

HIGHLIGHTS 2014



LIVING OUR VALUE ... About 650 metres of clothing, 60 bags, 30 "peppers", seven charities and one great value – Ubuntu. The Hangout4ubuntu project saw staff and students pegging clothing contributions along the fence leading onto the university's North and South campuses in a visual display of the NMMU value of Ubuntu on 3 October. The recipients were Oosterland Child and Youth Care Centre, Algoa Frail Care Centre, Cheshire Homes Cleary Park, Enkuselweni Secure Youth Centre, Angel Network, Healing Hands and Love Story. Helping with the project were (from left) Student Governance's Karen Snyman, student Sarah Everett, Student Governance's Sinavuyo Mlungu, student Vimbainashe Manonose, Student Governance's Sade Heynes, student Jayde Bevis, Marketing and Corporate Relations' Shani Adams and Student Governance's Kim Elliott.



BEST SQUAD ... Eleven NMMU students were among the top 100 selected to exhibit at the Sasol New Signatures competition at the Art Museum in Arcadia, Pretoria. NMMU's Josua Strumpfjer won one of five merit prizes of R10 000 in the longest running, national art competition in South Africa, established in the early 1960s. Sasol New Signatures is unique in that it is the only competition for new artists, allowing them to showcase their work for the first time. Celebrating the opportunity were students (from far left to right) Sarah-Anne Walmsley, Zane Lange, Robyn Munnick, Michael Wedderburn, Jonathan van der Walt, Sasol Signatures chairperson and Studio Arts Lecturer Pieter Binsbergen, merit winner Josua Strumpfjer, Music, Art and Design School director David Jones and students Lisa-Mari Ledwick and Nadia van der Walt.



DRIVER TRAINING ... Students on Missionvale Campus now have the opportunity to enrol for the Coega Development Corporation's (CDC) Driver Training Programme complete with a state-of-the-art driver simulator on campus – a stationary machine designed for off-road training before would-be drivers start with on-road training. At the launch of a simulated driver training programme at NMMU's Missionvale Campus were (from left) Missionvale Campus Director Dr Phakama Ntshongwana, SRC President Luzuko Ntshongwana, Coega Development Corporation Executive Manager Corporate Services Advocate Zuko Mapoma and Deputy Vice-Chancellor: Institutional Support Dr Sibongile Muthwa.



PROSPECTIVE STUDENTS ... Diaz Primary learners (from left) Tanique Grootboom, Akhona Kato, Emihle Mduduma and Mihlali Gajelak met Vice-Chancellor Prof Derrick Swartz prior to their performance as part of a show to celebrate the best of Africa. The show, held at NMMU and open to the public, was the highlight of a week-long series of activities enjoyed annually at the university during Africa Week.



IGNITING A CAREER ... BSc first-year student Sivwe Mbele, the first recipient of a R25 000 bursary through the NMMU Trust's newly-launched "Ignite a candle" bursary legacy campaign, is congratulated by NMMU Trust acting CEO Renita Aftat. The campaign is determined to identify 10 promising Eastern Cape students whose circumstances have made it difficult or impossible for them to gain access to tertiary education – and throw them a lifeline. What is special about this campaign is that it is the contributions of individuals – and not companies – that are being sourced to build up the bursaries. Contributors will be able to "track" their student using an interactive web-based programme.



TOP OF THE TOPS ... The NMMU Madibaz cheerleading squad won the first national cheerleading championships in Potchefstroom, run in conjunction with the inaugural tournament of Varsity Cricket. The NMMU Samsung cheerleaders are made up of 24 talented young men and women who perform funk, contemporary modern and hip-hop dance styles, and, in addition, have added gymnastics to their routine. They (pictured above) are choreographed by Arts and Culture's Nicki-Ann Rayepen. The squad includes Tazminne Jansen (from left), Kelly Murphy, Iwando Joka and Zoleka Ngebetsha.

