

<b>PROJECTS UNDERWAY AT UNIVERSITIES</b> <b>IN SUPPORT OF STRUGGLE AGAINST COVID-19 PANDEMIC</b> <b>(Please note that this is an INCOMPLETE list; there are many other activities currently ongoing in the sector; additional information will be added as it come avialble.)</b>		
<b>INSTITUTION</b>	<b>INTERVENTION</b>	<b>CENTRE/DEPARTMENT</b>
<b>Central University of Technology</b>	<p>3D printing of valves for Covid-19 Patients for CPAP and BIPAP functionality.</p> <p>Old dysfunctional ventilators are being reverse engineered for the production of new ventilators</p> <p>Connectors, splitters, mouth pieces, masks</p> <p>Personal Protective Equipment (PPE)</p> <ul style="list-style-type: none"> <li>• Ventilation Helmets</li> <li>• Shields</li> <li>• Masks</li> </ul> <p>Oxygen connectors and splitters</p> <p>Novel Oscillatory Respiratory Devices</p> <hr/> <p>Sanitisers for the Free State Department of Education</p>	<p>Centre for Rapid Prototyping and Manufacture</p> <p>Product Development Technology Station</p> <p>With hospitals and DoH</p> <hr/> <p>Environmental Sciences, Food Security</p> <p>With private sector.</p>
<b>Durban University of Technology</b>	<p>Analysis of Epidemiological Data to Inform Strategic Planning and Targeted Interventions – Artificial Intelligence based system and Info-epidemiological big data analytics capacity</p> <hr/>	<p>Information Systems</p> <p>Together with the SAMRC and the District Health Information System</p> <hr/>

	<p>Lessening the Social and Economic Impact of COVID-19 Project of Homelessness</p> <hr/> <p>3D Printing Technology. Set up for face masks, oxygen connectors, oxygen splitters and other parts that may be needed to safeguard human life. In addition to the 12 3D printers, the university has two industrial Resin printers that could be used to print moulds to support large scale manufacturing processes. DUT currently has a stock of raw materials to immediately commence printing to contribute to its quota to mitigating the effects of Covid-19 on the society.</p> <hr/> <p>Use of Drones and Internet of Things to Support Data Collection, Monitoring and Evaluation. Already being used for environmental studies</p>	<p>Urban Futures Centre with eThekweni Municipality</p> <hr/> <p>DUT 3D printing laboratory and Reinforced and Moulded Plastics Technology Station</p> <hr/> <p>Department of Information Technology</p>
Nelson Mandela University	<p><b>MEGA-THEME 1: ENGINEERING AND DESIGN and</b> <b>MEGA-THEME 2: PUBLIC HEALTH AND SAFETY</b></p> <hr/> <p>Sanitiser Production; also researching Capric triglyceride as an antiviral barrier cream</p> <hr/> <p>Face Shields</p> <p>3-D printed masks with interchangeable filter. Produce a unit every 30 seconds</p> <p>The current work includes research on filtration materials, evacuation hoods, field bed design, reverse engineering of components for the Nuffield ventilator in conjunction with WSU, and other respiratory devices. Additionally, eNtsa assists in coordination of rapid response to needs highlighted by role players and the Metro.</p> <hr/>	<p>InnoVenton and Department of Pharmacy; Department of Chemistry</p> <hr/> <p>COVID-19 Engineering Team With Industry Together with CPUT, CUT, WSU</p> <hr/>

	<p>Other Personal Protective Equipment: masks, boots, aprons, gowns;</p> <p>Community project on production of cloth masks for community use.</p> <hr/> <p>Working with the field hospitals to increase the number of beds by 300 with 20% being for critical care</p> <p><i>Zanempilo</i> Mobile Clinic with staff and student volunteers. Whilst there were no issues around the principle of the concept there were concerns around personal insurance, indemnity, and PPE availability for volunteers. The ECDoH was informed that need/availability of PPE.</p> <hr/> <p><u>ICT solutions</u></p> <p>Customizing and, where required, developing smart digital solutions to assist with the tracing, tracking and capturing of data of COVID-19 positive patients.</p> <p>A cloud-based digitized case identification and referral form is deployed at entry facilities. A unique patient identifier is created that can trace the patient through the system at all levels.</p> <p>Other solutions include mobile Apps that offer Artificial Intelligence-powered virtual health assistants and chatbots that are used to enhance the processes, offer self-service, and respond to frequently asked questions. Social (also known as physical) distancing is supported through the deployment of mobile Apps that allow healthcare workers to connect to patients via Video Observational Therapy (VOT) to enable initial screening. The data repository, created through the use of all the ICT solutions, allows for the construction of heat maps to show the highest concentration of infected or tested persons. This, in turn, will assist with patient management and screening planning.</p>	<p>Faculties of Humanities, Engineering, Health Sciences and Science</p> <hr/> <p>Faculty of Health Sciences</p> <hr/> <p>The Centre for Community Technologies</p> <p>In partnership with the ICT industry, the ECDoH and the Nelson Mandela Bay Emergency Response team</p>
