2023 RESEARCH NICHE AREAS

DIRECTORATE OF RESEARCH AND INNOVATION

Tshwane University of Technology

We empower people


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TUT'S VISION

A people's university that makes knowledge work

At TUT, we embrace engaged scholarship whereby learning, teaching, research and engagement is integrated with our everyday realities. Our University is committed towards breaking down the ivory towers of academia by finding authentic and enduring solutions to our communities' most pressing problems.

We empower our graduates by future-proofing them to successfully negotiate the rapidly changing world of work and to make tangible movement towards civic renewal.

TUT'S MISSION

We advance social and economic transformation through relevant curricula, impactful research and engagement, quality learning experiences, dedicated staff and an enabling environment.

Our mission directs us towards solving pressing societal problems and ensuring that our graduates are productive and active citizens.

Our suite of programmes and qualifications, research and innovation, as well as engagement with stakeholders are aimed at making a positive impact on our communities.

We are a committed staff who works tirelessly towards providing a quality service and conducive teaching, learning and living spaces.

PILLARS AND GOALS

We have identified four equally important pillars to support our strategy over the next six years. These are:

- Future-ready graduates who make a positive societal impact;
- Impactful research, innovation, engagement and technology transfer to foster growth, development and sustainability;
- Service and operational excellence through resource optimisation; and
- Digitally-advanced university.

CONTENTS

RESEARCH NICHE AREAS

The Research and Innovation at TUT is driven by a strategy of gearing research towards institutionally approved research niche areas, which promote innovative research for the economic development of the country and enjoy international recognition. A Research Niche Area has a well-defined research theme and should move through a development trajectory up to the stage where it is regarded as a TUT centre.

Table 1: 2023 Active TUT Research and Innovation Niche Areas

LEADER	APPROVED NICHE AREAS	CONTACT DETAILS
FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT		
Professor J Ndambuki	Climate Change, Water Security and Disaster Management	012 382 2852 Ndambukijm@tut.ac.za
Doctor JA Swanepoel	Operations and Engineering Management	012 382 2843 SwanepoelJA@tut.ac.za
FACULTY OF THE ARTS AND DESIGN		
Professor A Mastamet-Mason	Creative Industries and Cultural Discourses of the Global South	012 382 6174 MasonA@tut.ac.za
Professor N Moodley-Diar	Artivism as a Tool to Combat Gender-based Violence	012 382 6051 MoodleyDiarN@tut.ac.za
FACULTY OF MANAGEMENT SCIENCES		
Professor M Maleka	The Living Wage, Executive Remuneration, Human Resource (H.R.) Data Analytics and Human Resource Outcomes	013 653 3108/3154 MalekaM@tut.ac.za
FACULTY OF ECONOMICS AND FINANCE		
Professor MF Zerihun	Inclusive Growth, Socio-economic Development and Transformation	012 382 0512 ZerihunMF@tut.ac.za
FACULTY OF SCIENCE		
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FACULTY OF MANAGEMENT SCIENCES

The Living Wage, Executive Remuneration, Human Resource Data Analytics and Human Resource Outcomes

FOCUS

There are various decent work indicators; and this niche area's focus will be on these Human Resource Management (HRM) outcomes, namely job satisfaction, employee engagement, organisational commitment, absenteeism, turnover and retention. They are driven mainly by rewards, including but not limited to incentives, recognition, training and development, work-life balance, quality of work and a living wage. One way to provide quality education is by providing skills needed in the labour market. Hence, in this niche area, the focus will be on skills required for the gig economy, like data analytics or science. Regarding executive remuneration, the focus will be exploring gender and financial predictors of executive income in organisations. In other executive compensation, the focus was on pay transparency. This aligns with King IV's principles, stating that executive remuneration is published in annual reports.

OBJECTIVES

To create an atmosphere for innovation in research and related curriculum development and technology transfer that takes advantage of the significant role management and engineering management can play in industry and the community in South Africa.