TESTING THE LIMITS ... Mechanical Engineering's Prof Russell Phillips and Karl du Preez took engineering students to Verneukpan in the Northern Cape to push a purposely-built solar vehicle's speed to its maximum. Gonzo, meaning bizarre or crazy, was built to test a standard solar driven platform without any battery storage. With temperatures in the mid-thirties, the vehicle reached speeds in excess of 40km/h. Valuable design information was gathered and various improvements will be introduced. The Gonzo team is challenging other universities to take up similar projects and perhaps compete against each other on an annual basis. Testing the vehicle on the barren planes of Verneukpan was to take full advantage of the high solar radiation of the Northern Cape.



NMMU adds value to blue economy through research & teaching

Maritime qualification on cards

THE donation of a R6.2-m state-of-the-art engine by international Wärtsilä Ship Power group has further positioned NMMU as an ideal institution for offering much-needed maritime qualifications.

The donation forms part of a long-term sponsorship partnership with the South African International Maritime Institute (SAIMI) and NMMU. The engine will be used to facilitate teaching within the School of Engineering.

The donation of the 11-ton engine follows two maritime conferences and the launch of the South African International Maritime Institute (SAIMI) last year – all important stepping stones in developing policies and building capacity towards unlocking the

huge economic potential of both the continent's and the country's oceans.

The University also has the Research Chair in the Law of Sea and Development in Africa.

The engine will give NMMU's engineering students the opportunity to learn the latest in ship engine design and technology.

"Practical and theoretical knowledge can be gained as students are taught to physically manage, dismantle and rebuild an engine that is typically found in common day vessels of all kinds," said Wärtsilä's Greg Davids. "Our contribution includes knowledge sharing; provision of additional maritime modules and equipment that is supported by 3D technology,

innovating and delivering a dynamic course."

At December's African Maritime Domain Conference, maritime specialists, government and educational institutions came together to discuss and strategise the development of ocean governance and contribute to the blue economy as outlined as part of the first phase of Operation Phakisa.

NMMU's business strategy in the next decade and beyond is to develop a whole new range of maritime and marine education and training, research and engagement programmes with the view to significantly upscale its strategic support for this crucial sector. This strategy includes systematically introducing a host of new programmes over the next few years.

Key partnerships towards connecting SA

THE optical fibre research expertise of NMMU has been recognised with the establishment of the new Centre for Broadband Communication – a key vehicle in shaping South Africa's Internet connectivity going forward.

Nowhere will NMMU's role be more noticeable than at the world's largest science project, the Square Kilometre Array (SKA), as optical fibre forms "the backbone" for aggregating tremendous amounts of data gathered from what will be the world's largest radio telescope. Department of Science and Technology (DST) Minister, Naledi Pandor, formalised the key partnership with NMMU, the National Research Foundation (NRF), the Council for Scientific and Industrial Research (CSIR), SKA and CISCO when the Centre was officially launched at NMMU on 26 March. Along with the key partnership which broadly aims

to improve national competitiveness in the global economy through improved science and technology solutions, NMMU will receive state-of-the-art research equipment valued at about R50m from CISCO.

NMMU researchers and students will also collaborate closely with CISCO scientists on key research topics. CISCO is recognised as a worldwide leader in IT, committed to "connecting the backbone" for aggregating tremendous amounts of data gathered from what will be the world's largest radio telescope.

In essence, this is what NMMU is aiming to achieve through their research into new generation optical fibre communication as a faster, cheaper, more suitable alternative to the present ADSL broadband connectivity.

The seriousness with which Government views the importance of the broadband roll-out to all South Africans by 2020 was highlighted in the recent

Budget where R1.1bn is being invested.

"Access to the internet should be like your access to water and air – something that you don't even have to think about. If we want to be globally competitive we need to ensure that our telecommunications network is on par," says NMMU head of the new Centre, Prof Tim Gibbon.

NMMU plays an integral role in South Africa's BigData science project, the SKA, as it is reliant on next-generation optical fibre communication systems to transmitting terabits of data over thousands of kilometres.

