Media Release
Actuarial Society of South Africa
21 January 2020

Matriculants with maths distinctions urged to choose their degrees wisely

As long as South Africa's pipeline of future problem solvers continues to deliver a declining trickle feed of competent mathematics learners, the country cannot expect to achieve a meaningful growth trajectory. This is according to Lusani Mulaudzi, the new President of the Actuarial Society of South Africa.

Only 2%, or 4 415, of matriculants who wrote mathematics last year achieved a distinction (80% or more), according to the Department of Education National Senior Certificate School Subject Report for 2019. Mulaudzi says the implication is that only 4 415 learners have a real chance of studying towards professions that provide the problem-solving skills needed to address South Africa's most critical challenges. He adds that most of these professions require STEM (science, technology, engineering and mathematics) degrees, with mathematics being the base requirement.

"As the Actuarial Society we are deeply concerned that the number of matriculants achieving a distinction in mathematics continues to decline year-on-year," says Mulaudzi. Three years ago, 6 726 learners who wrote mathematics achieved 80% or more and in 2018 only 5 828 achieved a distinction.

He says while the 4 415 matriculants who achieved 80% or more in 2019 are entitled to celebrate their distinctions in mathematics, they also need to manage their expectations for their first year of university. "A distinction in matric maths rarely translates to a distinction in university maths," cautions Mulaudzi.

First year reality check

An analysis of student persistency by the University of Cape Town in their Mathematics 1 course shows that on average students who obtained 90% in matric mathematics pass the course with a score of only 64%. Students with a matric mathematics mark of between 80% and 89% fail the course with an average mark of 47%. Those who entered the course with a matric mark of between 70% and 79% tend to fail with an average score of 43%.

Mulaudzi says the gap between the level of matric mathematics and first year university mathematics is substantial, resulting in many students across universities failing Mathematics 1 and subsequently giving up on their degree. He adds that this reduces the pool of students able to graduate with STEM degrees even further.

Considered choices

Mulaudzi urges learners who achieved a distinction in mathematics in 2019 to consider carefully their choice of profession. "You are among the brightest in the country. Consider what skills this country needs to achieve its economic and social goals, both present and future, and choose your degree accordingly," says Mulaudzi.

He points out that without the right skills, South Africa risks lagging behind in the Fourth Industrial Revolution, which is driving technological changes that are radically influencing how societies operate. The importance of the Fourth Industrial Revolution was highlighted when the World Economic Forum (WEF) embraced it as a key theme at last year's annual meeting in Davos, Switzerland.

Mulaudzi says countries unable to meet the demands of the Fourth Industrial Revolution will suffer declining economic growth and social development.

Referring to findings detailed in The World Economic Forum Future of Jobs Report 2018, Mulaudzi points out that the report predicts growing demand over the next couple of years for new specialist roles such as Artificial Intelligence and Machine Learning Specialists, Big Data Specialists, Process Automation Experts, Information Security Analysts, User Experience and Human-Machine Interaction Designers, Robotics Engineers, and Blockchain Specialists.

The Report also states that routine-based jobs will be most at risk of becoming superfluous as a result of new technology and process automation.

"We do not have the skills required to fix key state-owned enterprises and to implement ambitious social projects such as the National Health Insurance (NHI). How then are we as a country planning on keeping pace with a rapidly changing environment driven by technology?" asks Mulaudzi.

He points out, for example, that South Africa only has 1 696 Fellow and Associate actuaries, most of whom are employed by the private sector. Actuaries use highly developed analytical, statistical and numerical skills to ensure that organisations are in a financial position to respond appropriately to future challenges.

"Considering that it takes between seven to 10 years to become a fully qualified actuary, it will take some time before our current small pool of student members will be ready to roll up their sleeves and help tackle challenges of national importance," says Mulaudzi. He points out that at the end of 2019, the Actuarial Society had only 2 767 registered student members.

Finding solutions

Mulaudzi also fulfills the role of Public Interest Actuary for the Actuarial Society. The Public Interest portfolio was created last year with the aim of encouraging the actuarial profession to help with context-based solutions in areas of public interest. These include National Health Insurance (NHI), the proposed Road Accident Benefit Scheme Bill, optimal resourcing of Government departments, the State Liability Amendment Bill that deals with settlement of claims against the State as a result of wrongful medical treatment and funding of free education.

While the Society has been supporting a number of projects over the years aimed at addressing the country's concerning trends in mathematics education, Mulaudzi says this has also been added to the urgent job jar for the Society's Public Interest portfolio.

Ends

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