To align with the United Nations Sustainable Development Goals (SDGs). "The SDGs are global and societal issues developed to positively impact people's lives and

improve their quality of life," Carr, S.C., Maleka, M.J., Meyer, I. & Barry, M.L., Haar, J. & Parker, J. et al. (2018). The niche area SDGs are as follows:

- SDG 1 (No Poverty)
- SDG 4 (Quality Education)
- SDG 5 (Gender Equality)
- SDG 8 (Decent Work and Economic Growth)
- SDG10 (Reduced Inequalities)
- Exploring a total rewards framework for the South African Public Service;
- Exploring a living wage index in eMalahleni and surrounding areas;
- Developing data science competencies using Excel, SPSS and Python in eMalahleni and surrounding areas;
- Developing data science competencies using Excel, SPSS and Python in eMalahleni and surrounding areas;
- Exploring digital competencies for remuneration practitioners working in organisations and government departments in eMalahleni and surrounding areas;
- Predictors of executives operating in organisations and state-owned enterprises;
- Investigating an effective commitment in Nkangala district;
- Exploring digital competencies for remuneration practitioners working in organisations and government departments in eMalahleni and surrounding areas; and
- Exploring employees' perceptions about the gender wage gap.
- Each objective will be achieved as part of the master's and doctorate supervision and conducting non-degree projects.

SERVICES AND PRODUCTS

a) Staff Development

The niche area will develop Short Learning Programmes (SLPs), conduct research and develop staff.

b) International Collaboration

This niche area is associated with the Global Living Organisational Wage (GLOW), of which the niche area leader is the current coordinator. The niche area will continue to conduct living wage research in African countries (i.e. Namibia and Zimbabwe).

c) National Collaboration

The niche area has close association with the University of Cape Town and North-West University, where collaboration includes writing book chapters, conference papers and journal articles.

d) Community Engagements

The niche area is associated with eMalahleni municipality in service quality and poverty alleviation projects.

Carr, S.C., Maleka, M.J., Meyer, I. & Barry, M.L., Haar, J. & Parker, J. et al. (2018). How can wages sustain a living? By getting ahead of the curve. Sustainability Science, 13(4):901-917. https://link.springer.com/article/10.1007/s11625-018-0560-7

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FACULTY OF ECONOMICS AND FINANCE

Inclusive Growth, Socio-economic Development and Transformation

FOCUS

This niche area will seek to analyse prevalent socio-economic problems on how to include vulnerable groups and informal businesses to better integrate into the formal economic system to revive inclusive economic growth, socio-economic development, and transformation in the Republic of South Africa. To this end, the niche area examines improved urban-rural linkages, economic growth trajectories, digital economy, green economy, studies on political economy of innovation and entrepreneurship, public sector financial management and accounting methodologies towards economic growth, development and transformation. Ultimately, this niche area generates inclusive growth policy inputs that can support economies towards economic transformation to mitigate the effects of slow growth and high unemployment and to the success of Sustainable Development Goals (SDGs) in South Africa and beyond. Inclusive Growth is defined as “economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society” OECD (2015).

OBJECTIVES

- To analyse the role that infrastructure can play to improve the success of the African Continental Free Trade Agreement (AfCFTA).
- To identify the unique role that development finance institutions (DFIs) play in relation to economic/material/physical infrastructure development.
- To examine the incidence of poverty and the distribution of income among individuals and households.

- To identify mechanisms that make economic growth more balanced across sectors, including between private-sector stakeholders and the government, and between tradable and non-tradable activities that have implications for inclusiveness.
- To examine how pro-growth policies foster inclusiveness.
- To analyse the role of innovation and entrepreneurship in prompting inclusive growth, socio-economic development, and transformation.
- To evaluate the role of regulatory agencies and financial institutions in promoting inclusive growth.
- To analyse employment elasticities of economic growth.
- To critically examine the drivers of economic transformation, its prospects, and pathways.
- To determine the roles of digital transformation to ensure transition to knowledge economy and support the creation of innovative, high value-added national enterprises.
- To evaluate the effect of corporate green investment on firms' economic performance in developed and emerging economies.

Ethics in the public sector – we endeavour to identify, clarify, and explore problems and solutions relating to the development and application of codes of ethics in the African public sector.

Public sector financial management – we endeavour to identify, clarify and explore problems and solutions relating to the implementation of policy and legislation and the enforcement thereof regarding financial management in the South African public sector.

Slow growth, high unemployment and widening inequalities have placed Inclusive Growth at the heart of the policy debate in South Africa. The niche area's SDGs are as follows:

- SDG 1 (No Poverty)
- SDG 8 (Decent Work and Economic Growth)
- SDG 10 (Reduced Inequalities)

The South African Government policies affirmed that South Africa needs transformation that opens a path to inclusive economic growth and development. Growth without transformation would only reinforce the inequitable patterns of wealth inherited from the past. Transformation without economic growth would be narrow and unsustainable.

