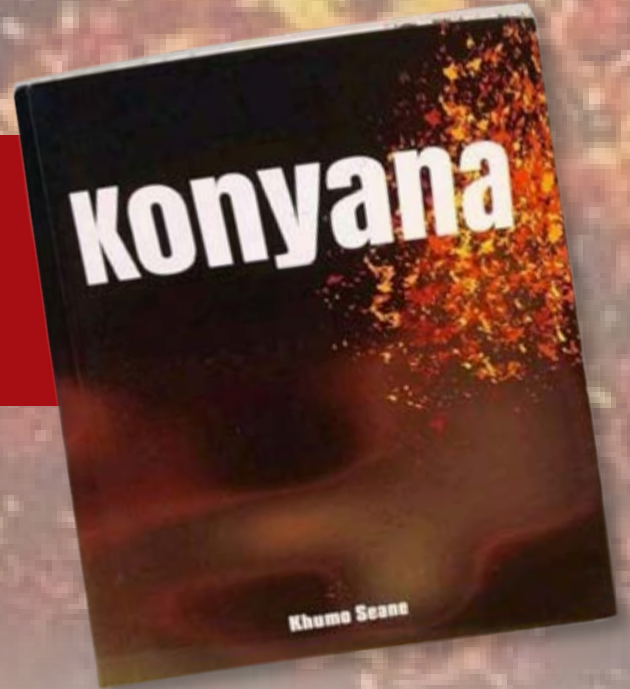
my home for the past two and a half years. I started as an inexperienced student, and I've grown so much throughout the years."

After working for four months, she was offered a permanent post as a receptionist at the lodge. "Not only have I grown in my professional space, but as an individual as well. My people and communication skills have improved massively. Working has made me see things that the classroom could not offer."

Nxolo is currently in the process of registering a company which she hopes will be the breath of fresh air the Free State province has been waiting for. "My wish is to grow Free State Tourism. Our people don't travel, they don't know their own province because tourism has been seen as exclusively for the rich. I want to see everyone partaking in tourism, enjoying the Free State and growing its economy."

Motivated by the possibility of changing lives, Tshonti lives by the following motto: "I always try and remind myself that I possess within me the ability to do and achieve everything I set my mind to. I may not impact a lot of people, but if I can get just one person to look at life differently, then I've done more than enough." ☉

Penning down a bright future



Educator and author, Khumo Morakile Tholo, fell in love with reading while taking the bus to and from university. He was inspired to start writing, leading him to publishing an inspirational Setswana novel, called Konyana.

Hailing from Manthestad in Taung, in the Northern Cape, he was always a fan of reading. "I was constantly at the Central University of Technology (CUT) library reading Setswana and English novels. Reading on the daily bus commute between Bloemfontein to Thaba 'Nchu kept me occupied – travelling from Sthiba gave me an opportunity to read many books. I spent most of my time reading novels for pleasure until I developed a love for writing. Novels are my first love in literature, hence I decided to write a novel."

He graduated from CUT with a Bachelor's in Education (Languages). "I was fortunate to be chosen to be an SI Leader for Setswana under Dr Masote. This is where I learnt a lot about leadership and the importance of having good working relations with people. I wrote a book because I felt the need to communicate with readers to show them that no matter how we are struggling today, there is a chance for a brighter day tomorrow, we must not give up."

Khumo's book, Konyana, focuses on the hardships faced in life, encouraging readers to believe in themselves and never to give up. "I advise people to read this book as it also teaches us to never look down on others, because life is more like a wheel, it does turn."

As an educator, Khumo works to instil a culture of reading and writing in his learners. "Learners will never go wrong if they develop a love for reading and writing. We all know that for one to communicate successfully, one needs a good vocabulary and for us to achieve this, we need to read."

Inspired by the many people who have impacted his life over the years, Khumo is motivated by the achievement of goals. "My short- and long-term goals motivate me to do more and more. Because after achieving one goal, you realise that there is a need to achieve others as well. My partner is amongst the people who really motivate me to do well and to achieve what I need to." ©

Khumo Morakile Tholo



Instilling a love for engineering in her students

What started off as a part-time job has turned into a challenging and rewarding journey for the Central University of Technology, Free State (CUT) Lecturer of Mechanical/Mechatronic Engineering, Karina Heydenrych. “My aim when lecturing is not only for the students to complete the degree, but also to equip them with knowledge that can improve their communities. Possibilities for improvement are all around us and armed with the basic understanding of Engineering concepts, students can begin to build their community even before graduating.”


