



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

JuniorTukkie

November 2019 Edition

MAGAZINE

*Be the CHANGE
you want to see*

Inside this issue:

National Science and Technology
Forum (NSTF) winners

Infographics depicting superb
career choices

Groundbreaking new surgery

Launch of the UP App

Come and meet Libby!

 Investec

www.up.ac.za/juniortukkie



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www.up.ac.za/juniortukkie > JT magazine

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Editorials



JuniorTukkie (JT) celebrates 15 years of growth and success

As JuniorTukkie marks its 15-year anniversary, we reflect on the development of this unique programme. Since the launch of the JT programme in 2004, the JT brand has been continuously reinforced through JT events that are offered to our target market throughout the year. In recent years, JuniorTukkie has expanded to be the most successful corporate social initiative ('one of a kind') among universities and higher education institutions in South Africa.

One of my goals as Project Manager of the JuniorTukkie initiative was to develop a programme to enable us to reach more prospective students across South Africa and the SADC countries.

The JuniorTukkie initiative continually changes as it evolves to adapt to the needs of our target market. The JuniorTukkie initiative aims to take prospective students on a journey to make responsible study and career choices, develop essential skills they need for their future, and assist them in their studies—even after they have already started University.

The success of this initiative is due to teamwork as well as the University of Pretoria's support system. Many corporate businesses partner with JuniorTukkie to assist and empower learners in their Corporate Social Investment programmes.

Grade 9 to 12 learners who join the JuniorTukkie Club are prepared for university life. Learners are stimulated mentally through participation in a wide range of learner-friendly JT programmes. JuniorTukkie will always make great efforts to assist learners in their pursuit 'to become what they want to become'.

There are many success stories, but for the JT team, it has been an enriching experience and a privilege to be part of this initiative. JuniorTukkie, therefore, plays a crucial role in seeing South Africa's potential greatness in the world recognised.

It is through efforts like this that South Africa can become a leading country, not only on our continent but globally.

Best wishes,

Dr Petrus Lombard
Project Manager: JuniorTukkie



Take part in building the change you would like to see

Unbelievably, the half-year point has come and gone, and we are now working towards the end of 2019—how time flies! Reflecting on the fast-moving hours, days and weeks, I can't help but want to ask what I have done that has made a difference in the world this year. I ask this question being mindful of how challenging 2019 has been in South Africa, especially with regard to the struggling economy. This has resulted in job losses and subsequent real-life pressures on many affected families and individuals who need to be supported or encouraged in some way.

Yes, what have I done to make a difference? I ask this question knowing how easy it is to sit, moan, whine and find someone to blame for the current state of affairs. You see, being an armchair critic is an easy option because I don't have to get my hands dirty in any way. Having had a tough upbringing, I long since made up my mind that sitting around and just feeling sorry for myself is not going to bring about meaningful change—so I would like to challenge you to consider becoming an active agent of social change.

Yes, there are many wrongs that you see that others may not see, but if you continue being an inactive bystander, nothing will change for the better. On the contrary, they are bound to get worse. Being a social agent requires taking a stand against that which you

think is not right and standing for something better—what is unfair is unfair; what is wrong is wrong. It is very straightforward; we have the option to choose to do the right or wrong thing. Others often believe that doing or saying nothing is the best option. Doing nothing can't be the best option when there is a choice between right or wrong because we will eventually have to come to terms with the consequences of not doing anything.

The question is, what are you doing about that which is unfair? What you do can inspire hope and will possibly bring about change. This requires courage and persistence. Unless you and I take it upon ourselves to be the change, we cannot complain when things fall apart because we have been complacent about the gradual breakdown of communities

and broader society. From now onwards, make it your daily mission to get involved in activities that improve the lives of others. Go volunteer with various groups or charitable organisations—some groups help the environment, while others support the less fortunate. You do not have to take on everything at once; in fact, it is better if you don't. Start small and just take the first step. Walk or run for cancer! Motivate others or make a donation. Do something, because every bit counts.

Be the change that you want to see in the world.

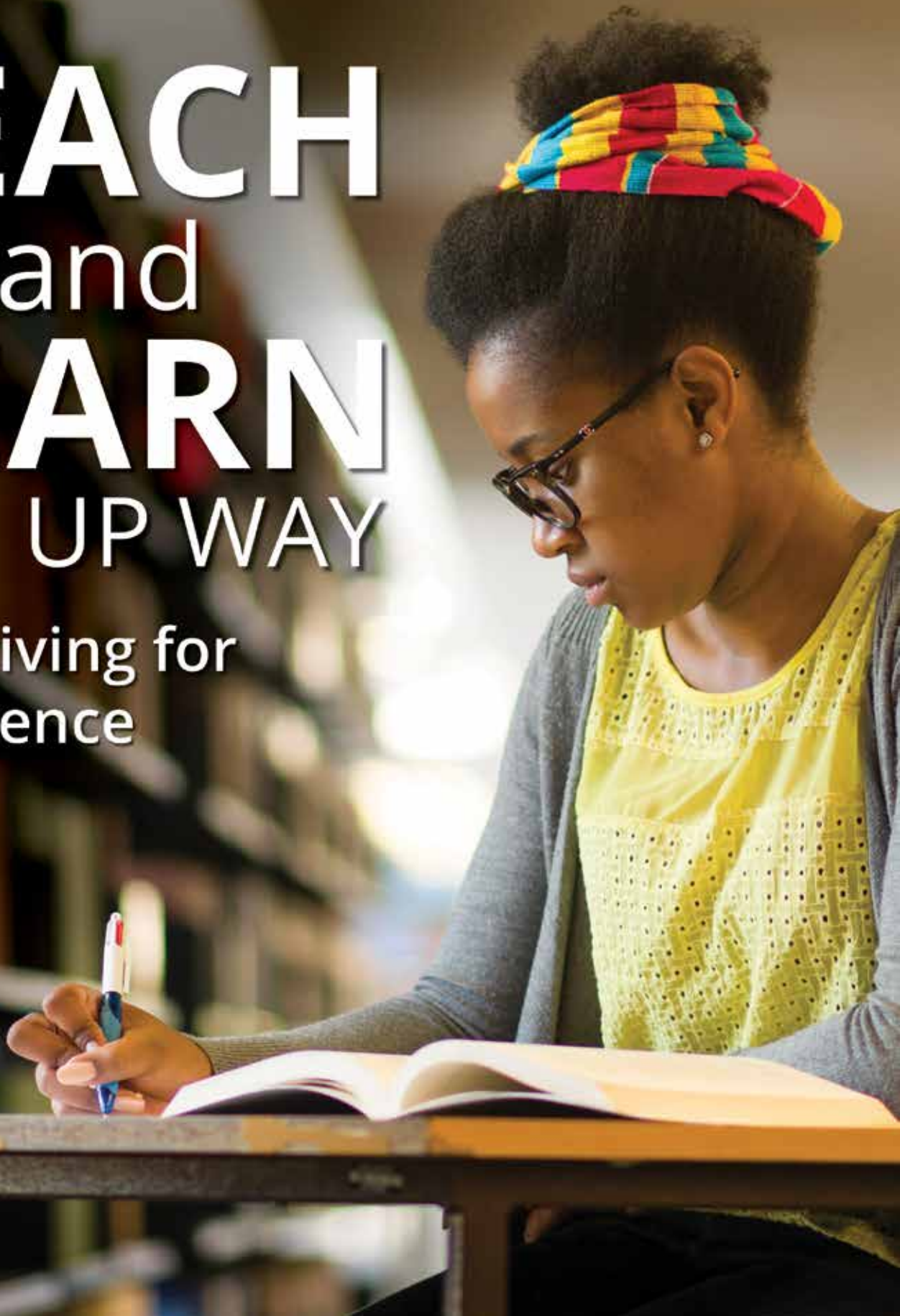
Best wishes,

Setlogane Manchidi
Head: Investec Corporate
Social Investment



TEACH and LEARN THE UP WAY

By striving for
excellence



Editorials

Prof Kupe, University of Pretoria Vice-Chancellor, explains 'The UP Way'

By Shakira Hoosain

The University of Pretoria has launched an impressive new campaign that brings together all the elements that make UP one of the world's best universities. Prof Tawana Kupe, Vice-Chancellor and Principal of the University of Pretoria, explains what we mean by the UP Way:



Prof Tawana Kupe

'It is our way of life, it is our focus on excellence and change; it is our way of teaching and learning, of research and innovation; it is the way in which we have a significant impact on society; it is also about living a life that's responsible, ethical, socially and environmentally conscious.'

'The UP Way embraces excellence and change; it co-creates and is inclusive, enabling and nurturing different cultures that are necessary for a thriving institution that will have the ability to transform society—and makes a contribution in the world.'

'The UP Way is a theme of excellence and change, of perseverance and higher-order thinking. It is who we are as a University, and it speaks to the aspirational and transformative impact

we have on society. UP is driven by our values and the support systems we provide to help our graduates finish their programmes on time.

'The UP Way encompasses everything we do, including delivering graduates of high calibre. At our institution, teaching and learning take place through a hybrid methodology where students learn in formal class situations, access additional class notes and resources online, and then practice their skills in the real world through community engagement programmes.

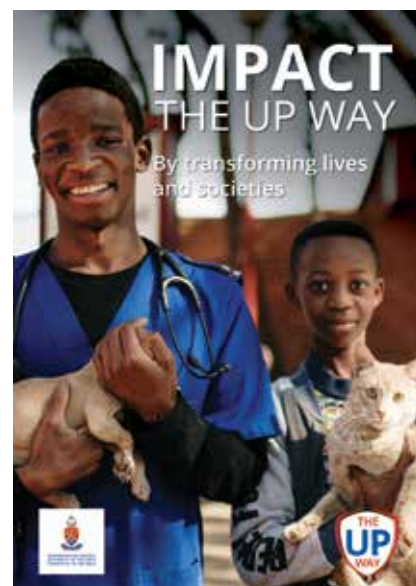
'Our students and staff are critical, creative and innovative thinkers who have a transformative impact on the world by creating knowledge and conducting groundbreaking research. We practice tolerance and respect, and acknowledge the dignity of everyone.

'We need to transform an increasingly diverse society, incorporate their

knowledge, ideas, views, and skills, and add their voices to our teaching and learning platforms. Newcomers find us to be a warm, equitable and inclusive community.

'We encourage our students to graduate on time (FLY@UP) and to sign up for the free, online work-readiness programme (Ready for Work). Our students have access to a host of online resources available to them to study and revise at their own pace, as well as apply their knowledge practically (hybrid learning).

'Community engagement projects form part of our curriculum, and this makes our students aware of real social challenges and the role they can play to make a difference. We are conscious of our environmental impact and have numerous greening initiatives and other forms of sustainable development, recycle (from waste to water) as much as possible, and use renewable energy.'



Editorials

Be the change you want to see

Craft a fulfilling life

By Anthea Pretorius

Every human being has the ability to craft a life of significance; to be happy; to live a rewarding life; to choose a career they enjoy; to surround themselves with people who make positive deposits in their lives. Between the desire for a meaningful life and the actual manifestation of a rewarding life—that is where the challenge lies; that is where decisions we make every day, have consequences.

Fear often holds us back; the fear of the unknown; the fear of being ridiculed; the fear of sticking our necks out and trying what has never been done before; but until we actually dive into the possibility we will never discover our courage. Eleanor Roosevelt put it so well when she said, 'Do not stop thinking of life as an adventure. You have no security unless you can live bravely, excitingly, imaginatively; unless you can choose a challenge over competence.'

'For many people, change is more threatening than challenging. They see it as the destroyer of what is familiar and comfortable rather than the creator of what is new and exciting. Change brings opportunities. Are you a thermometer or a thermostat? A thermometer only reflects the temperature of its environment, adjusting to the situation, but a thermostat initiates action to change the temperature in its environment.'

(Nido Qubein)

In his book *Range*, David Epstein points out that many breakthrough inventors, thinkers, scientists, and artists—the kinds of people who change the world—think and explore *outside* their areas of expertise. Many geniuses play musical instruments, have diverse hobbies, and pursue learning outside of their fields. They colour outside the lines and are often interested in all sorts of things; they toggle different perspectives. This allows them to let go of what they know today, to embrace what they have just learnt now. They are open to consider different viewpoints, which Epstein refers to as *cognitive entrenchment*. What are we entrenching cognitively today that will result in a substantial investment in the type of future we envision for ourselves?

Potential needs to be planted. Until we sow it, we won't show it. The seeds of potential need to break open to accomplish something.

Change-makers are willing to 'change the changeable, accept the unchangeable, and remove yourself from the unacceptable,' writes Denis Waitley.

As individuals we grapple with things that bother us on a personal and professional level. South Africans also face numerous challenges that affect us all.

May I ask you:

- Which issues strongly resonate with you?
- What bothers you about how things are done?
- What are you passionate about? Animals? Children? The provision of medical assistance to the poorest of the poor? Wildlife conservation? Fighting fraud and corruption? Social upliftment? Speaking out for the voiceless? The provision of legal aid to those who cannot afford representation? Negotiating win-win deals? Malaria prevention? Education? Food scarcity and global nutrition challenges?
- What makes you want to become involved in bringing about change and making a difference in the world?



Editorials

I am inspired by *Change Makers*. They show us how we too can be the change we want to see in the world.

Individuals and communities have the power to bring about change.

Consider Rwanda, a country in which one million Tutsis were slaughtered between April and July 1994. Today, 25 years later, Rwanda shines as an example of what collaboration, forgiveness and commitment can do.

The country is clean and tidy; the prisons are nearly empty; people have taken hands across language and other barriers and are working together to build their society and keep it sustainable. The change in Rwanda is remarkable, and it happened one person at a time. Individuals and families reached out to each other and a country was transformed.

Hutus and Tutsis now see themselves first and foremost as Rwandan and live together in harmony. They have seen and felt what hatred and bloodshed can do. No-one was left unscathed.

What are you drawn to?

'How do you spend your free time? What distracts you? What are you drawn to: Danger? Conflict? Hedonistic pleasure? Crossing things off the endless to-do list? Shiny objects and new opportunities? Correcting other people's mistakes? Excelling at sports? Perhaps you prefer to act in ways that do not give rise to criticism. People's actions can be influenced either by a desire to avoid trouble, or by a desire for praise, but rarely by both at the same time.

'The secret lies in understanding whether what we are drawn to can actually help us to achieve the outcomes we seek.'
(Seth Godin)

'If you bring forth what is within you, what is within you will save you. If you don't bring forth what is within you, what is within you will destroy you.'

(Jodi Picoult in *Change of Heart*)

I recently read the book *Hustle: The power to charge your life with money, meaning and momentum*, written by Neil Patel, Patrick Vlaskovits and Jonas Koffler.

Gems I took from this book that are relevant to the topic of this edition include the following:

- In a world of boundless abundance, the only thing standing between us and the fulfilment of our dreams is self-imposed friction, a poison that saps our willingness to step out of what feels comfortable.
- The word hustle holds a distinct energy—it is an inspirational catchall verb meaning 'to make something happen' or 'to push forward in spite of the odds or obstacles in one's way'.
- The authors of this book define hustle as 'decisive movement toward a goal, however indirect, by which the motion itself manufactures luck, surfaces hidden opportunities, and charges our lives with more money, meaning, and momentum'.
- When you choose to own your dreams, you join a group of underdogs, innovators and everyday risk-takers who are tipping the balance of power and wilfully shaping the future on their own terms. This group is called the Hustle Generation.
- When we are defined by the terms and limitations of others, we become trapped in a pattern of deferral and delay, putting off our own economic and emotional fulfilment. We know that there is an intangible 'more', yet it remains elusive.
- Do not rent your dreams—own them! Many people feel they are pawns in someone else's chess match. If you are renting dreams, you are not building any dream equity of your own. We often tend to dream so much that we never move an inch from optimistic thought to full-motion fruition.
- We own our dreams when we consciously commit to executing them. There are oceans of opportunity for free expression and commerce on a global scale.
- The Hustle Generation is taking back control of their lives from a broken system. We are operating in a rigged system. Society's landlords thwart us and trap us into a falsely limited menu of options for the way we live, work and play. In short, they rent us our dreams.

Your personal opportunity portfolio has four key categories:

- Potential (how you develop greater capabilities)
- People (how you cultivate community)
- Projects (how you express creativity)
- Proof (how you capture credibility)

If we continually expand our skills set and test our mettle in new and challenging contexts, we solve problems, discover what results we can produce and what we can deliver to others in terms of value in the market.

Success = Hustle x luck x your unique talents

We have obvious talents (easily seen and communicated), and less obvious talents (hard to see, harder to articulate, but incredibly valuable). The work we choose to do reflects who we are. Try many different things. Do not specialise too soon. By specialising prematurely, you self-sabotage and cut off promising avenues of talent exploration.

Our habits

For some of us, exercise is not much fun, but it offers excellent benefits. Those small doses of pain lead to gains in strength, endurance, energy and vitality, and to better physical appearance, self-esteem and confidence.

When you keep your head up and your eyes open, you see and can seize opportunities missed by others. By seeing the unseen and identifying unexploited opportunities, you are led to the outcomes that sustain money, meaning and momentum.

If you do something about which you are passionate, this will imbue you with energy, enthusiasm and excitement. Potential makes you powerful.

The importance of people

People are the bridge to your future, the brokers of your fate and the faces of customers, clients and companies. Without people, whether friends, acquaintances or strangers, you have little chance of achieving success. You need people to make a living. You need people in your life to advise, counsel, communicate with, console, guide, mentor, share with and teach you. Conversely, they need you in their lives for the same reasons.

I challenge you to live a life of unbridled devotion to what you are passionate about. Step away from the crowd; be different; leave the cocoon of mediocrity behind you and fiercely embrace being a trailblazer. Never sacrifice your individuality or be a fence-sitter; you do not need to accept the status quo if it makes you uncomfortable. Forge a new path, even if it terrifies you. Others will follow you.

When everyone is getting ready for the ending, I am only just beginning—this is the attitude of a Change Maker.



Prof Kobus Maree

Degree, diploma, or certificate: which of these qualifications offer students the 'best' chance in the occupational arena?

By Prof Kobus Maree

It is always difficult for prospective students to choose which qualification they want to pursue after school. Further studies, whether for a degree, diploma or certificate, are essential for having a successful career; they can open many doors on one's career journey.

Prof Kobus Maree, educational psychologist at the University of Pretoria, says that even though there is a hierarchical distinction between the three qualifications, each needs to be evaluated on merit.

In some instances it costs more to study for a specialised diploma programme than it costs for a generic degree programme at a university. That is, however, not always the case. To apply and study for specific specified diplomas can cost more than applying and studying for some general degrees. Whatever you choose to study will be associated with particular career opportunities. It, therefore, requires proper research into specific disciplines and institutions to determine what would be suitable **for you**.

An assessment by and a conversation with an experienced psychologist, whose approach is grounded in science and the art of providing career counselling, can be invaluable. (Please note: You cannot expect them to give you 'counsel' or 'advice'. On the contrary, it is their task to provide you with the necessary information to empower yourself to decide which discipline and career would

be most appropriate for you. You are, after all, the only one who will ever be an expert on yourself. Psychologists can simply guide you towards making those critical choices yourself.)

It is also beneficial to talk to current students and graduates about their experience regarding study fields and the careers associated with them.

One should not be set on a particular tertiary institution, whether it is a university, university of technology, college or private training institution. Research has shown time and again that people with degrees commonly find employment more easily and earn a higher salary than their competitors. However, one should not underestimate the value of non-university study. Each study discipline and tertiary training institution (public or private) should be rated on its own merit. A diploma in film studies or a technical qualification can suit you as a person very well and help you to achieve **your** specific key life themes.