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FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Climate Change, Water Security and Disaster Management

FOCUS

This niche area will seek to analyse and mitigate against the potential impacts of climate and land use changes on water resources and the environment. The occurrence of pollution, floods, drought and forest fires, all of which destabilise human activities, are considered essential components of the research niche area. The niche area is intended to tackle some of the most challenging hazards the world faces today and its establishment is motivated by the fact that unless reliable solutions to these events are sought, natural and human-induced disasters will continue to pose serious threats, consequently negating all the development that the world has so far enjoyed. The research under this niche area are grouped into the following thematic areas:

- Pollution and Remediation.
- Groundwater Sustainability.
- Watershed Hydrology.
- Flood forecasting and development of coping mechanisms.
- Drought forecasting and coping mechanisms.
- Fire forecasting and coping mechanisms.

OBJECTIVES

At present, the following specific research captured under the thematic headings are underway:

1. Pollution and Remediation

This thematic area is centred on the use of normally constructed wetlands and hybridised type in remediating mine polluted water and wastewater. The specific research under this thematic area are outlined as follows:

i. Constructed Wetland in Mine Water Pollution Remediation

The research aims at exploring the relatively new area of using wetland plants to remove heavy metals from wastewater generated from mining and mineral processing activities. The research objective is to optimise the use of vegetated constructed wetlands in treating mine water. The study also seeks to develop empirical models to predict the heavy metal removal efficiencies in constructed wetlands. These models will aid in the design of constructed wetlands that are industry specific, for treatment of mine waters to prevent heavy metal contamination that would result when mining industries discharge untreated or poorly treated wastewater into the environment.

ii. Hybridised Constructed Wetland in Municipal Wastewater Treatment

This research work is investigating alternative Phosphorus removal technologies that are economically feasible, using specialised substrates with physico-chemical properties that could influence the P-sorption phenomena onto their surfaces. Experiments are being carried out on the suitability of Blast Furnace Slag (BFS) and SUDFLOC 3850 as potential substrates in constructed wetlands for municipal wastewater treatment, which if found suitable, will reduce the solid waste management problems associated with the iron and steel industries and the water treatment industry.

2. Groundwater Sustainability

Groundwater sustainability remains a key focus area of the groundwater - surface water nexus contributing to sustainable water resources that are geared towards future water security. It is therefore imperative to advance knowledge in this area to inform policy actions that will, in the long term, safeguard groundwater utilisation to ensure its availability for posterity. Currently running under this theme are the following research:

i. Conjunctive Use of Groundwater and Surface Water Resources

An efficient management of water resources is vital for the long-term utilisation and sustainability of the resource base in South Africa. Conjunctive water use management of surface water and groundwater resources has potential to alleviate water shortage problems arising from the ever-increasing demands and climate change. The overall objective of this research is to develop a tool capable of optimising the conjunctive use of surface water and groundwater taking into account scanty data, uncertainty conditions, through application of simulation – optimisation techniques. The management tool will provide an optimal (sustainable) conjunctive water use strategy for development of surface water and groundwater conjunctive water use policy.

ii. Linked Simulation - Optimisation Model of Groundwater Pollution Monitoring

The study aims at exploring the impact of mining activities on groundwater system by understanding the dispersion of pollutants through application of groundwater simulation model. The simulation model is then linked with an optimisation algorithm in the amount of contaminants that can be discharged into the system without degrading the quality of the water in aquifers. The objective is to develop a groundwater pollution monitoring model capable of characterising groundwater system and optimising contaminants discharged from mining areas with limited observation points.

iii. Modelling Groundwater Under Uncertainty

Increasing population, urbanisation and expansion in agriculture over the years has led to unscientific exploitation of groundwater resources. The consequence of this practice is the inefficient and unsustainable use of our water resources. To remedy this situation, it is substantial that exploitation of these resources be carried out with the aid of scientific tools, which would inform on how to utilise the resources optimally. Groundwater recharge is one of the most important parameters, which aids in proper evaluation of the resources and yet it is difficult to determine with certainty. Previous approaches used to determine groundwater recharge have been based on deterministic approach, which assumes that all the input data is known without error. This assumption is invalid since typically only a few set of data are available to define the current situation of the system with certainty. Therefore, this research aims at developing a comprehensive quasi three-dimensional model for groundwater management. The novelty of this research work is that the determination of groundwater recharge parameter is sought under uncertainty.