"The partnership with the DST and CISCO is a tremendous coup for NMMU and the Eastern Cape, and an exciting opportunity to produce South Africa's newest optical communication scientists," says Prof Gibbon.



SUCCESSFUL ... Marshall Marsh (26) is not only a top South African wheelchair tennis player, he is also NMMU's first disabled (double amputee) Human Movement Science graduate. As a two-month old baby, Marshall not only lost his mother in a tragic house fire but his legs were so badly burnt, they were amputated. He spent a year recovering in the Red Cross Children's Hospital, in Cape Town. However, what could be seen as pure tragedy, opened up a world of opportunity for Marshall. Marshall had a full bursary to study Human Movement Science at NMMU and praises the institution, particularly the Disability Unit, for the help he received throughout his studies.

At times NMMU has been busiest building site in metro 10 years of exceptional building growth



THE FUTURE...An artist impression of the new science block on South Campus to be completed in December.

TWO new state-of-the-art buildings set for completion in 2015 will cap a decade of unprecedented infrastructure growth at NMMU.

A R57-m Life and Physical Sciences building on South Campus (see photograph on page 2) and a R56-m Foundation Phase building on Missionvale Campus form part of R1.1 billion spent by the Department of Higher Education and NMMU since 2009 in support of its teaching, learning and research.

"We believe the latest infrastructure outlined in the urban design framework will set NMMU apart in terms of a space utilisation perspective," says Deputy Vice-Chancellor Dr Sibongile Muthwa.

NMMU's efforts in creating a university that focuses on pedestrians, puts nature first and carefully manages open spaces across several of its campuses has already received acclaim via its "beacon of hope" library in Missionvale, its iconic engineering building on North Campus and more recently when its "green" Business School was named the first in Africa to receive accreditation from the Green Building Council.

The expansive infrastructure growth plan plays a key role towards Vision 2020.

Did you know?
Vision 2020 sets out a roadmap of the strategic pathway NMMU is taking over the next decade to gain international recognition in generating cutting-edge knowledge to contribute towards the challenges of sustainability.

Intellectual and academic project

Transformation of the academic project is ongoing, with consolidation of the Programme Qualification Mix (PQM) and re-circulation of the academic content of existing programmes and designing curricula for new programmes, taking into account the African context. This has prompted Institutional discussions around the understanding of what it means to be "an African University".

Our vision, mission & values

Vision
To be a dynamic African university, recognised for its leadership in generating cutting-edge knowledge for a sustainable future.

constructive contribution to regional, national and global sustainability.

Mission
To offer a diverse range of quality educational opportunities that will make a critical and

Values
Our six core values serve as a compass for our actions and describe how we should behave in the world.



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An award-winning publication

