



# RESEARCH & INNOVATION REPORT 2017/18

# THE FOURTH INDUSTRIAL REVOLUTION

AND ITS POTENTIAL TO RAISE GLOBAL INCOME  
LEVELS AND IMPROVE QUALITY OF LIFE FOR  
POPULATIONS ACROSS THE GLOBE

Perceived as a major industrial era since the first Industrial Revolution, the Fourth Industrial Revolution (4IR) currently permeates the atmosphere of academics and researchers from different spheres of the world. Schwab (2017) asserts that the world has experienced four industrial revolutions: the first employed the use of steam engines for mechanical production; the second utilized electricity and the concept of division of labour to create mass production; the third (which grew in the middle of the last century) introduced information technology; and automated production processes; and now we have reached the fourth. At this stage, the 4IR, we are witnessing a digital transformation that pervasively impacts every work of life across the globe. Thus, the 4IR has the potential to raise global income levels and improve quality of life for populations across the globe.

Durban University of Technology as a key regional and national player in contributing to the human capital development plan as outlined in the South African National Development Plan (NDP) 2030 is repositioning itself to ensure its research, innovation and engagement focus embraces the digital transformation and responds to opportunities the 4IR poses.

## REFERENCE:

Schwab, K. 2017. The Fourth Industrial Revolution. New York: Crown Publishing Group.



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Art Piece: Worlds of Connectivity  
Supplied by: Ntethelo L. Ngcobo  
DUT Alumnus



# FOREWORD

## BY THE VICE-CHANCELLOR & PRINCIPAL: PROFESSOR THANDWA MTHEMBU

It gives me great pleasure to write a foreword for the DUT Bi-Annual Report: 2017-2018. This year's theme for the bi-annual research and innovation report focuses on the 4th Industrial revolution (4IR). In many ways, this requires us as the Durban University of Technology to respond to the digital transformation age that has fast led to cyber-physical systems that present many opportunities like all industrial revolutions, and other revolutions in general, have done. In turn, we hope to then address, innovatively and entrepreneurially, our local, national, regional and global challenges and ensure we are producing relevant outputs and outcomes in our fields of endeavour that will make appropriate societal impact.

Whilst the report focuses on the outputs, outcomes and impact made on one of our strategic focus areas, namely, research and innovation for development, we must understand that research, innovation and engagement contribute to all four strategic focus areas. Further, these provide the interconnectedness and also constitute the baseline ingredient that ensures that we build sustainable staff and student communities that have access to information technology platforms to enhance their learning experiences and research capabilities. We believe research, entrepreneurship and innovation skills must be embedded in both undergraduate and postgraduate curricula. Having excellent researchers and innovators amongst our staff will ensure that the outcomes and developments in their applied research inform the curriculum and experiences of our students at all levels. Evidence from JAMK University, Finland, for example, shows that if entrepreneurship is embedded into the curriculum from the undergraduate level and combined with practical skills and real-life challenges, it is possible to produce graduates who can start up their own enterprises thus contributing to both local and regional socio-economic development. As a student-centered University, DUT's focus in the reporting year has not only been on driving the research and innovation agenda but the entrepreneurship concepts and practical experiences of selected students to ensure we create sustainable student communities and productive citizens that will contribute to our regional and local development.

This then ensures we are building a learning organization where both our staff and students are working at the cutting edge of their respective fields and are exposed to cutting edge technological developments. As a learning organization we need to look at the opportunities that the 4IR poses, what this means in terms of the curriculum, the graduates we produce and their ability to become productive citizens and what this means in terms of the type of research and innovation focus areas and their impact on the socio-economic development of the region. Research skills in big data analytics and trend analysis is one of the areas that can inform decision making, future skills and research and innovation focus areas that would provide solutions to contribute to socio-economic development.

In the sections that follow, accounts of a number of DUT's outputs, outcomes and impact are presented. Going forward into the next five years of our new strategic plan, currently under development, we wish to be more deliberate, definitive and bolder in pursuing, innovatively and entrepreneurially, outputs and outcomes that have unequivocal impact in our socio-economy locally, regionally and otherwise.

## **MESSAGE FROM THE DVC: RESEARCH, INNOVATION & ENGAGEMENT**

### **PROFESSOR SIBUSISO MOYO**



The reporting period, 2017-2018 has been very busy and rewarding on the research, innovation and engagement front. We have continued making impact in the key research and innovation focus areas and strengthening our regional engagements with the city, local government, industry and civil society, thus capitalising on the quad-helix concept and its ripple benefits to all parties involved. Moving into the future will require more complex and multi-sectoral partnerships and possibly changes in the way higher education curriculum is designed and delivered both at undergraduate and postgraduate levels in partnership with external partners to ensure demands in the relevance of applied knowledge and skills are met. To this end, DUT has continued pushing boundaries around strengthening its external engagements at provincial, national and international level ending up with a formal agreement which cater for grants, mobility and exchange programmes and, short term contracts for offering training and short courses inclusive of digitisation and e-skills training. The report gives high level summaries of key performance areas for the period 1st January 2017 to mid-2018.

#### **1. GOVERNANCE AND STRUCTURAL RE-ORGANISATION OF THE RESEARCH, INNOVATION & ENGAGEMENT (RIE) PORTFOLIO**

##### **Replacement SARChI: Research Chair in Development and Optimisation of Waste water Treatment Technology for Developing Economies**

The DUT NRF SARChI Chair 5-year term came to an end on 31st March 2018. The incumbent Professor TAS Stenstrom retired at the end of March 2018 and Prof F Bux took over the Chair as approved by the NRF after the 5-year review report submitted by DUT in October 2017. Prof Bux has a B Rating, and this has meant that the Chair to DUT is awarded at Tier 1 level for the next phase. This is a culmination of the hard work and collaboration of both the outgoing Chair, Prof Stenstrom, and the Director of the Institute for Water and Wastewater Technology, Prof F Bux. The implication has been that DUT will receive R 3 450 000 for 2018 which will amount to a total of R17 250 000 over the 5-year period. A special congratulatory note to the team which has grown significantly over the last 5 years. Funding will support SARChI salaries, postdocs, student bursaries and equipment. The Chair has had major impact both locally and internationally. We believe in research translation and working together with our Corporate Affairs Division which gives opportunities to our researchers including the Chair, on radio to speak to the public about water research and implications for society. The current work in progress is finalising the proposal for skeleton establishment posts to enable it to meet the objectives and expectations in increasing its income, maximising M & D outputs and strengthening the Short Course offerings in Water in collaboration with the City. Additionally, the flagship building of the Institute for Water and Wastewater Technology that hosts the Chair was handed over to DUT in 2018 and we expect its launch to take place with the funders in early 2019 to acknowledge their support.

##### **Approval of the Organogram and Establishment of Posts for the Advancement and Alumni Relations (AAR) Directorate as part of the Kresge Foundation Grant Requirement**

Following the Council approval of the 3rd stream income coordinating structure and RIE structure, EMC at its 19th February 2018 meeting approved the enhanced organogram for the Advancement and Alumni Relations Directorate effective from 1st March 2018. This approval formed the main part of reporting on milestones reached to the Kresge Foundation, to show the commitment on part of the University in honouring the conditions of the grant which DUT had received over the past few years. The Directorate raised a total of R3.7million in 2017 which was double its 2016 amount. This target was increased by 10% in 2018. Additionally, the functions of the Directorate will include providing administrative and executive support to the DUT Foundation which has now been established, ensuring the University has an annual approved fund-raising plan and helping DUT build its

donor base both at Country and International levels. The Director of the AAR, Mr Z Ngubane, has helped ensure that DUT hosted successful alumni fund-raising golf tournaments in Durban and Johannesburg, contributed to a number of University fund-raising initiatives and to the establishment of the school engagement programme launched in 2018 in partnership with the International Center for Nonviolence.

## **Structural Adjustments of the RIE sector into Clusters**

The period 2017-2018 saw the re-organisation of the RIE sector into 6 clusters that constitute of the Research and Postgraduate Directorate, Engagement Cluster (International Office, Cooperative Education, Corporate Affairs), DUT Enterprise (Short Courses Unit, Technology Transfer and Innovation, Technology Stations and Entrepreneurial Desks (Midlands and Durban)), Research Centers (Institute for Systems Science, Water and Wastewater Technology, International Center for Non-Violence (Peace Programme), Center for Social Entrepreneurship, other Chairs), Knowledge Information and Management (Information Technology and Support Services (ITSS - eLearning systems support and research information systems support), Business and Software Solutions Unit, Management Information (MI)) and the Advancement and Alumni Relations (AAR) Directorate also hosting the DUT Foundation. These clusters constitute of 12 (plus 3) Directorates and are intended once fully functional to reduce direct reporting lines, increase alignment, integration and focus on strengthening the research and innovation enterprise and avoid duplication. In line with the 4IR, the sector looks forward to going paperless and supporting the University in streamlining some of the business processes with online facilities to increase efficiency especially around business processes that have direct impact on the core functions of the University.

## **2. DUT REVIEW OF ITS INNOVATION AND ENTREPRENEURIAL CAPACITY AS PART OF THE REGIONAL ECOSYSTEM**

According to the DUT Strategic plan 2015-2019, approved by Council in November 2014, DUT would like to position itself as a preferred university for developing leadership in technology and productive citizenship. This is to be achieved through its mission statements and in particular, the focus on promoting excellence in learning and teaching, technology transfer and applied research; and external engagement that promotes innovation and entrepreneurship through collaboration and partnerships. As part of the research, innovation and engagement agenda, engagement is seen as an essential characteristic of a University of Technology that must engage with business and industry so as to support the development of the strategic parts of the local and regional economy. The engagement of the institution with local and national government is critical if DUT is to contribute to improving the quality of life of people, through its research-innovation and teaching-learning. To this end the DUT has to develop dynamic interfaces between itself, the contexts and create safe spaces where there can be honest, trusting, mutually beneficial engagements. At the core of all engagements are the core functions of the University - the generation of knowledge, its dissemination, its application and its continued use. Hence the DUT had an audit of its innovation and entrepreneurial capacity which resulted into an implementation plan. As part of that plan, engagements with the DHET Entrepreneurial Development in Higher Education (EDHE) programme hosted by Universities South Africa (USAf) were initiated to strengthen and establish entrepreneurial programmes and engagements at DUT and the region. Some of the engagements have led to formalising agreements that will ensure our students are supported in their entrepreneurial education and start-ups.

## **3. RESEARCH AND INNOVATION INDICATORS**

### **Block grants and DHET report**

DUT as part of the higher education institutions is expected to compete for grants that cover scholarships, equipment and exchange programmes amongst others. Success in grant acquisitions is interlinked with having a bouquet of relevant Science, Engineering and Technology (SET) programmes which are able to attract talented students on the one hand and the ability of the University to attract and retain high calibre talented staff. This would then help DUT maximise its 1st, 2nd, 3rd and 4th income streams. To this end, DUT was awarded approximately R41 880 500 for scholarships/fellowships, R8 647 766 for developmental and thuthuka grants, R9 936 211 for equipment grants and R342 000 for KIC from the NRF between 2017 and 2018. In the broader scheme of things and taking into account the new policy for 3rd stream income that was approved by Council for implementation from 1st January 2018 shows that DUT raised approximately R94 Million ring fenced for various projects, bursaries, equipment which has assisted in supporting core functions of the University.