3. Watershed Hydrology

The deteriorating repercussions of climate change on hydrology of watersheds are immense and critical to water resources availability. Among many others are the alterations introduced into the hydrologic regime due to climate change. The hydrologic regime alterations in part are also linked to changes in land use, which result mainly due to anthropogenic activities. Evolving knowledge and understanding of current trends in land use impacts on watershed hydrology under changing climate is indispensable if we are to protect water resources. Under this theme, the following are ongoing projects:

i. Hydrologic dynamics under land use/cover and climate change

The project seeks to investigate the impact of land use on watershed hydrology in both space and time using emerging technologies of GIS/RS and hydrologic model. Key components of the hydrologic cycle including surface runoff, groundwater, lateral flow and evaporation are under investigation. The summative impact on water resources in terms of water yield will also be assessed. Eventually, a Decision Support Tool (DST) configured within a hydrologic model environment is envisaged to be a key output of this study to aid water managers and key policy stakeholders to make informed decisions on water resources planning and management.

ii. The impact of land use/cover and climate changes on the Spatio-Temporal Dynamics of Sediment Yield

Sedimentation resulting from soil erosion is widely acknowledged as a major environmental issue in South African watersheds affecting reservoir capacity, water quality and ecosystem functioning services. To curtail sedimentation requires the implementation of conservation measures that are based on sound scientific judgement. In view of this, it is essential to acquire knowledge on sediment yield sources, the interrelationship of sediment yield with land use types and the hotspots within the watersheds. The objective of this study is therefore to establish, through the application of geographic information systems (GIS) and modelling tools, the various sediment sources, sediment yields and their spatial coverage within the watershed. Proposals on remediation measures based on the study results will also be given.

The niche area SDGs are as follows:

- SDG 6 (Clean Water and Sanitation).
- SDG 9 (Industry, Innovation and Infrastructure).
- SDG 13 (Climate Action).

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FACULTY OF THE ARTS AND DESIGN

Creative Industries and Cultural Discourses of the Global South

FOCUS

The research niche area investigates the interplay between economic development and cultural expression in Africa and Southern Africa's economies. The research focus area comprehensively examines how the Global South has utilised its diverse cultural heritage to create new industries and shape global narratives. By exploring the intricate relationship between cultural production, identity, and economic growth, the various arts and design disciplines highlight the transformative power of creativity in driving socio-economic progress. This niche area emphasises the need for sustainable policies that encourage and amplify cultural initiatives, leading to the holistic development of the Global South.

This niche area is a merger of the two phased-out niche areas in the Faculty of Arts and Design, namely Reconstruction of the Past and Crafting a New Multicultural South African Landscape through the Arts and Critical Studies in Visual Arts.

Mission

- To harness the expertise of a small, yet highly regarded, cohort of senior scholars and a growing legion of emerging researchers in the Faculty of Arts and Design.
- To promote and cultivate research, both practice-based/led and theoretical, into the historical, contemporary, and forthcoming performative, design, and artistic practices of the Global South.

Research Focus Areas

- Global South Digital Platforms and Local Content
- Transnational Collaborations in Global South Creative Industries
- Cultural Preservation and Innovation in Global South Creativity
- Decolonising Creative Production in the Global South
- Creative Activism and Social Change in the Global South
- Environmental and Ecological Discourses in Global South Art
- There are more than 30 postgraduate students registered under this niche area.

OBJECTIVES

- To encourage and support students, lecturers, and research associates (i.e. post-doctoral fellows and faculty-linked Professor Emeritus/Extraordinaire)
- To produce creative and research outputs that contribute to advancing the creative industries and cultural discourses of the Global South.
- To cultivate strategic collaborations and partnerships with other institutions and funding bodies (Quadruple helix) that will increase the research output of the researchers affiliated with the niche area.
- To generate third-stream income through creative outputs and commissioned research projects.
- To harness creative and innovative research leading to patents and commercialisation of artefacts.