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	<p>In collaboration with North-West University, Optentia and a few other partners, the CCT-team also rolled out the Yabelana App which provides a user-friendly experience to connect users with information about essential services.</p> <p>A mortuary information management system has been developed to track mortality rates</p> <hr/> <p><b>MEGA-THEME 2: PUBLIC UNDERSTANDING AND AWARENESS</b></p> <hr/> <p>Multi-lingual educational information</p> <ul style="list-style-type: none"> <li>• Production of video and multimedia materials in three languages to create COVID-19 awareness</li> <li>• Design audio and write hard copy story books (In isiXhosa, Sesotho and Afrikaans) to educate families in rural and township contexts</li> </ul> <hr/> <p><b>MEGA-THEME 4: CLINICAL AND MEDICAL ASSISTANCE</b></p> <ul style="list-style-type: none"> <li>• Drug manufacturing: preparation of hydroxychloroquine if it is proven to be active against the coronavirus</li> </ul> <hr/> <p><b>MEGA-THEME 5: DATA ANALYTICS AND RESEARCH INFORMATION</b></p> <ul style="list-style-type: none"> <li>• Create an mHealth information platform (mobile or smart phones) or modify an existing one to enable early detection of contagious disease</li> <li>• Forecasting COVID-19 propagation for the next six months in South Africa</li> <li>• Mathematical modelling of COVID-19 transmission dynamics (model formulations for various intervention measures)</li> <li>• Forecasting for COVID-19: spread of the infection, impact on economic growth and human development</li> <li>• Contact tracing (extract aggregated data); Generate heat maps</li> </ul> <hr/> <p><b>MEGA-THEME 6: MENTAL HEALTH INTERVENTIONS</b></p> <ul style="list-style-type: none"> <li>• Patient wellness: update current App with COVID-19 data to manage personal wellness and provide access to services through mobile technology</li> </ul>	<hr/> <p>Centre for Community Technology (CCT) Faculty of Education</p> <hr/> <p>SARChI Chair in Microfluidic Bio/Chemical Processing</p> <hr/> <p>NMU mHealth research Groups</p> <p>NMU Department of Mathematics and Applied Mathematics; Centre for Expertise in Forecasting CCT</p> <hr/> <p>CCT</p>
<b>Rhodes University</b>	<p>Technical advice to the National Task Team to produce ventilators for the country,</p>	<p>Department of Physics</p> <p>Department of Economics</p>

	<p>Technical advice to the Presidential Task Team looking into social policy measures to assist informal workers affected by the COVID-19 crisis.</p> <hr/> <p>Sanitiser Manufacturing – thousands of litres have been distributed</p> <hr/> <p>Protective Masks – for distribution to communities around the university</p> <hr/> <p>Community Engagement Food parcel distribution</p> <p>Public information production</p> <hr/> <p>Mathematical modeling of the pandemic</p> <hr/> <p>Communications</p> <ul style="list-style-type: none"> <li>• Coordinating the various communication and public engagement indicatives of different parts of the university, and is running a social media campaign related to COVID-19 issues in the town and its surrounds.</li> <li>• <b>Grocott's Mail</b> is an award-winning community newspaper, run by the <b>School of Journalism and Media Studies</b>, which has continued to operate throughout the national lockdown, for distribution across the community.</li> <li>• <b>Rhodes Music Radio (RMR)</b> has similarly continued to operate throughout the lockdown, and is the only local community radio station which has done so. It has switched its programming to focus on promoting the government's message around COVID-19, and debunking false news. It broadcasts over a 50km radius from the university campus in English and isiXhosa.</li> </ul> <p>The focus of all of these efforts is to inform, educate and raise awareness in our surrounding community, and to keep the message straight and correct false news.</p> <hr/> <p>Supporting the community during the national lockdown</p>	<hr/> <p>Department of Pharmacy + South African Institute of Aquatic Biodiversity</p> <hr/> <p>Housekeeping Services Unit.</p> <hr/> <p>RU Community Engagement Division</p> <p>SARChI chair in Biotechnology</p> <hr/> <p>Department of Mathematics</p> <hr/> <p>Communications and Advancement Division</p> <hr/> <p>Psychology Department</p>