The following table shows the income streams as reported for the period 1st January to September 2018:

No.	Summary of Revenues	Gross Receivables (R)
1 Research and Innovation Projects		46 776 959
2 Other Specific Projects		11 767 945
3 SETA / WIL Programmes		12 432 927
4 CCPE Projects, DUT Short Courses & Rental Income		20 037 449
5 Donations		2 690 800
<b>(E&amp;OE) TOTAL</b>		<b>93 706 080</b>

This amount is an increase by approximately R87 Million received in 2017 (DUT Annual Report 2017, Page 26).

## DHET 2016 Research Output (Publications) Report

In the DHET report submitted to DUT in 2018 (for audited 2016 publications) DUT had claimed for 242.66 publication units. DUT was awarded 209.12 publication units with a correction error of approximately 15.16 units which would be added to claims submitted in 2018 for the under payment also reflected in section 3.3. The percentage growth in publication outputs was 5% in 2017 and the research output per research and instructional and research staff far exceeded the target set by the University 2017 Annual Performance Plan to 0.78, thus also exceeding the norm of 0.565 for Universities of Technology.

## Research Publication Income for 2018 (Publications, Ms & Ds)

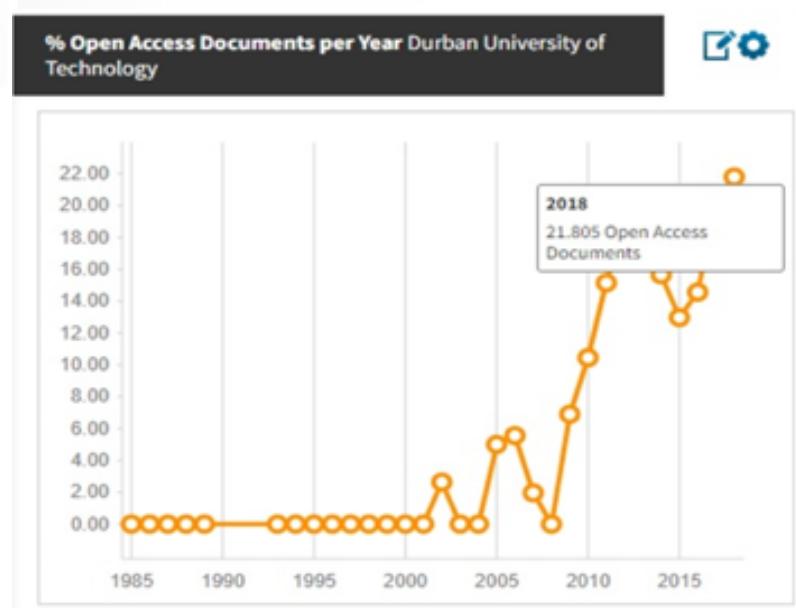
Total Income from Research Publications and master's and doctoral Subsidy = R47 863 000 based on the total of 466.87 Units.

2018 Research Output Grant	
<b>Research Output Units</b>	<b>466.87</b>
Publication Units	208.87
Masters	138.00
Doctorals	120.00
<b>Research Output Grant (R'000)</b>	<b>47 863</b>
Publication Units (R'000)	21 413
Masters (R'000)	14 148
Doctorals (R'000)	12 302
<b>Grant per Research Output (R'000)</b>	<b>102.519</b>

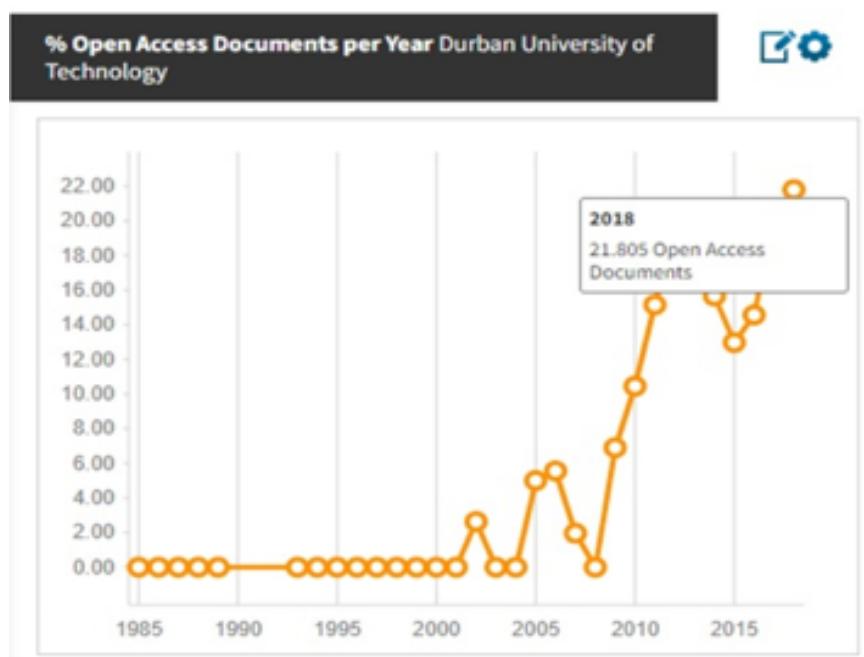
\*It is important at this stage to acknowledge those who continue to push boundaries and dedicate their time and effort to producing these outputs despite the various challenges and circumstances around research and innovation infrastructure and support which we will continue to improve on.

#### 4. RESEARCH AND INNOVATION IMPACT 2018

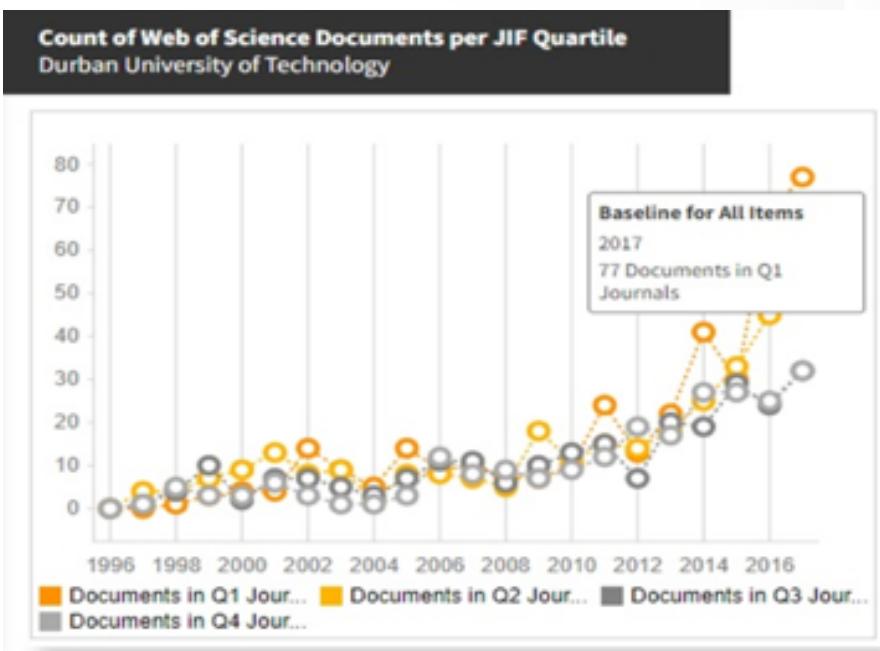
This section shows some key indicators and citations using both the web of science and scival from scopus for indicated periods.



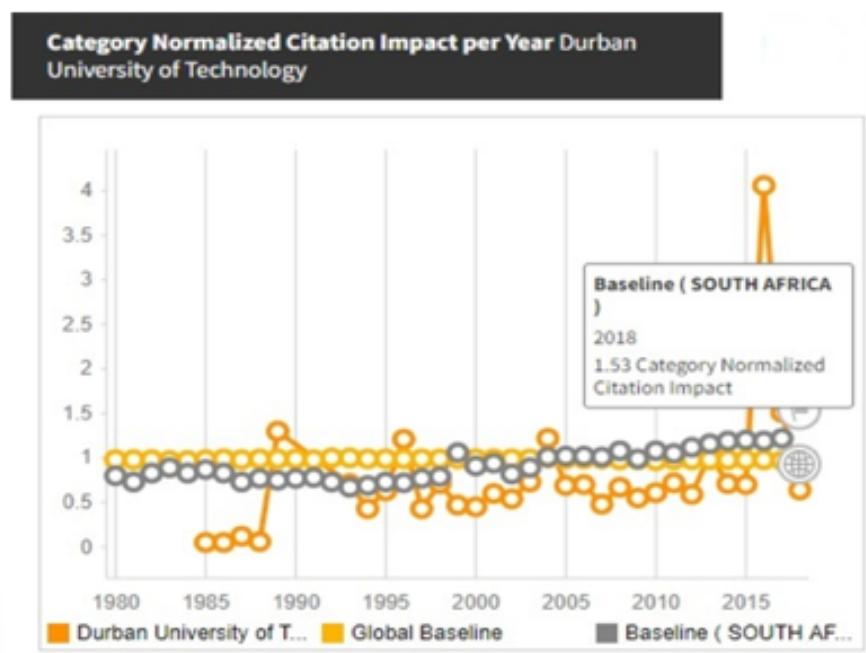
Percentage of Open Access Documents in 2018 on Web of science from the 108 Records



