BIZCOMMUNITY

VUT contributes to the fight against the spread of coronavirus

By Selina Rapulane , issued by Vaal University of Technology

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Staff at work producing face masks

The Vaal University of Technology Southern Gauteng Science and Technology Park (VUTSGSTP), in partnership with Tsidi and Friends, a Technology Innovation Agency (TIA) project incubated under Centre of Footwear and Entrepreneurship (CoFE) at VUTSGSTP, are producing face masks for their staff and students, as a contribution to the fight against the Covid-19 pandemic.

The VUT Sebokeng Technology Station (TS) management team and the Technology Transfer Innovation (TTI) specialists discussed, at the outbreak of the Covid-19 pandemic, ways to contribute their skills and expertise to combat Covid-19. The TS team identified their areas of competence, where they could assist and have the most significant impact utilising the TS capabilities and speciality areas.

The team identified areas that they could be able to produce for, and they decided on personal safety equipment such as face masks and face shields. Furthermore, since they had the skill, they opted for advanced medical equipment such as a Bird ventilator. This machine is powered by oxygen or compressed air at a range of supply pressures. It is a non-rebreathing ventilator designed to deliver the driving gas with or without entrained air to the patient. Inspiration can be cycled automatically, or patient-triggered.

The team took time researching these areas and even consulted with several specialists from other universities and industry, so that they do not encounter any hiccups during the production of face masks and face shields. The daily production is taking place at one of the VUTSGSTP facilities, the Centre of Footwear Entrepreneurship (CoFE). The VUTSGSTP staff are assisting on the production side, while the staff from Tsidi and Friends are providing the necessary human resources and production skills such as sewing, snipping and folding. Training was provided to the Tsidi and Friends operators to familiarise them with the mask-making procedures.

The decision to convert the footwear factory into a mask-manufacturing production line was initiated by the TS team to support the mask production fully. This decision required the rearrangement of all the sewing machines to comply with the Covid-19 safety protocol and the team compiled the necessary safety induction material conforming to the regulations. Additionally, for a more technical nature, the team was required to convert the leatherworking sewing machines to cloth-working units.

The delivery of 700 masks to the VUT community marked an achievement in their first week of operation. The production rate was improved from 40 masks on the first day to 200 masks on the fifth day. Continuous improvements are implemented for the manufacturing process to increase production.

Production of face masks

Another milestone reached in combating the spread the virus by VUT is the partnership it has savoured with both WITS and CUT, to assist with the manufacturing of the face shields. Primarily, the shields will be manufactured for the VUT community (staff and students), thereafter it will be offered as a service to the industry.

Regarding the production of the Bird ventilator, a collaboration was formed between VUT, Central University of Technology (CUT), and North West University (NWU) to investigate the feasibility of reverse engineering and to localise the manufacturing of Bird ventilators.

The NWU is establishing competence for the development of medical devices. A primary initiative in this field is the establishment of the Med-E-Hive platform. It is being developed around the NWU's competence in electronic and IT engineering, and the platform will have a footprint in both South Africa and China.

The VUT and CUT, on the other hand, has an established competence for general product development using state of the art in additive manufacturing technology. The Bird ventilator could assist with the fight against Covid-19 and can also be used to identify new market opportunities for the use of additive manufacturing.

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Vaal University of Technology

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