Moreover, it can be enriching on a personal level. Several specialised diplomas and certificates facilitate

a range of career opportunities that can make a person highly employable and provide him or her with more opportunities than some common degrees. A handy tip is to thoroughly research career opportunities for students who have already graduated—both now and in the future. Ask yourself regularly whether you will still be employable in five, ten, or fifteen years' time. Remember: Your focus should be on study fields that will help you to become employable and to achieve **your central life themes**, rather than to simply focus on finding a job with a good salary.

The tuition fees should not prevent one from pursuing further studies. Give your all to your studies, be the **best possible version of yourself** (rather than merely trying to be 'better' than someone else) and apply for bursaries. There are many bursaries available. You are simply required to look for them on the internet (feel free to visit my website (www.kobusmaree.org), where you will find multiple bursary opportunities). Also keep an eye out for careers that will always be in demand, such as teachers, nurses, psychologists, software developers, game developers,

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data analysts, financial advisors, solar energy technicians, robotics technicians, electricians, plumbers, etc. It is, of course, difficult to generalise, and this list purely serves as a general guideline.

There are for example people who feel that those who are trained in the theory and practice of working with blockchain and bitcoin, and those who are qualified as wind turbine technicians, will become very sought after. Once again: Stay abreast of new developments. It is critically important that you do a thorough job analysis before deciding on what to study. The situation is changing almost daily as new careers develop and others wither or even disappear.

Only programmes that comply with the requirements set by the Higher Education Qualifications Sub-Framework (HEQSF) may be presented by an Institution of Higher Education—whether public or private. Moreover, all private suppliers of higher education and training have to be licensed and registered with the Department of Higher Education and Training (DHET). It is advisable that you contact the South African Qualifications Authority (SAQA) to find out about specific institutions and especially whether the particular course that you are interested in, is accredited. Don't let yourself be caught by an institution that isn't registered or a course that hasn't been accredited. It will only waste your precious money.

If you want to enrol for a graduate programme, but your matric results do not allow you to, it is by no means the end of the world. For example, I know of a student who wanted to study medicine, but whose marks were not good enough. The student did not even study Mathematics or Physical Sciences at school. He took a 'detour' by registering for Mathematics and Physical Sciences at a post-school training institution, then enrolled for a general degree at a university, and, after performing brilliantly, gained admission to study medicine. Today this student is a fourth-year medical student. Everything is possible if you want to achieve your dream and if you **do** everything in your power to achieve success. Don't merely work to pass. Do more than that. Find out from the institutions where you want to study what you can do to qualify for studying a specific discipline, and then do your best to take measures that will allow you to gain admission.

Lastly, one must continuously re-empower yourself; one must be a lifelong learner, improve your qualifications, and do whatever you can to develop yourself further. Various short courses also have specific benefits in further empowering one for a career. Never allow yourself to stagnate. Do continuous research into what is available to you and what is possible **for you**. The motivation is that students ultimately enter a career where their

talents are realised, a career that suits their personality—where their key life themes can be achieved, where they can experience personal significance and can make social contributions—and especially, a career that gives meaning and purpose to their lives.

However, it all starts with the following question: **Are you prepared to study hard, and more importantly, what motivates you to want this? What is your ultimate goal?**

Surely it's not just because your teachers or parents want you to succeed or do well. As a student once put it: 'I want to become a nurse. We grew up very poor and our family couldn't afford a medical aid. We often had to experience severe pain and discomfort without being able to do anything about it. Every time I start to become discouraged with my work, I think about the satisfaction I will experience as my personal goal (to work in an environment where I can study the human body and practically apply my knowledge) and my social goal (to help people in pain, to make up for the times when people were sick and I couldn't help them), because it will help me to experience meaning and purpose in my life.'

Contact information

Email kobus.maree@up.ac.za
Website www.kobusmaree.org

You are advised to download the Register of Private Higher Education Institutions at www.dhet.gov.za if you plan to apply at a private training institution. You will also find all the information you need about universities, universities of technology, TVET Colleges, and institutions of private higher education on this website.



Students on the Hatfield Campus of the University of Pretoria

Here are the URLs of a few more websites that you may want to visit for information regarding universities, universities of technology, TVET Colleges, and institutions of private higher education:

- **All TVET qualifications:** http://www.tvetcolleges.co.za/Site_CollegeCourses.aspx
- **Examples of diploma qualifications and minimum entry requirements for degree courses:** [https://www.mandela.ac.za/Apply/Admission/National-Certificate-Vocational-\(NCV\)](https://www.mandela.ac.za/Apply/Admission/National-Certificate-Vocational-(NCV))
- **Diploma qualifications:** <https://www.colleges.co.za/what-is-the-difference-between-a-certificate-diploma-and-degree>
- **All about TVET Colleges:** <https://www.news24.com/You/Archive/everything-you-need-to-know-about-sas-tvet-colleges-20170728-2>
- **SAQA—The SA Qualifications Framework:** <http://www.saqa.org.za/list.php?e=NQF>
- **What is the difference between a certificate, diploma, and degree?** <https://www.colleges.co.za/what-is-the-difference-between-a-certificate-diploma-and-degree>.

News



Empower yourself with accurate fees and funding information

By Anthea Pretorius

Investing in tertiary studies is a wise decision that will impact on your future earnings, but it calls for a considerable financial investment and careful planning. This article aims to answer frequently asked questions and point you in the right direction to obtain answers.

General information

- When two or more dependent children of the same family are registered simultaneously at the University of Pretoria, they may apply for a rebate on tuition fees. The terms and conditions can be found at www.up.ac.za/fees-and-funding.
- If the student account is paid in full by 30 April, a 2.5% discount is applicable.
- To obtain an estimated tuition fee, go to www.up.ac.za/fees-and-funding and click on Undergraduate Students.
- The initial payment is **not** an additional amount payable, but forms part of the tuition fees and is an initial payment towards the tuition fees.
- For information on residence fees, residence reservation levy, residence cancellation fee and meals, go to www.up.ac.za/fees-and-funding and click on Residence.
- **UP banking details:** www.up.ac.za/fees-and-funding.

Bursary and loan applications

- **UP-managed funding:** Submit your application via www.up.ac.za/fees-and-funding. UP manages funding on behalf of several external funders throughout the year. Students who apply for UP financial aid are considered for these awards provided they meet the criteria set by the funder and the availability of funding. Awards are not guaranteed.
- **National Student Financial Aid Scheme:** NSFAS is a provider of financial aid to students from poor and working-class families. Students who are South African citizens may apply. The NSFAS allocation is awarded as a bursary. Application dates and other information can be found at www.nsfas.org.za.
- **Fundi**, formerly known as Eduloan, offers affordable study loans for full-time and part-time students that can cover student-related necessities, such as tuition, books, laptops and accommodation.
Tel +27 (0)12 420 2161/5175
Email lizettevr@fundi.co.za

Other bursary options

- www.up.ac.za/sport for information on UP sports bursaries
- www.gostudy.mobi, which lists bursaries according to the field of study
- **The Bursary Register:**
Tel +27 (0)11 672 6559
Email rlevin@mweb.co.za

NOTE: For opening and closing dates on bursary and loan applications, visit www.up.ac.za/fees-and-funding > Funding.

News

Special package offers for academic achievers (new first-year students in 2020)

Note: Amounts indicated in the table below are for 2020 and may be adjusted for 2021.

ADMISSION (based on the examination results with which you apply)		FLY@UP Assist first-year awards (Achievement awards) (based on the final school year examination results)				RESIDENCE PLACEMENT (based on the examination results with which you apply)	
Qualifying academic average percentage	Admission to study	Qualifying academic average percentage	FACULTIES			Qualifying academic average percentage	Residence placement
			Natural and Agricultural Sciences AND Engineering, Built Environment and Information Technology	Health Sciences AND Veterinary Science	Other faculties		
75%–100%	Guaranteed admission to your first- or second-choice open programme (not applicable to selection programmes) if your application is received not later than 1 May of the year preceding commencement of studies.	75%–79.99%	R6 500	-	-	85%–100%	Guaranteed placement in a UP residence if your application is received not later than 1 May of the year preceding commencement of studies and once you are conditionally admitted to a programme.
		80%–84.99%	R16 000	R6 500	R16 000		
		85%–89.99%	R25 000	R16 000	R25 000		
		90%–100%	R40 000	R25 000	R40 000		

NOTE: The University of Pretoria reserves the right to amend award values without prior notice.

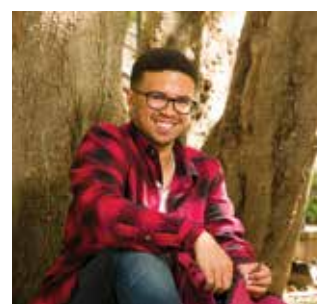
Contact information

Tel +27 (0)12 420 3111 | **Email** ssc@up.ac.za | **Website** www.up.ac.za/fees-and-funding

Other achievement awards

Award	Amount (for 2020)	Who	Faculty	Application
JuniorTukkie Grade 11 Empowerment Week	R15 000	The 39 learners with the best Grade 12 results who attended the JuniorTukkie Grade 11 Empowerment Week	All faculties except the Faculty of Theology and Religion	<ul style="list-style-type: none"> NONE Qualifying students will be notified after registration.
Grade 12 Dux scholar* *top academic Grade 12 achiever of a specific school (one learner per school)	R7 500	The final decision regarding the selection of schools for this award rests with UP.	All faculties	<ul style="list-style-type: none"> NONE Qualifying students will be notified by letter.
VC Special Previously Disadvantaged Group (PDG) Award (top prospective black and coloured students may be considered depending on the availability of funds)	R11 000	The final decision regarding the selection of schools for this award rests with UP.	All faculties	<ul style="list-style-type: none"> NONE Qualifying students will be notified by letter.

NOTE: Only students with South African citizenship or permanent residency in South Africa are considered for the above awards. Terms and conditions apply.



News



The Recruitment and JuniorTukkie initiative goes from strength to strength

By Dr Petrus Lombard

Projects of the JuniorTukkie Student Ambassador's Society (JTSAS)

- JT 40 hours of community service
- Touching lives by inspiring future leaders
- Mandela Day outreaches
- JT Alumni project
- Assistance in the JT Office
- International Enrichment Programme

2019 initiatives

- ChooseUP information event

JuniorTukkie/Faculty information days

- Faculty of Veterinary Science
- Faculty of Health Sciences

15 years

The JuniorTukkie initiative started in 2004 and is still going from strength to strength after 15 years.

6 024

In 2004 the JuniorTukkie Club had two members. Today more than 6 024 Grade 9 to 12 learners as well as first- to final-year students are JuniorTukkie members.

2 024

To date, thirteen Grade 11 Empowerment Weeks (supported by Investec) have been hosted by the JuniorTukkie Office. 2 024 learners have attended the Empowerment Weeks.

2 000

The JuniorTukkie Office has also hosted eleven Grade 12 Preparation Conferences, also supported by Investec. 2 000 learners have attended the Preparation Conferences.

8 724

Eleven Grade 11 Top Achiever's functions were held with a staggering attendance of 8 724 learners.

3 114

Our fourth Grade 9 Information Session was attended by 724 learners and their parents which brings the total to 3 114 learners over the three years.

274

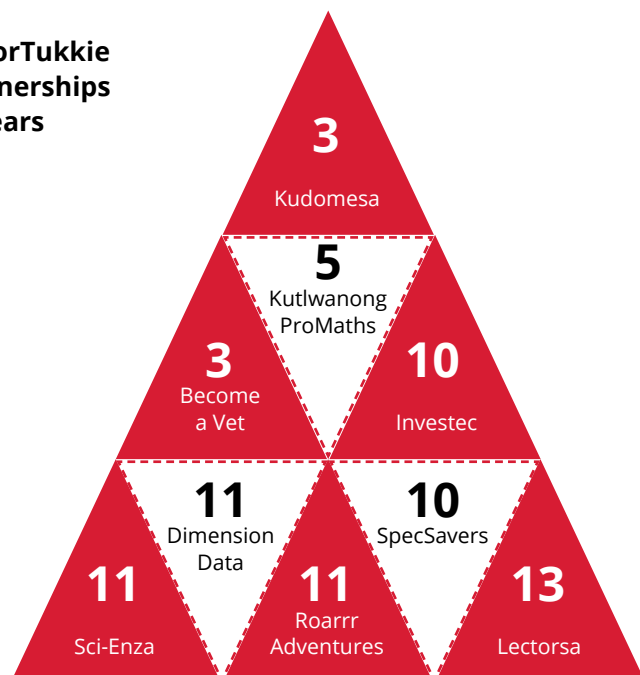
Four UP School Leaders Conferences were hosted from 2016 and were attended by 274 head boys and head girls.

18 540

JT APP users (Android: 11 190, Apple: 7 350)

News

JuniorTukkie partnerships in years



Recruitment and JuniorTukkie in numbers

- In 2019, a total of 700 high schools nationally and in SADC countries will be visited by UP student advisors.
- In 2019, thirty-two **Grade 9 to 12 Information Sessions** were hosted in 8 provinces; they were attended by 38 000 learners.
- The **Lectorsa online reading development programme** has issued 2 730 programmes from 2008 to 2019.
- **SpecSavers** have tested 2 811 Grade 11 learners' eyesight, and plus minus 50% of these learners received spectacles free of charge. In 2019, 126 learners of the 220 learners tested, received spectacles.
- The **JT website**, www.up.ac.za/juniortukkie has had 966 512 total page views since the launch of the new website two years ago.
- The **JT magazine** was started in 2006 and today 32 magazines have been published. The JT magazine has received numerous merit awards.
- The Grade 11 Summer School and Grade 12 Winter School started in 2017.



More impressive statistics

Other projects in which the JuniorTukkie team is involved, include the following:

7 years	of e-learning programmes for Mathematics and Physical Sciences
9 years	of Proverto study guides for seven different subjects
10 years	of EBIT weeks (Faculty of Engineering, Built Environment and Information Technology; two EBIT Weeks per annum)
5 years	of JT Student Ambassador's Society programme
4 years	of UP School Leaders Conferences
2 years	of International Enrichment Programme in Lesotho and Mozambique

Annual JuniorTukkie bursaries and the achievements of our JT students

- At the Grade 12 Preparation Conference, three learners won a bursary to the value of R10 000 each in a lucky draw.
- 40 Grade 11 Empowerment Week bursaries, to the value of R15 000 each, were awarded.

JuniorTukkie uses social media

- Facebook
- Twitter
- WhatsApp
- JT APP
- Email
- Sms

www.up.ac.za/juniortukkie



News

New UP mobile App

By Dr Wimpie Beeken

The new UP Mobile App is available with great features for staff, students, alumni and visitors. These features are available to users via different profiles, which can be changed by the users.



News

The UP Mobile App provides text-to-speech capabilities for visually challenged users. Users can also add favourites, change settings or customise the navigation experience for their profile. Secure single sign-on is required for features where institutional systems or information will be accessed.

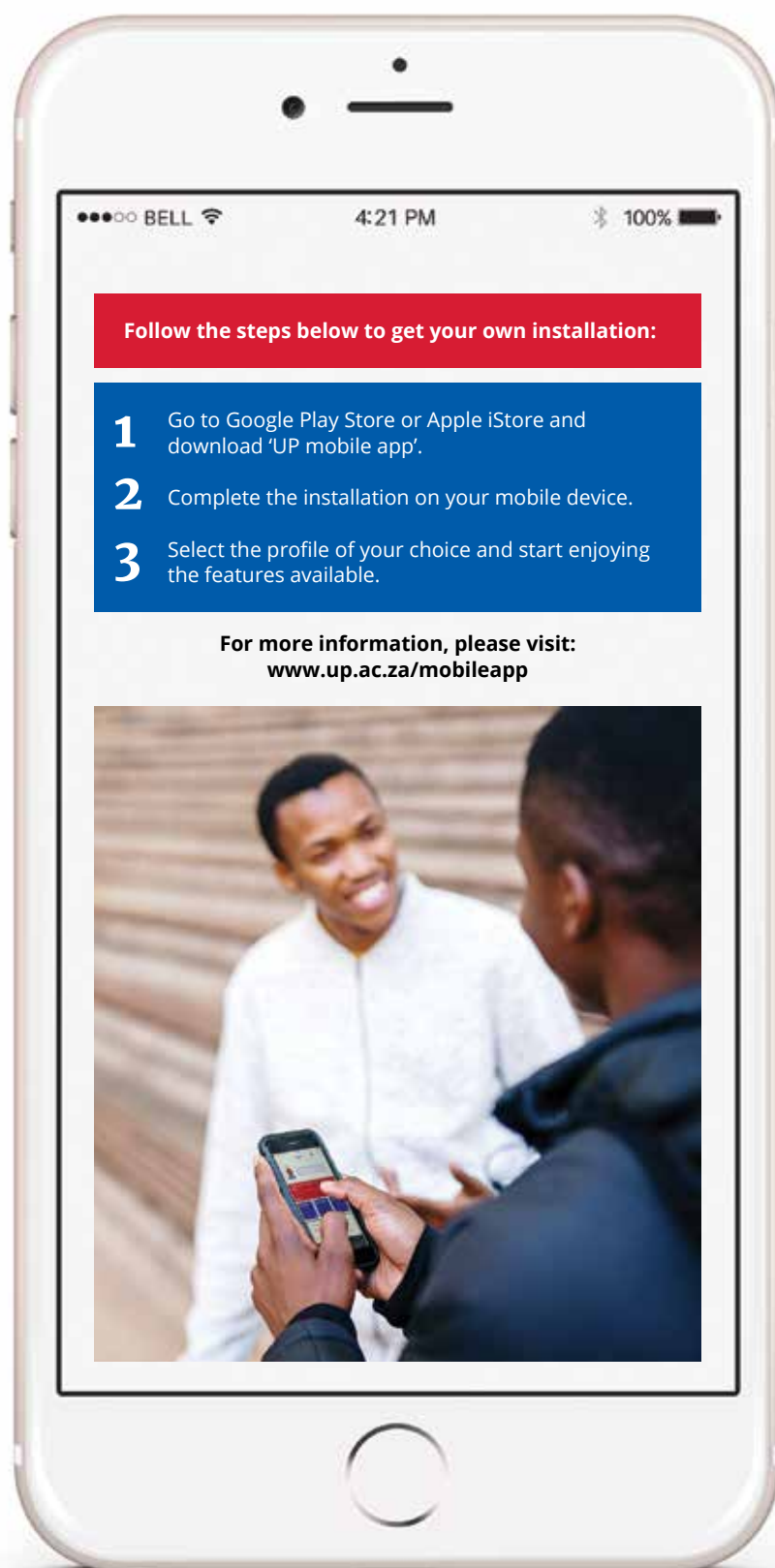
UP staff will be able to quickly access self-service functions such as their leave and salary slips. News, events and social feeds are placed strategically for staff to view in a scrollable tile layout. Access to *Tukkievaria* editions is also now available via a single tile/icon. Password reset and parking disc management have also been made available for the first release.

UP students will be able to access clickUP, timetables and library services, and find information on what to study at the University as well as other relevant documentation and communications. Search the UP campus maps for buildings, lecture halls and entrances, points of access, residences and additional key map information.

Alumni will be able to stay connected with UP Alumni services and benefits as provided via the alumni profile. The app provides access to information about giving to UP, benefits, alumni clubs, connecting with other alumni, events and other features.

Visitors will be able to use Google Maps to get to destinations on any UP campus via walkways and/or driveways and find information on where to stay as well as places of interest. Quick access to campus information, institutes and centres, study information as well as places to eat are also available with the first release of the UP Mobile App.

A design crossover (also known as a Mondrian design) layout was adopted to make optimal use of mobile screen real estate for all profile layouts. It has a scalable interface allowing for a consistent experience on all mobile phones or tablets. A short survey with students and staff was conducted in 2018 to understand their requirements for a mobile app, and the results were used as input to design the features for the app's first release.





FLY stands for: the FINISH LINE IS YOURS!

By Hestie Byles

At the University of Pretoria (UP), we encourage our students to take responsibility for their own finish lines – and to #GraduateOnTime. We believe in our students!