## Journal Impact Factors Quartiles for Web of Science Records



## DUT Category Normalised Citation Impact per Year

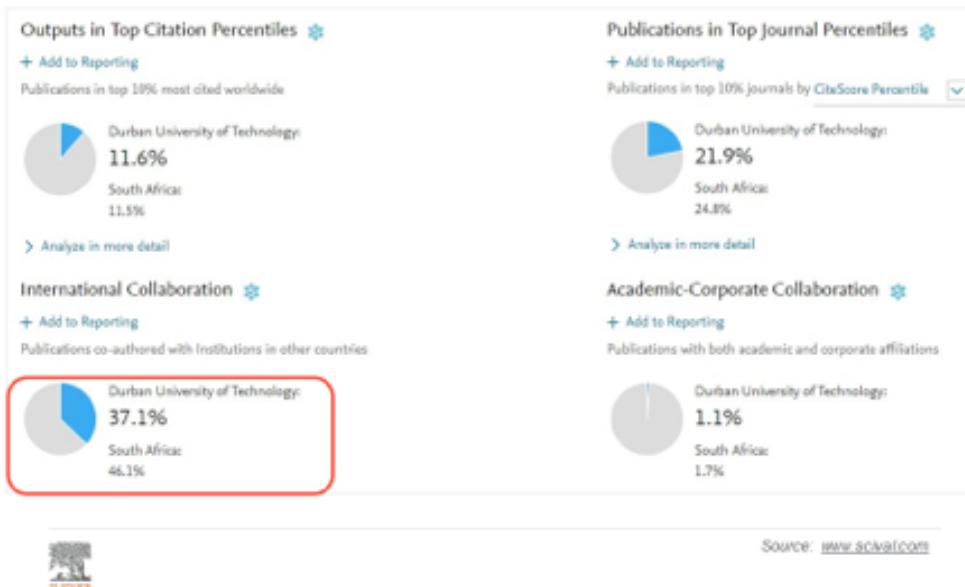


## Overall Research Performance 2013 – 2017

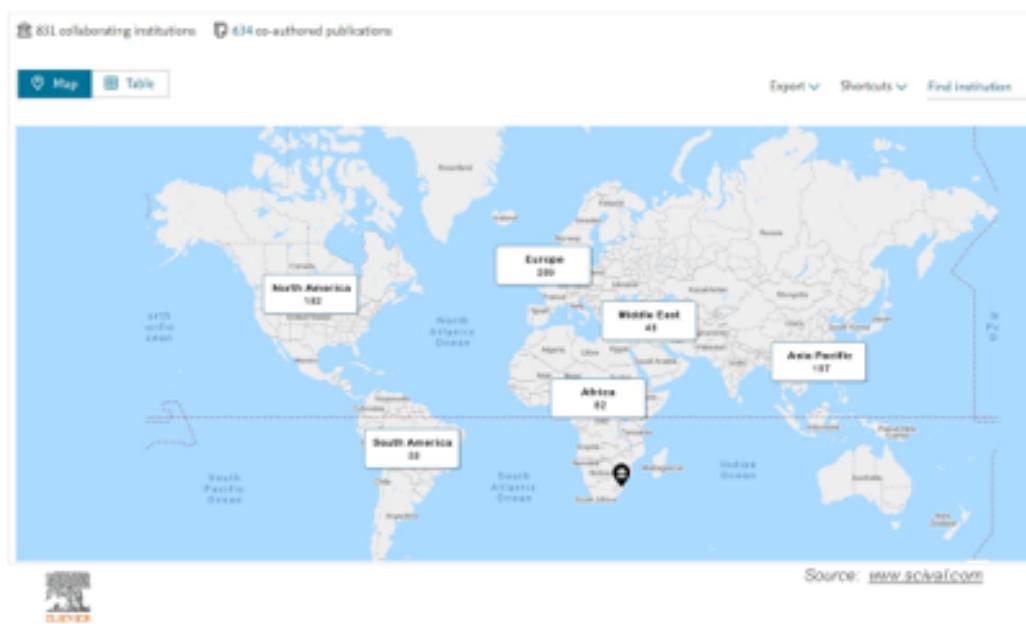


## Performance by Subject Area

## Performance Indicators 2013 – 2017



## International Collaboration of DUT 2013 - 2017



## 5. RESEARCH AND INNOVATION HIGHLIGHTS

DUT established the DUT Retail Chair as a result of the Wholesale and Retail SETA's initiative to contribute to towards research and qualifications development at NQF levels 5-10. Inherent in this initiative is the development of distinguished scholarship and reputable research and innovation, as well as the promotion of internationally competitive research. This commitment to research is aligned with the national imperative to encourage more postgraduate studies, to increase the production of traditional research outputs, expand the pool of researchers that can contribute to knowledge production that is able to inform practice and trends within the sector.

The NRF SARCHI Chair in Water was also renewed in 2018 for another 5-10 years and this area is also a typical example of how the quad-helix concept (involving university, industry, government, civil society) works to ensure the partnerships we form, the engagements we undertake are beneficial to all parties thus meeting training needs for our students, industrial exposure, applied research and innovation that addresses real life practical challenges and produces knowledge at the cutting edge of the field with regional, national and global impact. To this end, the Institute for Water and Wastewater Technology has received national recognition through its Director, Professor Faizal Bux and has benefited enormously from these interactions with other academic institutions, industry, government and civil society. Full details are featured in the later sections of the report.

The period 2017-2018 has had a number of achievements for DUT with high impact at both national and international level:

- The first National Research Foundation (NRF) Excelleration Award to DUT. Derived from the word's "excellence" and "acceleration", the Excelleration Award acknowledges South African research institutions for achieving the most improved research performance over recent years as evaluated by independent parties, and measured against a selection of critical indicators;

- The first NRF award to the multi-award winning and internationally acclaimed Director of DUT's Institute for Water and Wastewater Technology (IWWT) and B-Rated scientist, Professor Faizal Bux as winner of the NRF Award under the category, Champion of Research Capacity Development and Transformation at South African Higher Education Institution;
- The first DST Award for "Distinguished Woman Scientist Award in the Humanities and Social Sciences" category that went to C-Rated scientist, Professor Nokuthula Sibiya, who is the executive dean in the faculty of health sciences at the Durban University of Technology (DUT);
- The first Human Sciences Research Council Medal for DUT awarded to A-Rated scientist, Professor Michael Chapman who is Retired Professor at DUT.

It is also important to note the research growth from 2017 to 2018 in both the publication profile, the graduations at master's and doctoral level, grant acquisitions both at staff level (the number of staff winning grants) and postgraduate student level (students getting positive outcomes on scholarships) and some registered trademarks for products. Our research and innovation focus areas are also acknowledged for various successes and engagements that have resulted in various outcomes including book launches, community engagement projects, memorandum of agreements and increased pool of postgraduate students enrolled for postgraduate studies. As the university moves to its next strategic planning phase we look forward to greater participation and ensuring we build a consistent pool of emerging researchers and innovators who could contribute to the development, growth and impact of our University. Congratulations to all who make us thrive in the research and innovation space as well as our entrepreneurs. Best wishes for 2019!



## MESSAGE FROM THE DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT

### PROFESSOR CARIN NAPIER

The year 2016-2017 has seen the University grow its research and innovation profile significantly with increased publication units from 209.12 in 2016 to 259.69 in 2017. In 2017 our NRF rated researchers' numbers increased to 25 researchers in various rating categories and fields of study. The contribution the Institutes and Centres made to the research outputs for 2017 is acknowledged and we saw the end of a five-year NRF-SARCHi Chair in the Institute for Water and Wastewater Technology with the achievement of a renewed Chair position for 2018. Research focus areas are seen as places where young, novice and emerging researchers can be mentored to develop their own niche focus areas so that they can also become established, mentor others and apply for NRF ratings. Through the efforts of our researchers in 2017, 147 Masters and 30 PhD/Doctoral students graduated.

The postdoctoral forum and pool of postgraduate students form a community of emerging researchers who also contribute significantly to the university's research profile and research culture. In 2017 the Post Graduate Forum published 18 papers as a special edition of the Interdisciplinary Journal of Economics and Business Law as an outcome of the 2017 Post Graduate Conference.

Research ethics and integrity is also one of the main focus areas that, we believe, will help our researchers carry out responsible research that protects research participants and adds value to the well-being of our communities. We have seen the number of proposals submitted to Institutional Research Ethics Committee increase year on year with 160 reviewed during 2016 and 189 in 2017. It also influences the research culture of the University and promotes ethical behaviour. We thank the Institutional Research Ethics Committee for all its work and the DUT Gatekeeper's Committee for the role they play to ensure that the institutional reputation is maintained.

Research, innovation and engagement go hand in hand and the university has seen growth in both the number of collaborations through co-publications, and the increase in the number of functional MoUs with key stakeholders. In addition to this, there are extensive regional and international collaboration agreements in place.

The Fourth Industrial Revolution may soon see whole job categories disappear, it is therefore important that DUT continue to prepare itself as a University of Technology to manage the challenges ahead. Researchers should continue to focus research on equipping students for technological challenges and changes. Research and Innovation focus on Technology should aim to assist our communities in bridging the technological gap from the 20th to the 21st century.

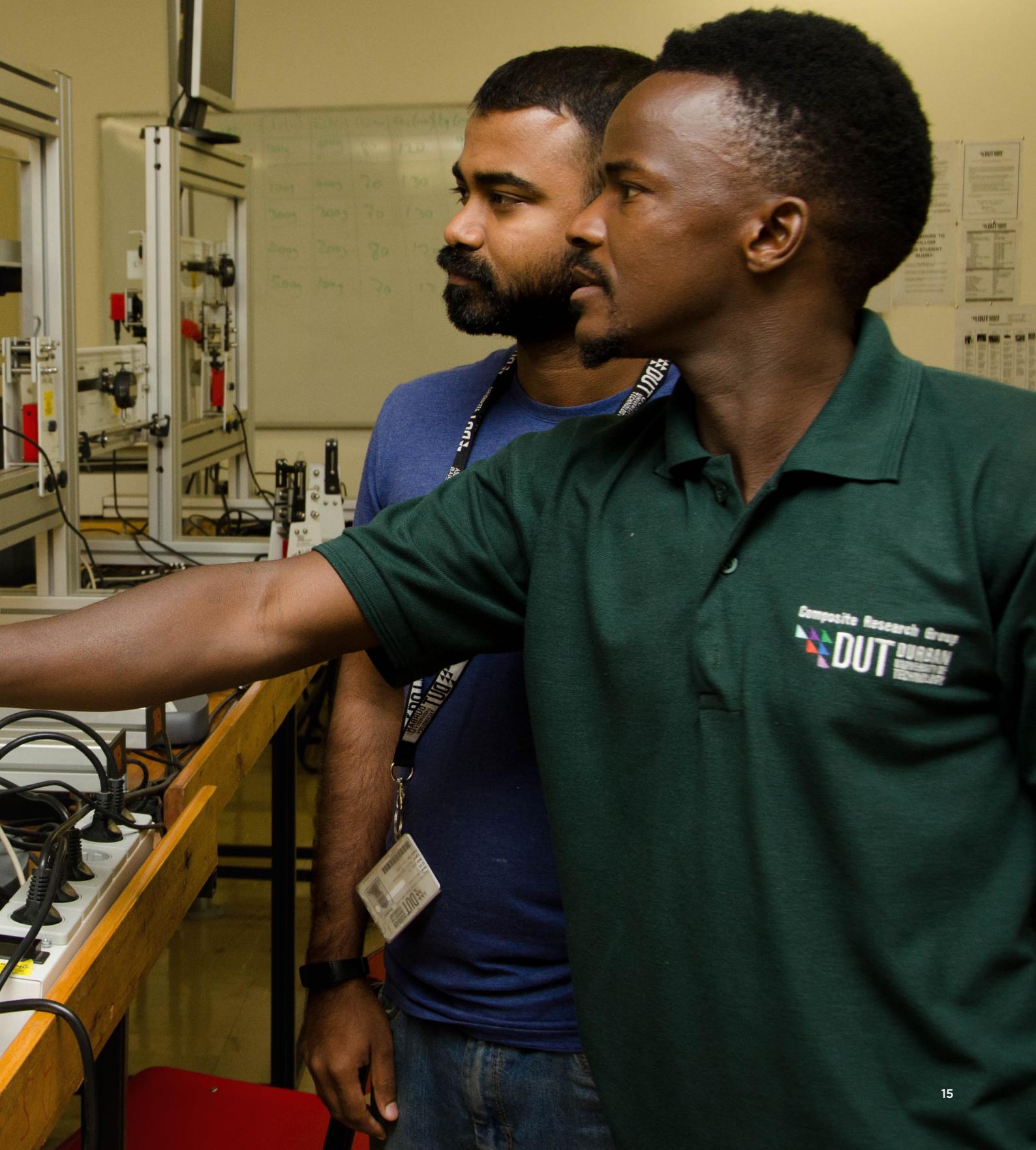
Thank you once again to all our researchers (staff, students, postdoctoral fellows, research associates and research fellows) as well research administrators for your contributions and putting DUT not only on the regional platform but also on the global platform!