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	<ul style="list-style-type: none"> <li>• guidelines to help us all keep track of our emotional and mental health during the lockdown.</li> <li>• entertaining materials for parents to home school their children.</li> <li>• online video enrichment material for people at home during the lockdown, such as fitness classes and group support sessions.</li> <li>• Many other individuals are volunteering in a range of diverse and worthy initiatives and projects in our Municipality, including providing meals and shelter to the homeless, destitute and vulnerable.</li> </ul> <hr/> <p>Coronavirus Response Task Team</p> <p>Set by Vice-Chancellor to university's responses to the crisis</p>	<p>Centre for Social Development</p> <p>RU Volunteers</p> <hr/> <p>Vice-Chancellor</p>
<b>Tshwane University of Technology</b>	<p>Sanitiser Manufacture</p> <p>Staff and students Ga-Rankuwa campus, have been hard at work mixing up large volumes of hand sanitisers to help keep the TUT community safe.</p> <p>A group of our researchers are conducting a research on the quality of sanitizers across the country.</p> <hr/> <p>Face Masks</p> <p>Staff at the Arts campus are making face masks.</p> <hr/> <p>Staff from Engineering and the Built Environment are making face masks and shields using a variety of techniques</p>	<p>TS in Chemicals</p> <p>Department of Chemical, Metallurgical and Materials Engineering</p> <hr/> <p>Arts staff.</p> <hr/> <p>Faculty of Engineering and the Built Environment</p>
<b>University of Cape Town</b>	<p><b>UCT's Research on COVID-19</b></p> <p>A selection of projects focusing on the COVID-19 pandemic are underway at the University of Cape Town</p> <hr/> <p>Mapping genetic diversity of South African SARS-CoV-2 strains to monitor geographical spread</p>	<p>UCT/GSG Virology</p> <hr/> <p>Biopharming Research Unit (BRU)</p>

	<p>Vaccine development</p> <hr/> <p>Antibodies for a variety of SARS-CoV and SARS-CoV-2 proteins and associated Diagnostics</p> <hr/> <p>Establishment of immunoassays and enzyme immunoassays for antibody detection for sero-surveillance.</p> <hr/> <p>Support for vaccine development and screening – hope to set up SARS CoV-2 ELISAs to support vaccine development and screen recovered patient sera, followed by investigating cellular immune responses to infection in HIV-infected and uninfected individuals.</p> <hr/> <p>Pseudo-neutralisation assay will lead the testing of the SARS-CoV-2 S protein products for binding to the receptor ACE2 protein / transfected cells using bio-layer interferometry (BLI), and comparison of binding of different products to ACE2 and inhibition of binding by mAbs.</p> <hr/> <p>Developing rapid testing diagnostic approaches</p> <p>Interaction and overlap between SARS-CoV2, HIV-1 and M. tuberculosis infections</p> <hr/> <p>Therapeutic trial for COVID-19. This international study explores treatments for COVID-19 in hospitalized patients.  <a href="https://www.dailymaverick.co.za/article/2020-">https://www.dailymaverick.co.za/article/2020-</a></p> <hr/> <p>Chloroquine treatment for COVID-19</p> <hr/> <p>COVID-19 epidemiology</p>	<p>Biotechnology Immunotherapy Unit with the NICD</p> <hr/> <p>Biotechnology Immunotherapy Unit with the NICD</p> <hr/> <p>Biotechnology Immunotherapy Unit with the NICD</p> <hr/> <p>Biotechnology Immunotherapy Unit with the NICD</p> <hr/> <p>Pulmonology, UCT</p> <hr/> <p>UCT Principal Investigator/Centre for Infectious Diseases Research in Africa.</p> <hr/> <p>UCT Division of Infectious Diseases With WHO-led Solidarity clinical trials</p> <hr/> <p>Department of Medicine</p> <hr/> <p>Department of Public Health</p>
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	<p>_____</p> <p>Epidemiological Modelling of COVID-19 in the city.</p> <p>_____</p> <p>Rapid production of COVID-19 -related reagents and vaccines</p> <p>Capacity also exists at UCT for production of these proteins microbially.</p> <p>_____</p> <p>Medical devices for handling the COVID-19 pandemic – developing five medical devices</p> <p>Two designs of face visors as personal protective equipment (PPE) at the cost of &lt;R10</p> <p>This team has developed a biodegradable 3D-printed respirator mask. This respirator is fitted with a small but effective N95 filter.</p> <p>An intubation shield to protect health care workers while applying tracheal intubation to Patients. Prototype devices are estimated to cost less than R1500 per unit.</p> <p>The team has developed a prototype to 3D print autoclavable swabs from surgical grade dental resin in large volume using a FormLabs Form2 3D printer.</p> <p>The final contribution of this team is a mechanical ventilator to support the body's breathing process when the patient cannot support this un-aided.</p> <p>_____</p> <p>Effect of COVID-19 on a LMIC PICU admissions and outcomes – the study comparing PICU patient profiles, treatment and outcomes during COVID-19 pandemic 2020 to similar periods in 2019 and 2018.</p> <p>_____</p> <p>Cardiovascular Disease in the COVID-pandemic with a focus on LMICs – provide the planning of a global registry on Cardiovascular Disease in the COVID-pandemic with a focus on low-to-middle income countries.</p> <p>_____</p>	<p>Department of Mathematics and Applied Mathematics</p> <p>_____</p> <p>BRU and Cape Bio Pharms Ltd.</p> <p>BRU and the Centre for Bioprocess Engineering Research.</p> <p>_____</p> <p>Biomedical Engineering and Global Surgery</p> <p>_____</p> <p>Department of Pediatrics and Red Cross War Memorial</p> <p>_____</p> <p>UCT and World Heart Federation and Hatter Institute.</p> <p>_____</p>