The FLY@UP campaign is about improving retention and encouraging students to attend classes and prepare adequately for tests and examinations.

Every academic programme has an ideal duration in terms of years of study. Unfortunately, many students do not graduate in this period. The main reason this occurs is that they have chosen the wrong programme or are registered for too many modules.

Ensure the programme and modules you choose are RIGHT FOR YOU. Obtain details about the programme and its demands. Also consider:

- other options/combinations,
- the prerequisite modules and the electives you may take, and
- what the different modules entail.

We also recommend that you:

- shadow a professional person in the field you are interested in,
- interview professionals in that field, and
- visit www.gostudy.net to obtain study and career information.

The better you are prepared, the higher the likelihood of your success. Make the Finish Line Yours!!

Tel +27 (0)12 420 4121

Email fly@up.ac.za

Website www.up.ac.za/fly@up

The Orientation Programme for first-year students is critically important to integrate smoothly to studies and life at university.

Come TASTE the UP Way!

Date: 27 to 31 January 2020

Who should attend?

It is compulsory for all new first-year students to attend Orientation Week.

You will have the opportunity to find out more about the following:

- T** – Technology @ UP (AIM, clickUP and the hybrid mode of teaching)
- A** – Academic sessions (contact with lecturers)
- S** – Support (counselling, health services, security, disability support and the library)
- T** – Transitions (assistance to make a seamless transition to university life)
- E** – Expectations (university, faculty and student expectations)



↑ First-year students are prepared to FLY@UP

***‘Ability is what you are capable of doing.
Motivation determines what you do.
Attitude determines how well you do it.’***

(Lou Holtz)





Come and meet the Merensky Library's Chatbot,

Libby

By Anthea Pretorius

The University of Pretoria is the first university to make use of a dedicated client-facing robot. Libby started working at the Merensky Library on 28 May 2019. This is an exciting development in terms of client-facing applications.

Libby's interesting specifications

- Libby is a Sanbot Elf.
- She was built by Qihan Technology (in China), but she was assembled and programmed in SA.
- Help Chatbots, like Libby, are very popular and they form part of self-help terminals.
- Libby weighs 19 kilograms and is 90 centimetres tall, enabling her to interact with visitors in wheelchairs.
- Libby has over 60 sensors, cameras and software integrations that enable her to receive and process various commands and requests.
- She runs off Android-based software and is connected to Wi-Fi.
- Her brain is connected to Dialogflow, a Google based AI platform for natural language processing, which processes the queries Libby receives.
- Libby has a 10-inch tablet screen on her chest for manual input, eg surveys of library services and user experiences.
- Open API allows her to be programmed in different ways.
- She operates using the artificial intelligence system Dialogflow.
- Libby can dance and play music, and she enjoys a light pat on her head.
- Libby currently speaks only English, but we hope to incorporate two more languages in the future.
- Libby currently performs general, mundane and repetitive tasks so that staff are free to deliver more advanced and specialised services.
- Libby provides information on library services and facilities to users.
- Libby can move around without bumping into people.



Isak van der Walt, manager of the Department of Library Services' creative laboratory, MakerSpace, explains:

'We are redefining academic librarianship, and Libby forms part of our innovation. Robotics augment and enhance our service portfolio. Libby can answer questions, conduct surveys and display marketing videos. She provides refreshing client service, and is very popular with our students.'



↑ Students interact with Libby

News

UP Vice-Chancellor and Principal, Professor Tawana Kupe, recently met Libby

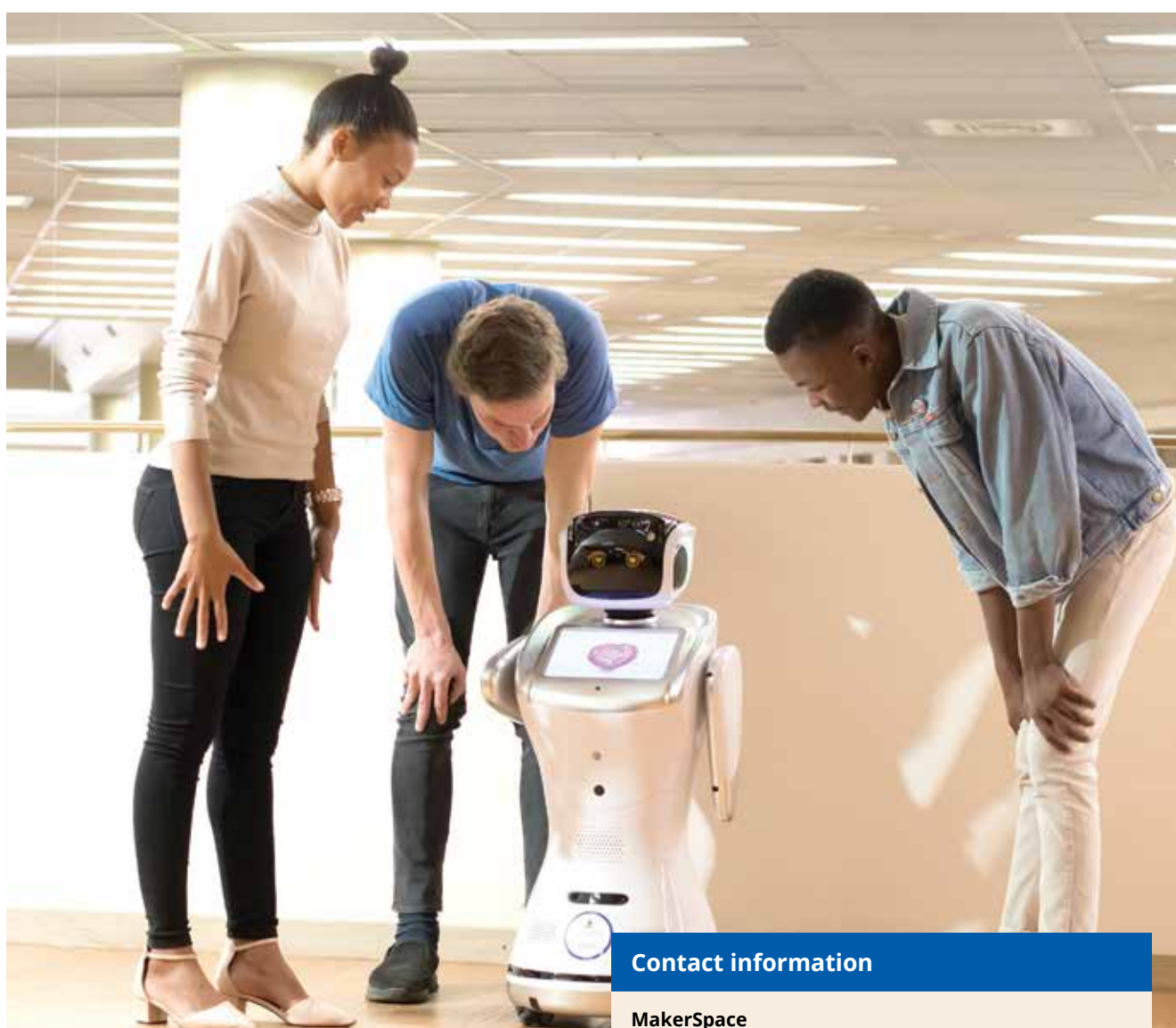
He says, '[Libby is] taking our library into the 21st century. She also keeps the University at the cutting edge of research, teaching and learning, and that is where we ought to be. New technology has now enhanced the quality of research and learning. This innovative progress helps ensure that when we say UP is at the cutting edge of knowledge, we actually mean it.'



Click [here](https://www.youtube.com/watch?v=8FXfIRJ77bQ) (www.youtube.com/watch?v=8FXfIRJ77bQ) to watch a video of Libby interacting with students and UP Vice-Chancellor and Principal Professor Tawana Kupe.



↑ Prof Tawana Kupe and Libby in conversation



View more videos of Libby

https://www.up.ac.za/news/post_2814363-up-libraries-steps-into-future-as-it-employs-robot-to-help-students
<https://youtu.be/8FXfIRJ77bQ>
<https://youtu.be/bPEg0KbiMhl>

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News

Mohau Nei is an engineering student who is determined to bring about change

By Estie Powell



↑ A delighted Mohau Nei



↑ Mohau believes that we can all transform lives

Mohau Nei was raised in Lesotho, and after she enrolled for a BEng (Electrical Engineering) degree, she worked hard consistently to achieve academic success.

‘During the last four years at the University of Pretoria, I have come to realise that academic achievement is not enough. In order to be the best engineer, I needed to know my role in society. Since then, I have made it my mission to be active and engaged in organisations that seek to improve the state of South African communities.

One such space of growth I found was at the Centre for Sexualities, AIDS and Gender (CSA&G). During the two years that I have been a member, I have grown immensely from its leadership programme known as the Just Leaders. Their engaged practices in social justice movements have made me critically conscious of my environment as a future engineer, as well as the role I need to play in order to bring about change.

I believe that many of the problems encountered by most African countries stem from the lack of structures that can sustain lives, allow for the creation of jobs, and improve the economy. As a result, people are faced with challenges such as poor health and diseases, unemployment and poverty, which all lead to the high crime and death rates.

Having worked with young people who suffer from some of these challenges, I have realised that my role as an engineer is more than just to build inverters or light bulbs, I am tasked with ensuring that my knowledge and skills help bridge the huge inequality gap on our continent and especially in developing African countries.

I am also tasked with advocating for a co-creative university environment that is responsive and transformed by just leaders. It is my responsibility to know and learn what my community's needs are in order to be able to design and implement systems that will benefit them and improve their lives. I believe that leadership involves activism and community-based development engagement.’

Mohau was one of twelve students selected to represent the University of Pretoria at the Southern Africa Regional Students and Youth Conference (SARSYC), which was held in Zambia from 10 to 13 July 2019. The theme of the conference was ‘Bring Southern Africa together to plan, to prioritise and to prevent’. Mohau wants to leave us with her favourite quote, which is: ‘Whatever you value, act it out constantly.’

Contact information

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↑ Delegates at SARSYC



↑ Passionate young people from all over the world forge new friendships.

Centre for Sexualities, AIDS and Gender (CSA&G)

By Pierre Brouard, Deputy Director

The CSA&G works closely with the University to make UP more inclusive and fair around HIV, sexualities and gender, and is involved in research, teaching and community projects. It also contributes to institutional transformation and its vision is ‘understanding power, exploring diversity, examining difference and imagining inclusivity’.

Just Leaders social justice volunteer programme

The CSA&G runs an exciting youth leadership and active citizenship programme, Just Leaders. It aims to build a movement of active citizen student leaders.

These leaders promote social justice, critical consciousness and inclusive practices at the University of Pretoria, and the programme works with similar movements at partner universities in the region. It covers various forms of exclusion, including race, gender, sexuality, class and ability.

The programme equips students with skills to conduct research and advocacy

and any student at UP is welcome to sign up for this programme and Centre training courses when they come to UP.

HIV counselling and support

The CSA&G offers HIV testing in its offices, as does UP's Student Health Services. Most of the counselling around the HIV test is offered by trained student volunteers of the CSA&G. They are trained over ten days in lay counselling skills and HIV information and they work under the supervision of a nursing sister and senior counsellors, to do the HIV test and the pre- and post-test counselling.

The CSA&G offers support (and referrals for treatment) to all students who are living with HIV.

Gender based violence

The CSA&G, in collaboration with the Transformation Office at UP, runs anti-sexual harassment workshops, seminars and talks, working closely with student leadership structures across UP.

It also houses the #SpeakOutUP student office, which offers basic support and guidance to students who may have concerns or queries about sexual harassment and gender based violence. This office is run by volunteers trained by the CSA&G.

For more information, please check our website www.csagup.org.

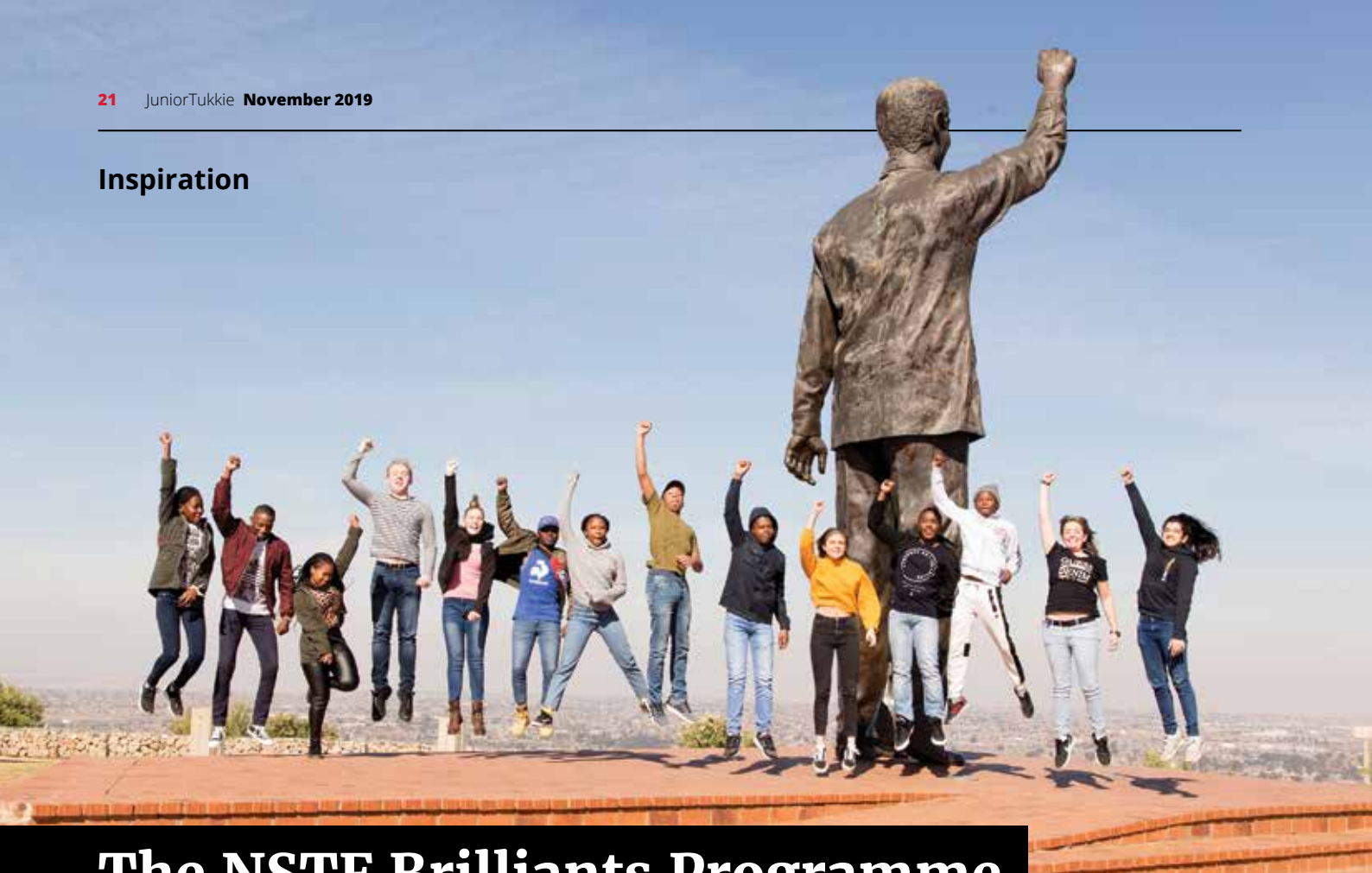


↑ CSA&G staff engaged in a Sexual and Gender Based Violence workshop



↑ CSA&G Just Leaders volunteers at the 3rd Edition of the Southern Africa Regional Students and Youth Conference held in Zambia

Inspiration



The NSTF Brilliants Programme

Meet the UP difference-makers

By Anthea Pretorius

The National Science and Technology Forum (NSTF), is a stakeholder body for all SET (science, engineering, technology) and innovation organisations in South Africa and registered as a non-profit company. Today's research is tomorrow's innovation.

The NSTF knows the value of science and mathematics in South Africa, where we need more graduates in these fields.

Every year the NSTF identifies 18 first-year students in natural sciences, medicine and engineering, who were top achievers in Mathematics and Physical Sciences in the National Senior Certificate, which they sat the previous year.

One male and one female student from each of SA's 9 provinces are selected and invited to attend the annual NSTF-South32 Awards Gala Dinner.

The NSTF Brilliants Programme

The Brilliants programme is popularly known as the 'Science Oscars of South Africa'.

It recognises the top female and male learners in each of the nine provinces based on their marks in Physical Sciences and Mathematics in the National Senior

Certificate Examinations (Grade 12), and their choice to study SET-related courses.

The glamorous event took place at Emperors Palace Convention Centre on 27 June 2019.

Ms Jansie Niehaus, Executive Director of the NSTF, welcomed the students, six of whom are students at the University of Pretoria. Their names are:

- Ms Nadya Rohinton Meherjina, BEng (Mechanical Engineering)
- Mr Thekiso Aron Mokoena, BEng (Chemical Engineering)
- Ms Olebogeng Mncwabe, BSc (Biological Sciences)
- Ms Carla Venter, MBChB — Bachelor of Medicine and Surgery
- Mr Hamman Prinsloo, MBChB — Bachelor of Medicine and Surgery
- Mr Tiisetso Molata, BEng (Electrical Engineering)

Molata and Prinsloo have each received the UP Vice-Chancellor Discretionary Merit Award bursary in their respective fields of study.

The Motivational Speakers Programme

The purpose of the Speakers Programme is to make these brilliant youngsters aware of the importance of personal and professional development. Ms Thandeka Mhlanga gave a talk on 'The power of taking initiative in self-development'.

The NSTF encouraged the students to work hard in their chosen field of studies and to find their way to an appropriate and rewarding career path.

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Website www.nstf.org.za

Inspiration



↑ Student participants in the Briliants Programme enjoyed their tour.

The six UP students enjoyed a weeklong tour arranged by the NSTF as part of its Briliants Programme.

The South African Astronomical Observatory (SAAO) and the South African Radio Astronomy Observatory (SARAO) hosted an astronomy tour across four provinces for 19 Grade 12-learners.

They visited the Boyden Observatory and Naval Hill Planetarium outside Bloemfontein, the Iziko Planetarium in Cape Town, the South African Large Telescope (SALT) outside Sutherland, and the Hartebeesthoek Radio Astronomy Observatory (HartRAO) outside Johannesburg.

The tour exposed students to new fields of study and careers in science, engineering and technology (SET), bursaries, opportunities and inspiration through role models in SET and innovation in South Africa.

Nadya Meherjina

Nadya Meherjina was born in Pakistan but grew up in Durban, where she matriculated from the Westville Girls' High School in 2018.

'I tend to lack confidence in my abilities, but my good marks in Grade 12 and being selected by the NSTF, has convinced me that I can achieve anything I set my mind to.

'I have always loved mathematics and science and been curious about these fields. My high school teachers ignited my love for mathematics and science, and they supported my decision to pursue engineering.

'The NSTF award has convinced me that I must pursue my dreams, no matter how improbable they may seem. I registered for BEng (Chemical Engineering), and I am loving it! It is a challenging programme, but I think that is partially what makes it rewarding.

'Being a top achiever in my two favourite school subjects was surreal. It has reaffirmed my choice to study engineering. It is a huge honour to be acknowledged by NSTF. This insightful tour has shown me the possibilities available in South Africa.'

Nadya, currently a first-year BSc (Mechanical Engineering) student continues: 'One day when I have qualified, I hope to use my knowledge and innovative thinking to improve the education sector. I hope to show young girls that their dreams are attainable and that they can excel in careers in STEM (science, technology, engineering and mathematics).

'My advice to Grade 9 to 12 learners is to find out what they love doing. If they are clear on that, be it a particular subject in school, a sport or a cultural activity, they must pursue it as far as they can.



