

PRODUCT DEVELOPMENT TECHNOLOGY STATION [PDTS]

The Product Development Technology Station (PDTS) is located on the campus of Central University of Technology (CUT) in Bloemfontein. The Technology Station develops new ideas into products, or improve existing products with detailed engineering and develop ideas from concept to prototype. In this way PDTS assists SMMEs by providing them with technological support to design and manufacture innovative new products. The station makes use of first-class engineering expertise from CUT as well as specialized prototyping equipment from the Centre for Rapid Prototyping and Manufacturing (CRPM) to support businesses and individuals through the entire 'new product development process'. The innovative technologies that PDTS makes use of are Computer Aided Designs (CAD), Finite Element Analysis, Additive Manufacturing and Reverse Engineering (3D Scanning). The PDTS services big corporations like Coca-Cola, Aurecon, SA Truck Bodies, Avbob through to SMEs and individuals with an idea that they would like to take further.



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TECHNOLOGY COMPETENCIES AND OFFERINGS

- **Machine and Process Development**
- **Electronic Development**
- **Product Design and Development**
- **Reverse Engineering**
- **Tool Development and Limited Run Tooling**
- **CNC Machining**
- **3D Scanning**
- **3D Printing**
- **Brand Development**

Machine and Process Development

The design and manufacture of machines and mechanical devices that are used in the manufacturing or processing of products, such as a bean sieve, pill press or detergent mixer. PDTS also develop mechanical devices and implements used in framing to enable the production of crops. These range from simple hand-held implements to complex harvesters of modern mechanized agriculture.

Electronic Development

PDTS has a specialized electronic unit for the development of custom solutions such as agricultural sensing systems, sensors for moisture and water levels, wireless infrastructure, database management and farm security.

Product Design and Development

PDTS is involved in the first steps of the product development process through concept design, product design, detail engineering, prototyping and short run production.

Brand Development

Development of corporate identities and a wide range of graphic design services.

Reverse Engineering

Creating an accurate digital representation of an object by means of laser scanning. The digital information is used to create a replica of the original object, or compare the original design to determine how accurately it was manufactured.

3D Printing

The automatic fabrication of an object directly from Computer Aided Design (CAD) using Additive Manufacturing (3D printing) techniques to produce physical prototypes and models.

Assistive Device Development

The development of products that assist physically impaired individuals to engage in activities making use of the products and devices that was developed by the PDTS.

Tool Development and Limited Run Tooling

The development of manufacturing aids such as cutting tools, dies, gauges, jigs, moulds and patterns of a specialized nature for the performance of a specific manufacturing task. The PDTS also make use of grown tool inserts, also known as 'Rapid Tooling', combining Direct Metal Laser Sintering techniques with conventional tooling practices to produce a mould quickly or parts of a functional model from CAD data. Using this technique, the PDTS can manufacture cooling channels, known as conformal cooling, in mould inserts where traditional CNC machining cannot achieve the required results. Better cycle times can be achieved by this. The PDTS can also assist with the production of limited run tooling for clients that need a small batch of parts, using vacuum casting or injection-moulding to test the functionality, assembly and do market research before investing for final production runs.

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