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	<p>The following studies are under development:</p> <ul style="list-style-type: none"> <li>• Biorepository of COVID samples in people with rheumatic disease and those without</li> <li>• SARS-CoV2 test system at IDM to support diagnostic labs</li> <li>• Tracking COVID19 evolution in SA by whole genome sequencing</li> <li>• Immune response of COVID19 patients and identification of prognosis marker of COVID19</li> <li>• Influence of age and parental health status on susceptibility/immunity to SARS-CoV-2</li> <li>• The Faculty of Health Sciences at UCT have set up a protocol to assist in expediting approvals for the COVID-19 studies, both in terms of the ethics approval and in obtaining approval to work in community settings or on a district platform.</li> <li>• Further the faculty is setting up a faculty-wide biorepository to provide an umbrella structure to link all projects and to address in a unified manner issues of safety, risk, equity and access to data and specimens.</li> </ul>	
<b>University of Pretoria</b>	<p><u>Clinical Trials and Testing</u></p> <ol style="list-style-type: none"> <li>1. A WHO multi-centre clinical trial study for Africa looking at various antiviral compounds.</li> <li>2. UP is leading a SA MRC study on various rapid test methods.</li> <li>3. The Department of Medical Virology established an accredited testing facility with NHLS and is fully functional.</li> <li>4. Systems and protocols have been put in place in collaboration with the Gauteng Department of Health to screen, manage and treat COVID-19 patients.</li> </ol> <hr/> <p><u>Community Health and Counselling</u></p>	

	<ol style="list-style-type: none"> <li>1. The UP Department of Family Medicine has developed the UP (Community Orientated Primary Care) Research Unit as part of the Community Oriented Primary Care initiative.</li> <li>2. The UP Tshwane COVID-19 Care Helpline has been established and is manned by doctors/registrars from UP.</li> <li>3. The Faculty of Health Sciences are involved in projects supporting homeless people in the Tshwane area, including substance use support, screening and testing.</li> <li>4. The Faculty has developed guidelines to support staff and students with mental health related issues.</li> </ol> <hr/> <p><u>Modelling</u></p> <ol style="list-style-type: none"> <li>1. A trans-disciplinary study is doing a modelling study of COVID in South Africa.</li> <li>2. Created a repository to collate data on the ongoing coronavirus pandemic in Africa. The goal is to record detailed information on each reported case in every African country.</li> <li>3. A team has developed what is believed to be the first <a href="#">interactive app</a> in the country that provides real-time data on COVID-19 using R-Shiny (a statistical software package).</li> </ol> <hr/> <p><u>Basic Research:</u></p> <ol style="list-style-type: none"> <li>1. The Centre for Viral Zoonosis is doing research on bats as a potential carrier of the virus and are working with NICD on COVID-19 related initiative.</li> </ol>	<p>Partnership between Health Sciences and Mathematics and Applied Mathematics</p> <p>ABSA Chair of Data Science and Senior Lecturer at the department of Data Science</p> <p>Department of Statistics in collaboration with other international universities</p> <hr/>
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	<ol style="list-style-type: none"> <li>2. With Gavan Institute in Sydney Australia, profiling risk of South Africans, using whole genome profiles.</li> <li>3. Other COVID-19 related projects are: <ul style="list-style-type: none"> <li>○ HIV and TB related</li> <li>○ Diabetes related</li> <li>○ Air Quality</li> <li>○ Health Risk Assessment in Mpumalanga</li> </ul> </li> <li>4. Many studies are in the planning stage and still needs to get ethical approval.</li> </ol> <hr/> <p><u>Capacity Support and Volunteering</u></p> <ol style="list-style-type: none"> <li>1. Senior medical students volunteered and are currently deployed in the hospital and areas where they support the doctors.</li> <li>2. A cellphone application has been developed for doctors to manage COVID-19 cases in the hospital setting.</li> <li>3. UP'S MakerSpace Centre is producing 3D-printed visor frames for facial shields for use by healthcare workers in Gauteng.</li> <li>4. The Faculty of Health Sciences has been leading and has been proactive in installing sanitisers throughout the Faculty, developing education material, producing videos and video clips on preventative measures.</li> </ol> <hr/> <p><u>Communication Initiatives</u></p>	
