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Maths and physics genius tackles shortage of engineers by coaching underprivileged matric learners

University of Cape Town (UCT) final-year mechanical engineering student Thabang Sebetoane has formed a non-profit organisation, Tshehetso, that mentors and tutors matric learners to cope with the gruelling demands of university-level mathematics and physics.

South Africa continues to suffer from a lack of qualified engineers and according to Sebetoane part of the problem is that there is inadequate coaching and mentoring at high-school level, especially in underprivileged communities in South Africa. This, in turn, results in high drop-out rates at first-year level, ultimately leading to a significant shortage of qualified engineers in the longer term.

Sebetoane and five friends, who like him had endured a tough upbringing due to socio-economic challenges, had travelled from the Free State to Cape Town to pursue their degrees at UCT. They all had hopes of building a better life for themselves and their families.

Unfortunately, his friends could not cope with the pace of the degree and had to drop out. After observing the same trend the following year he was determined to turn the situation around, reduce the dropout rate in year one, and grow the engineering student cohort.

After writing a proposal focused on the shortage of engineers in the country and the need to address this by developing matrics via coaching, mentoring and tutoring, especially in mathematics and physics to Tate Makgoe, MEC for Education in the Free State, Sebetoane received funding for the rollout of the Tshehetso project at selected schools.

"I was so happy. Some ask me why the Free State? But that is my home. I understand the dynamics there, the challenges children face, and there's no better place to start than at home," Sebetoane said.

He explained that Tshehetso bridges the gap between high school and university, preparing matrics for their first year as engineering students. Pre-university training programmes include coaching on how to respond to the level of teaching and schooling and quizzing on university-level mathematics and physics. Sebetoane and his team of tutors also help with the university enrolment process, and once candidates are accepted, Tshehetso runs support camps before the start of the academic year.

Sebetoane's tutors are engineering and commerce students at UCT, the University of Pretoria and the University of the Witwatersrand.

Once the new cohort is settled in, weekly interactive revision classes are hosted to help the students revise coursework from training manuals provided by Tshehetso. Students also write weekly maths and physics tests to assess their progress.

Achieving his long-term goal of extending the programme to schools in other provinces is on the cards but requires support from the private sector and engineering firms. That support needn't only be financial, Sebetoane pointed out.

"It's not just about money. It's about way more than that. It's about training and development, it's also about opening doors for our students and offering them resources. We can't do it without them. Together we can make that change all of us so desperately want to see in this country."



Thabang Sebetoane

Photo: Brenton Geach

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