Karina was always interested in how the world works. “Engineering is where mathematics, science and the world all comes together on paper. As a teenager I didn’t know what the sector was all about, but my father encouraged me to study Mechanical Engineering at CUT, and the more knowledge I gained the more my interest sparked. After graduating I started working as a designer in the product development field. Designing new or improved products satisfied the inventor in me and I enjoyed it.”

Karina started her career as a part-time lecturer and is working her way to more milestones. “I progressed to a junior lecturer to gain experience and to obtain my master’s degree before being appointed as lecturer. From here, I strive to continue to improve my lecturing abilities, gain more information from

the ever improving engineering field, and transfer it my students. During my time as a part-time lecturer, I discovered how much I liked sharing my knowledge with students in the design subject. This experience initiated my drive to learn and share.”

Karina added that for her, lecturing is about much more than teaching what is in the textbook. “I like to encourage a wider view so that students can look at their world with new eyes. This helps them to see possibilities and improve their interaction with the world.”

Her advice to younger researchers who want to navigate their career to success is simple. “Be focused, be disciplined. Use your time wisely but do make time to take a break and relax. Keep going, never stop if you fail. It is hard work, but it makes it so much more rewarding when you are successful. If it gets difficult, see it as a challenge to improve yourself. The bigger the challenge, the bigger the outcome.”

Karina believes that: we all have part to play in the world. “We all have a space where we fit and should contribute to our society. Working hard and being committed to make an impact on the lives of others is what makes it special for me. This generally goes unnoticed, but ever so often a student returns to thank you for the things you have done for them – that is one of the best moments of teaching.”



Karina Heydenrych

Venturing further into the agricultural realm

Driven by her dream to create jobs for rural people in the agricultural sector, which has a history of injustice, Mponeng Lentoro has cemented her place as a proud South African farmer and entrepreneur.

With no formal background in Agricultural Science, her upbringing on a farm gave her the foundation to build on. She graduated with a National Diploma in Environmental Health at the University of Swaziland in 1998, a BTech in Environmental Health at the Central University of Technology (CUT) in 2003, and further enrolled for various short courses in agriculture with Grain SA and the University of Pretoria, and graduated in 2009. To equip herself with knowledge and skills, she did a lot of consultation and research on farming and agriculture.

And now she's venturing into a new project, with the hope of empowering not only herself but the community around her. "We want to do milling for maize and wheat flour and all the products made from maize. Then we want to extend it into the feed mill, meaning the milling for animal feed."

Mponeng also plans on extending her community-based vegetable project. "We really need to transfer skills to the people, basically going into the Bainsvlei community to train them how to utilise a limited space for intensive farming, and also to encourage

them to plant in their backyards. They can produce the vegetables for themselves, and then we will help them sell the surplus so that they can also have an income."

Although Mponeng never thought she would be a farmer, it came as a call. "When a land director at Land Reform said to me that they could buy a farm for me, I was so annoyed. We have this idea that farmers are struggling in rural areas, and I had studied environmental health, so I did not understand why she said that, but I kept quiet at the time. Only to find out that it was what God wanted me to do, and now I love farming more than anything."

Feeling favoured, Mponeng has a deep need to plough back into the community, especially into women and children. "I've been very poor, I know how poverty smells and I know how you think when you are poor, so I want to show them their potential. Some of them are not aware of how much potential they have, and how they can think beyond what they believe they are capable of."

Mponeng currently employs six people, and with the milling project she plans to have 6 000 employees; a challenge she is looking forward to tackling. "We are not just going to transfer skills and knowledge to these people, we are going to leave a legacy for generations to come." ☺





Mponeng Lentoro



Unit for Development

Give to and through CUT: Support excellence and community

Philanthropy fuels our progress at the Central University of Technology, Free State (CUT). Giving to CUT is an excellent way to invest in the university's social commitment. We aim to increase scholarships and bursaries, grow our campus, and provide projects and programmes that benefit our students and our community.

The Unit for Development manages the fundraising platform.

Tax benefits

CUT is a public benefit organisation and so any bona fide donations and/or grants made to CUT are tax deductible. Upon confirmation of your donation, we will gladly issue a **Section 18a Tax concession certificate**. Should you wish to donate more than once, we can issue a tax certificate at the end of the tax year.