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	<ol style="list-style-type: none"> <li>1. The University has created a <a href="#">COVID-19 webpage</a> on the UP website to deal with the COVID-19 issues and as a communication tool for students, staff and alumni</li> <li>2. We are sending regular <a href="#">updates</a> from the Vice-Chancellor and Principal, Prof Tawana Kupe</li> <li>3. A <a href="#">Well-Being@UP blog</a> to provide students and staff with support and advice from UP experts on boosting their psychological and physical health in the context of the COVID-19 pandemic was created</li> <li>4. Inspirational and educational <a href="#">videos</a> were created and made accessible on the COVID-19 webpage</li> <li>5. Regular relevant COVID-19 related updates to student and staff are distributed via direct and social media platforms. An educational campaign was launched on social media platforms as well as the University's electronic screens (prior to the lockdown)</li> </ol>	
<b>University of Western Cape</b>	<p>First South African SARS-CoV-2 genome sequencing.</p> <p>A ventilator prototype being developed</p> <p>Locally manufactured Transmission Ventilator Mask</p>	<p>UWC/SANBI/NICD</p> <p>SAIAMC</p> <p>SAIAMC</p>
<b>University of Witwatersrand</b>	<p><b>Big Data research</b></p> <ul style="list-style-type: none"> <li>• <u>Dashboard development:</u> Using mathematical modelling and analysis, a multidisciplinary team led by a WITS Physics professor has developed what they termed a COVID-19 South Africa Dashboard – essentially a tool for monitoring the development of the Corona virus in South Africa and other African countries, with the aim to predict the spread and impact of the Corona virus in Africa</li> </ul>	<ul style="list-style-type: none"> <li>• WITS School of Physics with NRF's iThemba Labs and data analytics from DataConvergence.</li> <li>• The GCRO is a partnership between WITS, UJ and the</li> </ul>

	<ul style="list-style-type: none"> <li>• <u>Epidemiological modelling</u>: As a partner within the Gauteng City-Region Observatory (GCRO), WITS scientists contributed to the development of an <a href="#">interactive map showing the province's vulnerability to COVID-19</a>.</li> <li>• Professors David Rubin and Adam Pantanowitz are developing a model to demonstrate the effect of intermittent quarantines, which may help maintain essential services and sustain economic activity</li> </ul> <hr/> <p><b>Public Health</b></p> <ul style="list-style-type: none"> <li>• <u>Drug trials</u>: WITS professors are leading the South African research team in the 10-nation World Health Organisation-led Solidarity clinical trials aimed at identifying the most effective treatment against COVID-19.</li> <li>• <u>Other research and contact tracing</u>: Wits RHI, which has previously led the WHO initiative in support of the national Department of Health's delivery of HIV and TB services, is being entrusted with COVID-19 research work as well as training community workers to trace community contacts of those infected with coronavirus. Leading in this regard is Professor Helen Rees, Executive director: Wits RHI</li> <li>• <u>Vaccine development</u>: WITS just secured a grant from the national Department of Health and the National Health Laboratory Services (NHLS), primarily to strengthen the COVID-19 virus surveillance and to undertake research related to new therapies and vaccines, as part of bolstering South Africa's response to the pandemic. Both initiatives are led by Prof Shabir Madhi, Director of the Medical Research Council Respiratory and Meningeal Pathogens Research Unit (RMPRU) at Wits.</li> <li>• <u>Rapid Testing development</u>: In support of national public health and to render COVID-19 testing more accessible, WITS, in partnership with the Gift of the Givers Foundation opened a testing centre at the Braamfontein Campus on Enoch Sontonga Road.</li> </ul> <hr/> <p><b>Economic analysis of the impact of Covid-19</b></p> <ul style="list-style-type: none"> <li>• <u>Open letter to President from WITS economists and social advocates</u>: On 31 March, a group of 78 academics from Wits wrote an open letter urging President Cyril Ramaphosa for a more significant action balancing health and economic safeguards to protect citizens against the effects of the national lockdown.</li> </ul>	<p>Gauteng Provincial Government.</p> <ul style="list-style-type: none"> <li>• The Wits Biomedical Engineering Research Unit</li> </ul> <hr/> <p>Wits Reproductive Health and HIV Institute (<a href="#">Wits RHI</a>); WHO</p> <p>WITS Medical Research Council Respiratory and Meningeal Pathogens Research Unit (RMPRU) with DoH; NHLS</p> <p>WITS University with the Gift of the Givers Foundation, Mullar Laboratories and NICD</p> <hr/> <p>MRC Respiratory and Meningeal Pathogens Research Unit; School of Governance; Department of Social Security</p>