SERVICES AND PRODUCTS

- Craftmen and artisans offer handcrafted pottery, ceramics, jewellery, and artwork that celebrate the artistic traditions of the Global South. These products carry deep cultural meanings and resonate with a growing interest in authenticity and heritage.
- Literary and artistic contributions from the Global South explore cultural identity, history, and modern issues in literature, film, and traditional arts.
- The TUT Arts Festival celebrates the cultural vibrancy of the Global South through music, art, literature, film, and fashion, attracting local and international audiences.
- Performing arts, including dance, theatre, and storytelling, showcase the Global South's cultural diversity and creative talent.
- The rise of digital platforms has enabled creators from the Global South to connect with global audiences through online content, including web series, podcasts, vlogs, and digital art.
- Fashion and textiles from the Global South, including traditional clothing, vibrant patterns, and sustainable practices, have captured global attention.
- Our workshops offer opportunities to develop skills and exchange knowledge in traditional and innovative arts and crafts techniques.

The niche area SDGs are as follows:

- SDG 8 (Decent Work and Economic Growth)
- SDG 9 (Industry, Innovation and Infrastructure)
- SDG 10 (Reduced Inequalities)
- SDG 11 (Sustainable Cities and Communities)
- SDG 12 (Responsible Consumption and Production)
- SDG 13 (Climate Action)

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FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

Operations and Engineering Management

FOCUS

In creating a niche area in Operations and Engineering Management, we create synergy across two faculties that are engaged in research on techniques and technologies relating to management practices linked to engineering decisions and industry operations such as supply chain management, operations research, project management and system dynamics.

OBJECTIVES

We are drawing on the structured master's programme in Engineering Management that is part of the Industrial Engineering department. This programme is unique in that it draws students from all fields of engineering and engages staff as research advisors from the different engineering departments in the Faculty of Engineering and the Built Environment. We are also drawing on the research master's programmes in both Industrial Engineering and Operations Management. There is an advantage to connecting the two departments with the common techniques and practices. We will focus and work on these commonalities.

The specific research projects will address:

1) Supply Chain Management – issues that relate to supply chains and how reconfigurable technology implementation impacts the thinking around the supply chain for better responsiveness; decision support systems for demand forecasting and inventory planning; facility location and distribution linked to mail delivery.
2) Operations Research – technology used in improving productivity in operations and associated human factor issues that may negatively or positively affect

the manufacturing or service organisation; multi-criteria optimisation problems addressing manufacturing and service delivery.

3) Discrete Simulation – permutation of various scenarios to optimise production in a production setting whilst adapting to new technology; simulation of service delivery to assist decision makers; learning factory simulation.
4) Business Dynamics and System Dynamics – questions of how various factors can impact the state of a system as it evolves through the generations; use of system dynamics to assist in planning for smart cities.
5) Project Management – project management in particular skills transfer in small and micro enterprises to ensure cost effective, timely and delivery on expected quality; Project management practices to mitigate risks due to various constraints
6) Life Cycle Management – the holistic thinking in design of systems considering their entire life from cradle to grave to aid decision makers arrive at optimal decisions; replacement models and de-manufacturing in the life cycle.
7) Quality Management - in manufacturing and service offerings, how will adaptable product thinking affect the quality of delivery of both products and services that are statistical quality control, the role of quality circles, lean manufacturing and quality standards.

PRODUCTS AND SERVICES

1) STAFF DEVELOPMENT

Staff development is a key component of the strategy of our niche area effort. Recently, several members of the project have received their doctorate qualifications, and several staff in both departments are working on their doctorates. The continued research of these staff will be further enabled by the synergy this research niche area provides.

[A] Completed Theses

- AG Bibili Nzengue – Development of a Supply Chain Model for Screw Jack Press Brake Machine Production.
- Moyahabo Dominic Ramere – Performance Improvement of Medium Voltage Overhead Line Distribution Network Using Switching Device Placement Approach.
- PA Mangakane – Development of a System Dynamics Model for the Professional Engineers Pipeline.

[B] Theses and Dissertations in Progress

- A Demanufacturing Operation Model for the Rail Industry in South Africa (doctoral research).
- Modelling Techniques to Optimise System Productivity in Welding Intensive Industry (Doctoral research).
- Hybrid Framework to Improve Small- to Medium-sized Manufacturers' flexibility to Market Turbulence in the Mass-Customization Era (master's research).

- Productivity Improvement Using Value Stream Mapping (VSM) and Discrete Event Simulation (master's research).
- Optimisation of Resource Planning and Scheduling Process to Meet the Organisation's Objectives (master's research).

2) INTERNATIONAL COLLABORATION

- International Network on Appropriate Technology (INAT).
- University of Tennessee in USA.
- Southern Africa Postal Operator Association (SAPOA).
- PEESA III project (European Universities).