Gifts and grants are tax deductible in South Africa, the United Kingdom, United States and Canada.

Why give to CUT

Your gift, no matter its size, makes a difference in assuring the CUT experience will be available to new generations of students.

Gifts like yours sustain the university and bolster the value of a CUT degree. They are investments in the future of the university and the students and staff who will shape the future of South Africa.

Ways to give

Donate through online payment to a specific cause (sport, applied research, estates, etc.)

Alumni support

We call on our CUT Alumni to provide support to the Unit for Development with donations, or to play a key role in identifying funding opportunities within their employment sector.

Kindly contact Ms Juby Govender on dgovender@cut.ac.za for information or if you wish to provide any support For more visit: <https://www.cut.ac.za/ud> ©



Magauta Ntseu

Channeling pain into positivity

Lossing both parents at a young age did not deter Magauta Ntseu from dreaming big. She channelled her pain into productivity, establishing Rather Listen Life Coaching Pty Ltd, a company that focuses on motivating young South Africans facing tragic circumstances.

Born in Welkom, Magauta was only three years old when her father passed away. They then moved to Bothaville where they only spent two weeks before her mother passed away. "I cannot think of any other words to describe my childhood other than pain, anger, hatred, sorrow, tragic, sadness and that endless list of sad words. I had to survive seven years of my childhood fighting. My life took a different curve when I relocated back to Welkom in 2013 and then gracefully completed Grade 12 in 2015. Passing matric paved my way to the Central University of Technology (CUT), Bloemfontein campus in 2016," she remembers.

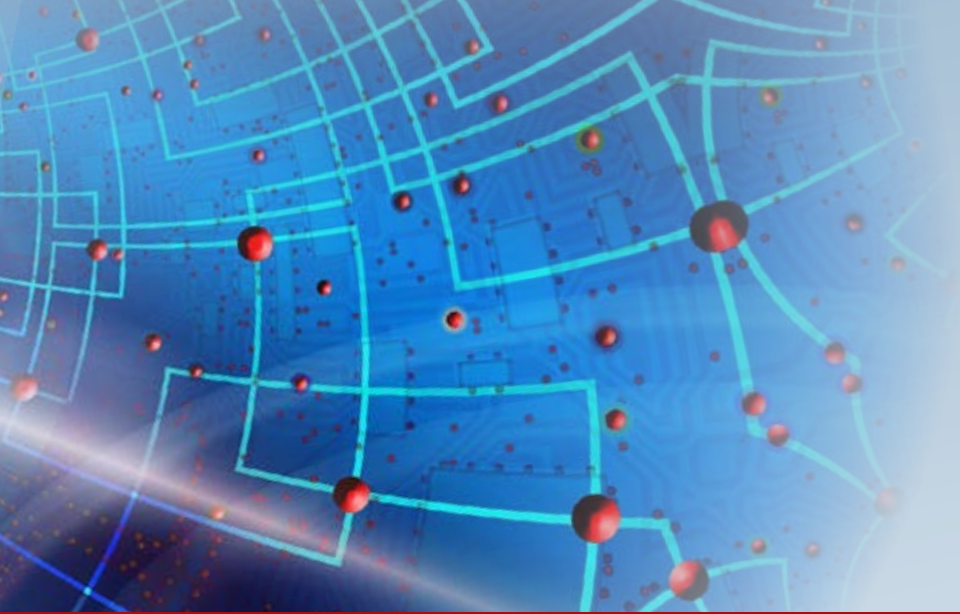
She studied Tourism and Events Management and completed her Diploma in 2019, leaving her mark as an exceptional student. "It is always funny how most students thought I was a final year student as I was always assisting in the SRC offices under the former President Solomon Khiba. The most significant experiences were receiving the Tourism Departmental Academic Awards from 2017-2019. I got recognised for being the best first year student in 2016, best second year student for

the year 2017, and best third year student for the year 2018."

Magauta's hard work paid off as she got the opportunity to study abroad at the College of DuPage, Chicago in the United States of America. There she completed two qualifications, namely Hospitality Management, and Travel and Tourism. "This broadened my knowledge about my career and passion path. I completed an action plan that focused on motivating young South Africans facing tragic circumstances. This has always been a passion for me and led me to registering Rather Listen Life Coaching upon my return."

