



## FACULTY OF ENGINEERING

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WITH CLEAR OBJECTIVES IN ITS SIGHTS, the Faculty of Engineering this year took aim carefully and hit the bull's-eye on a number of occasions. One of the weapons it used was a well-planned undergraduate growth and diversity plan. Diligent and directed marketing and recruitment contributed to 2009 being characterised by the largest first-year intake thus far, with close on 700 first-year students registering.

Accessibility for engineering studies at the University was improved with parallel-medium tuition, which was extended to the second year of study from 2009. In addition, students with deficient skills in Afrikaans or English were supported by way of language skills modules.

Successful outreach actions were launched to encourage top students from the designated groups to become Matie engineers. Among these actions were:

- *An event where role models from the designated groups inspired learners and their parents by sharing with them why they had selected to study engineering at Stellenbosch University.*
- *A variety of information-sharing sessions for learners and parents from these groups on the attractive occupational opportunities and degree programmes.*
- *The sponsorship of 40 learners from previously disadvantaged groups to attend the Winter Week in order to be introduced to engineering as a career and to student life.*
- *Partnerships with schools with a good track record that also have a diversity of learners.*

The annual Women in Engineering afternoon was held with great success for the seventh time.

Despite the fact that the Faculty of Engineering went out of its way to improve diversity, it is going to be difficult to achieve the 2015 diversity target of 28% of first-year students. The number of coloured, black and Indian students at the Faculty has more than tripled since 2005. However, this strong growth did not improve significantly as a percentage because of the large increase in student numbers in general. The deficient Mathematics and Science teaching at previously disadvantaged schools is a big stumbling block, but the Faculty has made a positive input in this sphere as well. We presented the module Society in Perspective for the second year in a row. As part of this module, 200 senior students

present tutorial classes in Mathematics and Physical Sciences at four local schools, namely Cloeteville Senior Secondary School, Kayamandi High School, Kylemore Secondary School, and Lückoff High School. In this way the learners are made aware of engineering as an occupation and hopefully receive better pass marks in these two absolutely essential subjects for engineering.

The Faculty received R54 million out of the Overarching Strategic Plan funding of the R300 million made available for research projects. With the three largest projects being in the spheres of Energy and Environment, Communication and Information Systems, and an interfaculty project on Food Security, the Faculty hopes to make a meaningful contribution.

The year also saw the launch of South Africa's second microsatellite, SumbandilaSat, from the Baikonur base in Kazakhstan as part of the payload on the Soyuz-2 rocket. The project, to the value of R26 million, was financed by the Department of Science and Technology (DST), and the University was contracted as project coordinator to supervise the project from a technological point of view and to provide academic training for postgraduate students. Some of the technology and systems on board the satellite originated in the Electronic Systems Laboratory at the Department of Electrical and Electronic Engineering and developed further by SunSpace, a spin-out company of the Faculty.

In 2009 the Faculty produced another spin-out company. NioCAD (Pty) Ltd arose from research being done in the Department of Electrical and Electronic Engineering to develop the world's first design software for superconductive circuits and systems.

The Faculty received a research chair via the South African Research Chairs Initiative (SARChI) programme of the DST and the National Research Foundation – one of five that was awarded. The focus of the SU research chair is electromagnetic systems and electromagnetic interference mitigation. Collectively the research chairs are focused on the Square Kilometre Array (SKA) project to strengthen South Africa's bid to host SKA in the hope that South Africa will snatch the award of this large project away from its competitor, Australia.

In 2009 the Dean, Prof Arnold Schoonwinkel, took research leave and left the Faculty in the competent hands of Prof Hansie Knoetze, who was ably assisted by the Vice-Deans, Profs Peter Dunaiski and Willem Perold.