The niche area SDG is as follows:

- SDG 9 (Industry, Innovation and Infrastructure).

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FACULTY OF ARTS AND DESIGN

Artivism as a Tool to Combat Gender-Based Violence

FOCUS

A niche area within gender-based violence is the intersection of art and activism, often referred to as “Artivism.” This research area explores how various forms of art, such as visual arts, performance arts, literature, and multimedia, can be utilised as a powerful tool to address and respond to gender-based violence and femicide. Artivism in the context of gender-based violence aims to raise awareness, challenge societal norms, amplify marginalised voices, foster healing, and advocate for social change.

The rationale and motivation for the study lie in addressing a pressing social issue, amplifying marginalised voices, promoting healing and empowerment, challenging societal norms, bridging academia and practice, and contributing to knowledge and scholarship. By exploring the transformative potential of artivism in the context of gender-based violence, the niche area aims to contribute to meaningful change and the well-being of individuals and communities affected by this issue in South Africa.

OBJECTIVES

The research objectives guide the study in examining the transformative potential of artivism in addressing gender-based violence, exploring its impact on societal norms, promoting healing and empowerment, considering intersectionality, evaluating effectiveness, fostering collaborations, and contributing to academic knowledge in the field.

1. To examine the role of artivism as a transformative approach in addressing gender-based violence in South Africa.
2. To explore how artivism initiatives challenge societal norms and attitudes that perpetuate gender-based violence.

3. To investigate the impact of artivist interventions on raising awareness and promoting dialogue about gender-based violence in South African society.
4. To analyse the ways in which artivism fosters healing and empowerment for survivors of gender-based violence.
5. To examine the intersectionality of artivism in addressing gender-based violence, considering the unique experiences and challenges faced by diverse groups, including women of colour, LGBTQ+ individuals, and individuals with disabilities.
6. To assess the effectiveness of art-based interventions in preventing gender-based violence and promoting social change.
7. To collaborate with artists, activists, and community organisations to co-create contextually relevant and inclusive artivist interventions.
8. To contribute to trauma-informed approaches to addressing gender-based violence through the exploration of artivism's role in supporting healing and recovery.
9. To bridge the gap between academic research and practical applications by informing and enhancing artivist interventions on the ground.
10. To generate knowledge and insights that contribute to the body of scholarship on gender-based violence and artivism, within a South African context.

PRODUCTS AND SERVICES

1. Development of A Collab Hub:
    a. A collaborative hub for researchers and artists to create innovative and impactful research and creative research outputs.
2. Site for Community Engagement:
    a. Engagement with communities to raise awareness and foster social change.
3. Postgraduate Studies in Progress:
    a. Genderlect: Application of Netspeak in Social Media Correspondence of GBV - Lebogang Setlhabane (Doctor of Language Practice)
    b. Co-designing Gender-based Violence-safe Spaces at a Higher Education Institution: a Socioecological Approach – Inge Newport (Doctor of Art and Design)
4. Establish Partnerships With:
    a. Institutions of Higher Education- UNISA, UWC
    b. Government
    c. Industry
    d. NGOs

The niche area SDG is as follows:

- SDG 5 (Gender Equality)

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FACULTY OF SCIENCE

Occupational Health and Safety

FOCUS

The niche area focuses on managing health and promoting safety in the workplace. To this end, health and safety are viewed holistically, including workers' physical, mental, and social well-being in both the formal and informal sectors, their families, institutions, and communities. The disciplines involved in the niche area include public health, nursing, environmental health, psychology, epidemiology, rehabilitation, hygiene, safety and engineering.

The Core Research Focus Areas

i) Prevention and control of work-related diseases and injuries.

ii) Development and management of occupational health and safety education and services.

iii) Protection of vulnerable populations in the workplace.

iv) Collaboration to prevent and treat communicable and non-communicable diseases.

v) Promote environmental health practices and health systems.

vi) The niche area aims to promote research and professional competencies of students, researchers and industry to support and empower vulnerable populations in the workplace.

OBJECTIVES

- The objectives of the Occupational Health and Safety Niche Area are to conduct research, practice development and education and to:
- Prevent occupational risks, injuries and diseases;

- Promote the physical, mental and social health and well-being of workers, their families and communities; and
- Manage and provide rehabilitative interventions for occupational diseases and injuries in the workplace.

The niche area SDGs are as follows:

- SDG 8 (Decent Work and Economic Growth).
- SDG 3 (Good Health and Well-Being).

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