Selflessness, service and growth is the mark she wishes to make in her industry. "Working in the Tourism and Hospitality field has always been a dream to me, and with my qualifications I am still willing to join the Hospitality and Tourism field to learn, teach and gather experience."

Until then, Magauta has many goals keeping her motivated to achieve more. "Working towards attaining goals is the best ride people should enjoy. The process may be long and filled with hiccups but knowing who I am and what I am capable of always keeps me intact. As much as joy and happiness comes from the final stage, I am always motivated to keep on keeping on. ©



Central University of Technology, Free State (CUT) becomes first South African university to join Massachusetts Institute of Technology Abdul Latif Jameel World Education Lab (MIT J-WEL)

CUT has become the newest member of the MIT J-WEL Higher Education Collaborative – the first university in South Africa to join MIT J-WEL.

An initiative of MIT and Community Jameel, J-WEL promotes excellence and transformation in education at MIT and globally by engaging educators, technologists, policymakers, societal leaders, employers, and employees. Through in-person and online collaborations, workshops, research, and information-sharing events, J-WEL member organisations – including schools, universities, non-governmental organisations (NGOs), government agencies and companies – collaborate with MIT faculty and staff to address global opportunities for scalable change in education.

Julia Reynolds-Cuéllar, Associate Director for J-WEL Higher Education, expressed her enthusiasm about the engagement. "CUT is the first South African university to join J-WEL, and our collaboration stems from key connections built through the MIT-South Africa Programme. We are delighted to welcome CUT as an



**Massachusetts
Institute of
Technology**



important member and contributor to our community, such that we can learn from, and leverage the work they are doing to reform South African higher education.”

Prof. Alfred Ngowi, CUT’s Deputy Vice-Chancellor (DVC): Research, Innovation and Engagement, added that, by 2030, CUT will be a leading African university of technology (UoT), shaping the future through innovation. “This is CUT’s Vision 2030, and one of the strategies of pursuing this vision is to establish robust collaboration with industry and other institutions that have a track record in innovating education and developing entrepreneurship. MIT happens to be such an institution and CUT membership to J-WEL has made it possible to share experiences with MIT and other J-WEL members in our endeavour to pursue our vision.”

Throughout October 2020, CUT representatives joined 221 other practitioners and educators from around the globe to participate in the second J-WEL Connections. The event provided participants with first-hand access to MIT innovations and practices, whilst also serving as a platform for J-WEL and its community to connect and learn from one another. Participants were able to see and discuss how diverse institutions, including CUT, are responding to COVID-19 and other complex challenges.

Through collaboration with J-WEL, CUT will work on deepening problem-solving approaches to education in its curriculum, providing students with the knowledge and skills they need to tackle “hard problems” in both their local communities and globally upon graduation. CUT will also focus on enhancing its innovative and entrepreneurial capacities, supporting its Vision 2030 to shape the future through innovation as a leading African UoT. ©



Central University of
Technology, Free State

Mentoring school learners through Central University of Technology, Free State (CUT) partnerships

Tshepo Lenkoe



Photo: Tshepo Lenkoe from Senakangwedi Secondary School showing off his invention at the 2019 Free State Regional Science Fair.

Tshepo Lenkoe, an Eskom Expo/Science, Technology, Engineering and Mathematics (STEM) Academy Science Camp member, and Grade 12 learner from Senakangwedi Secondary School in Botshabelo, made waves at the virtual 2020 Africa Science Buskers Festival, when he was awarded the coveted gold medal and a cash prize for his scientific invention in August 2020.

Tshepo also won gold in the Free State Regional Science Fair that was hosted in the Boet Troskie Hall at CUT in 2019. He built a prototype of an umbrella with capabilities to convert solar energy into electrical energy. Tshepo's project, dubbed "Five Steps into the Future", will compete with many in the virtual i-GYM Innovation Challenge 2020.

CUT partnered with the Eskom Expo for Young Scientists in 2019, and through this partnership, primary and secondary school learners receive mentorship from CUT academics. The mentors assist learners with conceptualising science projects in response to challenges within their own communities. Due to the pandemic, Tshepo and other young scientists have been receiving mentorship virtually from the Department of Electrical Engineering in the Faculty of Engineering,

Built Environment and Information Technology and the Department of Mathematics, Science and Technology Education in the Faculty of Humanities at CUT.