↑ Nadya Meherjina received eight distinctions in Grade 12 and was the top candidate in her province with 100% for Physical Sciences.

'The NSTF Award instilled a new pride and respect in me for science and the advancement possibilities it holds for graduates in its many fields in South Africa. I walked away with a feeling of accomplishment, which stemmed from being recognised for my achievements on such a large scale.'



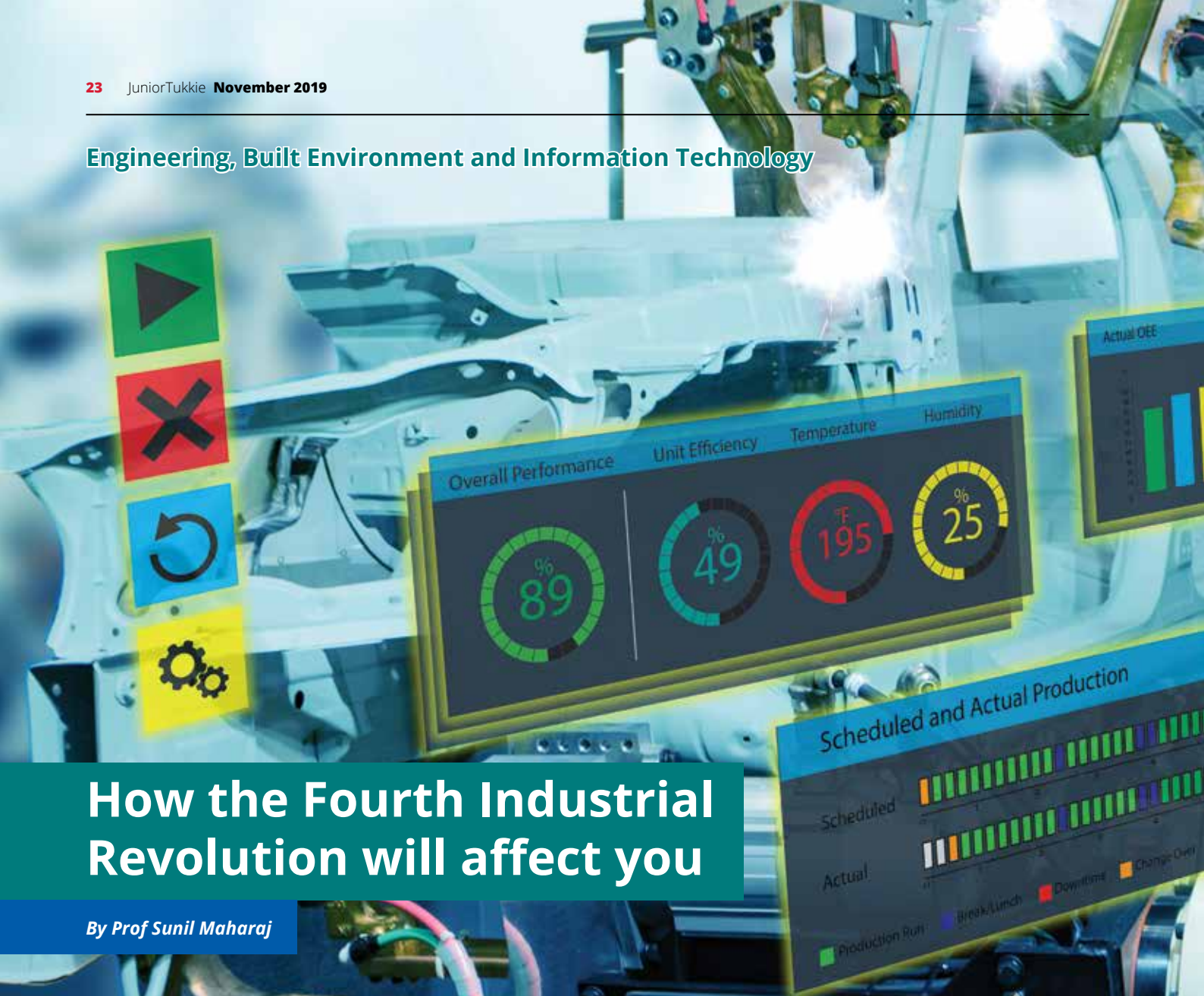
Thekiso Mokoena

UP first-year BSc (Mechanical Engineering) student Thekiso Mokoena was also awed by the experience.

'I am grateful to have been recognised by the NSTF. This tour has shown me the extent to which South Africa is involved in astronomy around the world. The telescopes were amazing!'

⬇ In Grade 12 Thekiso Mokoena had 100% in Physical Sciences and 99% in Mathematics. He obtained five distinctions.

Engineering, Built Environment and Information Technology



How the Fourth Industrial Revolution will affect you

By Prof Sunil Maharaj

Prof Sunil Maharaj, Dean of the Faculty of Engineering, Built Environment and IT (EBIT), emphasises that universities need to be more diligent about providing the right technical education and training to students or we may plunge deeper into the digital divide, poverty and inequality.

'South Africa has the ability to leapfrog our digital transformation agenda and improve our health, food security and economic growth, but this will require innovative thinking.

'The Fourth Industrial Revolution (4IR) is a game-changer.'

'It is marked by breakthroughs in fields including robotics, artificial intelligence, nanotechnology, the Internet of Things (IoT), quantum computing and biotechnology. The 4IR needs to address food security, health, education, water and energy. Many traditional jobs (eg carpenters, electricians, sheet metal workers, machinists) will fall away due

to technological advances that include drone assemblers, 3D print technicians and robotic technicians. A wide array of new jobs will become available, but they will require a unique set of skills – critical thinking, social-perceptive and ethical receptiveness; they require complex problem-solving, decision-making abilities and proactivity.

'Students and the current workforce will need to constantly upgrade their skills to remain relevant. Universities are educating students for jobs that could exist ten years from now. These include careers in augmented reality, coding, big data science, surgery with engineering background, controlling unmanned flights, robotic deep mining, controlling cloud traffic and industrial network engineering.

'Often, skills sets will include artificial intelligence (AI). Artificial intelligence may never replace a human worker and human brain power entirely, because the abilities to debate, resolve conflict, consider moral and ethical issues, write, speak, negotiate, think critically,

solve problems, engage in community building and work as a team remain core functionalities that humans will always need to contribute.

'Government and industry need to invest in smart transportation, cybersecurity, artificial intelligence and machine learning, as well as high-level technical skill development in order for SA to be a global participant.

'It is extremely worrisome that learners in many South African schools are not taking mathematics and science, or are passing with dismal marks, which in turn leads to a far too high dropout rate at university. Incoming first-year students often lack sufficient problem-solving, communication and mathematical skills.

'We are on the brink of technologies that will give us driverless cars, smartphones that can diagnose medical problems, fully automated homes, robotic housekeepers, hologram surgeons performing life-saving surgeries on patients in another geographic area and 5G.'



How the University of Pretoria is preparing its graduates for the 4IR

'We are equipping our students with foundational skills in mathematics, stochastics, programming, electronics, problem-solving, critical thinking and design.'

'To this curriculum we add professional practice, communication skills, ethics training, human values and environmental sustainability and social responsibility, as well as community service.'

- **TuksNovation** is a non-profit company owned by UP. It is a high-

tech business incubator, which is run in collaboration with the Department of Trade and Industry and the Small Enterprise Development Agency (SEDA). We promote hi-tech job creation to our students by providing support for incubation and development, as well as opportunities for commercialisation of technology with industry partners, venture capitalists and other funding agencies.

- The ABSA Chair in Data Science, the DST/NRF Chair in Artificial Intelligence and the Multichoice Chair in Machine Learning are all externally-funded research initiatives in EBIT that are actively growing a talent pool of students experienced in AI, machine learning and cybersecurity for the digital future. These initiatives are preparing our graduates to become global thought leaders.'



‘We need to remember that ‘our actions will always be remembered long after our words are forgotten.’

(John Maxwell)



Engineering, Built Environment and Information Technology

L'Oréal-UNESCO For Women in Science Sub-Saharan Africa Postdoctoral Award

By Estie Powell

Dr Marilize Everts of the Department of Mechanical and Aeronautical Engineering was awarded the L'Oréal-UNESCO For Women in Science Sub-Saharan Africa Postdoctoral Award. The event took place in Nairobi on 6 December 2018.



Dr Marilize Everts

A total of 488 nominations were received. Only two postdoctoral fellowships were awarded for the Sub-Saharan African region and she received one of them.

This award recognises talented female scientists in the field of Life Sciences or Physical Sciences.

She also attended a leadership training course in Kenya, which allowed her to strengthen her career ties with other female scientists from the continent. Dr Everts has received over 20 awards, including the TATA Africa Scholarship for Women in Science, Engineering and Technology, the S2A3 medal for original research at master's level, as well as the Eskom Chairman's University award for the best engineering student that graduated in SA in 2012.

She has published eleven journal articles and 28 conference papers (of which five were keynotes) and is currently involved in two international research projects:

- The *ThermaSMART RISE project* is a joint research programme between 18 universities and three industry partners and investigates the use of phase-change cooling of high-power electronic devices. This is very important because the need to continually increase the processing speed and durability of modern microprocessors in smart-phones, high-performance computing clusters or advanced electronic equipment leads to increased power dissipation and heating. To sustain high-speeds and reliable operation, this heat must be dissipated ideally at the same rate as it is generated, but the current state-of-the-art conventional air-



cooling is ineffective with 40% of air not playing a role in dissipating heat.

- A *Royal Society Capacity Building project* between Imperial College London and the universities of Pretoria, Nigeria and Mauritius. This project investigates unsteady boiling that typically occurs in concentrated solar (CSP) plants when the sun is suddenly blocked by clouds.

Interior architecture postgraduate student Nadia Ghillino captivates the attention of SABC and Chinese Global Daily

By Prof Chrisna du Plessis

Nadia Ghillino was a master's student in interior architecture in 2018.

She exhibited her dissertation project, 'The secret life of streets', at the Department of Human Settlements' Neighbourhood 4.0 Off-the-Wall Technology Showcase at the CSIR from 8 to 9 February 2019.

Her project investigates the issue of homelessness. She proposes an adaptable and flexible temporary cubicle design to address the lack of basic amenities in public urban areas. The design aims to re-introduce human dignity in environments where basic human needs are not met.

In her exhibition, she presented several technical explorations in terms of materials, modularity and manufacturing, as well as how one can integrate services and systems. Her project was one of five invited to a final project pitch session and received a special commendation from the judges.



Nadia Ghillino

Engineering, Built Environment and Information Technology

Electrical, Electronic and Computer Engineering (EECE)

This is the largest department of its kind at a university in South Africa and we have the largest number of specialisation fields in electrical, electronic and computer engineering.

Electrical Engineering

Electrical Engineering focuses on the generation, distribution, conversion and efficient utilisation of electrical energy to the electrical grid; for industrial, commercial and residential applications; power line communications as well as coal-fired, hydro and nuclear power stations.



FUN EVENT:

Robot race car day.
Watch the video here:

<https://www.up.ac.za/eece/article/2669042/annual-robot-car-race>

Electronic Engineering

Electronic Engineering deals with applications of electronics and this includes:

- Telecommunications (television, radio, cellular)
- Bioengineering
- Signal processing
- Optics
- Power electronics
- Electromagnetism
- Control systems
- Microelectronics
- Electronic design
- Embedded systems

Computer Engineering

Computer Engineering focuses on hardware and software.

- Hardware includes the field of robotics, digital signal processing, optical networks and communication systems.
- Software includes artificial intelligence, e-commerce systems, network security, and the design of operating and embedded systems.

Computer Engineering focuses on the combination of hardware and software to provide optimal solutions to real-world problems.

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

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Website www.ee.up.ac.za / www.up.ac.za/eece



Engineering, Built Environment and Information Technology

Industries at which you can expect to find a career:



Electrical Engineering

Applications of Electrical Engineering extend to coal-fired, hydro and nuclear power stations; power line communications and building and railway wiring. There is now also an intense focus on demand side management and energy efficiency to ensure effective and efficient use of our valuable energy resources both renewable and non-renewable.



Electronic Engineering

Electronic Engineering can be applied to telecommunications (television, radio, cellular communications, optical communication and more), industry (control systems and power electronics), military, transport and bioengineering.



Computer Engineering

In short, computer engineers design and optimise computers and computing systems for use in robots, cell phones, cars, wireless networks and cyber security.

Computer engineers specialise in combining hardware and software to produce optimal solutions to problems.

Minimum admission requirements

Note: The asterix below refer to the minimum requirements for 2021 column in the table below.

- * Cambridge A-level candidates who obtained at least a D in the required subjects will be considered for admission. Students in the Cambridge system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.
- * International Baccalaureate (IB) HL candidates who achieved at least a 4 in the required subjects will be considered for admission. Students in the IB system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.

Programmes	Minimum requirements for 2021*						
SCHOOL OF ENGINEERING	Achievement level						APS
	English Home Language or English First Additional Language		Mathematics		Physical Sciences		
	NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
BEng (Electrical Engineering) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	6	B	6	B	35
Careers: Electrical engineers are active in the generation, storage, transmission, distribution and utilisation of electrical energy. There is a bright future in renewable energy. Electrical engineers design, supervise the construction, oversee the optimal operation and assure perfect and timely maintenance of all electrical installations for municipalities, residential areas, commercial buildings, factories, mines and industries. Rail transport, water pumping, electrical grids, telecommunications, energy management and smart lighting all fall within the scope of electrical engineering.							
BEng (Electronic Engineering) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	6	B	6	B	35
Careers: Electronic engineers are active in various fields, such as telecommunications (fixed networks, wireless, satellite, television, radar and radio frequency networks), entertainment and medicine (magnetic resonance imaging, X-rays, cardiopulmonary resuscitation, infrared tomography, electroencephalograms (EEGs), electrocardiograms (ECGs), rehabilitation engineering and biokinetics), integrated circuit design, bioengineering, military equipment design (vehicle electronics, smart bombs, night vision, laser systems), transport (e-tags, speed measuring, railway signalling, global positioning system (GPS) and mapping), 'smart' dust, safety and security systems (face and speech recognition), banking (ATMs), commerce, robotics, education, environmental management, tourism and many more.							
BEng (Computer Engineering) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	6	B	6	B	35
Careers: Computer engineers are active in all fields of the information superhighway and the information and communication technology (ICT) world, which include computer systems, software engineering, computer and communications networks, wireless sensor networks, embedded software, electronics, smart control systems and automation, data security, e-commerce, pattern recognition (face and speech recognition) and artificial intelligence. They specialise in combining hardware, software and communication technologies to optimise system performance.							
Engineering Augmented Degree Programme (ENGAGE) [5 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	5	C	5	C	30

Note: The admission requirements above are relevant to prospective students who will commence their studies in 2021.

Candidates who do not comply with the minimum admission requirements for the four-year programmes, but who do comply with the minimum admission requirements for ENGAGE, must write the NBT.

¹ The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.

Engineering, Built Environment and Information Technology



Mining Engineering

Southern Africa is abundant in platinum, gold, chrome, copper, cobalt, diamonds, coal and iron ore.

The South African mining industry is in transition and will require fresh and inspired minds to transform the industry from a labour-intensive and low productive industry to a motivated and productive industry capable of mining in excess of 4,000 metres below the surface in the gold mining sector and in excess of 2,000 metres in the platinum mining sector.

Currently massive infrastructures advancements are taking place with new technologies being pursued. Automation and modernisation is taking place to access future ore bodies. The Department of Mining Engineering in this regard explores all potential new interventions so as to facilitate the learning experience. We also offer instructionally-designed material for its mining-related subjects. This enhances the learning experience of students. The Mining Industry Study Centre, which opened its doors in October 2013,

accommodates 758 students; has 252 workstations, 30 CDIO-type (conceive, design, implement and operate) venues and 296 study cubicles.

Virtual Reality applications in mining

The department also involves students in immersive technology for mining applications. The Virtual Reality Centre in the department allows this to be an important feature in mining engineering education.

The rewarding profession of being a mining engineer

Mining Engineering is the study and application of technological methods to effectively and safely operate a mining operation.

Mining engineers conduct mine evaluations as soon as geological confirmation of a mineral deposit, are confirmed.

Mining engineers will design the mine itself. If the mineral deposit is close to the surface, an opencast mine will be preferred, but for deeper deposits, an underground mine will be required.

Mining engineers coordinate the construction of such a mine, from the planning phase to full production phase.

Mining engineers design mining excavations; manage operations at all levels; provide expert advice on rock breaking, blasting materials, transport systems and scheduling; mechanical tunnel development, mine ventilation, rock mechanics, support of excavations, mining methods, as well as the design and development of equipment.

Mining engineers do mine planning and design. They also oversee mining projects. As consultants, they provide crucial information to decision-makers.

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

Contact information Prof Ronny Webber-Youngman (Head of Department)

Tel +27 (0)12 420 3763 | **Email** ronny.webber@eng.up.ac.za | **Website** www.up.ac.za/mining-engineering

Departmental administrator **Tel** +27 (0)12 420 3763 | **Email** daleen.gudmanz@up.ac.za

Engineering, Built Environment and Information Technology

The University of Pretoria provides excellent facilities to our Mining Engineering students and these include access to the:

- Kumba Mine Design Laboratory;
- Kumba Virtual Reality 3D360 cylinder;
- Kumba Virtual Reality 3D theatre;
- ARM Laboratory;
- Virtual Blasting Wall; and
- The Metallurgical, civil and mechanical engineering laboratories on the Hatfield Campus.

The aptitudes and skills of successful engineers include the following:

- Be able to visualise objects in three dimensions
- Have good health and stamina
- Have mathematical and scientific ability
- Be curious
- Be disciplined
- Be passionate about mining
- Have creativity and initiative
- Be responsible
- Have self-confidence
- Have organisational skills
- Command respect
- Maintain a cool head and take charge of a situation
- Have listening, speech and writing skills

What career opportunities exist for mining engineers?

The Mining industry is one of the largest industries in South Africa, producing more than **60 different minerals in over 1 000 mines and quarries**. Mining amounts to one eighth of the gross national product.

Mining engineers are employed at a wide range of companies, both locally and internationally. They are responsible for the effective, safe and profitable operation of mining undertakings.



Mining Engineering careers include that of Rock Engineer; Mine Ventilation Engineer; Explosives Engineer; Rock breaking Engineer; Drill and Blast Engineer; Project Engineer; Mine Planner and Environmental Engineer to mention but a few.

- Mining engineers are mining experts and they are engineers, who have a background in geology as well as in civil, mechanical and electrical engineering.
- Mining engineers research mining-related topics in order to improve safety and find better ways to extract minerals.
- Mining engineers also work in the banking sector and at the Stock Exchange, where they specialise in risk analysis and investment.
- Mining engineers are also needed for sales and marketing as well as business development of mining companies or supporting industries.

There is a shift in mining as it progresses towards mechanisation and automation through robotics. Mechanisation requires in-depth engineering skills to support and operate mobile mechanised equipment.

The Mining Engineering Leadership Academy

Our students have a sound academic foundation. To that, we add skills such as self-awareness, communication skills and the ability to work in multi-disciplinary settings and groups. The philosophy of the Leadership Academy programme is to expose final-year students to experiential situations, which teaches them intrapersonal and interpersonal skills. Psychometric assessments and real-life case studies hone well-rounded leadership habits.

Minimum admission requirements

Note: The asterix below refer to the minimum requirements for 2021 column in the table below.

- * Cambridge A-level candidates who obtained at least a D in the required subjects will be considered for admission. Students in the Cambridge system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.
- * International Baccalaureate (IB) HL candidates who achieved at least a 4 in the required subjects will be considered for admission. Students in the IB system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.