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	<ul style="list-style-type: none"> <li>• <u>Strategy to replace the initial national lockdown:</u> On 9 April, a group of six WITS experts submitted to the Presidency, a blueprint for a staggered reopening of the economy as a measure to safeguard livelihoods during the national lockdown. This strategy provided some of the key scientific counsel that influenced the President's plan for the extended lockdown. The six experts who formulated the blueprint are: Professor Martin Veller, Dean of the Faculty of Health Sciences and a member of the Ministerial Committee providing clinical management advice on COVID-19; Professor Shabir, Madhi, a Vaccinologist and Director of the MRC Respiratory and Meningeal Pathogens Research Unit who has been extensively consulted on vaccine matters regarding COVID-19; Professor Alex van den Heever, Adjunct Professor in the School of Governance and Chair of Social Security Systems Administration and Management Studies; Professor Imraan Valodia, Dean of the Faculty of Commerce, Law and Management and Head of the Southern Centre for Inequality Studies; Professor Michael Sachs, Adjunct Professor, Economics and Professor David Frances, Deputy Director at the Southern Centre for Inequality Studies.</li> </ul>	Systems Administration and Management Studies; Faculty of Commerce, Law and Management; Department of Economics and the Southern Centre for Inequality Studies
University of Zululand	<u>Disinfectant/Sanitiser Manufacturing</u>	
Walter Sisulu University	<p><u>Engineering of components for the South African Emergency Ventilator Project</u></p> <p>A WSU Engineering Professor, Carlo van Zyl, with design engineers and resources from Nelson Mandela University's eNTSA, is involved in the reverse engineering, design and development of a non-invasive mechanical ventilator.</p> <p>The WSU work includes the design of a mechanical pressure sensing device to replace a gauge indicating respiratory pressure.</p> <hr/> <p>'Netiquette' amidst crisis: Critical Discourse Analysis of posts on a trade union WhatsApp group following presidential announcement of a 21-day COVID-19 national lockdown</p>	<p>Faculty of Engineering with NMU and eNTSA</p> <hr/> <p>Faculty of Arts.</p>
University of Venda	Symptomatic Screening and Awareness Campaign.	

	Univen participates in the District Disaster Management Team and District Technical Command Council	
University of Limpopo	<p><b>1. Encouraging students and staff to do their bit in their communities</b></p> <p>The crisis represents an unprecedented occasion for us all and we believe that it would be impossible to win this battle without everyone doing their bit in their respective communities. Each concerted action by our 24,000 University population goes a long way. Hence, our first step in response to the virus was to mobilise these members to assist in communicating the Public Health Precautionary measures. Our University communication platforms were used to relay the messages. By and large, we believe that with a sector of more than a million students and alumni, we can collectively be ambassadors of awareness in our communities to help comply with the critical steps announced by the Government.</p> <p><b>2. Partnerships with the Limpopo Government</b></p> <p>Specialists in the Faculty of Health Sciences, especially the joint appointees, assist the Limpopo Department of Health in many ways. They contribute to the development of intervention plans, add to testing capacity, a compilation of Health Precautionary messages among other things.</p> <p>Some Professional Nurses availed themselves and are on standby to assist with extended virus testing services. The <b>VLIR</b> and <b>DIMAMO (Dikgale, Mamabolo, and Mothiba) HDSS</b> staff are also mobilised to use their research infrastructure for testing. The Project has a potential reach of 100 000 community members in 18 000 households where the clinic is involved. One of their current activities is diseases risk monitoring.</p> <p><b>3. Using Radio Turf to reach local communities</b></p> <p>The University's radio is one of the resources being used to deliver awareness messages and the need for compliance regarding the virus. This is a useful and efficient resource that reaches out to thousands of listeners around the University.</p> <p><b>4. Preparing production of sanitizers</b></p>	

	The Department of Pharmacy in collaboration with the Department of Chemistry are ready to commence with the production of sanitizers.	