The Provincial Coordinator for the Eskom Expo, Mr Nicho Swartz, identified the potential of Tshepo's project, and approached the STEM Academy and the CUT Centre of Sustainable Smart Cities (CSSC) to guide him. The CSSC has previously worked closely with the Eskom Expo to identify experts in the relevant fields to guide learners with their projects, which led to participants receiving gold prizes at international level, as well as mention in the South African parliament.

Dr Nicolaas Luwes, an activity leader in CSSC, was approached to test the project and identify the scientific methods needed for such a system. "Although CUT CSSC expo mentors guide the learners, they are still responsible for the innovation and experimentation. In this way, the learners learn by doing the work themselves. Tshepo was the innovator and young scientist that was able to take away some scientific guidance and won an accolade. With Industry 4.0 making manufacturing easier and more cost effective, young scientists like him and the focus on STEM could only improve South African industrial capabilities", said Dr Luwes. ©

Sharing the exciting world of robotics with learners



The aim of the project is to promote interest, learning and creativity in robotics through imaginative and enjoyable experiences. It provides a stimulating learning environment for learners, and improves their skills, in order to enrich their knowledge in computer programming, electronics, and troubleshooting of electronic systems – all skills that are required for the digital era.

The learners learned how robots use sensor inputs in decision-making, and how to control motors to make a robot perform an action. Presentations were also delivered throughout the workshop, demonstrating to learners how robot technologies are applied in solving real-world problems. The learners were also taken step-by-step through the design process, showing them how scientists and engineers think and solve problems.

CUT's Community Engagement plans to expand the project, and include more schools during 2021, particularly under-resourced schools that do not normally get opportunities to participate in such initiatives.©

“The education landscape can no longer depend solely on regimented classroom learning, assignments or examinations as means to teaching and evaluating students’ success. They should also consider valuable, applicable, hands-on methods of teaching, to improve comprehension of scientific concepts.” These are the words of Central University of Technology, Free State (CUT) Assistant Lecturer Viwe Mqaqa, who facilitated a Science, Technology, Engineering and Mathematics (STEM) Academy Workshop on Robotics for school learners.

Accompanied by Gareth Gericke and Teboho Ntsinyi, master’s degree students from the Department of Electrical, Electronic and Computer Engineering, Viwe hosted a three-day workshop for 20 Grade 9 learners from HTS Louis Botha, aimed at introducing the learners to the design, construction, operation and application of robots.



Photo: Grade 9 learners from HTS Louis Botha could not contain their excitement while exploring the world of robotics during CUT's STEM Academy Workshop on Robotics.

Making history in the Faculty of Engineering, Built Environment and Information Technology

Mpho Mbeo, Faculty Officer in the Faculty of Engineering, Built Environment and Information Technology made history on 28 April 2021 when she became the first black female support staff member in the faculty to graduate with a master's degree cum laude. She was amongst 59 master's degree students who graduated virtually – the first of its kind for the Central University of Technology, Free State (CUT) following the outbreak of the COVID-19 pandemic.

In her study, titled "Assessing the feasibility of emerging technologies as a research knowledge management tool in academia: a case study in a South African context", she considers the challenge of retaining the research knowledge of ageing, experienced professoriate at universities of technology (UoTs), institutions with a nascent tradition of scholarly research. The study proposes a technology-supported framework for knowledge generation, retention, and transfer for CUT.

According to Mpho, CUT has been continually confronted with the risk of losing the research knowledge of highly

Mpho Mbeo





experienced ageing professors upon retirement, transfer or resignation. Given the absence of strong mechanisms and interventions for preserving tacit knowledge upon the departure of such senior academics, the need to develop practical frameworks for addressing such attrition at higher education institutions (HEIs), especially UoTs, cannot be over-emphasised. Her main objective with the study was to develop an emerging technology (ET)-mediated knowledge management approach for the management (i.e. generation, transfer and retention) of research knowledge at CUT.

The exuberated master's cum laude graduate could not contain her excitement about her achievement. "I am feeling very confident and proud of myself for this achievement, and I thank God for all the strength He gave me. Through it all, I managed to make history in my faculty. This is a true reflection that my commitment to academia and research extends beyond personal advancement. This was a truly enriching experience, and a challenging, but rewarding, journey. By the grace of the good Lord, I am grateful; I made it."

