



## College of Agriculture, Engineering and Science | Annual Report 2016

by Professor Deo Jaganyi



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The 2016 academic year can be described as the most challenging since the merger. It was tough on both students and staff. The 'FeesMustFall' movement almost caused the year to be deferred. Through the commitment and determination of all staff and students, however, we saw the year through.

### Awards and Achievements

In 2016 the College celebrated individual and group achievements, as well as national and worldwide recognition of a number of its students and staff for their excellence in a variety of activities.

UKZN's stand at the Royal Show in Pietermaritzburg - which highlighted research done within the College at the Ukulinga Research Farm - won a Gold medal and the trophy for Best Customer Care.

UKZN Chemistry academic, Professor Sreekantha Jonnalagadda, was elected to the Fellowship of the African Academy of Sciences (AAS) after a rigorous review and evaluation by independent reviewers followed by a vote by Fellows of the Academy.

Two high-achieving UKZN physics students attended one of the world's most prestigious scientific gatherings, the 66th Lindau Nobel Laureate Meeting in Lindau, Germany. Post-doctoral researcher Dr Adriana Marais and doctoral candidate Mr Sphumelele Ndlovu were among six South Africans who were afforded the honour.

The 2016 Leiden Ranking ranked the University of KwaZulu-Natal as the top university in South Africa for engineering and physical sciences. Plaudits go to the School of Engineering in the College for the achievement.

Lecturer in the School of Chemistry and Physics, Dr Vineet Jeena, received the Prestigious Young Academic Prize, recognising his achievements and affording him the opportunity to initiate and establish a working relationship with a leading European researcher in his field. Jeena was one of only five South African academics honoured with the NRF/ERC Young Academic award, the only recipient in the field of Chemistry, and the only UKZN academic selected.

### Research

The College continued to maintain its longstanding position as the leading College in research production in the University. The College support for research in 2016 included bursaries to the tune of R3.04 million, which supported a total of 74 postgraduate students (53 Masters and 21 PhD students), all from the designated group. The College also spent R1.2 million providing support to 74 postgraduate students and Postdoctoral Scholars, as well as 27 academic staff to attend both local and international conferences. The total amount spent to support Postdoctoral Scholars was R15.5 million. A number of our academics were involved in big grant projects, some of which are multidisciplinary in nature, totalling approximately R30 million.

2016 witnessed an even bigger and better Postgraduate Research Day, with 60 oral and 157 poster presentations being submitted for review by Masters and PhD students from the College's five Schools – almost double the numbers of the previous year. A diverse number of external partners supported the event.



Once again the College dominated the University Top 30 Publishers' list: 2016 saw six of our researchers being in the top ten and 14 in the top 30.

Three of our researchers were awarded University Fellowships in recognition of their distinguished research achievements in their fields. This honour was bestowed on Professors Colleen Downs, Steve Johnson and Francesco Petruccione.

The College acquired a new NRF A-Rated scientist. Professor Craig Packer, an Honorary Researcher in the School of Life Sciences, was awarded an A2 Rating by the National Research Foundation (NRF), increasing the number of A-Rated scientists in the College to three.

Another Honorary Researcher in the same School, Dr Enrico Di Minin can be congratulated for having his publication entitled, 'Filling in biodiversity threat gaps' published in Science. Furthermore, UKZN Astrophysicist Professor Jonathan Sievers and a team of local and international astronomers, who have discovered a new Fast Radio Burst (FRB) that has provided the clearest view yet on what these enigmatic events might be, co-authored a paper describing this discovery which appeared in the journal Nature. Professor Kevin Kirkman likewise published a co-authored paper in Nature, on grassland diversity.

In promoting international collaboration, the College awarded nine Honorary Professorships to the Jiangsu Academy of Agricultural Sciences (JAAS) in Nanjing, China. These individuals are co-supervising eight Chinese PhD students who are JAAS staff but registered at UKZN. The College, working closely with the School of Chemistry and Physics, also hosted the inaugural South Africa-China Bilateral Conference on Astronomy and signed a MoU between UKZN and the National Astronomical Observatory China (NAOC), to create a Joint Centre for Computational Astrophysics. The ground-breaking initiative is based on common research interests in astrophysics and cosmology, and in particular in radio astronomy and computational astrophysics.