Programmes	Minimum requirements for 2021*						
	Achievement level						APS
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language		Mathematics		Physical Sciences		
	NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
BEng (Mining Engineering) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	6	B	6	B	35
Careers: Mining engineers have a wide range of opportunities, namely mining (mine management, technical management of ventilation, rock mechanics, rock breaking, mineral resources), financial evaluation and management (mine design, financial evaluation of mines, mine feasibility studies, mine environmental impact studies), mining and drilling contracting (mining, tunnelling, shaft sinking, mine development, ore evaluation), mining research, mining equipment design and manufacture, mining marketing and mining administration at national, provincial and international levels.							
Engineering Augmented Degree Programme (ENGAGE) [5 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	5	C	5	C	30

Note: The admission requirements above are relevant to prospective students who will commence their studies in 2021. Candidates who do not comply with the minimum admission requirements for the four-year programmes, but who do comply with the minimum admission requirements for ENGAGE, must write the NBT.

¹ The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.

Engineering, Built Environment and Information Technology



Materials Science and Metallurgical Engineering

South Africa has the world's largest mineral deposits of gold, chromium, platinum, vanadium and manganese. We also have large reserves of iron, lead, zinc, copper, nickel, coal and diamonds. The minerals industry contributes to some 50% of South Africa's exports and is one of the largest employers in the country.

The Department of Materials Science and Metallurgical Engineering, established in 1958, offers the BEng (Metallurgical Engineering) degree programme, fully accredited by ECSA (2017-2021). Professional metallurgical engineers who graduated from this programme, take minerals from the phase of exploration into successful utilisation of high performance products.

The three main fields of specialisation in metallurgical engineering are:



Minerals processing

Processing the ore to release and concentrate the valuable minerals contained in it.



Extractive metallurgy

The processing of mineral concentrates to metals through pyro-metallurgy (including smelting) or hydrometallurgy (including leaching) as refining steps.



Materials production, performance and integrity

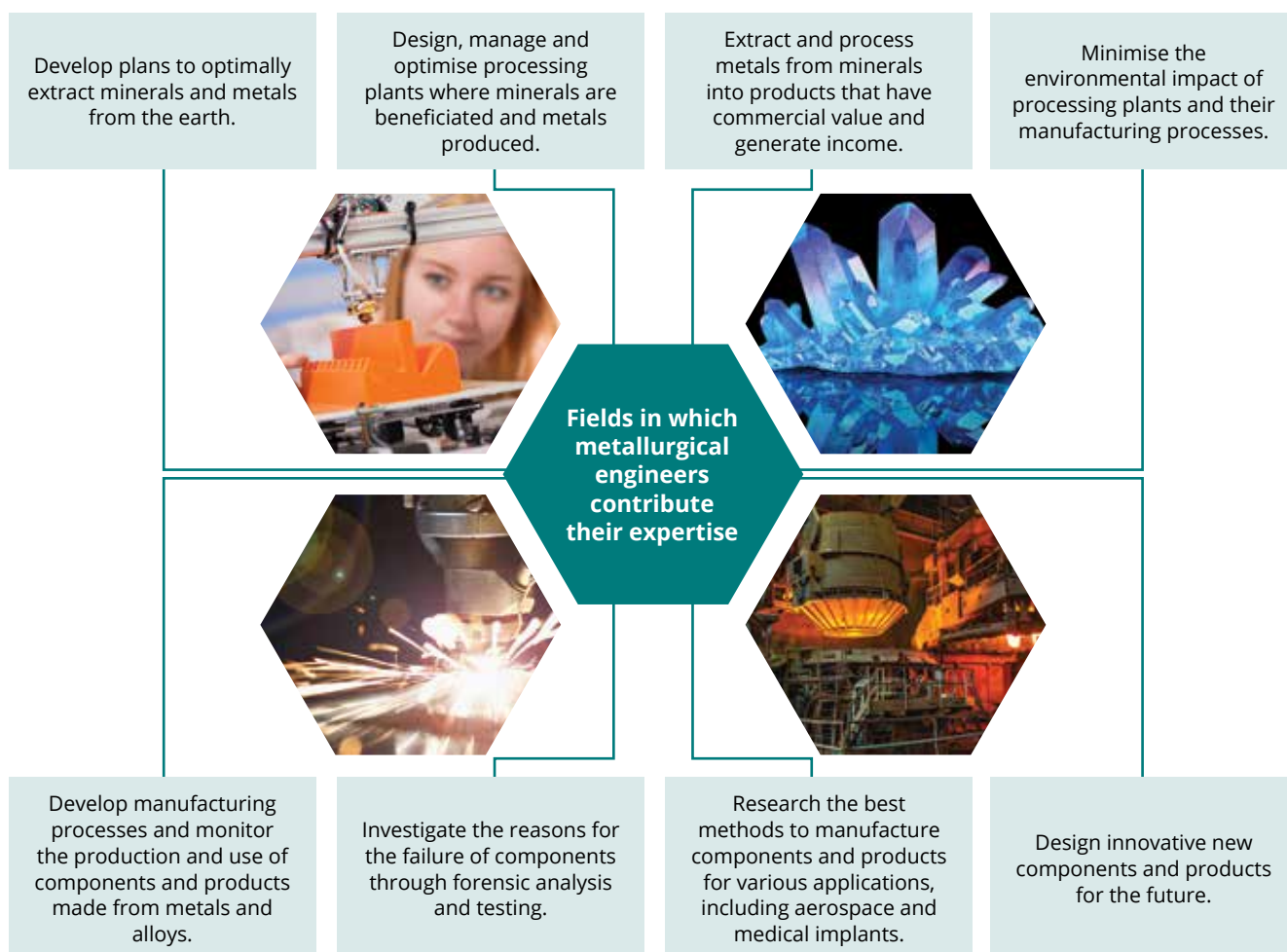
This field entails the development of new alloys, the production of useful materials and products from raw metals, including forming through casting and joining through welding. The forensic investigation of failures is also of great importance.

Note: The Engineering Council of South Africa (ECSA) accredits our programmes and our degrees meet the requirements for Professional Engineers in SA.

Contact information Prof Roelf J Mostert (Head of Department)

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Engineering, Built Environment and Information Technology



Minimum admission requirements

Note: The asterix below refer to the minimum requirements for 2021 column in the table below.

- * Cambridge A-level candidates who obtained at least a D in the required subjects will be considered for admission. Students in the Cambridge system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.
- * International Baccalaureate (IB) HL candidates who achieved at least a 4 in the required subjects will be considered for admission. Students in the IB system must offer both Physics AND Chemistry with performance at the level specified for NSC Physical Sciences in the table below.

Programmes	Minimum requirements for 2021*						APS
	Achievement level						
SCHOOL OF ENGINEERING	English Home Language or English First Additional Language		Mathematics		Physical Sciences		
	NSC/IEB	AS Level	NSC/IEB	AS Level	NSC/IEB	AS Level	
BEng (Metallurgical Engineering) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	6	B	6	B	35
Careers: Metallurgical engineers unlock the riches of deposits of metal ores, coal and diamonds and optimise the manufacture and performance of metallic components. They work in plants where valuable minerals are recovered from ore, where metals are produced from the minerals and where the metals are converted into useful materials as well as high-performance products from metals such as steel or aluminium. Careers include production engineers, plant managers, consultants, forensic engineers and researchers.							
Engineering Augmented Degree Programme (ENGAGE) [5 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	5	C	5	C	30

Note: The admission requirements above are relevant to prospective students who will commence their studies in 2021.

Candidates who do not comply with the minimum admission requirements for the four-year programmes, but who do comply with the minimum admission requirements for ENGAGE, must write the NBT.

¹ The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.

Economic and Management Sciences



The Faculty of Economic and Management Sciences celebrates its Centenary year in 2020

Economic and Management Sciences

The sky is the limit for EMS students

The Faculty of Economic and Management Sciences (EMS) prides itself on offering world-class qualifications that lay the foundation for tremendous personal and professional growth for our students. For many of our graduates, their degrees represent the stepping stones to exciting careers and international opportunities.

UP achieves top-class rating in the SAICA exams results



The UP Postgraduate Diploma (PGD) in Accounting Sciences class of 2018 has achieved a pass rate of 97.1%, clinching first position in South Africa when considering the combined pass rate of the January and June 2019 Initial Test of Competence (ITC) exams of the South African Institute of Chartered Accountants (SAICA).

This is the third year in a row (since 2017) that UP has achieved the first position in South Africa when combining the results of the January and June ITC examinations of this prestigious professional examination. Since 2013 (the start of the June ITC exams), UP has maintained an average pass rate of 97.9% for all combined ITC results, making it the country's number one crown holder for the combined ITC results over time.

Professor Johan Oberholster, Deputy Dean of Teaching and Learning and CA Programme Coordinator in the EMS Faculty, said:

'We believe UP's consistency and success in achieving these results is attributed to our innovative teaching methods, our excellent lecturers walking the extra mile, as well as our students' talent and commitment. We commend our lecturers and PDG students for their efforts in making these remarkable results possible.'

EMS student awarded Anton and Huberte Rupert Bursary



↑ Sonya Lakhani is flanked by Prof Elsabé Loots, Dean of the EMS Faculty (left) and Prof Johan Oberholster, Deputy Dean of Teaching and Learning

Sonya Lakhani has been awarded the Anton and Huberte Rupert Bursary to fund her MPhil in Financial Management Sciences studies during 2019.

A consistent top performer, Sonya obtained both her bachelor and honours degrees in Investment Management with distinction.

'Some of my personal highlights include being the recipient of the Vice-Chancellor and Principal's medal for my undergraduate performance. This was truly one of my best achievements,' she says. It was this achievement that made her eligible for nomination to receive the exclusive bursary as the Rupert Foundation only offers the funding to top academic achievers at UP.

'What initially drew me to the finance field, in particular the investment management field, was wanting to understand and manage finances. During my studies, however, I developed an interest in research and chose to remain at UP to complete my post-graduate degree. I was blessed to have an excellent learning experience in my undergraduate years. I wouldn't have wanted to complete my studies at any other university!'

Internal Auditing students head to America



↑ Back row: Gontse Mosese and Matsietsi Morobi. Front row: Nangula Ndadi, Lerato Jiyane, Dr Jana Slippers, Zaneta Boshoff and Tylo Sargeant

A group of UP Internal Auditing Honours students formed part of the 2019 cohort of international students who attended the Louisiana State University Center for Internal Auditing (LSU CIA) Case Studies week in the United States. The six day programme required student groups to give presentations daily on a wide variety of internal auditing topics.

This is what the UP students had to say when they returned: 'The Case Studies week was quite a challenge but the knowledge we acquired will be an essential tool in our profession.'

'The array of topics discussed in that short space of time made us realise how important knowledge about different subjects gives you a competitive advantage. It not only enables you to converse with people in the workplace but everywhere you go.'

'This learning experience is one that we would never be able to get anywhere else again and we value that highly. The trip to Louisiana, Baton Rouge will forever stay in our hearts. We want to extend our heartfelt thanks to LSU for being the best hosts and the Department of Auditing in the EMS Faculty for providing us with this amazing opportunity and experience.'

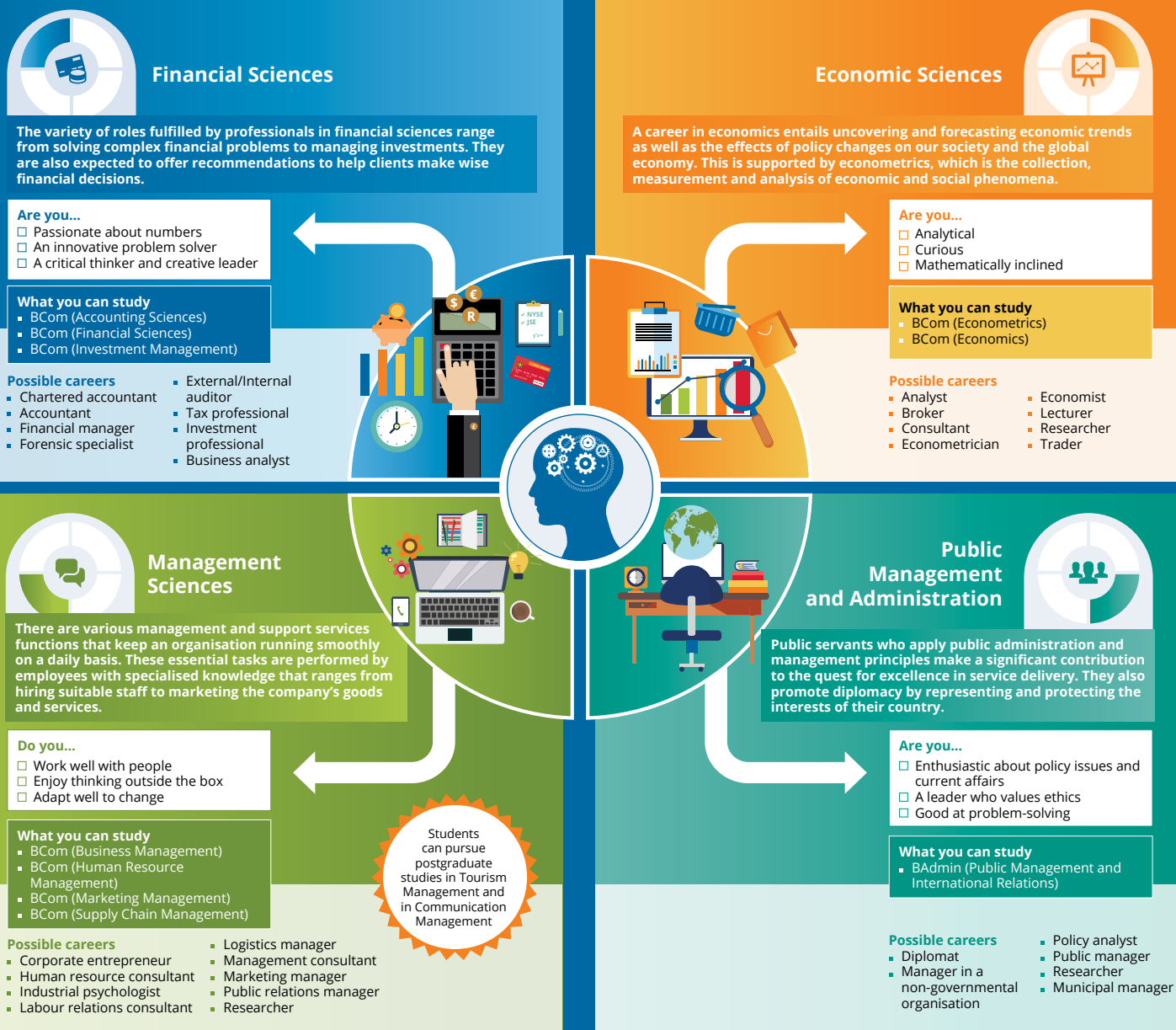
Economic and Management Sciences

Study options on offer at the Faculty of Economic and Management Sciences

www.up.ac.za/ems

Take a step UP

A degree from the University of Pretoria's (UP) Faculty of Economic and Management Sciences (EMS) could be the key to turning your passions into an exciting career. The wide variety of study options on offer are presented by highly qualified lecturers from across the globe who are leading experts in their fields.



Additional programme and degrees offered in cooperation with other faculties:

- BCom (Own choice): The degree does not lead to a specific vocational outcome but offers opportunities to compile your own curricula and determine your own career outcome.
- BCom (Agribusiness Management), BCom (Informatics) Focus area: Information Systems, BCom (Law) and BCom (Statistics and Data Science).

Please note: Mathematics is compulsory for all BCom degrees. Students with either Mathematics or Mathematical literacy can be admitted into BAdmin degrees.

Your passions + a world class degree from UP = a bright future

For detailed admission requirements, please visit www.up.ac.za/bcom

Like the EMS page on Facebook: @upems

Economic and Management Sciences

BCom (Statistics and Data Science)

Statistics can be described as the science of extracting information from data. We use statistics every day to make sense of the world around us: from the friend suggestions offered by Facebook to the way Apple Music recommends new music for you. Statistics is a vital part of modern life and business. Knowledge gained in the BCom (Statistics and Data Science) programme can increase the scope of possible jobs you could consider in practically any industry.

Skills needed/personality traits of a statistician

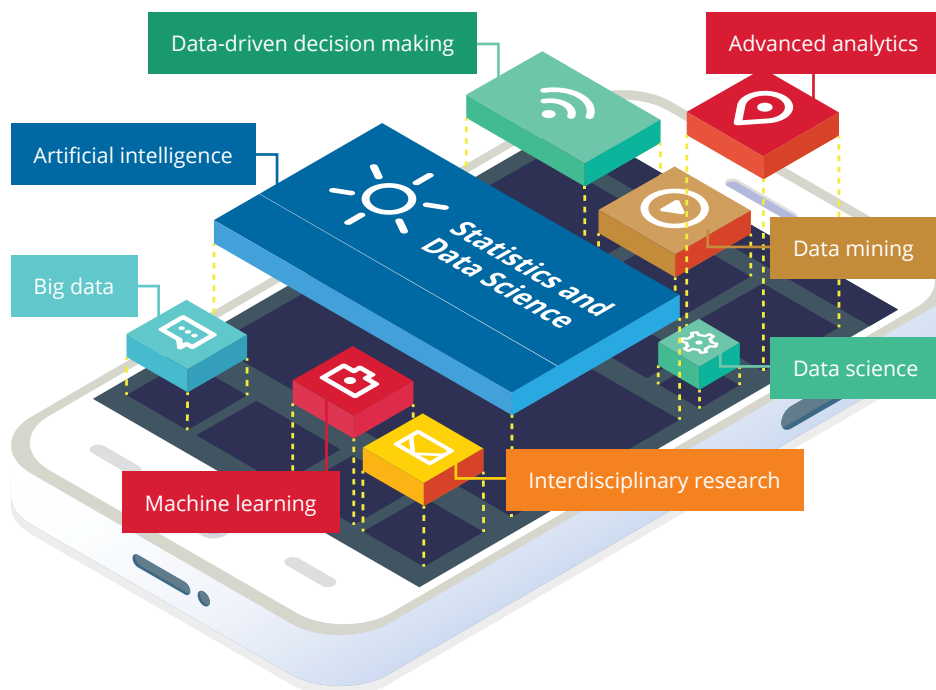
- Strong numerical skills
- Interest in computers and computer programming
- Logical reasoning ability
- Interest in planning and analysing problems
- Good language and communication skills
- Strong problem-solving skills
- Inquisitive mind
- Innovative
- Team player
- Critical thinking skills
- Agile mind
- Adaptable

Accreditations/Certifications

Undergraduate and honours students in Statistics and Mathematical Statistics can obtain Statistical Analysis Software (SAS) certification. SAS is an international statistical software developer (www.sas.com).

SAS offers four certificates to students:

- Introduction to statistical learning
- Statistical learning
- Introduction to big data analytics
- Big data analytics



Careers for individuals with statistical training

Banking and finance

- Fraud detection
- Analyse and forecast trends
- Pricing strategies

Insurance

- Determining the risk an insured person poses to the insurance company and determining a fair premium based on predicted claims
- Analysing client profiles in order to identify the need for new products

Consumer science

- Understanding the behaviour of consumers and their preferences
- Predicting demand for a product
- Identifying profitable locations for new outlets

Spatial statistics

- Advising the mining industry on sampling strategies to provide information about the characteristics of natural deposits and monetary gains to be made
- Analysing patterns where crimes are committed

Government

Advising decision makers in matters concerning the environment, economic and social development, health, education and infrastructure

Education

Statistics is a compulsory subject at school, but few teachers have statistical training.

Programme	Minimum requirements for 2021*				
	Achievement level				APS
	English Home Language or English First Additional Language		Mathematics		
	NSC/IEB	AS Level	NSC/IEB	AS Level	
BCom (Statistics and Data Science) [3 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	5	C	5	C	32
Careers: Data scientists, statistical analysts in several industries, researchers, consultants and lecturers					

PLEASE NOTE: Accountancy is not a subject requirement for any of the BCom and BAdmin programmes.