Cape Peninsula University of Technology	<p>Design and specification of face mask</p> <hr/> <p>Development of N95 Type Face Mask</p> <p>Development of Face Shield</p> <p>Development of Ventilator (MedTronics)</p> <hr/> <p>Development and Testing of Ventilator (UWC)</p>	<p>DTI, Clothing Industry</p> <hr/> <p>Health Manufacturing. Together with UWC Dental, Wits, PGWC, UCT, Groote Schuur</p> <hr/> <p>In partnership UWC</p>
North West University	<p>Engagement with North West Provincial DoH and Media in terms of contact tracing and monitoring (surveillance), data capture and epidemiology modelling and trend analysis on the spread of the disease.</p> <p>The African Centre for Disaster Studies within the Unit for Environmental Sciences and Management has been running a multidisciplinary think tank on the COVID-19 pandemic.</p> <p>Chemistry Department was ready to make hand sanitisers and sanitisers for disinfecting rooms prior to the lockdown.</p> <p>The Indigenous Knowledge System (IKS) Centre is involved with the Department of Science and Innovation through the pilot task team on RPL of Traditional African Healers to advise the President on the competencies of African Traditional Healers on solutions for the pandemic.</p> <p>The School of Computing Sciences and Systems has the ability to print 3D face masks, especially in Vaal campus.</p> <p>The Centre for Human Metabolomics at the NWU has the capacity to identify new diagnostic markers using metabolomics technologies.</p> <hr/>	Faculty of Natural and Agricultural Science



	<p>This team of Medical Device Developers are currently actively working on solutions to the pandemic, in the form of an emergency ventilator (collaboration with CUT - CRPM), some PPE innovations as well as screening and diagnostic tools.</p> <p>PPE manufacturing for health workers: face shields</p> <p>Intubation shields</p> <p>Students working on bed design and manufacture</p> <p>Non-invasive ventilator project</p> <p>Invasive ventilator project</p>	<p>Faculty of Engineering (Medical Device Manufacturing Team)</p>
University of South Africa	<p>Ormonde Facilities in Johannesburg have been offered to the Gauteng Government as they seek avenues to establish quarantine centres.</p>	
Sefako Makgatho Health Sciences University	<p><b>Public Health Ministerial Advisory Committee on Covid-19</b> SMU plays a very important role on the research related activities affecting public health and as a result is contributing to Covid-19 by advising the government through Public Health Ministerial Committee.</p> <p><b>Development of a Mobile App SMU Covid-19 screening tool for student and staff</b></p> <p><b>Development of an Audit Tool for Covid-19 Readiness</b> Gauteng Department of Health (GDOH) invited team of experts from universities and civic organisations to develop the audit readiness tool in combating Covid-19. SMU researchers together with those from TUT and Wits, and experts representing GDOH, UNICEF, and WHO developed such tool which assessed the availability of the infrastructure and resources needed to respond to the health care needs with the growing epidemic in Gauteng Province.</p> <p><b>WHO International Clinical Trial – the South African Solidarity Research</b> SMU is involved in the Solidarity Research project of the WHO. The clinical trial called Solidarity Research will compare the safety and effectiveness of four different drugs or drug combinations against Covid-19.</p>	

	<p><b>Validation Tests for SARS COV-2 virus</b> DoH has asked SMU to conduct tests for SARS Cov-2 virus. The virology department has already completed its validation tests for the SARS COV 2 virus. They will be starting with testing and samples can now be sent to the Virology NHLS lab housed within SMU.</p> <hr/> <p><b>Development of Guidelines for Health Care Practitioners – Covid-19</b></p> <p><b><i>Guidelines for Oral Health Care Practitioners in South Africa in Response to Covid-19</i></b> Researchers at SMU from the School of Oral Health Sciences have developed guidelines for South African dental practitioners in response to Covid-19. The guidelines have been published recently in the <i>South African Dental Journal (SADJ)</i>.</p> <p><b><i>Guidelines for Pharmacists in South Africa in Response to Covid-19</i></b> Researchers at SMU from School of Pharmacy together with research collaborators from Dr George Mukhari Academic Hospital, University of Witwatersrand, University of KwaZulu-Natal, Nelson Mandela Children Hospital, Netcare, MediClinic, Life HealthCare, and pharmaceutical country have developed guidelines for Pharmacists in South Africa in response to Covid-19.</p> <hr/> <p><b>Hand Sanitizers Project</b> There is a concern currently in South Africa about the shortages of hand sanitizers. The researchers at SMU through a collaborative project between the School of Pharmacy and the School of Science and Technology are currently in the process of developing hand sanitizers in order to stop the spread of the covid-19 using alcohol based hand sanitiser within the university community.</p> <hr/> <p><b>Other Research and Innovation Projects</b> Researchers at SMU based in the School of Science and Technology in collaborations with colleagues from the School of Medicine, and also those from Walter Sisulu University (WSU), and University of Venda (Univen) are currently busy developing protocols for the following projects in response to Covid-19 response.</p>	
Stellenbosch University	<p><b>SynSurf®</b> A synthetic pharmaceutical to be tested as a supportive agent for the treatment of Acute/Adult Respiratory Distress Syndrome (ARDS).</p>	

