

MISSION STATEMENT

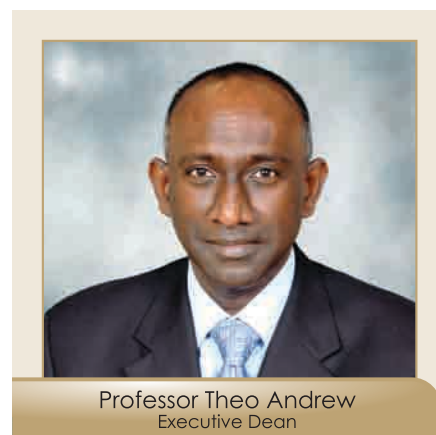
OVERVIEW OF THE FACULTY

The Faculty of Engineering and the Built Environment (FEBE) was formed in May 2007 as a result of the restructuring of the Faculty of Engineering, Science and the Built Environment. The current Executive Dean, Professor Theo Andrew took office on the 1st March 2008.

The Faculty is made up of nine academic departments, eight on the Steve Biko Campus and one on the Indumiso Site in the Midlands. FEBE has a current staff complement of 153 comprising 101 academic staff, and 52 support staff. It must be noted that computer support staff attached to the Executive Dean's office are shared with the Faculty of Applied Science. The total student headcount for 2008 was 5390, an increase of 278 from 2007. All programmes, except for Town and Regional Planning and Pulp and Paper Technology lead up to DTech.

STUDENT ENROLMENTS

- The largest programme and department continues to be Civil Engineering and Surveying. Although there are two separate programmes housed in a department in Durban and Pietermaritzburg, the majority of students are in the civil engineering programme. This is followed by Electrical Engineering, Electrical Power Engineering, Mechanical Engineering, Construction Management and Quantity Surveying, Chemical Engineering, Industrial Engineering, and then Town and Regional Planning.
- Of the total 5390 students 77, 6% were in the National Diploma programmes, 21, 4% in the Bachelor of Technology programmes, and 1% in the postgraduate programmes.
- Female students make up 24, 3 % of the student population in the Faculty.
- African and Indian students respectively make up the largest student groups reaching 65% and 27%. These figures have been more or less the same over the last three years.



Professor Theo Andrew
Executive Dean

TEACHING AND LEARNING

Throughput rates in the engineering faculties are usually lower than that in other faculties at most universities. However, a graduation rate of 13% for the National Diploma and 21% for the BTech programmes is still very far from the DoE benchmarks. It must be noted that most of the BTech programmes in the faculty are offered on a part-time basis.

The success rates do not correlate with the throughput rates. Reasons for this include bottleneck subjects, untimely placement for work integrated learning and the high drop-out rate of 52%. The average success rate for the faculty is 67%. Teaching and learning is the primary focus of the faculty for strategic intervention. Several interventions are already in place, such as the identification and amelioration of bottleneck subjects, tutor programme and managing the student.

RESEARCH

There are four relatively strong activity areas in the Faculty:

- Composites, Design and Manufacturing (Mechanical Engineering)
- Systems Research (Industrial Engineering)
- Membrane Technology (Chemical Engineering)
- Systems Simulation (Electrical Power Engineering)

In addition, small research niche areas that are active are:

- Applied Chemical Thermodynamics (Chemical Engineering)
- Mechatronics (Mechanical Engineering)
- Transport (Civil Engineering)
- Water (Civil Engineering)
- Computational Intelligence (Electronic Engineering)
- High Frequency Design (Electronic Engineering)
- Signal Processing (Electronic Engineering)
- Process Control (Electronic Engineering)
- Construction Project Failures (Construction Management)
- Housing & Human Settlement (Town and Regional Planning)
- Dube Trade Port (Town and Regional Planning)
- Megaprojects (Town and Regional Planning)

The faculties' research outputs are mostly generated by the four research activity areas, and they include postgraduate students graduated, journal (approximately 8/annum) and conference publications, and the odd patent. Again, the four areas also attract the vast majority of the research funding, both internally and externally (approximately R4 million/annum). It should be noted that the funding the four research activity areas received from the DUT has diminished considerably over the years.

In summary, of the 100 odd academics employed within the faculty, only half have a Masters qualification. This is one of the main reasons for the poor research track record of the faculty. Attracting and retaining postgraduate students is another problem. The little research that is being conducted is mainly carried out within four research areas, which have the most qualified staff and attract the majority of the research funding.

Strategic Plan

The most obvious immediate objective is to increase the number of academics in the faculty that have at least a Masters degree, and preferably a doctoral degree. Approximately 50 or so staff do not have a Masters degree, only 18 have registered for a Masters degree, and 5 are unlikely to (given their age etc). Thus the aim should be to persuade those that haven't and are likely to register for a Masters degree to do so quickly. Furthermore, only 11 have a Doctoral degree, and so those that have a Masters and that are not pursuing doctoral studies should also be persuaded to register quickly.

Fortunately, the DUT has a very enabling culture with regard to pursuing higher qualifications and so this goal should not be as hard to achieve as it appears.

The second objective is to ensure that each department has at least one well funded research activity area, and since it has already been shown that all the departments have active areas or niches already, the smaller ones should be encouraged to grow. Funding would help achieve that goal. Furthermore, departments that have more than one tiny niche area should consolidate them into a single unit.

Furthermore, the research activity areas, which, as mentioned, are responsible for the majority of the research outputs in the faculty, can be grown further. They presently receive far less funding from DUT sources than from external sources, and so they can be grown quickly by increasing the DUT funding they receive. For example, by relieving the researchers in the activity areas of lecturing loads and extending their funding, the outputs would increase. In fact, this is probably the easiest method of growing the research outputs in the faculty fast.

A third objective is to establish Masters and Doctoral degree programmes in Town and Regional Planning (by 2011). This department continues a high throughput and low dropout rate. The lack of postgraduate students in the department is severely hampering research initiatives. This will entail attracting an academic with a PhD into the department, amongst other things.

Anticipated Growth in Research Outputs

| Output | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------------|------|------|------|------|------|
| M students graduated | 10 | 12 | 15 | 20 | 25 |
| D students graduated | 2 | 2 | 3 | 4 | 5 |
| DOE publication units | 10 | 12 | 15 | 20 | 25 |
| Patents | 1 | 2 | 3 | 4 | 5 |

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