

DISCOVER

Faculty of Engineering



Julia Baah, Acting Dean of the Faculty of Engineering

"The profile of the Faculty of Engineering, is traditionally judged based on the quality of their staff and graduates that they produce. The faculty qualification profile is constantly improving. The faculty currently has eight staff members with doctoral qualification. Additionally, 15 staff members are registered for doctoral studies and 11 for Master's degrees. This is a huge milestone for the faculty whose skills are highly sought out in the corporate world.

In order to make our qualifications more relevant; we engage with external stakeholders through regular advisory board meetings and participation in professional associations. Twelve Electrical Engineering staff represented our Faculty at SAIEE conference in Cape Town. The Faculty actively promotes MUT through external engagements. Chemical Engineering colleagues encouraged eThekwin Municipality employees to pursue further studies by conducting a presentation at the Women in Engineering information session on request of the Office of the Deputy City Manager.

The Faculty of Engineering strategically strives to create closer links with eThekwin Municipality and local industries. Current research partners include Umgeni Water, eThekwin Water and Sanitation Department and Dilex. We hope to expand these engagements in the future.

The most pressing issue on the Faculty agenda is preparation for the provisional accreditation visit by the Engineering Council of South Africa (ECSA) at the end of May 2019".

Jet fuel production using algae - a first for Africa and MUT

For many people algae is a sign of contaminated water in pools and other areas where water collects. This is not the case for one MUT lecturer in the Department of Civil Engineering.



Joseph Bwapwa

Joseph Bwapwa has formed an unlikely partnership with algae in his academic research. He recently completed his doctoral degree from the University of KwaZulu-Natal, where he was researching the possibility of producing jet fuel using algae. This is the first time in Africa and MUT that anyone has attempted to use algae to produce jet fuel.

Bwapwa explains that algae is especially important to his scientific work because when it grows, it constitutes a solid called biomass. This biomass contains chains of hydrocarbons which store oil. "Because that biomass has hydrocarbon that contains oil, we can extract that oil. The oil is similar to fossil oil in terms of quality, but it produces less carbon, which means lower carbon emission," says Bwapwa.

Using algae creates an opportunity to solve some of the challenges that the petroleum industry is facing. "Currently the petrol industry is facing two issues: protecting the environment, and the fluctuation of prices which affects cost."

This is not the first time that Bwapwa has used algae in his scientific work. He conducted numerous studies where he used algae to recycle waste water. His study on treating waste water has been presented in conferences around the world, including Japan. "Waste water is made up of contaminants and nutrients. Algae takes the contaminants in waste water because it needs the contaminants to grow," said Bwapwa.

So far, Bwapwa has six publications and he is currently working on finalising a book chapter and a journal article on waste water and green energy, which should be published next year.

Completing his doctoral degree also means that he can start supervising Masters and Doctoral students in Civil and Chemical Engineering. Bwapwa flies the MUT flag regularly at international conferences where he presents his research and chairs sessions in the United States and Canada.



Dr Papy Numbi

Bheki Hlophe of the Department of Marketing and Communications (MarComms) spoke to Dr Numbi about this latest development in his academic career.

Bheki Hlophe: What does it mean to be a Y2 rated researcher?

Dr Numbi: According to the National Research Foundation (NRF), Y2-rated researchers (younger than 40 years) are those who held the doctorate qualification for less than five years at the time of application, and who are recognised as having potential to establish themselves as leaders in their research fields within a period of five years.

BH: How do you feel about earning the Y2 researcher status?

Dr Numbi: I feel great! It means that the quality and impact of my research output are being recognised by my peers nationally and internationally. This has boosted my confidence and increased my research ambition; I am planning to move to a higher NRF rating level in the next five years.

BH: What did you do to earn this status?

Dr Numbi: I worked hard during the past three years. As an academic, I had to do teaching, research and community engagement. Within the same period I produced three book chapters, eight journal articles and nine conference articles. I also benefited a lot from collaboration with Prof Kusakana at CUT, and from the MUT Research Directorate and Faculty of Engineering which also gave me immense support.

BH: What does your new status mean for MUT and the Department of Electrical Engineering?

Dr Numbi: I believe that my status will inspire and motivate my colleagues. It will also benefit our department since we are planning to develop postgraduate programmes in the near future. Most higher education institutions in South Africa use their NRF rating status to position themselves as top universities.

Engineering faculty member obtains Y2 rating

While the world was celebrating the first day of 2019, Dr Papy Numbi of the Department of Electrical Engineering had something extra to celebrate. January 1, 2019 was the first day that he would be officially regarded as a Y2 rated researcher by the National Research Foundation (NRF), as announced by the NRF's Lesley Di Santolo.