* Cambridge A level candidates who obtained at least a D in the required subjects and International Baccalaureate (IB) HL candidates who obtained at least a 4 in the required subjects, will be considered for admission.

¹ The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.

Natural and Agricultural Sciences

Postgraduate physics student selected to attend the Nobel Laureate Meeting

By Martie Meyer

Mr Justin Harrison, a recent MSc graduate from the Department of Physics at the University of Pretoria (UP), is one of only 20 top young scientists from South Africa to attend the 69th Lindau Nobel Laureate Meeting dedicated to physics later this year in Lindau, Germany. The Academy of Science of South Africa (ASSAf) has successfully nominated these top young scientists from South Africa.

'I feel very excited; it is truly a great honour to represent South Africa at this global event. Rubbing shoulders with some of the smartest people in the world for a week will surely be a life-changing experience, especially for young scientists like myself who are only just starting their careers. What I am most looking forward to are the conference presentations, which will be presented by the Nobel laureates on their ground-breaking research.'

'I would really love to meet the 2018 Nobel Prize winners for physics, Gérard Mourou and Donna Strickland, who did outstanding research in the generation of ultra-short optical pulses,' said an elated Mr Harrison when asked how he feels about attending this prestigious event.

He added that this year's Nobel Laureate Meeting is dedicated to physics and one of the most important topics in lasers and photonics. 'I recently completed my MSc Physics degree at UP under the supervision of Prof Tjaart Kruger (Physics) and Dr Shankara Radhakrishnan (Chemistry) with my dissertation focusing on femtosecond laser spectroscopy, so the theme of this year's meeting is really relevant to my field of interest.'

Mr Harrison had a lot of praise for the extended programmes in the Faculty of Natural and Agricultural Sciences, which give students who did not meet the minimum Mathematics and



Mr Justin Harrison

Science requirements for university entrance a second chance by offering the degree in four years instead of three. 'I enrolled for the four-year (BSc—Extended programme—Physical Sciences) at the Mamelodi Campus, and after completing the bridging period, I was allowed to re-join my peers in the three-year programme at the Hatfield Campus. Despite this setback and with hard work and determination, which included many hours spent in the library, I eventually honed my skills to become a successful physics student.'

Mr Harrison passed all his Physics degrees (BSc, honours and master's) with distinction and academic colours, and received many other awards for outstanding academic achievements. He was also a Physics tutor during his studies.

'My advice to the youngsters out there who are faced with similar challenges is to remember that, no matter what the obstacle, if you are determined, work hard and stay focused, there is absolutely nothing you cannot achieve.'

ASSAf, as the official partner of the Lindau Foundation and with funding from the Department of Science and Technology, annually nominates young scientists to attend the Lindau Nobel Laureate Meetings, which are designed as a forum for young scientists from all over the world to have an in-depth exchange with Nobel laureates.

Natural and Agricultural Sciences

Empowering women pays off handsomely in the life of this UP student

By Xolani Mathibela

Pilirani Tendai Khoza is a devoted Forester at Pyxus International. She has an academic background in Science and Forestry.

Concerned about the gender gap of women in higher education, Khoza founded the Bunda Female Students Organization (BUFESO) in Malawi. As coordinator, she sources funds to support less privileged university students with school fees and upkeep.

'I empower young women to become academically involved in the fields of science and agriculture by sourcing funds for needy university students.'

Bufeso has implemented a farmer climate change programme among rural farmers who grow fruit trees. 'In 2018, I established a community orchard with a five-year plan of opening the first-ever juice-making industry managed by rural farmers in Malawi.'

She has received numerous awards, including one from her Majesty, the *Queen Elizabeth's young leadership award* (www.queensyoungleaders.com) and the *2019 Mandela Washington Fellows Leadership and Business award* (www.yali.state.gov/mwf/apply).

'In 2018, I met the Queen of England at Buckingham Palace in London. It still feels as if it was a dream. The first question she asked me was: 'How is Malawi?'

'I will cherish the Queen's Award forever. It has opened numerous opportunities for me, and as an organisation we now have sponsorship partners in London. We must never forget that Africa is a continent with endless possibilities. Youngsters like me need to believe in what you are doing, and the world will notice.'

Khoza is currently pursuing a master's degree - MSc (Forest Management and the Environment) at the University of Pretoria.



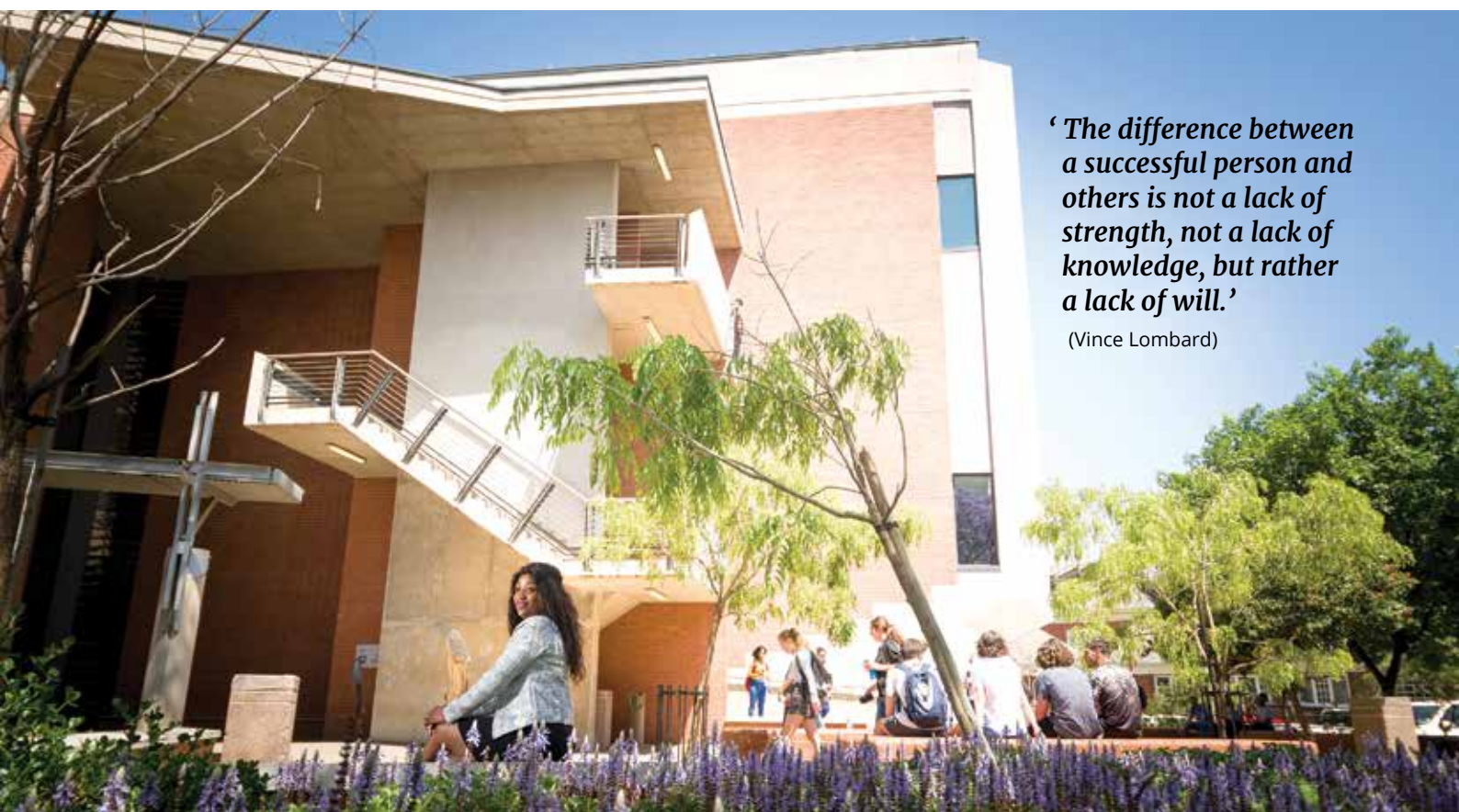
Pilirani Tendai Khoza



↑ Pilirani Tendai Khoza receiving Queen Elizabeth's young leadership award

'The difference between a successful person and others is not a lack of strength, not a lack of knowledge, but rather a lack of will.'

(Vince Lombard)



Natural and Agricultural Sciences



Ms Itumeleng Baloyi

Microbiology PhD student wins international prize

By Martie Meyer

Ms Itumeleng Baloyi, a PhD student in microbiology at the University of Pretoria (UP), was recently awarded the first prize for the Best Poster Presentation at the Phytochemical Society of Europe (PSE) and Young Scientist Meeting (YSM) 2019 in Budapest, Hungary.

Ms Baloyi presented her research paper titled *Anti-quorum sensing and antibiofilm activities of South African medicinal plants against uropathogens*, which won her the coveted prize. She is supervised by Dr Sekelwa Cosa from the Department of Biochemistry, Genetics and Microbiology at UP.

'I am so thankful to God for the mercies, grace and strength He has given me during my postgraduate studies. I also appreciate my supervisor, Dr Cosa, for the opportunity granted to showcase my research work internationally and my previous supervisors, Prof Viljoen and Prof Combrinck whom I worked with,' an elated Ms Baloyi said.

She also expressed her gratitude to UP for the opportunity to further her studies and the PSE-YSM organisers for the opportunity to present her research and be chosen as one of the best presenters. 'I am also grateful to the National Research Foundation for awarding me the PhD Innovation Scholarship, allowing me to further my studies. This was my

first time travelling overseas, and it has been a great experience. I received the prize with honour as a young black woman scientist who presented at the conference,' Ms Baloyi concluded.

Dr Cosa, a lecturer in the Department of Biochemistry, Genetics and Microbiology, Division of Microbiology, leads a research group focused on the use of medicinal plants and natural products to attenuate bacterial infections and attended the conference with Ms Baloyi. The focus of the conference this year was on Trends in Natural Products Research: Biochemistry, Molecular Aspects and Pharmacology of Bioactive Natural Products. According to Dr Cosa, 'This opportunity presented by PSE-YSM2019 has given UP the opportunity to showcase some of the research work we are doing'.

Ms Baloyi joined Dr Cosa's research group in 2018 as PhD candidate and has worked closely with Dr Cosa since 2014 during her internship programme.



↑ Ms Itumeleng Baloyi in the laboratory

Natural and Agricultural Sciences

UP student wins one of three wood scientist awards in global competition

By *Martie Meyer*

Martin Wierzbicki is an MSc graduate from the University of Pretoria. He recently won the 2018-2019 Blue Sky Young Researchers and Innovation Award. Three awards are allocated annually.



Martin Wierzbicki

This announcement was made by the International Council of Forest and Paper Associations (ICFPA). The two other winners were Elina Pääkkönen (Finland) and Chinmay Satam (USA).

Martin, Elina and Chinmay were lauded for their novel wood-based research projects.

'I hope my story inspires other young South African researchers to enter competitions for awards like this, as there is so much great research being done in this country that should be highlighted to the world,' said an elated Martin, when asked on what this award meant to him.

'I'm delighted and humbled to be honoured with such a prestigious award. It feels so surreal. I applied out of curiosity and was keen to represent South African research on an international level. I hoped for the best, of course, but I was amazed when the project I had worked on so hard, went further. Seeing others appreciate the work I do, especially when they are experts in the field, is very rewarding. It is scary to put an idea of your own out into the world, but I'm really happy about the fantastic achievement.'

Martin completed a master's degree in Genetics (cum laude) in 2018 under the supervision of Prof Zander Myburg and Prof Eshchar Mizrahi from the University's Forestry and Agricultural Biotechnology Institute (FABI—<https://fabinet.up.ac.za>).

During his undergraduate studies at UP, Martin was selected as a mentorship student in the Forest Molecular Genetics (FMG) Programme in FABI, and he later went on to mentor undergraduate students himself.

His award was based on research on genome-based biotechnology for designer wood.

'I combined genetics, genomics, big data and wood chemistry analyses to build a gene network model,' he explained. 'My model treats the tree as a 'living bio-refinery', where we have control of how the wood is made.'

Martin hopes that his work will help companies to improve breeding techniques to reduce the loss of valuable components during wood processing and to introduce novel properties for

advanced biomaterial production in trees.

The international competition aims to attract submissions from aspiring young scientists and engineers who are developing novel solutions using wood fibre, process improvements or other products along the forestry-pulp-paper value chain.

The research projects were judged in terms of disruptive technologies that can revolutionise the future of forest-based products and services. The 2018/2019 contest invited submissions in two particular areas: future generation forestry and innovation in the wood-based industry.

These issues are particularly topical as the world seeks greener, more sustainable and renewable alternatives to packaging, fuel and materials.



David Gandossi, CEO of Mercer, presents a Blue Sky Award to Martin Wierzbicki.



‘Success is the sum of small efforts, repeated day-in and day-out.’

(Robert Collier)

Humanities

Consider the BSocSci (Philosophy, Politics and Economics) degree for rewarding career options

By Prof Emma Ruttkamp-Bloem

Follow an internationally respected path to a financially competitive career with a Humanities degree!

The Faculty of Humanities at the University of Pretoria brings together three core disciplines—philosophy, political sciences and economics—in a rigorous, vibrant context of interdisciplinary research. Training in three majors and statistics up to second-year level ensures mastery of critical skills for ‘citizens of the world’—analytical and reasoning skills that enable students to critically engage with the history of modern economic and political thinking, and mathematical skills enabling students to stay abreast of the big data explosion, which is also affecting the social sciences.

UP offers an undergraduate degree programme in this field, as well as an honours and master’s programme.

Career options in this field include:

Journalism; international trade; the diplomatic service; banking; economic analytics; economic and political policy making related to globalisation, citizenship and migration, poverty and social justice, climate change and sustainable development; and many others.

Potential employer options include:

Thomson Reuters, Goldman Sachs, Alexander Forbes, the public service, Accenture, Deloitte, Kuehne Nagel, Barclays, Dedola Global Logistics, the Migrant Resource Centre, the UN Refugee Agency, and many others.

BSocSci (Philosophy, Politics and Economics)—(PPE) a degree in problem-solving



Henry Dillon Peens writes:

‘The PPE degree equips one with the skills to identify, understand, and solve complex problems wherever they might appear. As such, the degree requires a perpetually curious mind and a dogged determination to understand the world around us. It is the study of humanity (hence, a social science) and as a result, in the PPE degree we are not forced into an intellectual box, instead we are encouraged to find the “dots” and to build a spiderweb interconnectivity, with each discipline adding a deeper layer of analysis. Due

to the scope of our study, we are able to approach a problem from multiple angles and in doing so we are able to gain valuable insight into problems as well as communicate solutions effectively. This all means that the PPE way of thinking is limitless in its potential applications.’



Shudufhadzo Abigail Musida concurs:

‘PPE exposed me to many career opportunities by providing an extensive understanding of the world, and that is the reason I chose it—the idea of possibilities and flexibility. The triple major specialisation equipped me with a range of analytical skills that are necessary for high-level engagement. Now, I am able to participate in a number of job fields ranging from diplomacy to economics. PPE is truly wonderful because the world really does become your oyster.’



Law

Young Space Law lawyer shines bright like a diamond in the sky

By Elzet Hurter

The Faculty of Law at the University of Pretoria (UP) is proud to announce that LLB alumna Ms Ruvimbo Samanga has been appointed from March 2019 to March 2021 as the National Point of Contact for the Zimbabwean Space Generation Advisory Council (SGAC) in support of the United Nations (UN) Programme on Space Applications.



Ms Ruvimbo Samanga

Ruvimbo is currently an LLM student in the Master's on Trade and Investment Law in Africa Programme at the Faculty's Centre for Human Rights.

As a non-governmental organisation, the SGAC states on its website that it aims to represent students and young space professionals to the UN, the space agency industry and academia. The SGAC has permanent observer status in the UN Committee on the Peaceful Uses of Outer Space (COPUOS).

The SGAC, established at the Third UN Conference on the Exploration and Peaceful Uses of Space (UNISPACE-III) in Vienna in 1999, consists of representatives from each of the six UN regions and has a larger body of representatives from nation-states. Their focus is on pragmatic space policy advice to policymakers, based on the interests of students and young professionals from around the world who are interested in space, broadly in the age range of 18 to 35.

Another feather in her UP LLB mortarboard is the fact that Ruvimbo was also invited to participate in the

2019 European Forum Alpbach (EFA) Workshop on 'Liberty and Security' in Alpbach, Austria, through a scholarship by the Robert Bosch Stiftung GMBH from 14 to 30 August this year. According to the EFA website, the Forum serves as an interdisciplinary platform for science, politics, business and culture, addressing current and relevant socio-political questions.

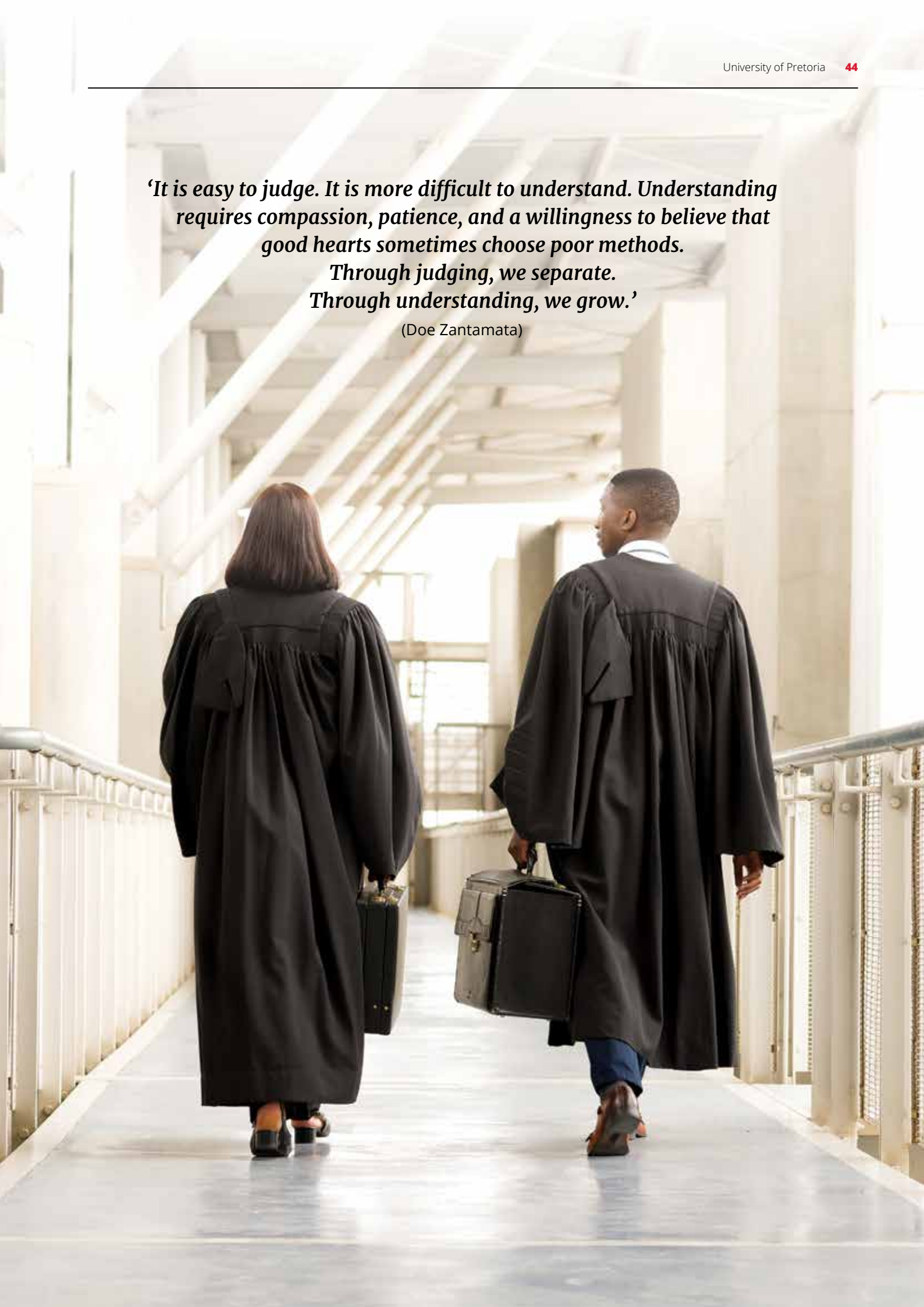
The Forum strives 'to connect international decision-makers from all sectors of society with an interested audience and committed young people, with the objective to create a dialogue across generational, ideological and other dividing lines. The Forum not only aims at analysing current developments, causes and driving forces but also at delivering new perspectives and orientations. It also pays tribute to the late Karl Popper as a regular guest and his constant plea for the open society in the aftermath of the great catastrophes of the 20th century, eg totalitarianism, the Shoah and WWII. The Forum aims to give equal attention to pertinent topics from a philosophical, political, socio-economic, ecological and cultural perspective.'