The inaugural Ukulinga Howard Davis Memorial Symposium was hosted by the College at its Ukulinga Research Farm in Pietermaritzburg. This multi-level research and information-sharing symposium, funded by the Howard Davis Farm Trust, highlighted agriculture for life and the future, exploring sustainability through research, agribusiness and community outreach. A major theme was that of climate and agriculture. Participants were from various sectors including more than 90 small-scale farmers working with UKZN's Farmer Support Group.

To crown the year, on behalf of the DST and NRF the College organised and hosted the third National Conference on Global Change. This meeting brought together over 350 postgraduate students, academics and researchers from multiple disciplines and universities across the country, as well as relevant government officials. Their purpose was to explore innovative solutions for complicated global challenges facing southern Africa around climate, water, food security, pollution, the environment, transformation, health and similar topics.

### **Teaching and Learning**

Teaching and learning in the College continued to take centre stage in the daily activities of the Teaching and Learning Committees of the different Schools. In 2016 the College exceeded its overall enrolment target, both in undergraduate and postgraduate numbers. The total number was 7 443 for undergraduate and 2 305 for postgraduates, against targets of 7 392 and 2 057 respectively. The biggest increase was the PhD enrolment of 858 against the expected figure of 673. The total number of Postdoctoral Scholars was 174.



The College held five ceremonies, three in Westville and two in Pietermaritzburg, graduating a total of 1 826 students. This comprised 117 PhDs, 258 Masters, 312 Honours and 1 094 Bachelors' degrees, as well as 45 Postgraduate diplomas. Among the graduates were 9 staff members.

The College continues to make an impact in teaching and learning. In recognition of his contribution Professor Albert Modi was awarded the University Distinguished Teacher's Award at the April graduation.

A number of initiatives supported by the DHET-Teaching Development Grant are playing a big role in this area. These include support for the Mastering Masters programme, which has seen its popularity amongst postgraduate students increase annually. The appointment of Academic Development Officers (ADOs) has gone a long way to assist our undergraduate students.

Academic staff from each School within the College were recognised at a Distinguished Teacher Awards Ceremony for their passion and dedication towards educating and inspiring greatness in students. This is the second year that the College has celebrated its top teachers by awarding them the 'College Distinguished Teacher Award'.

Ten students from UKZN's Science and Engineering Access programme were awarded AECI bursaries worth R792 000. The recipients were disadvantaged students from KwaZulu-Natal's South Coast who had achieved excellent results in UKZN's Science and Engineering Access programme.

### **Community Outreach**

Responsible community engagement and outreach, including the promotion of science, engineering and technology have always featured prominently in the College's activities and 2016 was no exception. During the year, the College was involved in a number of initiatives.

One outreach event in particular was unique - the College helped 2 104 Grade 9 Durban school children successfully break the Guinness World Record for the largest ever practical science lesson. In setting this new world record, Durban's youth smashed the existing record held by Vijnana Bharati, India (Delhi), for 2 000 students.

UKZN's Science Centre Coordinator Dr Tanja Reinhardt, in collaboration with the Centre for the Advancement of Science and Mathematics Education (CASME), Engineering firm Mahle Behr SA and East Coast Radio organised a fun morning of science and engineering at Sithokozile Secondary School in KwaDabeka. In keeping with Women's Month, the aim of the outing was to increase the participation of girls in the fields of Science, Technology, Engineering and Mathematics (STEM).

UKZN's Farmer Support Group Hosted the Sixth Annual Food and Nutrition Fair in Msinga. More than 250 people attended the event. Participants included community members, FSG and UKZN staff members, representatives from the Department of Agriculture and Rural Development (KZN DARD), staff and students from the University of Zululand, and ward councillors for the area.



### **Campus Development**

In terms of space, College infrastructure was given a shot in the arm with the completion of the expansion of the Unite building on Howard College Campus at a cost of R10 million; and a new postgraduate laboratory and office building for the School of Chemistry and Physics on the Pietermaritzburg campus at a cost of R28 million. These projects are part of DHET Infrastructure and Efficiency support aimed at improving our facilities and our working conditions both for students and staff.

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100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville