

TUNNEL TECHNOLOGIST STANDS HER GROUND IN AERONAUTICS FRATERNITY

Because of her small build, Sarah Dikgale has spent many hours working as an avionic technologist cramped in the tail section of attack helicopters during inflight system checks. "At night, I could still feel the movement of the aircraft when I climbed into bed," she says.



Sarah Dikgale



WHAT SARAH DIKGALE STUDIED

Dikgale studied at Ekurhuleni West College where she did a national diploma in electrical engineering (heavy current). She furthered her studies towards aeronautics by doing a BTech in quality and is now doing a BTech in industrial engineering.



WHERE TO STUDY

In South Africa, the BTech degree is awarded by universities of technology. A popular institution is the Tshwane University of Technology with campuses in Pretoria, Nelspruit, Polokwane, Ga-Rankuwa, Soshanguve and eMalahleni. There are several other universities of technology spread throughout the country.

DIKGALE WORKS as a wind tunnel technologist at the CSIR where she is responsible for the maintenance and calibration of instrumentation and support systems of the Medium Speed Wind Tunnel (MSWT). The tunnel has been used by the CSIR over the past 30 years for aeronautics research, testing the limitations and behaviours of aircraft such as the Rooivalk, Mirage and Cheetah, by conducting wind testing of models of these aircraft.

The complete system looks and feels like an industrial plant with subsystems that include air compressors, air cooling systems, different mechanical and electrical valves, as well as electrical and hydraulic systems. To maintain the tunnel, you need a broad knowledge base that covers all the different technologies in the subsystems. Dikgale says, "You have to have excellent problem-solving skills, because when something goes wrong during a test, time is invariably against you and you don't have the luxury of hours to ponder the issue."

Dikgale explains her role: "The responsibility for the tunnel includes maintaining the instrumentation and subsystems where data will be analysed to ensure the readiness of the tunnel before the execution of the test."

Variety, unpredictability and creativity

The job has great variety and unpredictability: "No two projects that I have worked on have been

the same," Dikgale explains. "Each test is different and I have to put effort into ensuring the tunnel is ready for every different model we have to test."

When everything is prepared, Dikgale does calibrations and functional checks on the complete system, making sure that everything is exactly as it should be. There is absolutely no margin for error.

Working as a technician is not limited to aeronautics. There are career opportunities in any manufacturing or testing facility that runs on heavy machinery that uses hydraulic, mechanical or electrical systems.

Because of Dikgale's thirst for knowledge and sense of adventure, she enjoys working at the CSIR. She says, "I find it difficult to imagine working somewhere else, because at the CSIR I get to think for myself, take initiative and be creative. The long and irregular hours are a small price to pay for the creative freedom I enjoy."

"When I see an aircraft flying overhead and know that some of the systems modifications were tested in the tunnel, I am grateful that we helped to put it safely in the air."

— *Lèsa van Rooyen*



Enquiries:
Sarah Dikgale
sdikgale@csir.co.za

Sarah Dikgale working on the electrical set-up for a wind tunnel test.



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WIND TUNNEL TECHNOLOGIST

CHARACTERISTICS

An ability to handle pressure is a prerequisite – "If anything goes wrong, people will look to you to get it fixed." You must be a team player, and have excellent technical problem-solving skills.

RELATED CAREERS

Aircraft technician, biomedical equipment technician, electrical technician.