To top it all, Ruvimbo has recently received confirmation that her academic paper was accepted for presentation at the 70th International Astronautical Congress to be held from 21 to 25 October in Washington DC. Created in 1951 to foster dialogue between scientists around the world, and to support international cooperation in all space-related activities, the International Astronautical Federation to this day continues to connect all space experts.

'The Federation is the world's leading space advocacy body, with over 366 members, including all key space agencies, companies, societies, associations and institutes across six continents and 68 countries. Over 40 administrative and technical committees support the Federation in its mission to advance knowledge about space and to foster the development of space assets by facilitating global cooperation.'

Per aspera ad astra is definitely true in the case of star alumna and current LLM student Ruvimbo Samanga, and we are very proud to call her our own.

'It is easy to judge. It is more difficult to understand. Understanding requires compassion, patience, and a willingness to believe that good hearts sometimes choose poor methods. Through judging, we separate. Through understanding, we grow.'
(Doe Zantamata)



Health Sciences



World's First 3D Printed Middle Ear Transplant: Restoring the Gift of Hearing

By Jimmy Masombuka

Prof Mashudu Tshifularo, Professor and Head of the Department of Otorhinolaryngology (ear, nose, and throat) at the Faculty of Health Sciences at the University of Pretoria became the first ENT specialist in the world to perform a 3D middle-ear transplant. The ground-breaking transplant surgery was performed on a 35-year-old male whose ear was destroyed in a car accident which compromised the patient's hearing because of the damage to the middle ear bones. Prof Tshifularo and his team managed to restore the patients hearing.



Many struggle with the ability to hear birds chirping and enjoy their favourite tunes. A large number of citizens are affected by hearing loss. Approximately 7.5 per cent of the schoolchildren in South Africa suffer from varying degrees of hearing loss. The surgical procedure may be the answer to hearing loss, middle ear problems caused by congenital disabilities, ageing, infection, trauma or metabolic diseases. The surgery can also be performed on new born babies.

The innovative Professor believes that academics have a responsibility to come up with solutions that benefit communities around them. This is backed by his history of designing numerous patent medical devices and procedures that are widely used in the ENT field today.

Below is an explanation of the 3D middle-ear transplant procedure as explained by Prof Tshifularo:

- The process involves the effective replacement of the hammer, anvil, and stirrup, the ossicles (smallest bones in the body) that make up the middle ear.
- These bones were printed using 3D technology, and then used in the surgery to reconstruct the ossicles.
- By replacing only the ossicles that are not functioning correctly, the procedure carries significantly less risk than known prostheses and their associated surgical procedures.
- Titanium was used for this procedure, which is biocompatible.
- An endoscope was used to do the replacement, so the transplant is expected to be quick, with minimal scarring.

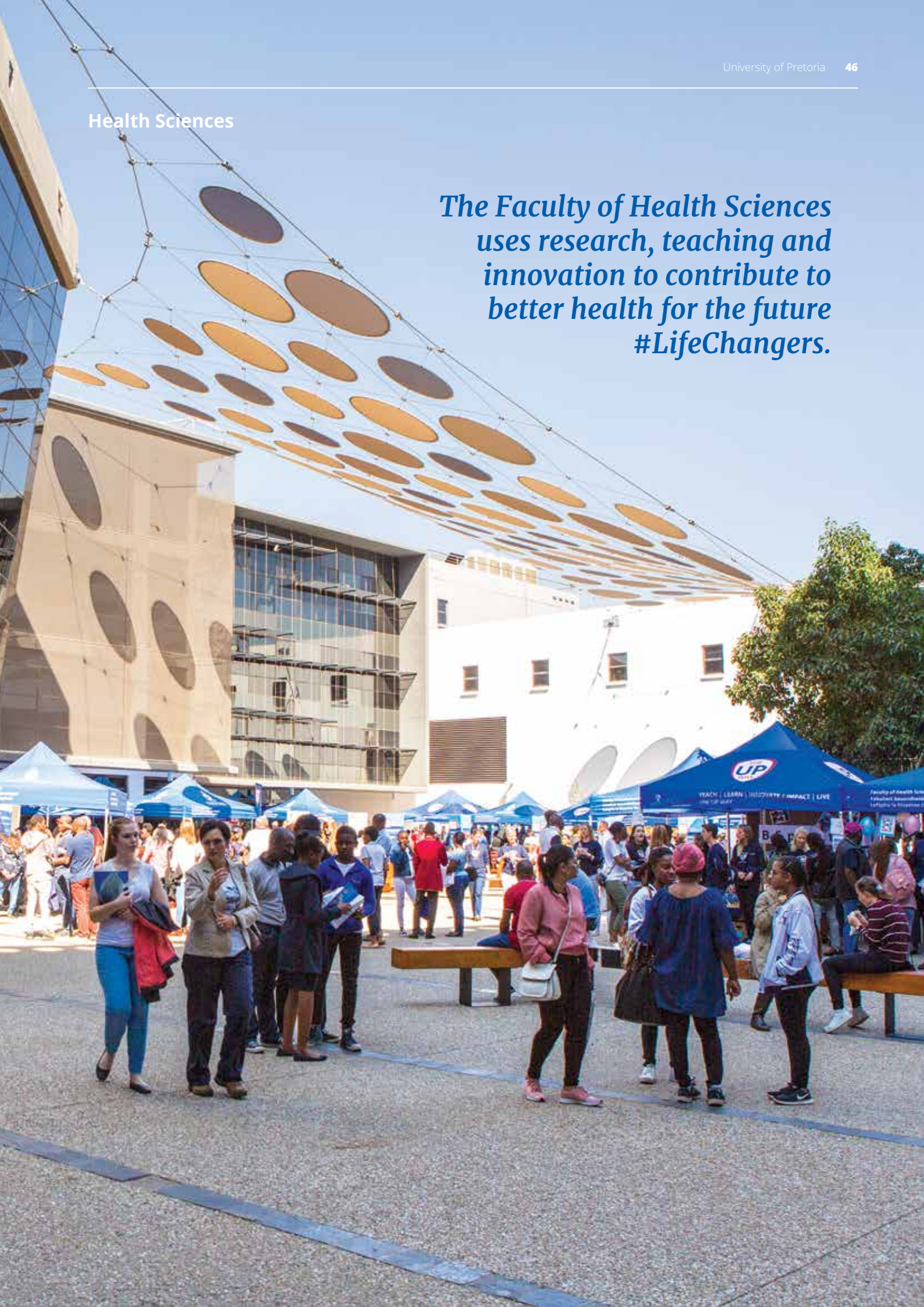
A key lesson that many can learn from Professor Tshifularo's invention is that revolutionary discoveries take time, but with technology, much more can be achieved. '3D technology is allowing us to do things we never thought we could,' shared Prof Tshifularo.

Prof Tiaan de Jager, Dean of the Faculty of Health Sciences shared:

'We are proud of Prof Tshifularo's innovation which will make a significant difference to many citizens by restoring their hearing. We always encourage our researchers and academics to make the right strides in order to change lives with cutting edge technology and discoveries.'

Health Sciences

*The Faculty of Health Sciences
uses research, teaching and
innovation to contribute to
better health for the future
#LifeChangers.*



Theology and Religion

Young theologian participates in a health and wellness outreach

By Dana Mahan

In June and July 2019, Mr Tona Moroke, a graduate from the Centre for Contextual Ministry in the Faculty of Theology and Religion at the University of Pretoria, participated in a health and wellness outreach, led by Elim Gospel Church, which took him on tour across Southern Africa.

He affirmed that it was an effective, practical application of his faith, providing him with the opportunity to share the gospel of Jesus Christ.

Africa is a very hospitable continent, Mr Moroke noted, one that he believes can become a home for everyone if communities are transformed by means of Christian service. His approach to

helping others through the Church has radically changed as a result of the venture, which included stops in Botswana, Zambia, Malawi, Kenya and Tanzania.

Furthermore, he claimed that this community-driven approach to ministry is the best way to assess how religious involvement in African societies can at the same time satisfy the deep spiritual needs of the people that live in them.

For more on this trip and future missions hosted by Elim Gospel Church in Pretoria, please visit its Facebook page: www.facebook.com/ElimStudents.



Mr Tona Moroke



1 The Mission team preparing for departure



1 Engaging people across cultural divides

Programmes	Minimum requirements for 2021*		
	Achievement level		APS
	English Home Language or English First Additional Language		
	NSC/IEB	AS Level	
BDiv – Bachelor of Divinity (for admission to MDiv studies) [4 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	4	D	28
Careers: Ministers, pastors, priests, preachers in certain denominations, missionaries and youth counsellors. Other possibilities include ethics consultants to businesses. Theological studies can be enriching for people in various other vocations. Prospective students who are interested in ordained ministry should discuss their intention to register for this programme with their church leadership.			
BTh – Bachelor of Theology [3 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	4	D	28
Careers: Ministers, pastors, priests, preachers in certain denominations, missionaries and youth counsellors. Other possibilities include ethics consultants to businesses. Theological studies can be enriching for people in various other vocations. Prospective students who are interested in ordained ministry should discuss their intention to register for this programme with their church leadership.			
DipTh – Diploma in Theology [3 years] Closing dates: SA – 30 September, Non-SA – 31 August ¹	3	E	24
Careers: Ministers, pastors, priests, lay preachers in certain denominations, missionaries and youth counsellors. Candidates should consult their church leadership on which programme would best suit their aims. The Diploma in Theology is intended for candidates who have completed Grade 12 (or equivalent) but without the required university admission.			

* Cambridge A-level candidates who obtained at least a D in the required subjects and International Baccalaureate (IB) HL candidates who obtained at least a 4 in the required subjects will be considered for admission.

¹ The closing date is an administrative admission guideline for non-selection programmes. Once a non-selection programme is full and has reached the institutional targets, then that programme will be closed for further admissions, irrespective of the closing date. However, if the institutional targets have not been met by the closing date, then that programme will remain open for admissions until the institutional targets are met.



***'Happiness and love
are a frequency.
A state of being.
A state of awareness.
An inner wholeness.
An attitude. A choice.
And they start in the
heart.***

***Others are a mirror
reflecting our hearts,
beliefs and attitudes.
Everyone we meet can
teach us something.
Change what you are
able to and let go of what
no longer serves you.'***

(Anthea Pretorius)



‘I-Want-To-Be-A-Vet 2019’ project bodes well for the future

By Andrea Lau

The I-Want-To-Be-A-Vet project was launched to expose and provide school learners, especially those from less privileged areas, with more information about the Faculty of Veterinary Science at the University of Pretoria. Ultimately, the aim is to encourage learners to seriously consider Veterinary Science or Veterinary Nursing as a career.

The project was initiated by the Onderstepoort Veterinary and Para-veterinary Student Committee (OPVSC) of 2010, starting off with approximately 13 school learners. This project has grown to an estimate of 100 school learners and is still carried out by OPVSC. Apart from the Faculty, UP's JuniorTukkie and Hill's have since also become important stakeholders in this project.

After months of planning, the weekend for I-Want-To-Be-A-Vet (IWBAV) 2019 had finally arrived. The weekend stretched over 12–14 April and alternated between two locations—the Onderstepoort (OP) campus and Kwalata Game Lodge in Dinokeng.

Once the learners had arrived at OP, we began the programme with a breakdown as to what the weekend would entail. The learners were then presented with exciting and motivating talks from various people such as Prof Dietmar Holm (Deputy Dean: Teaching and Learning in the Faculty

of Veterinary Science), Prof Nenene Qekwana (Community Engagement at the Faculty of Veterinary Science), Dr Petrus Lombard (Project Manager: JuniorTukkie), Dr Kashmika Gurunand (Community Veterinary Services Veterinarian) and Sr Dalene Janse Van Vuuren (Representative from Hill's). We were then off to Kwalata to spend the night where the learners were divided into groups and invented astonishing war cries.

On Saturday morning, the learners geared up in greens and gumboots and were ready to take on the jam-packed day ahead! They rotated in their groups around different stations which were managed by our own veterinary science/nursing students. The animal stations included dogs, horses, sheep and cattle.

At these stations, the learners were shown elementary procedures such as determining body condition scores, herding, understanding behaviour and body language, auscultation of different

body parts and demonstrating tricks for the dogs. Other stations included the Pathology station, the Skills Lab station and the Ethics station. Upon entering the pathology hall, learners were met with the characteristic repellent smell of formaldehyde but left with smiles as this was a popular station.

Using our world-class models, the Skills Lab station taught learners fundamental skills, while at the Ethics station, learners were given cases challenging their concepts of ethics and professionalism.

Once the procedures at the stations ended, two veterinary nurse degree students (of whom one is an IWBAV alumna) gave talks about their degree. At the beginning of IWBAV, we asked how many learners wanted to be veterinary nurses, and our question was met with silence.

At the end of IWBAV, we again asked the same question, and it was met with more enthusiastic responses. It was heart-

Veterinary Science

warming to know that we have changed people's perceptions, even if it was just a few. After returning to Kwalata and freshening up, each group had to create a short performance for a talent show. By the end of the talent show, most people were bent over from laughter as it was indeed genuinely entertaining. It was remarkable to see how much effort and creativity each group put into the show.

The night was concluded with an awards ceremony where specific learners who exhibited bravery and much interest in the stations were awarded. The OPVSC also hosted a social media competition, and the winner was announced at that time.

On Saturday and Sunday morning, learners were treated to morning game drives at Kwalata, where we had the opportunity to spot some animals, including a few cheetahs. The aim of this was to expose learners to the wildlife side of Veterinary Science. After handing out a few keepsakes such as bags, t-shirts and memory sticks on Sunday, we bid a sad farewell to all the learners.

Many of us entered the Faculty of Veterinary Science, not ever knowing what the IWBAV project is. Although there were a few obstacles along the way, the incredible support that came through from our team of volunteers, the OPVSC committee, faculty management, JuniorTukkie and Kwalata was overwhelming.

These are the learners we may work with one day in practice or out in the field, and it is these perceptions we wanted to, and did, change. To reach even one mind, one child or motivating just one individual to adopt an improved mindset is doing more than one could ask for! Although the academic sphere is our priority as students, life stretches so much further than the walls of our classrooms. Make a difference where it counts!



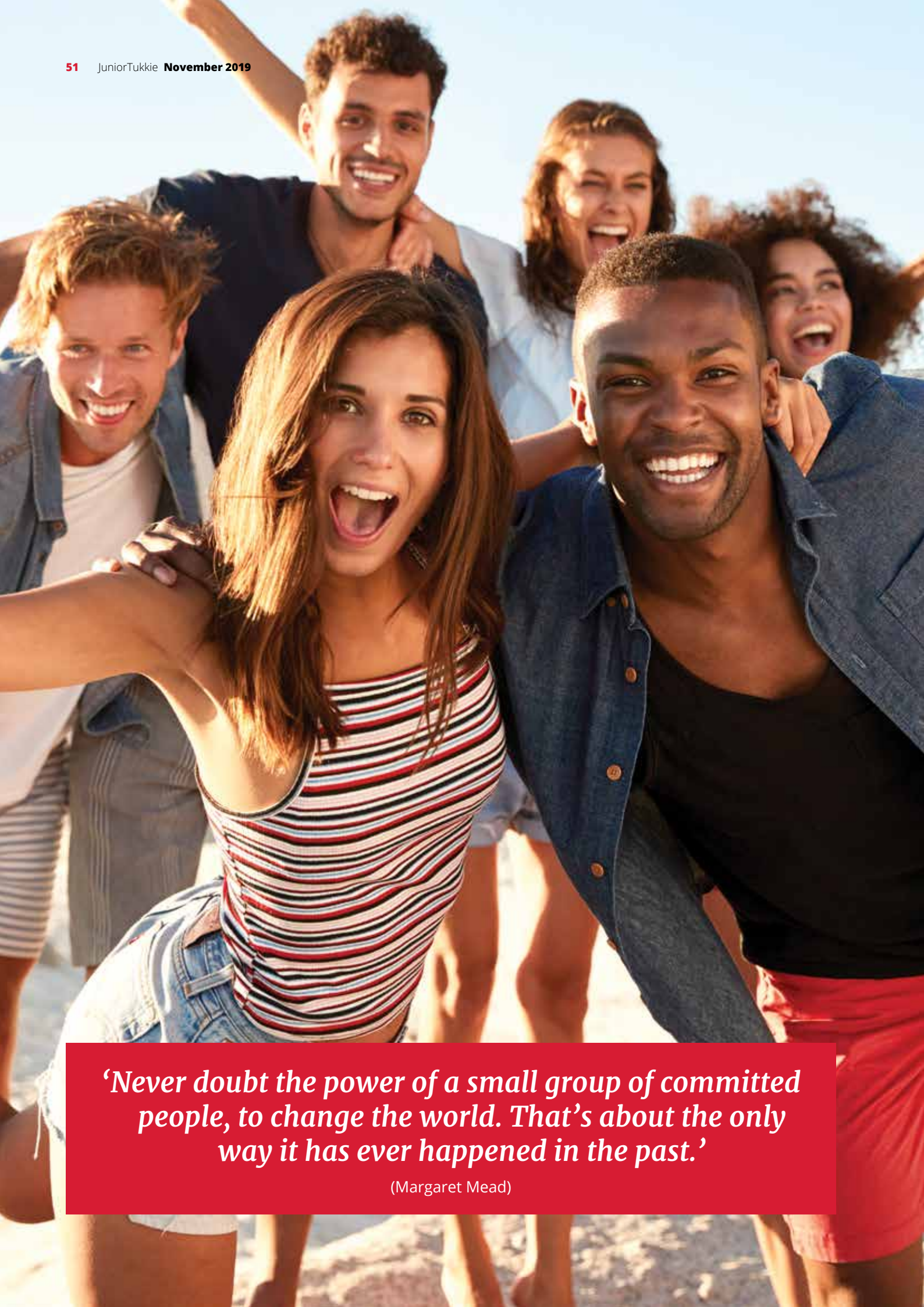
↑ Learners were fascinated by what they saw and heard at Onderstepoort.



↑ Interesting facts were shared about sheep.



↑ Visitors listen carefully as Veterinary students speak about the care of dogs.



‘Never doubt the power of a small group of committed people, to change the world. That’s about the only way it has ever happened in the past.’

(Margaret Mead)

TuksSport

Playing football has helped Mpuru realise that quitting is never an option

By Wilhelm de Swardt. Images: Reg Caldecott



Mapaseka Mpuru in action

Football has changed Mapaseka Mpuru's life for the better. It has taken her on an emotional rollercoaster through which she found the strength to face her demons and fulfil her dreams.

The 21-year-old Tuks goalkeeper is a member of the Banyana team that competed at the World Cup Tournament, which took place in France recently. From the sidelines, she keenly watched some of the world's best football action, and it motivated her to join their ranks.