*Research Focus areas at DUT, <http://ddt72ar9zv4px.cloudfront.net/wp-content/uploads/2015/11/Research-Focus-Areas.pdf>.*

Art Piece: The Nexus  
Supplied by: Ntethelo L. Ngcobo  
DUT Alumnus

# **RESEARCH FOCUS AREA**

**COMPOSITE RESEARCH  
GROUP (CRG)**



# RESEARCH FOCUS AREA - COMPOSITE RESEARCH GROUP

The prime objective of 'Nanotechnology' research focus area is to develop materials using nanotechnology and finding useful application in engineering industries. The group develops various types of bio and naturally derived materials using nanotechnology and find application in industries by product development, process optimisation and application. During 2017, the area focused on the following aims and objectives:

- Biopolymer synthesis from natural sources such as bagasse and plant starch
- Barrier and tribological studies of natural fiber reinforced composites
- Analysis of composite structures
- Nanoclay filled Al metal matrix composites
- Nanocomposites for dental application
- Green nano-fillers

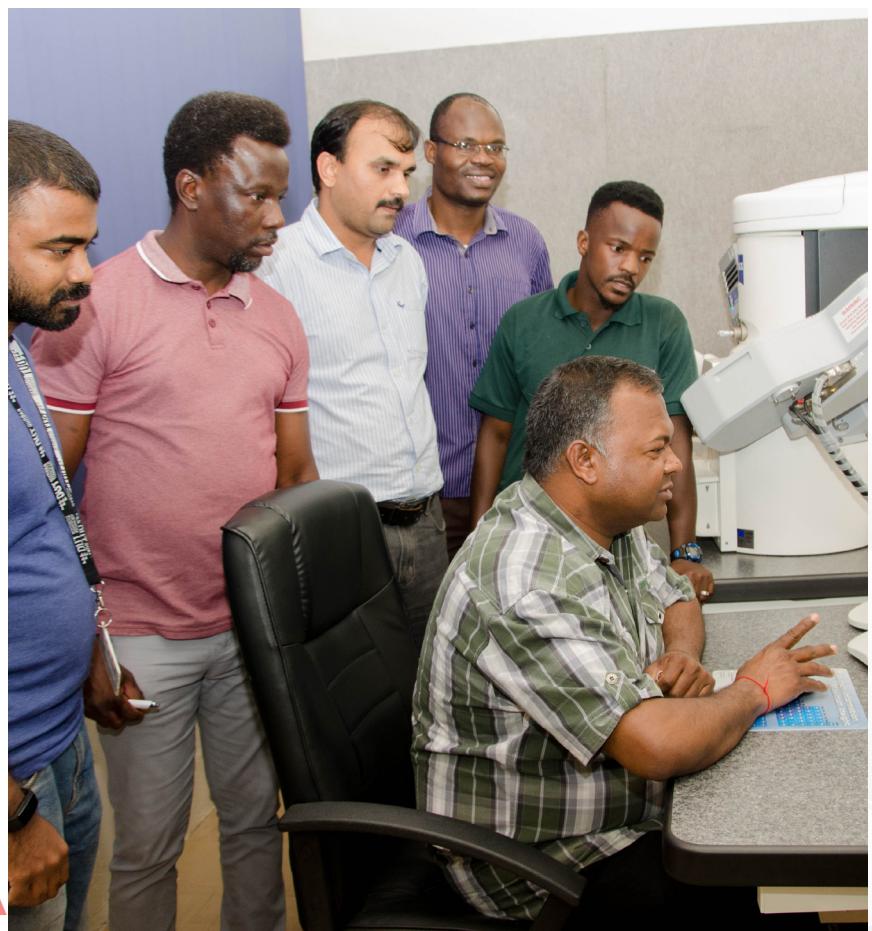
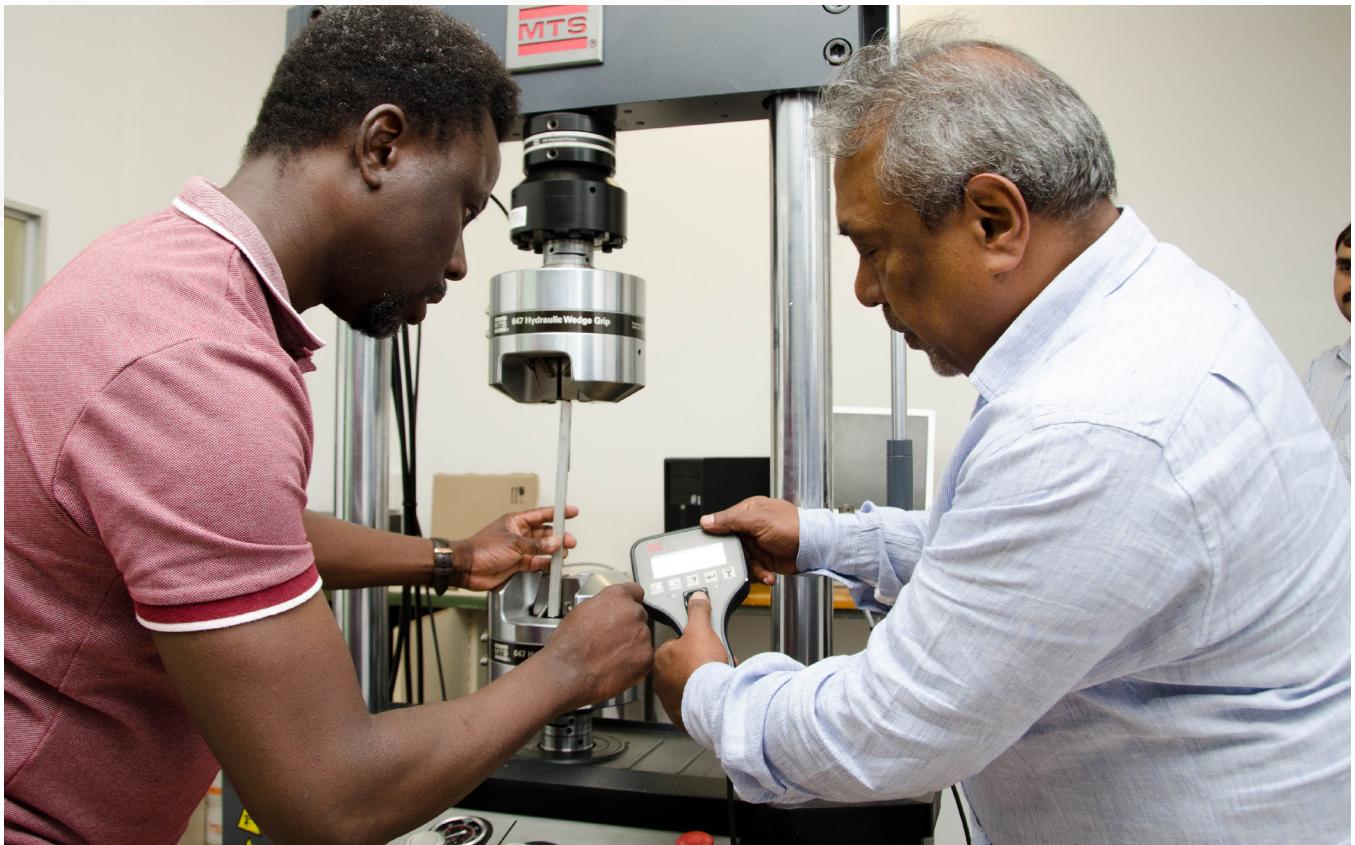
Group members consist of ~ 15 (M/D/PDF) and working on the above said aims and objectives of the research focus and published/accepted/in-press in 11 accredited journals, 15 book chapters and 1 conference paper presentation. Three master's students graduated from the research group in 2017, and two of them graduated with Cum Laude award.

## GROUP MEMBERS AND ACTIVITIES

Surname	Initials	Research Activities Between 2017-2018
Gbadeyan	OJ	Tribological studies of carbon filler-carbon fiber reinforced polymer composites
Olusanya	JO	Fatigue studies of epoxy fiber reinforced and nanoclay filled hybrid composites
Chetty	S	Fatigue studies of epoxy fiber reinforced and nanoclay filled hybrid composites
Zandu	NF	Organic polymer based photovoltaic studies using nanoparticle dopants
Ramsaroop	A	Design and analysis of composite lay-up
Nkosi	PS	Extraction of biopolymers/crystals from sugar cane bagasse plant
Moyo	M	Impact studies of natural fiber reinforced composites for mass transit application
Rane	AV	Mimicking the natural properties of plants using biopolymer matrix and filler-based composites
Afolabi	OA	Syntactic foam for thermal and acoustic properties
Olusanya	JO	Fracture studies of natural fiber reinforced composites and product development thereof
Mwangi	FM	Aluminium matrix and nanoclay filled nanocomposites for thermal properties
Turup Pandurangan	M	Polymer nanocomposites application in barrier, tribological and automotive sectors.

## GRANTS

Grant Title	Sponsors, Amount, Year	Status in 2017/2018
Hybrid oxide p-n homojunction nanowire solar cells	NRF (SA) & NRF (South Korea) bilateral research cooperation project, ZAR 380000, (2014-17)	Ended in December 2017
Biofilms for packaging industry	Technology Innovation Agency (SA), ZAR 450000, (2015-18).	Ended in June 2018
Kenaf fiber reinforced polylactic acid-based bio-plastics and bio-composites	DST-CSIR (Biocomposites Centre) project, ZAR 1.1 million, (2014-18).	Continuing
Biocomposites for mass transit application	DST-CSIR (Biocomposites Centre) project, ZAR 1.1 million, (2015-2018/19)	Continuing



# **RESEARCH FOCUS AREA**

**COMPUTATIONAL MODELLING  
AND  
BIOANALYTICAL CHEMISTRY**



## RESEARCH FOCUS AREA: COMPUTATIONAL MODELLING AND BIOANALYTICAL CHEMISTRY

Computational Modelling and BioAnalytical Chemistry focus area comprises the following research groups in chemistry: Ionic Liquids, Synthetic Organic Medicinal Chemistry, Phase Equilibria and ElectroAnalytical Chemistry, and Environmental Chemistry. These being the primary research areas, have contributed to more than 95% of the research outputs in the Department of Chemistry for this reporting period. It is also noteworthy to mention that Department of Chemistry has been the second most productive in the Faculty of Applied Sciences in terms of research and innovation. The strategic partnerships in research have been formed with various institutions, both locally and abroad.