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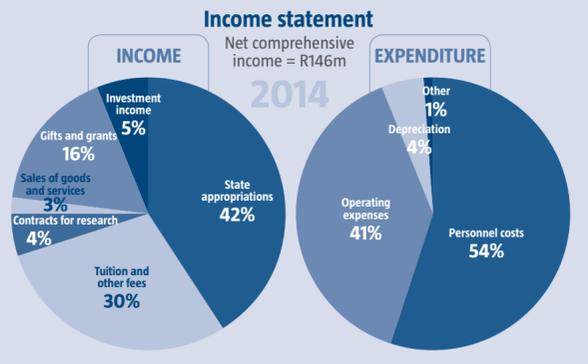
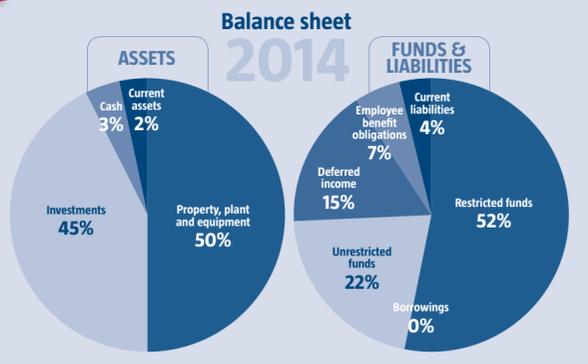
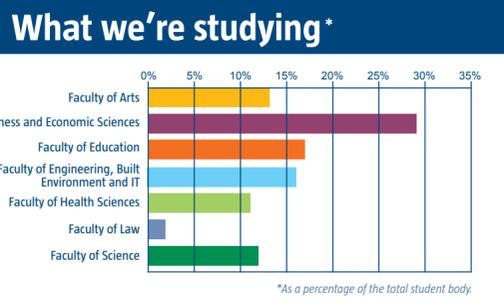
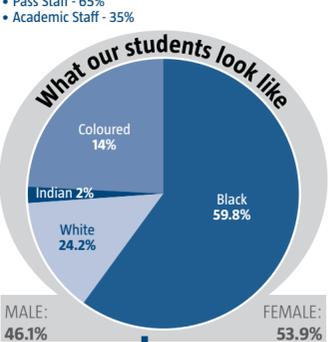
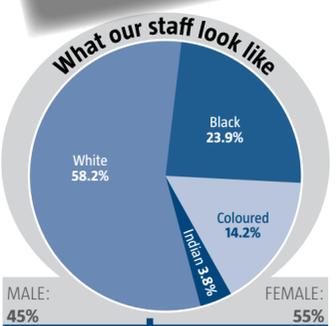
This review is a condensed version of the Annual Report to the Minister of Higher Education and Training, which includes full financial statements and is available on request from Marketing and Corporate Relations and on the university website: www.nmmu.ac.za/publications



South Campus North Campus Bird Street Campus Missionvale Campus George Campus Second Avenue Campus

Nelson Mandela Metropolitan University
for tomorrow

27 000 students, studying across 450 programmes in 120 different career fields, across six different campuses, in two different cities and ONE dynamic African university – NELSON MANDELA METROPOLITAN UNIVERSITY



Briefs

First female

FOURTH-YEAR Law student Hlomela Bucwa (right) was inaugurated as NMMU's first female Student Representative Council (SRC) President since NMMU began in 2005. "It is symbolic that in 2015, a woman is chosen to lead. We are still far from being an equal society. If we look at Africa as a continent, women in general are not positioned to lead, so this is a good sign," said Deputy Vice-Chancellor Institutional Support Dr Sibongile Muthwa at the inauguration.



International winner

PHD COMPUTING Sciences student Kayode Ayankoya (left) was selected as one of two winners in the "Future of mining and metals" student blog contest run by software corporation SAP. His prize was an all-expenses-paid trip to attend a forum on this topic in Germany, where he met key industry leaders from all over the world. Kayode wrote a blog on how digitalisation, the internet of things (IoT), big data and data science would change the mining industry in the future. His research involves how data collected from outside an organisation can be integrated with data generated inside an organisation to make insightful predictions, recommendations and discoveries that will increase productivity and efficiencies. Ten blogs were selected based on the number of likes.

Film finalist

FINE Arts masters student Lisa-Mari Ledwick (right) has made the official selection for the inaugural Independent Mzansi Short Film Festival (IMSFF) for her work "Soliloquy" in the Narrative Shorts category. The festival takes place in Cannes Film Festival in France.

Did you know?

NMMU has been part of the pilot project associated with the establishment of a centrally-managed National Student Financial Aid Scheme (NSFAS) office. Financial support to a large number of our financially-needy students forms a fundamental part of an enabling learning environment and a significant proportion of that support comes from NSFAS.



DANCE SPECTACULAR ... Thirty-two students, including members of the NMMU Samsung Cheerleaders, the Performa Dance Society, the African Dance Group, the Krew Society and the Ballroom Society participated in the Kaleidoscope Dance Extravaganza, supported by Arts and Culture, as part of Diversity Month. The purpose of this dance production was to showcase talent in a genre of art which is not showcased as often as others on campus. Participants included (from left) Leslie Ann Jacobs, Clinton Schutters, Zuko Ntupu, show director Nicki-Ann Rayepen, Miss NMMU Pache Oranje, Ryan Karshagan, Shareez Klaasen and Kelly Adams.



