

# New facilities meet the need for more engineers

In 2006, the Department of Education announced its intention of allocating funding to five universities in order to increase the number of engineering graduates in the country. This was in response to the national Accelerated and Shared Growth Initiative of South Africa (AsgiSA) and the associated Joint Initiative for Priority Skills Acquisition (JIPSA).



Since this announcement, the Department of Education has made a total of R170 million available to the University of Pretoria for the upgrading of its engineering facilities. The University has supplemented this initial allocation from its own funds for capital projects, as well as fundraising income, bringing the total budget for the expansion of the engineering facilities to R420 million.

The new development will be situated on the current parking area behind the Aula theatre, and will include six new lecture halls with a total seating capacity of 1 800, a drawing hall that can seat 475 students, an interactive group study area for 91 students and four new laboratories (one for mechanical engineering and three for electrical, electronic and computer engineering), as well as offices and a new parking garage for approximately 1 000 vehicles. The new lecture halls, laboratories and offices will cover three floors, while the parking will cover four levels. According to Anton de Jongh, Managing Director of ARC Architects, the construction, which was initiated in May 2009, should be completed early in 2011. A concourse will provide direct access to the Aula and the Musaion.

These new facilities will not only make it possible for the University to accommodate the envisaged growth of its School of Engineering over the next few years in line with national

needs, but will also contribute to the delivery of engineers to the market who are innovative thinkers.

The School of Engineering recently adopted a new approach to engineering education that aims to teach engineering students not only the technical fundamentals of their disciplines, but also non-technical skills. These skills, inter alia, include working in teams, communicating through written or oral presentation, considering their work in the context of society, as well as professional ethics. Instead of emphasising analysis and problem-solving in a theoretical realm, students participate in team-based projects where they go through the cycle of conceiving, designing, implementing and operating (CDIO).

The whole design of the new engineering building creates a conducive environment for students to form informal groups between classes, where they can engage in engineering reasoning and problem-solving through teamwork. The open areas in the building between the laboratories and lecture halls have been designed to provide students with different study areas where they can work and collaborate informally. The idea is to provide engineering students with a home away from home, where they can spend their time in a productive, student-friendly environment.

Once the new facilities are in use, the University will be able to launch a project to upgrade all its other engineering facilities, particularly some of its older laboratories. This will be made possible through the allocation of government funding to the value of R34.7 million over the next three years to upgrade existing equipment and acquire new equipment to replace items that are no longer relevant for current needs.

Although the construction work only started recently, the project was initiated two years ago with the review of various design proposals. Because of the close proximity of the new building to the Aula, Musaion and Amphitheatre, it was decided to also include the upgrading of these structures in the construction project. The main concourse therefore provides links to the Aula and the Musaion.

To deal with the expanded volume of traffic, a new entrance will be developed in University Road opposite the new Tshwane Metro Station (just south of the Carl and Emily Fuchs Institute for Microelectronics) with direct access to the parkade.

Traffic modelling was done to determine peak flows prior to approval being granted for the development of this new entrance to ensure that there is no backup of traffic. A card system will ensure free flow of traffic into the parkade, while ramps and strategically placed lifts will provide easy wheelchair access to and from the parkade.

The existing entrance in University Road will be retained as a pedestrian entrance, as well as a so-called 'kiss-and-drop' area. ➔



➔ Celebrating the turning of the first sod on the site that will become the new Engineering III Building are (from left): Anton de Jongh, architect, Prof Antony Melck, Executive Director, Prof Calie Pistorius, former Vice-Chancellor and Principal, Prof Antonie de Klerk, Executive Director, and Prof Roelf Sandenbergh, Dean.

## FACT FILE

- The University of Pretoria's School of Engineering originated in 1956, when a fully fledged faculty of engineering was established with three departments. Today, it is the largest engineering school of its kind in the country, providing quality training to the leading minds of the future.
- It provides internationally competitive and locally relevant training in all the engineering disciplines.
- Its degree programmes are internationally accredited and it has established strong ties with industry and the profession.
- Its research is focused on the development needs of the country and it produces nearly a third of the country's professional engineers.
- Its engineering degrees are recognised internationally through the Washington Accord in Australia, Canada, Chinese Taipei, Hong Kong, China, Ireland, Japan, Korea, Malaysia, New Zealand, Singapore, the UK and the USA.
- Based on citations, the Institute for Scientific Information (ISI) rates it as the best school of engineering in South Africa. It is one of only two engineering schools in the country to be listed in the top 1% of engineering schools in the world.