### GROUP MEMBERS AND ACTIVITIES

#### PROFESSOR K BISETTY

#### Computational Modelling and Electrochemistry

This work deals with the application of computational modelling tools to the design of electrochemical biosensors. Specifically, the research focuses on smart biodevice platforms in biosensor technology using experimental and computational methods. This is achieved by incorporating nanostructured electrode materials into electroactive polymers for the design of biosensors for applications in the environmental, food and health sectors. The broader goals are to design, model and fabricate doped smart materials to improve health and biosensing systems.

In this regard, the research makes use of different sensors to selectively detect the presence of analytes in a given environment. Due to the diagnostic methods not being able to produce reliable results, high-level computational tools such as molecular dynamics simulations, molecular docking and density functional codes are used as a guide to design novel electrochemical, enzymatic, colorometric, aptasensor from biomacromolecules.

### HIGHLIGHTS

- The research group in Computational Modelling and Electrochemistry has graduated three Masters and one doctoral student in 2017; published in peer reviewed journals;
- Prof K Bisetty received the DUT Research Award for Innovator of the Year 2017 for Chilli Aptasensor project;
- The research group received a NRF-NEP Grant for procurement of FFF-ICP-MS instrument; Prof K Bisetty was the Keynote Speaker at CHPC conference held in Pretoria in Dec 2017;
- The Research group has secured a cluster from CHPC and
- Finally the research group had established new collaboration with the University of Latvia, through the Erasmus Mundus Funding of a master's student.





## PROFESSOR NIRMALA DEENADAYALU Ionic Liquids

The research focus of this group activities is on the use of ionic liquids for thermophysical property determination for separations and for biomass processing. Currently there are three PhD and five Masters students actively engaged in projects related to this area. The research group is multidisciplinary with collaboration with the Chemical Engineering department at DUT. For biomass processing, Green Chemistry principles are being used for the valorization of the biomass. Projects that are being investigated include: production of biogas from biomass, liquid hot water and microwave digestion for the extraction of lignin from sugarcane bagasse (SCB), ionic liquid extraction of cellulose, conversion to levulinic acid and its derivatives and ionic liquid optimization cellulose and hemicellulose extraction. A range of analytical techniques, such as SEM, TEM, HPLC, TGA, and DSC, FTIR, are used to characterize the component from the SCB.

### HIGHLIGHTS

- Ms GP Mdletshe (MApp Sc student), undertook a research visit for the synthesis of biopolymers from CNCs extracted from sugarcane bagasse from Feb - Sept 2017 to the DST/CSIR National Centre for Nanostructured Material, CSIR, Pretoria, under the supervision of Professor Suprakas Sinha Ray, Chief Researcher and Director.
- Ms GP Mdletshe completed her research on ionic liquids for the extraction of cellulose nanocrystals from sugarcane bagasse (SCB). She has submitted her draft thesis.
- Mr N Gnana completed his investigation on the use of liquid hot water/ ionic liquids for the separation of lignin from SCB and the optimization of LHW conditions for lignin extraction. He has submitted his draft thesis.
- Ms LD Mthembu(PhD student) will commence her work on the synthesis of levulinic acid derivatives and large-scale production of levulinic acid from SCB.
- Mr N Hlongwa (MApp Sc student) completed his experimental work on the pre-treatment of mechanical and chemical pulped wood using ionic liquids on the fractionation process. He has submitted his draft thesis.
- Ms N Mgxadeni (MApp Sc student) has submitted her thesis for examination based on the thermo physical properties and the derived thermodynamic properties of IL mixtures.
- Mr M Makhanya (MApp Sc student)completed this research on the extraction of cellulose from SCB and synthesis of carboxy methyl cellulose from the extracted cellulose. He has submitted his draft thesis.
- Ms SG Zondo (MApp Sc student ) has completed her investigation on the production of polyhydroxyalkanoates (PHA) from corn silage using *Thermus Thermophilus* and characterization. This work will be done in collaboration with the Biochemistry department. She is writing up her draft thesis.



## PROFESSOR ROBERT GENGAN Organic Synthesis and Nanochemistry

A wide range of research interests cutting across synthetic organic chemistry, organometallic chemistry, medicinal chemistry, drug discovery, nanochemistry and catalysis is practiced. The fundamental aim is to address important health issues such as cancer, tuberculosis and HIV/AIDS. Also fluorescence studies as well as catalysis for industrial applications



are pursued. The basic theme of the organo-synthesis laboratory is to practice Green Chemistry protocols such as avoiding the use of volatile organic solvents, toxic reagents, harsh reaction conditions and time-consuming wasteful separations. Green chemistry methodologies such as microwave irradiation techniques are used to assess heterogeneous catalytic systems in multi-component reaction schemes. The main focus is the synthesis of nitrogen and oxygen heterocycles and elucidating their biological activity. Metal based magnetically recoverable nano-catalysts are produced in environmentally benign solvents. This research group also investigates remediation of water polluted by azo dyes produced by local textile industries.

## HIGHLIGHTS

- Professor Gengan was awarded the Top Faculty Researcher of the year in 2016 at the Research & Innovation Awards ceremony;
- Professor Gengan was awarded the Top Researcher in the Department of Chemistry in the Faculty of Applied Sciences Research Awards in 2017;
- Professor Gengan received an NRF C3 Rating in 2017;
- Professor Gengan was awarded Full-Professorship in 2017;
- A total of two Masters Students graduated in 2017;
- A total of eight post graduates were registered I 2017 (4 PhDs and 4 MAppScs).

## PROJECT PROGRESS

Synthesized and characterized 55 novel compounds whilst a further 40 is in process. The compounds were then screened for biological activities in cancer cell lines and also their anti-fungal and anti-bacteria potential were elucidated. Three new catalysts were synthesized, characterized and used in multi-component reactions.

- Catalytic activity of rhodium supported on boron nitride for the synthesis of biologically important Chromone bearing  $\alpha$ -amino phosphonates. This project was completed, and the student has graduated.
- Synthesis, characterization and antibacterial evaluation of novel



2-aryloxy- and 2-piperidinyl-quinoline derivatives. This is an MSc investigation. This work is in progress and 40 % of this synthesis is outstanding.

- Synthesis, Characterisation and Biological Activities of Quinolin Analogues Using Heterogeneous Catalysts. This is a PhD work and one paper was published. More investigations are in process.
- Characterization and Biological Activities of Heterocycles: Peptides and O, N and S Based Small Molecules. This is in progress. This is a PhD work and one paper has been published. More investigations are in process.
- Synthesis of amine-epoxy based polymers and its application in the removal of selected organic and inorganic species from water-based effluents is completed and the student has graduated.
- Synthesis and applications of novel ionic liquids. One part of this project is completed, and a paper published.
- Synthesis and molecular docking studies of application based novel spiro and fused nitrogen heterocycles. One part of this project is completed.
- Synthesis, Characterisation and Biological Activities of Bisquinoline Analogues Using Heterogeneous Catalysts. This is in progress. This is a PhD work and one paper has been submitted.

### **PROFESSOR GAN REDHI Phase Equilibria and ElectroAnalytical Chemistry**

Synthesis of pyrillodinium based ionic liquids, characterization and determination of the thermophysical properties of their respective binary mixtures at different temperatures (Expected outcomes: synthesis and characterization of at least three new ionic liquids; determination of thermophysical properties for binary mixtures of each of these ionic liquids)

Synthesis, characterization of ammonium and phosphonium containing ionic liquids and measurement of binary and ternary phase equilibrium data with aliphatic hydrocarbons, aromatic and aqueous components at selected temperatures. (Expected outcomes: synthesis and characterization of at least three new ionic liquids; determination of thermophysical properties for binary mixtures of each of these ionic liquids).

Thermodynamic properties of phosphonium based ionic liquids and its mixtures with alcohols and alkanes at different temperatures. (Expected outcomes: determination of liquid-liquid equilibria for ionic liquid + water + alkane system at 25 deg C and 35 degC).

Fabrication of electrochemical sensors for the determination of anti-tuberculosis drugs. (Expected outcomes: Development of four sensitive electrochemical sensors for the determination of at least four anti TB drugs with four publications).

Development of multi-walled carbon nanotubes decorated with nano materials to enhance sensitive determination of active ingredients in selected pharmaceuticals. (Expected outcomes: Development of sensitive nano enhanced electrochemical sensors for the determination of at least three pharmaceuticals).

Measurement of activity coefficients using GLC of ionic liquids with various electrolytes. (Expected outcomes: determination of activity coefficients for at least three new systems at selected temperatures).

## DR PHUMULANE S MDLULI Environmental Chemistry

Investigation of the proficiency of Nano-phytoremediation, using hyperaccumulator plant *Panicum maximum* and TiO<sub>2</sub> nanoparticle by Ms NS Cibane. This project is done in collaboration with Dr GD Arthur, from Mangosuthu University of Technology. A student is currently writing the final dissertation, hopefully will be submitted this year for examination, one manuscript is ready for publication.

Synthesis and characterization of membrane and beads with molecularly imprinted polymers for selective adsorption of triclosan by Mr S Mntambo. This is a master's project which focusses on casting polymer membranes which are functionalized with adsorbent. The student is finalizing his dissertation.

Gold nanoparticles Based Lateral Flow Kit for In vitro Validation of Malaria Antibodies by Mr L Mthembu. This project is done in a collaborative effort between Technology Innovation Agency (TIA) Bioprocessing unit at uMbongitwini industrial park. A proof of principle has been demonstrated with one manuscript published.

Fabrication of a colorimetric paper based microfluidic sensor for the detection of the residual polydad-mac polymer in water treatment by Ms SE Magubane. This is another project done in collaboration with industry where Mhlathuze water is partnered to develop colorimetric devices for detection of pollutants in portable water. A TIA seed funding has been secured to scale up and validate these kits.

- Development of A Colorimetric Nano-Sensor Kit for the Analysis of Salt Content in Sea Water by Mr S Moodley and Ms Mbambo. This project is focusing on developing a Lovibond comparator for determining the salt content in the sea water. This project is being taken for real sample testing first phase of the experimental set-up has been achieved.
- Development of the paper-based microfluidic strips for quantification of ammonia by masters' student, Ms NL Nxumalo. This project focusses on developing a paper based microfluidic device for detection of ammonia in waste water. This paper is fabricated in house with our state-of-the-art printing system which is housed at DUT. The student is currently writing up the dissertation.
- Synthesis and application of molecularly imprinted polymer for the selective extraction of triclosan from water and sediments, by masters' student Mr SS Maphumulo. The student is expected to submit his dissertation for examination by the end of this year.
- The removal of pollutants from hazardous landfill leachate using reverse osmosis membrane technology by Mr B Zondo. This project is done through the collaborative effort between the group and Enviroserv. A student has made some progress to quantitatively determine pollutants in their plant and reverse osmosis is used to clean water for final discharge back to environment.
- Fabrication of google trackable colorimetric test strip for detecting water leakages by Ms G Zodidi. This again is through a collaborative effort between our group and AMCOR. It is again one of the projects which seeks to strengthen collaboration between DUT and local industries to develop useful products. Progress has been made where a student has demonstrated proof of principle using Google analytics and QR barcodes to demonstrate tracking of water leaks.