BRAINIACS ... The top achievers at the Academic Awards function at the Feather Market Centre included the Vice-Chancellor Award's winners (from left) Xandri Schoultz, Ross Charnock, Greg Ducie and Lana Strydom.

Top academic students honoured

RESEARCH offering real solutions to real problems in South Africa and beyond has landed two NMMU students top bursaries to further pursue their studies.

Amina Brey, who is completing her PhD in mindfulness training against the backdrop of South Africa's deplorable level of mathematics at school level, and Xandri Schoultz, who is working the medicinal applicability of chemistry for cancer sufferers, both received R60 000 each from the Rupert Family Trust. The top awards were presented during NMMU's annual Academic Award honouring the 29 top students. The Rupert Family Trust Award is only awarded to students who have obtained their Master's qualifications cum laude and whose research will significantly contribute to the knowledge base. Mature student Amina's research on mindfulness in improving the memory capacity of learners is being completed with the knowledge that only 14 per cent of South African Grade 9 pupils passed maths in their Annual National Assessments late last year. Her promoter is Education's Prof Paul Webb.

Xandri is working with her promoter Chemistry's Prof Tommy Gerber on rhodium thiazoles as anti-cancer agents since one in seven people get cancer, 80% of which might have been prevented. She also received the award for the best postgraduate degree in the field of Science, Engineering and Technology and obtained 86% for her master's dissertation. Staff members Infrastructure Projects' Greg Ducie and HR Management's Bridget de Villiers also received awards.

Greg was awarded for the best postgraduate degree in the Social Sciences and Humanities for his MCom which used NMMU as a case study regarding the financial viability of sustainable infrastructure development. Bridget achieved the Best Masters degree in Technology by dissertation in Social Sciences and Humanities on the influence of student engagement on the academic success of first-year HR Management diploma students. Other winners were Lana Strydom for the first degree, BPharm, who won countless other awards throughout her four-year degree as a Vice-Chancellor's Scholar and Ross Charnock for the first diploma, NDip: Photography with an overall average of 90%. Many of the achievers of the evening were Vice-Chancellor's Scholars.

Science Honours

HER RESEARCH has taken her to places like Rwanda, Kenya and Vietnam, but it's under taking research that makes a difference on her doorstep that's most important to NMMU's HIV and Aids Education Research Chair Prof Naydene de Lange (left).

Lange obtained her BA Ed degree from the then University of Port Elizabeth. Afterwards she taught at two schools in the Southern Cape. She was then seconded to the PE College of Education before lecturing in the education field for 10 years at the former Vista University. It was during her seven years at the University of KwaZulu-Natal, however, that she was introduced to research using visual participatory methodologies with a social change agenda. "Kwazulu-Natal was the epicentre of the HIV and AIDS pandemic at that time."

The education lecturer and researcher is the Distinguished Woman Scientist runner-up in the Department of Science and Technology 2014 South African Women in Science Awards (Social Sciences and Humanities), which is celebrating 20 years of democracy. With its theme focused on the changing landscape of women's participation in science and technology education, training and employment, Prof De Lange's research occurs at the rock face of change within the HIV and AIDS epidemic.

She endeavours – and indeed, has received much success – to facilitate change through drawing, photovoice, collage, participatory video (and cellphilm) and the like in what is called visual participatory methodology amidst those affected by HIV and AIDS. "I love what I do. It is interesting, enjoyable and it makes a difference. It is also important to remember that we do research with participants. We do not do research on participants." Honoured by her nomination for the award by her doctoral degree supervisor and mentor Prof Tilla Olivier, a former NMMU education lecturer and now Emeritus Professor, Prof De Lange humbly acknowledges the role of such women in her journey. Born in the Karoo town of Graaff-Reinet and raised in Port Elizabeth, Prof De

Lange is the recipient of the 2013 NMMU Research Excellence Award and the recipient of the Faculty of Education Researcher of the Year Award for three consecutive years. Her curriculum vitae also includes leadership roles for a number of research projects in which she works alongside communities and teachers in rural communities and teacher educators in Higher Education institutions.