Mpho says she drew strength from her mother, former manager, and academic supervisor. "These are the people who motivated and saw me through this journey. My former manager, Prof. Alfred Ngowi, now Deputy Vice-Chancellor: Research, Innovation and Engagement, also played a crucial role in my academic journey. He encouraged me to further my studies,

and from that day, I never looked back. I also want to dedicate this success to my academic supervisor, Prof. Patient Rambe, for his unparalleled expert advice and unwavering support throughout my study period. He has not just fulfilled the role of a supervisor, but also as my mentor, with great fortitude. His meticulous and gifted research ability has not only added value to my studies, but also to my research profile."

The road does not end here for Mpho, as she is already embarking on another journey of pursuing a PhD in Business Administration. Her academic abilities are unquestionably above board, and this is attested to her registration for, and completion of, a postgraduate programme that serves as an introduction for a doctoral degree at the prestigious University of Pretoria's Gordon Institute of Business Science (GIBS).

As she has a strong background in academic administration, she believes that pursuing a PhD in Business Administration suits her profile and career prospects. "I want to ultimately become an outstanding academic senior staff member by ensuring that the higher education sector, in particular CUT, has a sufficient supply of excellent female staff engaged in leadership, management, research and innovation, while ensuring the advancement of the sector's contribution to socio-economic development and to the community at large." ©



Photo: Princess Gabo Moroka-Motshabi, of Barolong Royal House, testing CUT's self-made sanitiser, produced by postgraduate students and staff from the Faculty of Health and Environmental Sciences

Combating COVID-19 through innovation

As the country went into hard lockdown due to the COVID-19 pandemic, the Central University of Technology, Free State (CUT) used their readily available resources to rapidly respond to the needs of the nation by designing, developing and producing critical medical devices during the outbreak.

The Product Development Technology Station (PDTs), together with the Centre for Rapid Prototyping and Manufacturing (CRPM), worked on identifying the needs of the Pelonomi, Universitas and National hospitals situated in Bloemfontein.

Two major challenges identified were the lack of appropriate personal protective equipment (PPE) for hospital staff; and the need for a non-invasive ventilation helmet that provides patients with positive pressure and reduces the spread of the virus in the hospitals. The PDTs and CRPM also assisted in manufacturing much-needed hospital equipment, such as oxygen connectors

and splitters, to increase the capacity of the hospitals.

Clinician PPE

The PDTs designed and developed a reusable mask that can be manufactured via the in-house rapid tooling injection moulding process. Its two parts – the main housing, and the soft interface that provides the seal – can both be sterilised by autoclaving. The mask forms a tight seal around the clinician's mouth and nose, allowing for N95 (or similar) filters to be attached, making it appropriate for use in a hot zone.

Non-invasive ventilation helmet

The PDTs also produced a cost-effective method of producing a non-invasive ventilation helmet. This can improve patients' condition dramatically, reducing the need for conventional ventilators, whilst providing a safer working condition for clinical professionals. The helmet/bubble provides positive pressure (ventilation)

to the patient, and protects hospital staff from droplet spray. To ventilate the patient, a procedure called "Transnasal Humidified Rapid-Insufflation Ventilatory Exchange (THRIVE)" is used. The value of the concept has been clinically proven by clinicians at Universitas (University of the Free State (UFS) Academic Hospital in Bloemfontein), and this device is used at the front line of combatting COVID-19.

Video laryngoscope blades for intubation

Endotracheal intubation is a procedure performed by anaesthetists on patients who are unable to breathe on their own. It maintains an open and secure airway, and prevents suffocation and aspiration, whilst delivering oxygen-supplemented air via a ventilator – an essential procedure for COVID-19 patients. However, whilst performing this procedure, a large number of virions that are released into the air puts the clinician at great risk. The PDTS has designed a transparent box in which the procedure could be performed.

Additional hospital equipment/supplies

Using EOS' high-end selective laser sintering, the CRPM and PDTS have been producing oxygen connectors

and splitters for use by hospitals in and around Bloemfontein. The PDTS produced an oxygen connector, commonly referred to in the hospitals as a "Christmas tree connector". The connector allows patient oxygen to be supplied from the main supply, whilst the oxygen splitter takes the oxygen supply from one wall point, and supplies two patients with it.