- Development of portable hydroponic system and nutrient solution for potential use in dry areas of KZN. This project is one of the projects which is done by NRF intern Mr A Fakude. He has developed a simple hydroponic system which is easy to operate, and the group is looking at forging a collaboration with TIA to scale up this project and to also introduce it in rural areas. One manuscript is being prepared for publication.
- The effect of Eggshell-derived Nano-hydroxyapatite as a reinforcing material for heat-cured acrylic dentures by Ms TE Radebe. This project is conducted in collaboration with the Department of Dental Technology.
- The development of a nano-sized titanium dioxide eggshell desensitising paste to re-mineralise damaged teeth by PhD student Mr SC Onwubu. This is the only PhD project in the group between Department of Dental Technology and University of KwaZulu-Natal.
- The mobile chemistry laboratory (MCL) is an outreach project of the department of chemistry. It is envisaged

to be a self-contained unit equipped to carry basic laboratory equipment to high schools in KZN that lacked laboratory facilities. It is expected to cater for up to 20 learners at a time.

## GRANTS

### Project 1 Prof K Bisetty

NRF Rated Researcher Incentive Funding 2014-2019 R 40 000p/a  
TIA Seed Funding R495 000

### Project 2 Prof N Deenadayalu

NRF Rated Researcher Incentive Funding 2017-2022 R 40 000p/a  
NRF Competitive Programme for Rated Researchers Grant 2017-2019 R2,000000

### Project 5 Dr PS Mdluli

NRF Thuthuka grant R 462 000

ESKOM Tertiary Education Support Grant 2017, R50 000

## PARTNERS AND COLLABORATORS

Researcher	Collaboration Partners
Prof K Bisetty	<b>National</b> Prof Bonex Wakufwa Mwakikunga, CSIR - National Centre for Nano-Structured Materials, Pretoria. <b>International</b> Prof Mikhael Bechelany University of Montpellier, France. Prof Alberto Da Nova Araújo Faculdade De Farmacia Da Universidade Do Porto, Portugal. Prof MD Hassan, Jamia Mia University, New Delhi, India. Dr Helmut Ernstberger PerkinElmer, Milano, Italy. Dr Gerhard Heinzmann PostNova Analytics, Munich, Germany.
Prof N Deenadayalu	<b>International</b> DST/CSIR National Centre for Nanostructured Material, CSIR, Pretoria, Professor Suprakas Sinha Ray, Chief Researcher and Director.  Prof P. Venkatesu – Delhi University, Delhi, India.  Prof R. Gardas – Indian Institute of Technology, Madras, India.
Prof GG Redhi	<b>National</b> Professor Chuturgoon, A. A., University of KwaZulu-Natal, South Africa. <b>International</b> Professor Athar, A., University of Winnipeg, Canada. Professor Aza, A. A., National Research Centre, Egypt. Professor Ewa, D., Warsaw University of Technology, Poland. Professor Ilanchelian, M., Bharathiar University, India. Professor Lee, H. H., Kookmin University, South Korea. Professor Lin, C-H., Chung Yuan Christian University, Taiwan. Professor Mohan, P. S., Bharathiar University, India. Professor Pitchai, P., Government Arts College, Kumbakonam, India. Professor Rao, G. N., Sri Sathya Sai Institute of Higher Learning, Andhra Pradesh, India. Professor Yen, T-J., National Tsing Hua University, Taiwan.
Prof RM Gengan	<b>National</b> Professor Chuturgoon, A. A., University of KwaZulu-Natal, South Africa.  <b>International</b> Professor Athar, A., University of Winnipeg, Canada. Professor Aza, A. A., National Research Centre, Egypt. Professor Ewa, D., Warsaw University of Technology, Poland. Professor Ilanchelian, M., Bharathiar University, India. Professor Lee, H. H., Kookmin University, South Korea. Professor Lin, C-H., Chung Yuan Christian University, Taiwan. Professor Mohan, P. S., Bharathiar University, India. Professor Pitchai, P., Government Arts College, Kumbakonam, India. Professor Rao, G. N., Sri Sathya Sai Institute of Higher Learning, Andhra Pradesh, India. Professor Yen, T-J., National Tsing Hua University, Taiwan.
Dr PS Mdluli	<b>National</b> Dr M Mlambo, University of Pretoria; Dr N Moloto, University of Witwatersrand; Mr H Gumede, Technology Innovation Agency.



# RESEARCH FOCUS AREA

## FOOD & NUTRITION SECURITY



## RESEARCH FOCUS AREA - FOOD AND NUTRITION SECURITY

Research undertaken within the food and nutrition security focus areas mainly includes three aspects: food science and technology, food safety and nutrition and food and nutrition security. The research Focus area hosts numerous BTech, Masters, PhD, Postgraduate students as can be seen below. Various international and national conferences were attended, and international visits were undertaken during the 2017/2018 year. During 2017/2018, a range of activities including nutrient composition and food product development for household nutrition using selected traditional food crops that are neglected in KZN, characterization of functional and bioactive properties (e.g. antioxidants) of biomolecules from grains, vegetable and fruits and research on food safety regulators, with emphasis on mechanisms of adaptation, resistance and persistence of food-borne pathogens have been initiated. Other studies to determine the food security and nutritional status of communities and identifying food and nutrition intervention needs have also been conducted.

Dr Ijabadeniyi organised a workshop for Small holder farmers' (from Waterloo, Ballito and Stanger, KwaZulu-Natal) on the 11th of November. The workshop/training was on crop processing and value addition. Dr John Mellem supervised four BTech: Food Technology students who graduated in the May 2017 graduation (all four students have returned and registered for a master's qualification in 2017). Two (2) manuscripts are in preparation from the 2016 findings for submission to SAPSE approved journals: Effect of processing on the functional properties of grain amaranth (*Amaranthus cruentus* and Functional properties of cowpea, soy, amaranth composite flour in the production of a biscuit. Dr Ijabadeniyi, Dr Mellem and Prof Amonsou participated in ARC/DUTUSF collaborative seminar at UFS in March 2017. The food and nutrition section published their first article on the newly developed Food Based Dietary Guidelines for South African Elderly, a first in South Africa. A new research collaboration and service agreement was signed with Harvard University in 2017/2018 (further details in the section below).



## GROUP MEMBERS AND ACTIVITIES

### Prof Carin Napier

Various Post Graduate students' running cost was supported from the Research Development Grant (RDG) in 2017. Two students were supported with travel cost, Ms Heleen Grobbelaar was supported with her flight ticket cost to a conference in Ireland where she presented and Ms Lisebo Mothepu was supported with her travel arrangements to the Food security conference in Cape Town.

### PG Workshops

A Research workshop was held by an external facilitator and attended by 10 Postgraduate students from our department.

### Visiting Professor

Professor Donna Spiegelman from Harvard University, School of Public Health addressed the DUT community on the Global Nutrition Epidemiological Nutrition Transition Initiative (GNET) on the 10th October 2017.

### New Collaboration

Service agreement with DUT and Harvard University, School of Public Health, Department of Nutrition on the INDIA-WORKS diabetes intervention project.

Principal Investigator: Professor Walter Willett

DUT Collaborator: Dr. Ashika Naicker

**Protocol Title:** The development and implementation of changes to the food environment as part of the worksite intervention program INDIA-WORKS.

Outcomes:

1. Development of appropriate, acceptable and feasible interventions to increase healthy eating in worksite canteens.
2. Implementation of the canteen interventions.
3. Evaluation of the fidelity and adoption of canteen interventions.



### **Prof Oluwatosin Ijabadeniyi**

- Seven (7) articles and one (1) book chapter were published in SAPSE approved journals from January 2017 to January 2018.
- One (1) PhD (Oladunjoye A.O) and one (1) Masters (Yusuf A) graduated in 2017 and one (1) master's student (Ajibade B) submitted thesis for examination to potentially graduate in April 2018.
- Four (4) Masters students under supervision for 2017 (1st registration).
- One (1) Masters student will be registering in 2018.
- Two (2) PhDs and One (1) Masters student are continuing.
- Apart from supporting the Master's and Doctoral students the RDG grant was also used to support four (4) BTech Food Technology students in 2017. Three (3) students will be supported this year.

### **Student Exchange/Visit**

- Oyedeji Ajibola, PhD student, visited Department of Food, University of Copenhagen to carry out part of his bench work. Student visit to lab: November 2017 – Jan 2018.
- In December 2017, Prof Ijabadeniyi attended Introduction to Linux and Workflows for Biologists, organised by Edinburgh Genomics, Edinburgh University, UK and also visited Newcastle University upon invitation by Prof Lynn J. Frewer. Prof Ijabadeniyi facilitated a seminar during the visit.

### **New Postdoctoral Student (2018)**

- Dr Ajayeoba Titilayo Adenike. Application of Microbial Metabolites from Lemon-Ogi Steep Liquors in Food and Health Development.



### **Dr John Mellem**

- In 2017 seven (7) research articles were published in SAPSE approved journals and one (1) article submitted in 2017 was published in 2018.
- Two (2) Masters students (S. Sipahli and A. Mukurumbira) graduated in 2017 and one (1) Master's student (H. Essack) submitted thesis for examination to potentially graduate in April 2018.
- Four (4) BTech students graduated in 2017.
- Four (4) Masters students and one (1) PhD candidate registered for 2017 (1st registration).
- One (1) paper presented at the 22nd SAAFoST Biennial International Congress and Exhibition.
- Apart from supporting the Masters and Doctoral students the RDG grant was also used to support the four (4) BTech Food Technology students in 2017.

### **Prof Eric Amonsou**

- In 2017 eight (8) articles published in DHET accredited journals.
- One (1) BTech graduated in 2017.
- One (1) PhD and two (2) Masters students graduated in 2017.
- Two (2) papers were presented at SAAFoST Congress: One (1) Oral paper and one (1) Poster at SAA FoST Congress, Cape Town IUFoST.
- Attended one (1) IFT EXPO, in Las-Vegas, United States, 2017.
- One (1) Academic exchange: One (1) Research visit to Department of Human Nutrition, University of Manitoba, Canada. Host: Prof Rotimi Aluko.

