

Introduction

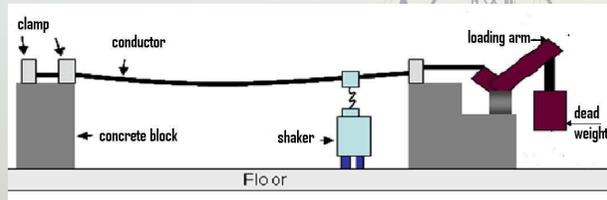
UKZN's Westville campus is home to a R6.8 million Vibration Research & Testing Centre (VRTC), a world-class laboratory designed according to international standards. The VRTC is one of only four such facilities in the world, and the only one in the southern hemisphere that does research, testing and investigations in the field of conductor mechanical oscillations.

The project was initiated by Eskom to provide skills development & training in the field of vibrations & to provide specialized facilities for local companies that need vibration tests to be done.

The Centre is involved with undergraduate and postgraduate research projects on vibration dampers, rotating machines, loading on insulators, conductor bending and fatigue, computational simulations & energy production.

The Laboratory

The facility has a 95-metre-long temperature-regulated laboratory with a conductor vibration test rig comprising of an 85-metre-long transmission line clamped on two concrete blocks (situated at the termination end and the tension end) with an exciter motor/shaker placed about 1 metre away from the tension end of the block and clamped to the transmission line. The shaker and its accessories are used to oscillate the transmission line with the required frequency to simulate wind-induced vibrations.



Main equipment at the VRTC

Equipment	Measurement	Frequency Ranges amplitudes/outputs
Shaker	Vibration	0-3000 Hz 690 m/s ² / 50,8 mm (pk-pk)
Accelerometer	Acceleration, Displacement, Velocity	0,3-6000 Hz 700 m/s ²
Force Transducers	Force	75 kHz 2200 N
Microphone	Sound	11 kHz -25,6 dB
Puma Control System	Sin, Step Sin, Random & Shock Vibration, Spectral Analysis	40kHz 51 200 Samples/s
Vibration Interactive Programme (V.I.P)	Damper & Conductor Performance Tests	5-200 Hz 200 000 Samples/s



Sponsors & Opportunities

The VRTC enjoys support from Eskom, the Department of Trade and Industry through the Technology Human Resources and Industry Programme (THRIP), Pfisterer and Aberdare.

The VRTC is also interested in identifying and pursuing other opportunities relating to testing and research and is amenable to suggestions and input from the industrial and commercial sector.

Furthermore, the VRTC has the capacity and expertise for skills development and can tailor-make short courses to meet specific training needs or industry requirements.



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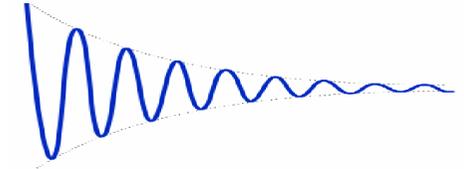
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Vibration Research & Testing Centre



School of Engineering

Mechanical Engineering

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