These include, for example, *Integration of HIV and AIDS issues across disciplines in institutions of higher learning in South Africa*, *Every voice counts: Teacher development and rural education in the age of AIDS*, and *Not leaving data in the dark*. "You get people to see that research is enjoyable. You get people excited about research and social action," she explains.



SHARING IDEAS ... Finance's Shayne Hardiman, Procurement's Thina Balakistnen and Simone Cameron and Law's Prof Adriaan van der Walt participated in one of the first Transformational Leadership Journey workshops organised by the Institutional Culture Enlivening Project. The concept of "transformational leadership" is embedded as a key concept of Vision 2020, as part of the university's educational purpose and philosophy. And this is happening through teaching and learning, research and engagement activities, and the development of the full potential of our staff and students.

Briefs

Two new DVCs

Research and Engagement Prof Andrew Leitch (right) is looking forward to working with management and staff in driving the many exciting developments at NMMU and "growing the brand of our wonderful institution, so as to make this a university of choice for all our students and stakeholders". "We need to make learning exciting and relevant, and serve the purpose of educating for empowerment, and the public good. We have to cultivate people, not just with good heads, but also good hearts, as Nelson Mandela entreated all of us involved in education, says new DVC: Teaching and Learning Prof Denise Zinn (below right). Prof Leitch, the former Executive Dean of Science and Prof Zinn former Executive Dean of Education, were appointed as Deputy Vice-Chancellors at the end of last year. The appointments were made following the departures of Professors Piet Naude and Thoko Mayekiso.



International provocateur

OFFICE for International Education's Senior Director Dr Nico Jooste (left) has been selected as an International Education Provocateur, placing him on the list of recognised world leaders in the field of Higher Education Internationalisation. He is the only African on this list selected by the Association of International Education Administrators (AIEA).



Did you know?

Various institutional events are hosted annually across all Faculties and Research Entities. These entities have infused fresh thinking and raised academic awareness on issues like democracy, race and racism, sexual violence, the crisis in education, fracking, water security, technology for communities, reading and literacy, and 'alternatives' in education and community empowerment.



GOING THE EXTRA MILE ... Beyond the Classroom Alice (A Little Initiative Changes Everything) winners Velma Mora (from left), Callyn Bowler and Tamzin Lewis. NMMU's voluntary leadership programme, *Beyond the Classroom*, has grown from 29 students in 2009 to 280 graduates in 2014. The programme entails a variety of workshops, 20 hours of community service and group projects. These graduates went above and beyond their 20 hours of community service to win the top award. Melodi residence and students Tamzin and Velma shop, cook and feed hungry fellow students on a daily basis while Callyn reached out to Mator Neuron sufferers and their families.

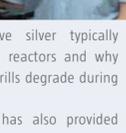
Top Research Award

FOR 12 years, NMMU's Prof Jan Neethling (below right) campaigned for the establishment of a High Resolution Transmission Electron Microscopy centre in South Africa, to allow scientists to investigate the tiniest components in materials, like atoms.

From the time it eventually opened its doors at NMMU in 2011, having received government approval three years earlier, Prof Neethling, the centre's director, and his team wasted no time in contributing to national and international research and even solving problems scientists have been grappling with for decades.

The physics professor admits his passion for solving scientific problems borders on the obsessive. The High Resolution Transmission Electron Microscope (HRTEM) housed in the world-class centre is a first for Africa. It works by shooting a beam of high speed electrons through a thin specimen of material to be analysed.