### **GRANTS**

1. ARC Consortium grant,
2. NRF Thuthuka



# **RESEARCH FOCUS AREA**

**INSTITUTE FOR WATER  
& WASTEWATER  
TECHNOLOGY**

KOREA  
INSTITUTE  
FOR WATER  
& WASTEWATER  
TECHNOLOGY

# **RESEARCH FOCUS AREA - INSTITUTE FOR WATER AND WASTE WATER TECHNOLOGY (IWWT)**

Many of the objectives of the water group are still ongoing as they are the core research areas of the members. There has been several new directions and throughput of students as is evidenced by graduation of 6 Masters and 6 Doctoral students and enrolment of 25 new postgraduates (M&D) in 2017 and 5 new enrolments in 2018. The water group has published 65 journal articles. The group has further published 12 book chapters, 31 conference abstract proceedings and 9 full paper proceedings.

## **GROUP MEMBERS AND ACTIVITIES**

### **Prof Faizal Bux**

- 1 of 2 SARChI Chairs in Wastewater Technology in South Africa.
- Appointed as BRICS Networks University chair of the ITG: Water Resource Management and Pollution research.
- Admitted as a member of the Academy of Science of South Africa (ASSAF) in 2016.
- Admitted as a Fellow of the International Water Association (IWA) in 2018 and Royal Society of Chemistry (RSC) in 2016.
- Awarded Water Research Commission Knowledge Tree Award, Category: Transformation and Redress, September 2017.
- Appointed as the chair of the BRICS Networks University International Thematic Group on Water Re source and Pollution treatment.
- Doctoral students awarded prizes: 3rd and 4th place for presentations at the 11th Algae Biomass Summit, 2017, Grand America Hotel, Salt Lake City, Utah, USA.

### **Dr Sheena Kumari**

Obtained NRF rating - C3.

### **Prof Thor Axel Stenström**

- Honorary position as a senior associated researcher Inst de Salud Ambiente Universidad el Bosque, Bogota, Colombia.
- Inducted as a member in the Sustainable Sanitation Alliance (SuSanA).
- Associate Researcher at the Stockholm Environment Institute.
- Member of “Technical Advisory Group on Water Quality and Health (WQTAG)” by the World Health Organisation. “WQTAG” comprises of very few experts from various disciplines that are appointed by the Coordinator of the Water, Sanitation, Hygiene and Health Unit at WHO after consultation with WHO regional offices. The WQTAG acts as a global advisory body to the WHO Secretariat on matters relating to water quality and health. They are responsible for developing international ‘Guidelines for Drinking Water’ as well as ‘International Standards for Drinking Water’.
- Water South Africa – Subject editor assignment for 2016 – 2017. Nomination approved 2015.
- Associate and researcher involved in UNESCO’s “Global Water Pathogen project.”
- NRF Flagship “Water Research for Humanity in Africa” (WR4HA) (UNISA).
- Royal Society Panafrican Award, London Assessor.
- Assessment of Fleming Konradsen as professor in Global Health at Copenhagen University.

### **Prof Sudesh Rathilal**

- 9 completed master's qualifications
- 1 completed Doctoral qualification
- 15 journal publications
- 8 international conference papers

### Dr Bloodless Dzwairo

- Concluded two MOUs for an Ethiopian and a Kenyan university, BiT-BDU and MMUST, respectively.
- Represented DUT at the BRICS Conference 2017, NACI 2017, ASSAF IID Roundtable 2018 and SA-Swedish Research Workshop 2018.
- Adjunct Professor at BiT-BDU, Ethiopia.
- Research Associate (Honorary) in Civil Engineering specialising in Environmental Modelling and Remote Sensing/GIS, Civil Engineering (water) and Integrated Water Resources Management.
- Google Scholar H-Index of 4 and since 2013 - citation of 138.

### GRANTS

Grant holder	Name	Funder	Amount	Year
Prof F Bux	South African Chairs Initiative	NRF	R 17,250,000.00	2018-2022
	National Equipment Program	NRF	R 1,272,000.00	2014-2015
	National Equipment Program	NRF	R 2,102,190.00	2016-2017
	India Brazil South Africa Trilateral	NRF	R 1,500,000.00	2014-2017
	China South Africa Bilateral	NRF	R 200,000.00	2015-2016
	Oman South Africa Bilateral	NRF	R 300,000.00	2018-2020
	The ACTIVATED SLUDGE BIOS - A real time tool to evaluate activated sludge process (Phase 2)	WRC	R 1,600,000.00	2014-2017
	National survey of filamentous bacterial populations in Activated Sludge: identification and correlation with process parameters, wastewater treatment plant configuration and geographical location	WRC	R 629,500.00	2014-2017
	Development of a Two-stage Nitritation-Anammox process for improved ammonia removal from wastewater	WRC	R 1,850,000.00	2016-2019
	Wastewater beneficiation using microalgae	TIA	R 14,113,905.89	2016-2021
	Evaluation of microalgal biomass and lipid production at demonstration scale	TIA (Seed Fund)	R 500 000	2015 - 2016
	Assessment of harvesting and drying technology for microalgal biomass	TIA (Seed Fund)	R 110, 000.00	2015 - 2016
	JICA SATREPS	JICA	R 40,000,000.00	2019-2021
	DST co-funding to JICA SATREPS Project	DST	R 3,500,000.00	2017-2022
	BRICS Networks University	DHET	R 1,000,000.00	2018

Dr B Dzwairo	NRF Knowledge Interchange and Collaborations (KIC) Africa Interaction with Ethiopia		R 20,000.00	2015
	DHET research output funding		R 100,000.00	2016
	NRF Internship Programme: 3 NRF Interns		cost carried by NRF	2016
	NRF-SASAC Emerging Researcher		R 40,000.00	2017
	DHET research output funding		R 33,000.00	2017
	Brazil-SA-India collaboration: Sponsorship to attend the Climate Change Workshop in Brazil		full cost was paid by Brazil partner	2017
	NRF Internship Programme: 6 NRF Interns		cost carried by NRF	2017
	NRF Internship Programme: 1 NRF Intern		cost carried by NRF	2018
	NRF Knowledge Interchange and Collaborations (KIC) International Travel - conference and interaction with Kenya		R 25,000.00	2018
Dr S Kumari	NRF Thuthuka	NRF	R 187,000.00	2016
	NRF Incentives (rated researcher)	NRF	R 40,000.00	2016
	NRF Thuthuka	NRF	R 380,000.00	2017
	NRF Incentives (rated researcher)	NRF	R 40,000.00	2017
	NRF Thuthuka	NRF	R 482,000.00	2018
	NRF Incentives (rated researcher)	NRF	R 30,000.00	2018
Prof F Swalaha	NRF Thuthuka	NRF	R 324,000.00	2017
	NRF Thuthuka	NRF	R 200,000.00	2018
Prof P Reddy	MRC Flagship grant	MRC	R 500,000.00	2015-2017
Prof P Musonge	Collaborative Postgraduate Training	NRF	R 2,685,000.00	
Prof TA Stenstrom	Bill and Melinda Gates Foundation: Developing a uniform Soil Transmitted Helminths analysis consortium for analysing faecal waste samples	BMGF	R 4,463,274.00	2015-2017
	Procedures for Crop Selection based on Quantitative Microbial Risk Assessment (QMRA)	Water Research Commission	R 415,400.00	2014-2016
	NRF -infrastructure funding instruments (nep/nnep)	NRF	R 4,336,000.00	2014-2015

	NRF Incentive Funding	NRF	R 80,000.00	2015
	NRF Incentive Funding	NRF	R 80,000.00	2016
	NRF Incentive Funding	NRF	R 80,000.00	2017
	NRF Incentive Funding	NRF	R 30,000.00	2018
	NRF SARCHI	NRF	R 12,500,000.00	2013-2018
	NRF-STINT	NRF-STINT	R 900,000.00	2016-2019
	Disaster Risk Reduction - Wash and Rescue. Water, Sanitation and Hygiene in Resilient Cities and Urban areas adapting to Extreme waters- Sweden	Stockholm Environment Institute (SEI)	R 590,000.00	2014-2015
	Antibiotic resistance surveillance via analyses of sewage water	University of Gothenburg	R 1,200,000.00	2018
	National Council for Scientific and Technological Development (CNPq/MCTI), Brazil (2015-2017) Quantitative and qualitative microbiological risk assessment of decentralized sanitation technology arrangements	National Council for Scientific and Technological Development	R 550,000.00	2015-2017
			<b>R 116,238,269.89</b>	

## PARTNERS AND COLLABORATORS

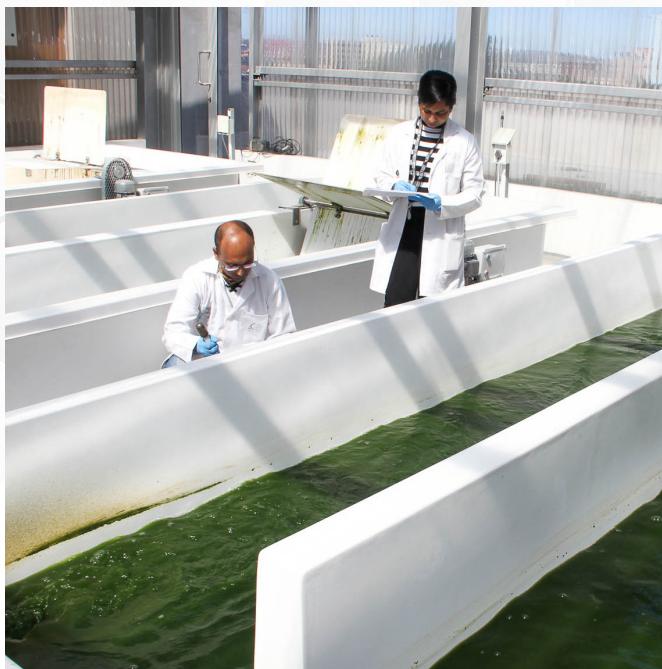
Name	Institution	Country
Prof V Tandoi	CNR IRSA	Italy
Prof P Nielsen	University of Aalborg	Denmark
Dr A Tawfik	Egypt Japan University of Science and Technology	Egypt
Dr M Singh	Georgia State University	USA
Dr R Misra	Chemical & Petrochemical, Chemical & Fertilizer Ministry, Government of India	India
Prof J Zhou	Okhlahoma University	USA
Prof H Kanda	Nagoya university	Japan
Prof SO Agyeman	Tokyo University of Agriculture and Technology	Japan
Prof CVR de Moura	Federal university of Piaui	Brazil
Prof J Ling	Tongi University	China
Prof YC Sharma	Indian Institute of Technology (BHU)	India
Dr B Singh	Central University of Jharkhand	India
Dr SK Gupta	Indian Institute of Technology Delhi	India
Dr J Zerrouki	Universitie Kasdi Merbah de Ouargla	Algeria
Prof L Al Haj	Sultan Qaboos University	Oman
Prof S Watanabe	Suzuka University	Japan

