Coding and Robotics to future-proof learners

Learners in South Africa will soon have the opportunity to take coding and robotics as school subjects.

Speaking at a media briefing in March, Minister of Basic Education, Mrs Angie Motshekga, said that the introduction of the new curricula will help prepare young people for the Fourth Industrial Revolution, which is driven by innovative technologies such as high-speed internet, automation, virtual reality, mobile supercomputing and artificial intelligence. These technologies will not only have a significant effect on daily life, but will also impact the job market.

"The curricula will ensure that our schooling system produces learners with the foundations for future work, and equip them with skills for the changing world," said Minister Motshekga.

Coding

The University of South Africa (Unisa) has partnered with the Department of Basic Education by making their 24 information and communications technology (ICT) laboratories countrywide available for teachers' training in coding. Other partners – including Google and Africa Teen Geeks – are assisting in developing a coding platform that will allow teaching to be customised to individual students, taking their aptitude, learning speed, background and responses into account.

"The plan is to make this coding platform available in all 11 languages, ensuring that rural and township children will be introduced to coding and robotics in their own mother tongue."

Coding will be introduced in 2020 as a pilot for Grades 7 to 9 in a thousand schools in five provinces, but

ultimately the plan is to train at least three teachers in each of the 16 000 primary schools to teach the subject.

Robotics

The robotics curriculum will enable learners to build and operate robots, growing their skills in science, technology, engineering and mathematics (STEM), while also helping to develop their creativity, critical thinking, design thinking and digital skills. These attributes would equip learners to contribute to building an innovative culture in South Africa.

"This robotics curriculum will not require any infra-structure or devices, but will need maker spaces to provide hands-on, creative ways to encourage students to design, experiment, build and invent – for example, through cardboard construction activities," said Minister Motshekga. "The projects will become more challenging as the grades progress. In Grade 9, the learners will be taught how to build a computer from scratch."

There are already a number of robotics competitions for learners in South Africa, including the World Robot Olympiad (WROSA), the FIRST (For Inspiration and Recognition of Science and Technology) Lego League (FFL) and Tech Challenge (FTC), and the recently launched Parabotics. In the WRO competition, the 10 winning teams participated in the WRO International Event in Thailand in November. The latest FFL national competition was won by Team ASAP from the German School in Cape Town, while Team Fifth Order from Hoërskool Waterkloof in Pretoria took first prize in the FTC national competition. Both teams were invited to the FIRST World Championship in Detroit, USA, in April.