

ENGINEERING ENGAGEMENT: PROMOTING IMPACTFUL RESEARCH & DEVELOPMENT

Research and Innovation at eNtsa

INNOVATION THROUGH ENGINEERING

Each of the departments within eNtsa lives by this mission statement daily, to deliver novel solutions to challenges they are tasked with. Our mission statement signifies that which lies at the heart of eNtsa; innovation. While most projects are initiated and funded by industrial clients, it has become clear that these projects do not necessarily provide scope for performing fundamental research which may be essential to successful delivery of these projects. To this end, a dedicated research and development department has been established. Each engineer within eNtsa will ultimately be part of R&D at some point, as each project may require unique expertise that is housed within the greater pool which forms the unit.

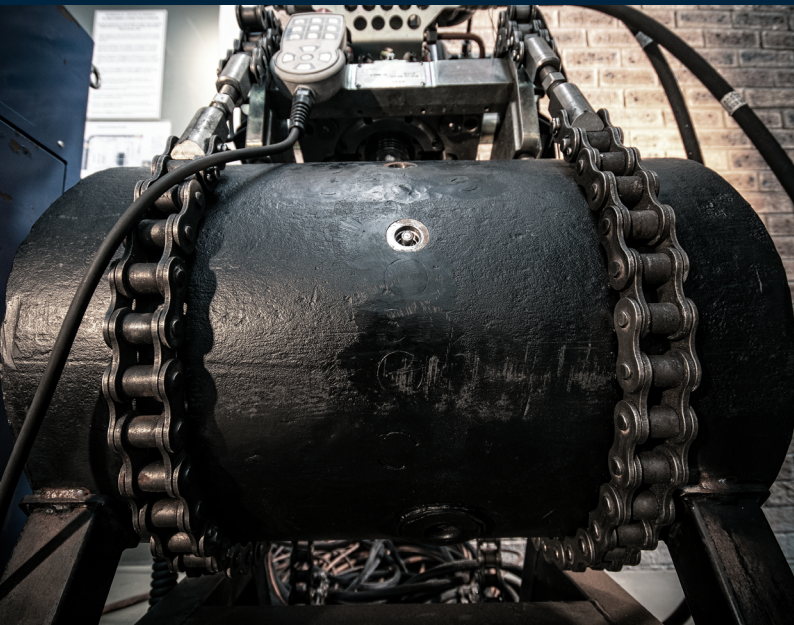
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IMPACTFUL BEHAVIOUR

eNtsa, formerly known as the Automotive Components Technology Station initially served the automotive sector but the impact of engineering capability within the group rapidly crossed industry boundaries and includes a wider range of advanced engineering collaboration. eNtsa's inception was strengthened by novel research in collaboration with ESKOM Research, Development and Testing (ESKOM RT&D) which led to the successful development of Friction Hydro-Pillar Processing (FHPP).

Through major investment and hard work from the team at eNtsa, the FHPP process was adopted in the ASME IX welding code, a code that dictates quality assurance for welds made on pressure vessels. This was a ground-breaking first for a South African Higher Education Institution (HEI) which allowed the FHPP process to be applied to local industrial power generation and petro-chemical plants.



This repair technique's significance extends past the welding, allowing a coring technique on critical engineering components, called WeldCore®. This process involves the removal of a small piece of material (a core sample with an eight millimeter diameter) from a component, and then repairing the hole by plugging it using the FHPP process. This sounds simple enough, however, there is no other application of its kind, anywhere in the world.

The WeldCore® process opened the door to a new field of research, which is intended to provide services to the petro-chemical and power generation sector. Infrastructure in South Africa is ageing, and replacement is a costly and timeous endeavour. A strategic focus at eNtsa is to develop technologies and testing methodologies that will provide the current and prospective WeldCore® clients with usable information regarding the state of their components, which will allow them to make calculated decisions on servicing or replacement intervals.

ATTITUDE FOR ALTITUDE

The scope of Research & Innovation projects are aligned with the strategic focus of eNtsa, which has given rise to a renewed focus in "Structural Integrity". eNtsa is positioned very favourably within the Nelson Mandela University, which is in possession of world-class research equipment. This allows the research team to operate at the forefront of knowledge generation.

Through our strategic partners the most important research questions can be identified and addressed. This also allows the marriage of academic research and industrial development to take place more intimately. Several fundamental studies have been identified which will address plant life management through testing small samples of material from engineering components. Removing small samples allows the components to be placed back into service if the material state is still fit for service.

eNtsa's research and innovation drive is led by a team of engineers and physicists, with several work integrated learning initiatives linked to internships and post graduate students, ensuring that not only the highest quality research is performed, but that the knowledge is transferred, and that the next generation of researchers are nurtured. eNtsa's research attitude is underpinned by its values: teamwork, integrity, excellence and innovation which has resulted in numerous merits of national and international recognition. The team's drive and professional valor supported by their thirst for engineering engagement creates a platform for impactful R&D.

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