

# Classroom reboot with robotics

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Education in South Africa is set for new heights with its robotics and coding offering, focusing primarily on improving the awareness of STEM skills, namely science, technology, engineering, and mathematics among primary and secondary school learners.



Aunyana Moloisane

The development of the STEM curriculum which includes Robotics, coding, and 4th IR technologies in SA schools is the future of education, with its full-scale implementation rolling out in the 2023 academic year.

Education expert Aunyana Moloisane said: *“STEM teaches critical thinking and innovation. The focus on logical thought processes and problem-solving which allows students to develop mental habits that will help them succeed in any field. This will in the long run benefit our country and its economy as we are educating the future leaders and decision-makers.”*

As the world moves towards coding, this extends far beyond merely building robots and developing digital solutions to the world’s problems. In today’s world, this is a much-needed skill to thrive and succeed and sets the tone for future educational trends and developments on the continent.

Since the Covid-19 pandemic started, the education system has faced extraordinary challenges within these circumstances, but with schools returning back to normal, the time is now to accelerate learning amid this unique period in history.

Moloisane adds: *“The focus now must be on how we move our education system forward and how we ensure that no child in our country is left behind. We want to bridge the technological gap against us as South Africans and the global landscape, this is the first step.”*

Implementing robotics as a new subject in schools is paramount in strengthening critical thinking skills, developing logical, computational, and analytical thinking skills, and enhancing teamwork ability.

*“At this stage, it is unconfirmed which schools across the country will implement this subject as compulsory, but this creates a wonderful opportunity for corporates to ‘Be the change’ and invest their CSI efforts into educating the poorer schools and bridging the gap on basic education,”* said Moloisane.

Optimi Classroom, has been offering e-learning platforms since 2012, offers learners the opportunity to improve and reinforce what they have learned through special diagnostic tools and engaging practices sessions.

As partners in learning with schools and tertiary institutions, this leader in educational technology as well as a provider of robotics and coding courses, delivers accessible learning solutions to learners and institutions in SA and neighbouring countries, including teacher training in order to upskill.

## What is covered in the various grades?

The **Novice course** for Grades 1–3 will introduce learners to the most fundamental mathematical and language concepts used in engineering, robotics, computer science, and coding.

The **Apprentice course** for Grades 4 and 5 is aimed at improving learners' coding and fundamental robotics skills through introductory courses focusing on Scratch, Micro:bit and Micro:bit car.

The **Adept course** for Grades 6 and 7 begins by familiarising learners with the fundamentals of block-based coding in the **Scratch** environment, followed by TinkerCad, Arduino and fundamentals of circuit theory and Smart Garden.

The **Beginner course** for Grades 7–9 starts with an introduction to **Arduino and fundamentals of circuit theory**, where learners will learn about sensors, processing real-world data, and automation. Learners will be able to transfer and assess their knowledge and skills by building engineering-based projects such as an automated hand sanitiser, a home automation system and the fundamentals of Python game development.

The **Advanced course** for Grades 8–10 starts off by revisiting and brushing up on **Arduino-based programming and the fundamentals of electrical circuits**. These skills will be transferred and evaluated by building advanced engineering and computer science-based projects such as an autonomous line-following car, access control using radio frequency identification (RFID) tags and Python game development and data sciences.

The **Master course** for Grades 10–12 exposes learners to the world of computing, machine learning, and computer vision. Learners will be able to transfer and evaluate their knowledge and skills by completing computer science-based projects such as Rasberry Pi, 2D games and Image processing.

Each of these courses are offered complete with Kit components and Learner outcomes.

Supporting every step of the learning journey; this opportunity for equal education supports SA's education goals, highlighting the importance of e-learning in the change-management process.

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