	<p>Modelling Covid-19 spread in African countries – SACEMA</p> <p>Working in the Time of COVID-19: Reflections on Practicing in Gauteng’s Healthcare Rehabilitation Services</p> <p>Drug development targeting the inhibition of the fatal cytokine storm in Covid-19 positive patients</p> <p>3-D printing of ventilator parts: Protective Visors</p> <p>Primary Health Care Department providing technical expertise to the Metro District Health Services on de-escalation of facility based primary care services and escalation of community-based primary care services.</p> <p>Reducing morbidity and mortality in health care workers exposed to SARS-CoV-2 by enhancing non-specific immune responses through Bacillus Calmette-Guérin vaccination, a randomized controlled trial.</p> <p>Coronavirus Rapid Mobile Survey. The aim of the Coronavirus Rapid Mobile Survey (CRAM) to survey a nationally-representative sample of 10,000-20,000 South African individuals every two weeks for the next six months following the same individuals. This would create a 12-wave panel survey tracking changes in social and economic outcomes over the next six months.</p> <p>COVID-19 triage by cough sound analysis.</p> <p>Assisting in SARS-CoV-2 testing for NHLS.</p> <p>Impact of SARS-CoV-2 infection co-infection on TB</p> <p>Clinical trial of Chloroquine in the treatment of Covid-19</p>	
University of KwaZulu-Natal	<p>_____</p> <p>The School of Health Sciences is undertaking the following research projects:</p>	<p>_____</p> <p>School of Clinical and Professional Practice</p>



	<ul style="list-style-type: none"> <li>• A joint proposal (between KRISP and CAPRISA) has been sent to the DSI for funding. The proposal is titled: “How is the SARS-COV-2 coronavirus spreading in urban and rural KwaZulu-Natal, South Africa?”</li> <li>• A number of other projects e are being planned with AHRI (African Health Research Institute) to leverage of their current studies in Somkhele.</li> <li>• Clinical training (Dr Richard Lessells has been working at the Coronavirus War room and with Prof. Yunus Moosa).</li> <li>• Outbreak analysis (Dr Richard Lessells, Prof. de Oliveira and Prof. Yunus Moosa).</li> <li>• Diagnostics qPCR</li> <li>• Genotyping and Bioinformatics</li> <li>• Data analysis (Prof. Petruccione and Prof. de Oliveira are co-leading the UKZN COVID-19 Big Data group)</li> </ul> <hr/> <p>The College of Law and Management Studies is researching the effects of COVID-19 from various perspectives:</p> <ul style="list-style-type: none"> <li>• Online learning responses to COVID-19 by the 26 public universities in South Africa</li> <li>• COVID-related problems experienced by health workers as well as community members (e.g. lack of access to water).</li> <li>• Expertise in health systems, health governance, human behavior the implications of COVID-19 on human behaviour and health systems, including establishing priorities for research and interventions in the short and medium term)</li> <li>• The medical ethical and legal aspects of confidentiality during the Covid19 epidemic</li> <li>• The impact of COVID 19 on the business informal sector in eThekweni and Msunduzi municipalities, and the social and economic contexts in combating COVID19 in KZN</li> <li>• Supply chain management during the COVID-19 Pandemic.</li> <li>• E-learning during the COVID-19 pandemic</li> <li>• Researching remote court hearings, using videoconferencing or similar electronic technology that obviates physical presence in the court room, in civil cases</li> </ul>	<hr/> <p>College of Law and Management Studies</p>
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	<ul style="list-style-type: none"> <li>• South Africa's pandemic preparedness. Data sharing under the present COVID-19 circumstances to help researchers follow best practices to maximize the efficiency of their work. Are health care workers obliged to show up for work during a pandemic? Viruses as hired guns: Can the current regulatory framework contain biological weapons?</li> <li>• Practical guidelines for obtaining quarantine orders for COVID-19-diagnosed persons in a post-lockdown context.</li> <li>• Contributed to the “Statement on European Solidarity and the Protection of Fundamental Rights in the COVID-19 Pandemic” by the European Group on Ethics in Science and new technologies.</li> <li>• The COVID-19 pandemic’s impact on the global discourse of heritable genome editing.</li> <li>• Researching e-health and the HPCSA’s response to the COVID-19 Pandemic.</li> </ul> <hr/> <p>A multidisciplinary project entitled “A Sentiment Analysis of Community Perception and Potential Resistance to ‘Lockdown’ During the COVID Pandemic”.</p> <hr/> <p>UKZN is working on the publication of a number of special issues of the journal Alternation which would address difference social and human aspects of the impact of COVID-19. These would include:</p> <ul style="list-style-type: none"> <li>• The Impacts of the Coronavirus (COVID-19) Pandemic on Tourism and Sport</li> <li>• Humanities Curriculum in the Time of COVID-19</li> <li>• Issues of Decolonization and Africanization in Southern African Contexts</li> <li>• The Church and the Coronavirus (COVID-19)</li> <li>• Rurality, Education and the Coronavirus (COVID-19) Pandemic</li> <li>• Public Policy Responses in the Time of Pandemic</li> <li>• (Re)learning to Teach in the Context of the Covid-19 Lockdown and Shutdown</li> <li>• Business, Management, IS&amp;T and Governance</li> </ul>	<hr/> <p>College of Humanities and the College of Agriculture, Engineering and Science</p> <hr/> <p>College of Humanities</p>
University of the Free State	<p><b>Public Health</b></p> <ul style="list-style-type: none"> <li>• <u>Public Health Emergency Solidarity clinical trials</u>: UFS is one of South Africa’s universities participating in this 45-nation initiative of the WHO, that is</li> </ul>	<hr/>

