



College of Agriculture, Engineering and Science | Annual Report 2019



Professor Albert Modi
Deputy Vice-Chancellor
and Head of College

2019 saw the College of Agriculture, Engineering and Science contribute significantly to the fulfilment of UKZN's vision to be the Premier University of African Scholarship, and to meeting its strategic imperatives of excellence in teaching and learning, research, community engagement and targeted internationalisation.

COLLEGE STRATEGIC OBJECTIVES

In alignment with UKZN's strategic plan, the College identified a number of objectives for 2019. Within the teaching and learning sphere these included the establishment of AutoScholar to monitor performance of undergraduates, and the initiation of a PhD programme to develop the teaching skills of PhD candidates through the University Capacity Development Programme (UCDP). College strategic research objectives included the establishment of the Institute for the Development and Dissemination of African Science (IDDAS) for launch in 2020 as a collaborative research mechanism operating across the College, and the initiation of research quality output rewards for developing researchers. The College also offered to pilot the Line of Sight Performance Management system along with the College of Health Sciences, to meet UKZN's strategic objective of effective leadership, governance and management.

SIGNIFICANT ACHIEVEMENTS OF THE YEAR

Aligned to the identified strategic objectives for the College, AES achieved some significant successes.

In terms of teaching and learning, all disciplines within the School of Engineering were awarded full accreditation for the next five years by the Engineering Council of South Africa (ECSA). Initial tests were trialed on AutoScholar which indicated improved monitoring of undergraduate academic performance, and the programme is now ready for implementation. Some 20 PhD students benefitted from the UCDP training in teaching skills and targets have been increased for 2020. With the establishment of a Statistical Analysis System (SAS) Industry Unit within the School of Mathematics, Statistics and Computer Science, the first cohort of Statistics Honours students graduated with both their BScHons degrees in Statistics as well as receiving internationally accredited certificates recognising their proficiency in the use of the Statistical Analysis System (SAS). And the establishment of the Centre for Academic Success in Science and Engineering (CASSE), aimed at assisting high-potential students from disadvantaged schools and running the College's various Access programmes, was approved by Council and officially launched.

Another Centre to achieve Council sanction was the Centre for Transformative Agricultural and Food Systems (CTAFS). Continuing in the research sphere, the Research Quality Output programme, which targeted both junior staff and senior researchers, showed some initial successes, with more than 150 academics participating and 25 gaining rewards based on high quality publications with international collaborators. Professor Cristina Trois was awarded the South African Research Chair (SARChI) in Waste and Climate Change, which brought the College total of SARChI Chairs to ten. Six researchers from the College were inducted into the ranks for the prestigious Academy of Science of South Africa (ASSAf) in 2019, including Professors Paramu Mafongoya, Brij Maharaj, Bice Martincigh, Albert



Modi and Cristina Trois, and Honorary Professor Martin Bucher. NRF A2 rated researchers for 2019 were Professor Steve Johnson, Emeritus Professor Barry Lovegrove and Honorary researcher Professor Craig Packer in the School of Life Sciences, and Professor Fernando Albericio in the School of Chemistry and Physics. Professor Francesco Petruccione was appointed Pro Vice-Chancellor for the UKZN flagship research project on Big Data and Analytics, whilst Professor Rob Slotow was appointed to lead the African Cities of the Future flagship. And AES researchers continued to dominate the UKZN Top Researcher list, with 20 out of the Top 30 coming from its ranks.

SIGNIFICANT CHALLENGES ENCOUNTERED AND STEPS TO ADDRESS THEM

The College continued to struggle to fill academic posts with target candidates, which resulted in several key positions at Dean level remaining vacant and being filled in an Acting capacity during 2019. This created its own problems in terms of strategic management and continuity. The process of identifying and attracting suitable target candidates has continued unabated and it is hoped that these positions will be filled in the first quarter of 2020. The academic promotion process, which successfully saw 45 academic staff in AES being promoted in 2019, will also lead to a bigger pool of target candidates being available for key academic and management positions in future.

Over enrolment continued to be a challenge that put pressure on the limited space available for both teaching and research within Schools. This was further compounded by the high student to staff ratio, and aged and inadequate teaching and research equipment. This ongoing need to source state-of-the-art equipment for College teaching and research led to a recapitalization project being undertaken by the DVC and Deans to raise funds for new equipment. This campaign received a R30 million injection from the Vice-Chancellor.

Student protests disrupted academic programmes significantly during 2019. In an effort to address the financial challenge of raising monies to fund College bursaries for needy undergraduate and postgraduate students, links with industry partners were actively pursued. Successful partnerships were established with industries such as SAS, Amazon and Elsevier, and through the efforts of the UKZN Foundation, a significant number of College students received bursaries from Nedbank, Huawei and AECI. The Public Relations department also worked to establish partnerships and networks with College alumni with the aim of future fundraising and research collaboration. Targeted outreach activities amongst feeder schools such as the Siyanqoba Maths Olympiad training programme, and a Women in Analytics High Tea organized by the School of Mathematics, Statistics and Computer Science, paid rich dividends in terms of attracting a high end intake of students for 2020.

PLANS TO RESPOND TO THE FUTURE FINANCIAL SUSTAINABILITY AND EFFICIENCY OF THE COLLEGE

The College has adopted a two-pronged approach to ensure future sustainability and efficiency. Firstly, it is focusing on enrolment, and is working very hard on improving student throughput at both undergraduate and postgraduate levels. Success can be measured by the year-on-year increase in graduates. In 2019 the College had an overall student enrolment figure of 10 036, and graduated 1 980 students at the April and September graduation ceremonies. This included 158 PhDs – the largest number in the University – 291 Masters degrees, 334 Honours degrees, 1 157 Bachelors degrees, and 40 Postgraduate diplomas.



Secondly, through IDDAS, the College of AES will focus its collective efforts on cross-cutting research projects, as this in turn will improve its success rate in attracting external funding to existing projects. Increased third stream income generation through strategic industrial partnerships and increased research grantmanship will be promoted. The College will also continue to pursue strategic linkages and collaboration with its international partners in order to attract international and national grants.

MESSAGE OF GRATITUDE

Individual commitment to our collective effort is the major reason for success within the College of Agriculture, Engineering and Science. For this, I thank the team leaders in the operational and support divisions, academic leaders and all staff for the fruitful hard work displayed.

On behalf of the College leadership, I offer commitment to display headship and act for the wellness of staff and students in order to achieve even greater success for our College going forward. This requires that we continue to work together as a team. Congratulations and thank you to all staff, students and associates for their tremendous inputs and excellent results over the course of 2019.

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