'I genuinely believe I have what it takes to become one of the best ever

goalkeepers. It is only a matter of biding my time and keeping on doing the hard work,' said Mpuru, who played for the South African Students team during the World Student Games in Napoli.

'Being a goalkeeper is an honour. It is often us that stand between defeat and victory. A good goalkeeper must be able to pre-empt what is going to happen and react in hundredths of a second. If you don't, it could be game over. You also have to be tactically savvy, as you are the one player that can see how the opposition's attack might play out. So you must direct your teammates to counter in advance. All of this is exhilarating.'

In 2015, she was in the Banyana Banyana squad from which the team for the 2016 Olympic Games in Rio was selected. She

expected to be one of the chosen ones. When it did not happen, she 'cracked'. She was so depressed that she quit school in her matric year. Fortunately, with the help of her brother, she regained her passion and confidence as a player. She went back to school and passed Grade 12 with three distinctions. Mpuru is now a second-year student in the Faculty of Education.

She remembers falling in love with the game when she was five years old and she was playing street football with boys.



TuksSport Switchboard:
+27 (0)12 420 6060
(07:30-18:00, Monday-Friday)

TuksSport

It is now all about marginal gains as Schoenmaker prepares for the Olympics

By Wilhelm de Swardt. Images: Reg Caldecott

Milliseconds matter as Tatjana Schoenmaker prepares for her participation in the Olympic Games that take place in Tokyo in 2020.

TuksSwimming's head coach, Rocco Meiring writes, 'Schoenmaker will no longer be flying under the radar. After winning a silver medal at the World Championships, every time she competes internationally from now on, she will be the one that everyone wants to beat. Our goal for Tatjana is to consistently swim a time of two minutes 23 seconds in the 200m breaststroke, every time she competes. She is training to swim a time of 2:21 or faster.'

Over the last three years, Tatjana has improved her 200m breaststroke times. In 2017 her best was 2:24.61 and last year it was 2:22.02. During the World Championships, she swam 2:21.79. Only three swimmers have clocked faster times so far this season. Russia's Yuliya Efimova has swum 2:20.17, Annie Lazor (USA) 2:20.77 and Lilly King (USA) 2:21.39.

'Tatjana has always been fast, but she is working on her start and the manner in which she executes the tumble turn. We are also improving her front-end speed. She has got to be faster than 1 minute 10 seconds over the first 100 metres. Ideally, her splits should be between 1:08 and 1:09. Being competitive at an international level is a never-ending quest.'

Currently Schoenmaker's 100m-breaststroke time is 1:06.32. Her focus is on the 200m, but it is difficult for swimmers to excel in both events. Meiring explains, 'The problem is that training intensively for both events can be counterproductive in the long run. Still, I want Tatjana to be able to swim times faster than 1:06 in the 100m-breaststroke. To do so means she has got to be able to swim the second 50 metres under 35 seconds.'

She has managed to do so on two occasions—once at the World Student Games and once at the World Championships."

Tatjana won two gold medals at the World Student Games (100m as well as 200m breaststroke). She also made South African sports history during the recent World Long Course Championships by becoming the first female swimmer to medal. She won a silver in the 200m-breaststroke. To top it all, she also won two gold medals at the Tokyo World Cup.



TuksSport

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Tatjana Schoenmaker



↑ Tatjana pushing to better her time before the 2020 Olympic Games

TuksSport

Zazini has the makings to become one of South Africa's athletic legends

By Wilhelm de Swardt. Images: Reg Caldecott

One of this season's big success stories in South African athletics has been Sokwakhana Zazini (Tuks) who keeps on getting faster as a 400 m hurdles athlete. By mid-August, the 19-year-old was still Africa's fastest 400 m hurdler, one of only two athletes on the continent to have dipped under 49 seconds, the other being Lindsay Hanekom, who is also from Tuks.



Zazini's time of 48.73s, with which he won the silver medal at the World Student Games in Napoli, ranked as one of the 14th fastest times in the world in August. In a mere eight months he had improved his best time by nearly 0.60s. At the end of last year, it was 49.32s.

Another highlight this season was finishing second in the 400 m-hurdles during the South African Senior Championships in Germiston.

According to the Tuks athlete, he made a conscious mind shift at the beginning of the year. 'I told myself that I don't consider myself to be a junior athlete anymore. I will race anyone, anytime, no matter how old they are or what they have achieved. If I get whipped, so be

it, I will take it like a man. The only thing that matters to me is that afterwards, I should know that I raced to the best of my ability.'

As a former youth and junior world champion and now also a medallist at the World Student Games, Zazini has high expectations. However, he is quite philosophical about it. 'I realise that South African sports fans tend to expect some magic when I race, and it is their right to do so. I guess I will just have to handle the pressure. I am actually quite good at doing so. This I can promise: if I feel good, I will certainly try and do some magic.'

Zazini's coach, Lucinda Liebenberg, writes: 'What truly amazes me about

Socks* is how he can get into the "zone" when it truly matters. He is undoubtedly capable of running even faster times. We need to work on his hurdling technique. As he is so fast between the hurdles, his running style is "choppy", which means he is wasting unnecessary energy. I want to see if I can change his stride pattern to be more fluent,' explains Liebenberg.



TuksSport

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+27 (0)12 420 6060
(07:30-18:00, Monday-Friday)

* Sokwakhana Zazini is fondly known as Socks.



↑ Concentrated focus and determination is etched on the face of Sokwakhana.

Culture

Faculty houses

By Sipho Carneson

All students (commuting and residence students) belong to the faculty house of the Faculty in which they are registered. There are no membership fees to join a faculty house, but students have the option to purchase items such as merchandise or to attend camps and other events for which fees are charged.

Faculty houses have an academic focus and play a critical role in linking students and staff in the faculty. This includes academic wellness and readiness programmes, including serving as a link to the **Class Representative System** within each faculty.

Faculty houses, like many organised student leadership structures, are coordinated by the **Division of Student Development** at the University of Pretoria.

Many faculty houses organise annual **Faculty Festivals** that encourage the participation of students and staff throughout the entire institution by allowing engagement through fun and entertaining activities.

The House Humanities Mokete Wa Humanities is an annual showcase of the arts that lie within the Humanities Faculty. This massive event (commissioned and run by students in collaboration with the faculty) illustrates the power of student leaders cultivating their skills in organised student life.

Each faculty house is run by an elected body of students that forms an executive committee—these 'EC' groups undergo intensive leadership development and are exposed to brilliant personal and professional development opportunities.

As a former student leader turned staff member, I can vouch for the fact that student leadership and student life are great ways to expose yourself to opportunities to make you more employable.



'When I first began my journey as a NATHouse Chairperson, I could never have imagined the profound impact it would have on my life in such a short time. My position as a leader has expedited my self-growth as well as given me a platform to do what feeds my soul: helping others. This privilege has taught me the value of teamwork, time management, hard work and ultimately, altruism, a value and lesson I am grateful to have acquired.'

(Christina Welgemoed)

Culture

Enactus UP

By Siyanda Guma

'My name is Siyanda Guma, the 2019 team president of Enactus University of Pretoria. I will be sharing a little about what Enactus is, being part of student leadership at the University of Pretoria and what you stand to experience in your involvement in such structures.

'Enactus is a global non-profit organisation consisting of students, academics and business leaders that focus on using entrepreneurial action to build sustainable communities around us. This essentially means that students focus on leveraging all the knowledge and resources they have access to help improve the living standards of communities. This is done through the development of enterprises and any other sustainable means of entrepreneurship.

'UP is currently working on six community development projects in and around Pretoria. Our projects address food insecurity through innovative forms of gardening, empower women from townships such as Benoni to start their own preserves enterprise, help formalise brickmakers through the introduction of innovation and cheaper alternatives to how they make bricks, and work with a man with a walking disability to help inspire the community of Tembisa. Our community projects focus on addressing some of the 17 United Nations Sustainable Development Goals.

'All the South African teams gather and get to present the results of their impact at the Enactus South Africa National Competition, in which Enactus UP has placed second out of 16 teams participating in 2018 and 2019. We also won numerous awards and competitions from Nedbank, Harmony, MTN and Ford. This platform opens the opportunity to represent the country at the Enactus World Cup, this year held in San Jose, California in the USA. Students get the chance to present and interact directly with CEOs of large companies such as MTN, Harmony, Ford, Nedbank and many more.

'I joined Enactus in 2017, and I have been active until now. After fully immersing myself in the programme, I soon experienced some life-changing moments. In 2018, I was elected project manager of a project that ended up impacting people and them creating a source of income for themselves, leading to the team and the project acquiring funding from the Ford Motor Company.

'With this, I was invited to be part of the Ford Community Impact Fellowship. I was selected as one of 20 individuals to be part of this fellowship and become an ambassador for the Ford Fund. With this, I went to the United States to work alongside the Ford Fund team for a week.

'Being put in an important leadership role, such as president shows the growth I experienced in this journey and allows me to play a vital role in people's lives through impact and influence. Being part of a programme like this teaches you that it does not take anything special to change circumstances and impact permanently on your life and others. It just needs a willingness for you to start with what you have.

'These are just a few of the opportunities that I was exposed to through being part of student leadership at the University of Pretoria. There are many more opportunities and testimonies of what a life-changing experience it is to be part of something much bigger than yourself. It allows you to learn, grow and be amazing. It also enables you to understand that it does not take anyone unique or privileged; it takes you and what you have.'

'Do not wait; the time will never be 'just right'. Start where you stand, and work with whatever tools you may have at your command, and better tools will be found as you go along.' (George Herbert)



Enactus 2018/19 UP Team at Enactus Nationals 2019



Enactus members with Baby Bafro at Enactus Nationals 2019

Culture

Student culture is vibrantly alive at the University of Pretoria

Find out more about 1nSync and StepItUP

By JP van der Walt



Student culture is a big part of the student life offering of the University of Pretoria, managed by one of the three key student committees, STUKU (student culture).

The cultural offerings presented by STUKU are driven to create inclusive and welcoming spaces for all UP students to join in and enjoy the opportunity to experience the rich diversity of UP culture. The first thing on the culture calendar is 1nSync. This is the University's annual singing and dancing competition for all first-year students.

1nSync is an exciting event where first-year students are offered the opportunity to meet new people and experience the sights and sounds of UP during their welcoming week on campus. Structures such as Day Houses, Faculty Houses, Residences

and registered societies compete in one of three categories: men's, women's or mixed-gendered. The preparation for the competition happens in only nine hours over the week, creating an exciting whirlwind experience that you will remember for many years to come. This is also one of the offerings where first-year students make some of the friends that will last them the entire span of their varsity career.

The female participants for 2019 were the women's residences Zinnia, Nerina, Curelitzia, House Khutso, Ikageng, Madelief, Hayani, Azalea, House Mags, Erica, House Nala, Asterhof, and of course UP's only all-female Day House, Vividus Ladies.

The men's residences were represented by College, The Tower, House Ukuthula,

Tuks Ekhyaya, House TAU, Morula Legae, Tirisano, Mopane, and UP's all-men Day House, Dregeana, as well as Blossoms Delight, one of the official UP societies.

The mixed-gender category comprised of Luminous Day House and the mixed residence Tuks Bophelong.

Mopane won prizes in the men's category for Best Theme and Men's First Place, and they were the overall winners of 1nSync 2019. In second place for the men was Tirisano and in third place Morula Legae. House Mags won both First Place and Best Theme in the women's category. Curelitzia was second, and Asterhof took third place. Luminous won the prize for the Best Theme and second place in the mixed category. Tuks Bophelong was first in the mixed category.

Culture

Later in the year sees Step it UP. This is also a competition with singing and dancing, but this time around the groups consist of first-year and senior students. Groups also represent different structures of the University and compete against one another in three different categories: men's, women's or mixed-gendered. Each group comprises of dancers and band members, so if you can play an instrument, there's a place for you in this competition.

Step it UP focuses on mass participation and offers all students in structures the opportunity to be a part, even if you cannot dance to save your life. Step it UP is an excellent opportunity to bond with fellow members of your structure and allows students a platform to show off their synchronised moves, loud voices

and talented band members to huge audiences. Step it UP is a great way to stay fit and relieve some of the everyday stresses of being a student.

Step it UP, like all other cultural events, is organic in nature and changes as the environment requires. In 2019, collaboration between different structures was allowed. Vividus and Zinnia collaborated, as well as Dregeana and Hatfield Studios. The other participants were Erica, Tuks Bophelong, Azalea, Morula Legae, Curelitzia, House Mags, The Tower, Ikageng, Madelif, OP Village, Asterhof, Mopane and House Ukuthula.

Curelitzia was the overall winner of Step it UP 2019 and won the prize for the Best Theme and came in first place

in the women's category. House Mags came in second place and Erica in third place. Erica also won the prize for being the most multicultural performance, and Asterhof had the Best Band.

In the men's category, Mopane won first place and the prize for the Best Band. House Ukuthula came in second place and had the Best Theme. The Tower won the award for the most multicultural performance and came in third place.

In the mixed category, Dregeana and Hatfield Studios won Best Theme and best band and took second place. Tuks Bophelong claimed first place, along with the most multicultural performance in their category.



↑ UP students are keen to participate in concerts. Fun and commitment are evident on every face. Seeing the talents of UP students displayed on stage is wonderful.

UP residences

Madelief Residence: The Ladies of Tuks

By *Vimbai Sagomba*

Madelief residence is a tall, white building on the corner of Hilda and Prospect streets that is home to almost 300 exquisite young ladies. It was established in 1977. Our leading lady is a beautiful feline named Charisma. She is the essence of what it means to be a Madelief lady: a lady of stature, integrity and one who exudes an awe-inspiring elegance that you simply cannot miss.



Our home is founded on 42 years of sisterhood, charisma, unity, loyalty, pride, diversity and respect. These values represent the solid foundation laid by our Madeliefies over many years, a foundation on which we continue to build. They are the very breath we breathe. We apply them in all our endeavours and always ensure that we pass them on from generation to generation. Without them, we cease to exist.

Madelief is led by its house parents, Mr and Ms Isaacs, whom we like to call Mama and Papa Isaacs. They are our voice of reason and the heart of our home. Our Primaria, Vimbai Sagomba, along with the rest of the 13 House Committee members, are the engine that runs our machine. Their tireless work ethic ensures that all the needs of the Madeliefies are met as efficiently as possible. The fuel to this, our mighty engine, is our building coordinator, Refiloe Kaaka. Her vibrant voice fills Charisma Lane as she ensures that our building stays intact.

The daisy is the flower of this green machine. It is the symbol of the journey every Madeliefie embarks on, from a small flower bud to a beautiful and strong daisy. Change is the only constant in one's life, and here in Madelief we choose to embrace change, to do what many believe to be the unthinkable and risk it all. For many years, our first-years were our Knolle, which is the Afrikaans word for flower bud. However, as of 2019, our first-years are our Dahlias.

A Dahlia is a type of daisy that symbolises one's ability to remain graceful, kind-hearted, strong and calm, as well as the ability to radiate positivity in a world that desperately needs it. This change carries great significance as it shows that although we are from different backgrounds, we all belong

to this Madelief sisterhood. We firmly believe that diversity in unity is one of the most powerful attributes any residence in the University of Pretoria can possess. Its positive effects on our ever-changing society know no bounds.

Madeliefies are known on campus for our Jottirs. 'My crown, my pride, my Jottir!' There is no Madelief without a Jottir. We guard them with our very lives, which is why you will always see our House Committee members walking with green sticks by their sides. There is power in numbers, and nobody knows and understands that better than the Madelief ladies. So, to help us protect our most prized possession from the malicious hands of the College men, we have formed allies with the gentlemen of Mopane, The Tower and House TAU. Wearing our Jottirs on campus may prove to be a risk, but Madeliefies never run away from a challenge. A true lady never lowers her crown in the face of adversity.

Staying in Madelief is nothing short of the adventure of a lifetime. Our University offers extremely diverse cultural and sport programmes for residences, and we as a house strive endlessly to partake in all activities, such as UP Acapella (where we have been a finalist for many years) and Step it UP, as well as both the Hockey and Netball leagues. In addition to our sport and culture, we enjoy socialising and engaging with other residences on serious matters. From house dinners and quiz nights to Well-being Wednesdays and self-defence classes, in Madelief, there is plenty of opportunity for you to be perfectly who you are.

Although we acknowledge the importance of participating in our University's extra-curricular programmes, academic excellence remains the most important goal in Madelief. To help

us achieve this, we offer mentorship programmes and tutoring opportunities. All this, to ensure that our ladies leave as strong, independent and well-rounded women.

Madelief is our home away from home. It is not merely a tall, white building, it is a beacon of hope to many that seek it, a safe haven for those who seek to find themselves and the place on Prospect Street where joy, laughter, sisterhood and love reside.

Contact information

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↑ Quick open day selfie

UP residences



↑ Open Day 2018



↑ HC 2019



↑ House Dine flatmate photo shoot



↑ Dahlias take on the churches in O'week



↑ HC 2019 take on the TuksRes camp



↑ Madelief stepping it up in gold



↑ Dahlias dominate the sports fields



↑ Informal dine madness



↑ HC 2019 subtly conquering O'week

UP residences



House TAU, the place to be

By Nicolaas Bester

House TAU, formerly known as House Boekenhout, was established in 1963. We are a male residence that strives to build our character on **brotherhood, pride, tradition, and respect**, which are the values and pillars of our Eiffel that allow us to stand high and proud above other residences.

House TAU has always been a space that encourages cohesion and builds its residents, both in academic and non-academic spheres. It is therefore no surprise that through the transition to a new name, we stayed true to the values we believe in. **TAU** stands for **Trust, Achieve** and **Unite** as brothers of the same House.

What makes us different from the rest of the residences? We are authentic and the leading male residence in terms of transformation. We set the pace and others follow.

Our main aim is for each Brother to obtain their degree in time, to waste no time in getting to the finish line of accomplishment. Our average academic performance has shown a 6% increase in the past year and we strive to be the best academic male residence by the end of 2020.

We are also proud that the top Tuks academic student in 2018 is a Brother in House TAU, James Murray Louw. He studies mathematical sciences and achieved a year-end average of 97,3% in 2018.

Our focus remains on academics, being the main reason we are students at the University of Pretoria in the first place, but we believe in a life of balance. Yes, that means we have socials, we do sport and we are a force to be reckoned with in every sphere of what residence culture offers us.

Sport

We nearly win basketball each year. Since 2016, our hockey team has played in the finals each year and our rugby u/20s have advanced to at least the semi-finals if not the finals. If you can think of a sport, we have it and would love for you to join our team and to compete with us till the end with everything we have. Until the last minute, second and whistle, we will fight...

Culture

We are proud to say that in 2018 we were the only male residence that was placed (meaning first, second or third place) in every cultural event that STUKU had to offer from 1nsync and Step it UP to UP Acapella. To top it off, both the winners of Mr Erica and Mr Mags are men from House TAU, so if you wondered where we are standing

with the ladies' residences, I can assure you we are in their thoughts 24/7.

Socials

If you think of going out for the night, the House TAU clubhouse is usually the best place to have a fun night that you won't forget soon. Other residences have big social events, but not one other residence can compete with our annual German Clubhouse Social, which is the biggest clubhouse social out there. Of course, we can host a jol, but we have balance. The socials end at 22:00 to respect those who want to study, but the jol never stops at 22:00 because where the TAU boys go the rest will follow.

Residence life

We are all about having 293 extra new young and older brothers by your side. We study together, and we pass our modules together. We never leave a man behind. We will laugh together, we will back each other in all situations.

This is the friendship that will last forever. Sure, you have school mates, but they don't stick with you as the House TAU Brothers.

UP residences



⬆ Active participation in sporting and cultural events is fun



⬆ Be a candle of light in a dark world



⬆ Hanging out with friends is always pleasant



⬆ The men arrive as strangers and soon become brothers



⬆ Sincere friendships are forged in residence



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