The transmitted beam is focused on a specimen and a magnified image of the specimen – magnifying it a mind-boggling 400 000 to 800 000 times – is formed by the electromagnetic lenses of the electron microscope, thus allowing scientists to see right down to the



tiny atoms making up the material and detect the minutest structural defects. "We are working at the same level as the best laboratories overseas... With the HRTEM, it has been possible to solve problems that have been mysteries to international researchers for many decades, e.g. why radioactive silver typically escapes from pebble bed type reactors and why diamond drill bit inserts in oil drills degrade during drilling operations.

"Atomic resolution imaging has also provided important new information on a range of materials, several of which are considered to be key materials in future improved nuclear reactor designs."

"Nanoscience (where materials are analysed at an atomic level) has the potential to significantly enhance the properties of a wide range of products. It has already made important contributions to fields such as electricity, computers, cell phones, clean water and air and space travel.

AWARD WINNERS

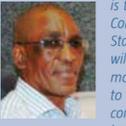
- NMMU Researcher of the Year:** Prof Jan Neethling
- Research Excellence Awards:** Prof Khaled Abou-El-Hossein and Prof Prakash Singh
- NMMU Professional Staff Excellence Award:** Prof Thoko Mayekiso
- NMMU Distinguished Teacher Awards:** Dr Andre du Plessis and Prof Ilse Truter
- NMMU Excellent Teacher of the Year:** Dr Kathija Adam and Lindi Coetzee
- NMMU Engagement Awards:** Prof Werner Olivier (Excellence); Department of Industrial Engineering (Team Excellence) and Kempie van Rooyen (Emerging)
- Innovation Team Award:** Govan Mbeki Mathematics Development Unit
- Visual Arts awards:** Prof Mary Duker and Andrieta Wentzel
- NMMU Researcher of the Year:** Prof Bert Olivier (Arts); Prof Chantal Rootman (Business); Prof Prakash Singh (Education); Prof Rossouw von Solms (Engineering); Prof Avinash Govindjee (Law); Prof Richard Cowling (Science)
- Teaching & Learning Team Awards:** Anselene Prinsloo and the First Year Accounting Team and Forestry and Wood Technology Programmes
- Faculty Excellent Teachers of the Year:** Dr Diana Ayliff (Arts); Suné Diedericks (Business); Prof Patrick Bean (Education); Johan Terblanche (Engineering); Prof Mark Watson (Health Sciences); Lindi Coetzee (Law); Dr Shawn Gouws (Science)
- Faculty Emerging Researchers of the Year:** Dr Marius Crous (Arts); Dr Michael Sale (Business); Dr Chris Dali (Education); Dr Nicky Mostert-Phipps (Engineering); Dr Portia Jordan (Health Sciences); Dr Ronel Nel (Science)
- Faculty Emerging Excellent Teachers of the Year:** Bianca Whitehead (Arts); Tony Matchaba-Hove (Business); Sanet Deyssel (Education); Katharina Herich (Engineering); Gail Halforty (Health Sciences); Arisha Prahaladh (Science)

Key appointments

REENEN du Plessis is the new Senior Director: Estate and Facilities Management – responsible for infrastructure planning, maintenance services, protection services, support services and operations on NMMU's six campuses.



LEBOGANG Hashatse is the new Senior Director: Communication and Stakeholder Liaison and will direct, lead and monitor the medium- to long-term vision of communication and stakeholder liaison based on NMMU's strategic goals and participate in university-wide decision-making processes.



DR Muki Moeng has been appointed as the new Executive Dean of Education. "Tapping into my experience in the Scholarship of Teaching and Learning (SoTL), I would like to further explore scholarship in its entirety as it will be applicable in the Faculty context, says NMMU alumnus and former academic staff member.



PROF Rose Boswell has been appointed as the new Executive Dean of Arts. Prof Boswell is an anthropologist by training, and brings with her an enterprising teaching, research and engagement track record with fields of research interests in heritage management, identity construction in postcolonial and multicultural states, gender identities, social justice, and tourism.