The PDTS has also developed a novel physiotherapy device to assist in removing mucus from lungs. Currently, oscillating respiratory devices, also commonly known as "flutter devices", are used to loosen mucous secretions in the pulmonary system. Some COVID-19 patients may present with a productive cough and mucus due to the destruction of pneumocytes and secondary bacterial infections. A major risk for South Africa in the time of the COVID-19 pandemic, is the lack of ventilators.

The PDTS' focus is not on reproducing imported medical devices, but on creating, designing and developing novel medical devices that will solve local clinical challenges. ©

For more information on the projects, visit <https://www.cut.ac.za/rapid-research-and-innovation>.



Photo: Several hospital items, such as connectors, splitters and mouthpieces/masks, were developed and manufactured by the CRPM and PDTS teams to assist in combating the coronavirus.



Photo: The engineers are contributing towards the development of medical devices – one of CUT's specialisation fields. Pictured above are Mr Allan Kinnear, Project Engineer: Medical Devices (left) at the PDTS, demonstrating a prototype of the non-invasive ventilation helmets/masks on Mr Sizwe Ntimane, Junior Project Engineer (right). The applied research is intended to provide patients with positive pressure, and to reduce the spread of the coronavirus in hospitals.



Photo: Old Mutual and CUT partnered to donate 1 000 face masks and 1 000 face shields to the Free State Department of Health. The CUT clinician mask has been fully developed and tested, and 2 000 units can be manufactured on a daily basis. Pictured above from left to right are Free State Member of the Executive Council (MEC) for Health, Ms Motsheng Tsiu; Free State Premier Ms Sisi Ntombela; CUT Director: CRPM, Dr Gerrie Booysen; and Interim Provincial General Manager of Old Mutual, Mr Silas Sebiloane.



Taking it one field at a time

Photo: Pite van Biljon of South Africa during the 2021 KFC T20 match between South Africa and Pakistan at Wanderers Stadium in Johannesburg on 09 April 2021 ©Muzi Ntombela/BackpagePix

Pite van Biljon

Playing sports has always been an integral part of South African cricketer, Pite van Biljon's life. He made his international debut for the South African cricket team in February 2020, and he currently is the captain of the Knights cricket team.

Born in Bloemfontein, Pite went to school at Grey College, a school known for producing legendary sports stars. Pite did not let this opportunity pass him by. While at school he was very active and played a lot of sports. "Growing up, my favourite sports were cricket and hockey. I played for the Central University of Technology (CUT) club cricket when I was still at school, I think it was for the third team. After school, I came back to play for CUT and we had great success. We won the league and finished third at the national club championships, narrowly missing out on playing in the final. CUT played a massive role in my career and helping me get to the Knights and later the Proteas."

Realising his dreams has been a long, rewarding journey. "It was a long road to finally getting into the Knights team. I played a few seasons for the Free State and did well, but the Knights team had lots of star players like Rilee Rossouw, so it was difficult to get in. I eventually got a chance and I remember making a 100 runs on my debut against the Cobras, and was awarded a contract later that year."

He has been a consistent player over the years. "I was lucky enough to get picked up in the last two MSL (Mzansi Super League) tournaments, where I did very well. I think that's where the selectors saw me as a potential Protea, and I made my debut against Australia later that year."

Pite has always shown leadership qualities, and he has used this to help others as well. "I've always been captain of the teams I've played for. And with a few changes to the squad over the years and a few good performances I was honoured with the captaincy of the Knights. I wish to create more awareness for Cystic Fibrosis, a rare chronic condition that impacts the lungs and digestive system. And also to get the most out of the people I work with."

He admits that for him, it has taken a little longer to achieve his goals, and this is what keeps him going. "My motivation is fuelled by the fact that it's probably taken me longer to achieve my goals. I love to prove people wrong, and I still believe that I can make an impact on games and be the difference on the day." ©





Photo: Pite van Biljon of South Africa bats during the 2021 KFC T20 match between South Africa and Pakistan at Wanderers Stadium, Johannesburg, on 12 April 2021 ©SamuelShivambu/BackpagePix

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Lebohang Paulus Khutlang

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Kabelo Moremi

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Kagisho Mmetseng

National Diploma: Human Resources Management.



Luyolo Busakwe

National Diploma: Marketing Management | Post-graduate Certificate in Education

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CUT Alumni Chapters are launched in localities, municipalities, districts, provinces, and countries where there is a concentration of more than 15 graduates from CUT.

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