Prof K Chandran	Columbia University	USA
Dr D Ning	Oklahoma University	USA
Dr J Drewnoski	Gdansk University of Technology	Poland
Dr M Nasr	Alexandria University	Egypt
Dr N Li	Tongji University	China
Dr A Ismail	NICD	South Africa
Dr P Welz	CPUT	South Africa
Dr R Laloo	CSIR	South Africa
Mr K Pillay	EThekwini Municipality	South Africa
Ms D Trollip	Umgeni water	South Africa
Prof N Musee	University of Pretoria	South Africa
Dr L Maharaj	Umgeni water	South Africa
Dr S Iwarere	UKZN	South Africa
Mr N Van Blerk	ERWAT	South Africa
Dr S Petterson	Director, Water & Health Pty Ltd Editor, Journal of Water and Health	Australia
Dr H Overgaard	Institute de recherché pour le développement (IRD), MIVEGEC Dept. of Entomology, Kasetsart University	Norway
Dr M Matiz	Instituto de Salud y Ambiente UNIVERSIDAD EL BOSQUE, Bogota, Colombia	Colombia
Dr A Johannessen	Stockholm Environment Institute	Sweden
Dr A Rosemarin	Stockholm Environment Institute	Sweden
Mrs J De France	World Health Organisation, Department of Public Health and Environment Water Sanitation Hygiene and Health	Switzerland
Mrs K Medicott	World Health Organisation, Department of Public Health and Environment Water Sanitation Hygiene	Switzerland
Prof G Jewitt	University of KwaZulu-Natal, Centre for Water Resources Research, Pietermaritzburg	South Africa
Dr R Shanker	Institute of Life Sciences, Ahmedabad University, Ahmedabad, India	India
Prof R Seidu	Norwegian University of Science and Technology (NTNU)	Norway
Prof L Jianhua	Institute of Environment for Sustainable Development (IESD), Tongji University, Shanghai	China
Dr B Jimenez-Cisneros	United Nations Educational, Scientific and Cultural Organization	France
Prof RF Gonçalves	Federal University of Espírito Santo	Brazil
Dr P Paulo	Federal University of Mato Grosso do Sul	Brazil
Dr CE Hensman	Bill and Melinda Gates Foundation	United States of America
Prof N Ashbolt	Environmental Health Sciences, University of Alberta, Canada	Canada
Dr K Troell	Swedish National Veterinary Institute	Sweden
Dr CM Rendón	National Autonomous University of Mexico, UNAM, Mexico	Mexico
Dr JAB Pérez	National Autonomous University of Mexico, UNAM, Mexico	Mexico

Dr E Sokolova	Chalmers University of Technology	Sweden
Prof B Nair	Amrita School of Biotechnology	India
Dr S Pal	AMRITA, School of Biotechnology	India
Prof S Mutunuri	Birla Institute of Technology	India
Prof J Larsson	Director, Centre for Antibiotic Resistance Research at University of Gothenburg (CARe)	Sweden
Dr M Starkl	Centre for Environmental Management and Decision Support	Austria
Mr N Larrat	eThekweni Health Unit	South Africa
Dr N Rodda	School of Life Sciences University of KwaZulu-Natal (Westville Campus)	South Africa
Dr B Levecque	Ghent University • Department of Virology, Parasitology and Immunology	Belgium
Prof M Momba	Tswane University of Technology, Pretoria	South Africa
Prof S Elumalai	Presidency College, Madras, India	India
Dr R Lallo	CSIR Biosciences, Pretoria	South Africa
Dr S Niang	University Cheikh Anta Diop Dakar. Senegal	Senegal
Prof ME Magri	Federal University of Santa Catarina	Brazil
Dr JR Mihelcic	University of South Florida	United States of America
Dr M Paloma	California State Polytechnic University, Pomona, California	United States of America
Dr N Mladenov	San Diego State University, San Diego, California	United States of America
Prof T Pettersson	Chalmers University of Technology	Sweden
Dr C Flach	University of Gothenburg	Sweden
Prof J Fick	University of Gothenburg	Sweden
Dr R Nakagawa	World Health Organisation	Switzerland
K Ramlukan	DUT	South Africa
K Reddy	DUT	South Africa
Mr N Mgnini	Umgeni Water	South Africa
Dr L Maharaj	Umgeni Water	
Prof C Buckley	Pollution Research Group UKZN Chemical Engineering	South Africa
Prof C Zetzl	Technical University Hamburg	Germany
Prof N Deenadayalu	Department of Chemistry, DUT	South Africa
Prof T Robins	University of Michigan	USA
Prof S Batterman	University of Michigan	USA
Prof RN Naidoo	UKZN	South Africa
Dr S Pillay	Federation University	Australia
Ms R Wagle	Nepal Joint Ministry of Forestry and Environment	Nepal
DR M Mello	Limpopo University	South Africa
Prof L Gregar	Mendel University	Brno- Czech rep
M Carsky	UKZN	South Africa
VL Pillay	SUN	South Africa
BF Bakare	MUT	South Africa
R Rajagopaul	Umgeni Water	South Africa

G Ginsberg	Mediterranean Textiles	South Africa
K Robinson	FFS Refiners	South Africa
S Weyer	SMRI	South Africa
	MMUST	Kenya
	BiT-BDU	Ethiopia
	UFPE - ITEP	Brazil
	Beijing Normal University	China
	University of Allahabad	India
	CUT	South Africa
	Rhodes	South Africa
	TUT	South Africa
	UNAM	Namibia
	Univ of Zimbabwe	Zimbabwe
	National Institute of Technology Warangal	India
	University of Cape Town	South Africa









# RESEARCH FOCUS AREA

INTERNATIONAL  
CENTRE OF  
NONVIOLENCE

# ICON

*International Centre  
of Nonviolence*



# RESEARCH FOCUS AREA - ICON/PEACE STUDIES

ICON is fully involved in all forms of academic work, from postgraduate supervision to undergraduate teaching, research and community engagement. ICON welcomed its first permanent member of academic staff, Ms Simóné Plüg, who was appointed from 1st January 2017. She joined the existing three academic staff members, who are all on post-retirement contracts: Mr Crispin Hemson (Director), Professor Geoff Harris and Dr Sylvia Kaye. During 2017 Ms Plüg was finalising her doctorate, which was submitted soon after the end of the year.

At present the centre has five Honorary Research Associates (Mediel Hove, Cyprian Muchemwa, Pearl Sithole, Chandre Gould and Alain Tschudin) and one Post-Doctoral Fellow (Chrys Kiyala Kimbuku). The centre had the valuable support of an administrative assistant on a one-year contract, Ms Brightness Nyawose, who has worked with ICON since her student days. In December 2017 she moved to a more senior role at the Centre for Social Entrepreneurship, with whom the centre shares offices. An administrative assistant, also on one-year contract, Ms Prashna Hansjee, was appointed at the end of the year.

At the end of 2017 the Peacebuilding Programme had 63 postgraduate students, with a new intake of 21 for 2018. The majority are doctoral students. Geoff Harris and Sylvia Kaye are responsible for the postgraduate programme. Students come to Durban for preparatory sessions on theory and preparation of the PhD/Master's proposal. The 2017 Research Awards saw the recognition of Professor Geoff Harris and Dr Sylvia Kaye as the two most productive supervisors at DUT.

Crispin Hemson and Simóné Plüg were responsible for teaching various classes and tutorial groups on the Cornerstone 101 module in the first semester. In addition, Crispin Hemson taught Leadership 101 and Simóné Plüg developed and taught a new module, Violence and Nonviolence, in the second semester. ICON plays a central role within the General Education programme, and in particular is involved in the training of tutors, production of material and leading staff meetings related to the Cornerstone module.

This was a successful year for research production, with work completed on an edited book by two staff, an edited book by another staff is in progress, and a range of book chapters, journal articles and conference presentations by staff and present and former students.

There is an annual programme open to DUT students (with up to three places available to those outside DUT). It involves a series of sessions on leadership, involvement in a community project, reading and presentations. In 2017 the number of participants was 55, though it was agreed late in the year that these numbers were excessive. In the end, because of problems of non-participation, only 38 students received Certificate of Achievement. Projects undertaken in the year included: Constitution of South Africa, Denis Hurley Centre, DUT Dialogues, HIV/AIDS Community Project, Leadership for Sustainable Development, Online Media and School Counselling.

## GROUP MEMBERS AND ACTIVITIES

### Geoff Harris [Professor]

Demilitarising Lesotho  
Reintegrating ex-prisoners in South Africa and Lesotho

### Crispin Hemson [Director]

Transformative pedagogies and violence  
Agency and resilience in relation to justice and violence

### Sylvia Kaye [Senior Lecturer]

Eliminating prejudice  
Mentoring feminist writers  
Integrating local knowledge into national policies

### Simone Plüg [Lecturer]

Understanding vicarious trauma among researchers  
Shifting perceptions of violence among first year  
students

## PARTNERS AND COLLABORATORS

ICON has active linkages with a number of other African universities.

In **Democratic Republic of Congo**, we are linked to Sub-Saharan Africa University in Goma. ICON has been the major sponsor of SSAU's annual Peacebuilding Conference. Five DVDs prepared by ICON for the 2017 conference can be viewed at <http://www.icon.org.za/current/> and Dr Chrys Kiyala (post-doctoral fellow) and Patient Mwamba (PhD student) made presentations for the 2018 conference.

In 2017, Prof Geoff Harris spent a month with the Sir James Mancham International Centre for Peace Studies at the University of Seychelles <http://www.manchampeacecentre.com/> during which he developed plans for a Master's degree in peace studies and for an academic journal covering peace issues in the Indian Ocean region. He was subsequently appointed Honorary Professor at Unisey.

Together with Grace to Heal, a significant NGO based in Bulawayo, Zimbabwe, Dr Sylvia Kaye and Prof Geoff Harris have developed a new Master's degree in applied conflict transformation studies <http://copafrica.org/wp-content/uploads/2017/01/ACTS-Africa.pdf> Students complete coursework in Bulawayo and the registration for a DUT Master's degree in peace studies by research.

Early in 2018, Prof Harris and Dr Sylvia Kaye began discussions with the Moshoeshoe I Institute of Leadership and Peace at the **National University of Lesotho**, with the aim of developing a Master's degree in peace and conflict studies. This new degree will commence in 2019



# **RESEARCH FOCUS AREA**

**URBAN FUTURES  
CENTRE**



# **RESEARCH FOCUS AREA - URBAN FUTURES CENTRE**

The UFC has five very robust research projects running. Each of these projects has an engagement component linked to them. These projects have received a great amount of public attention, both in the press and in public forums. There has been a steady stream of publications resulting from these research projects. The UFC has also participated in many conferences and workshops, both national and international.

Funding has been secured from a variety of funders including the National Institute of Humanities and Social Science; City Alliance; and the NRF Blue Skies.

During this funding period, the UFC was engaged in 5 research projects:

1. Pathways into and out of street level drug use in Durban
2. Narratives of home and neighbourhood
3. Migration and social exclusion
4. Urban design and safety
5. Durban as a port city

Each of these research areas involved extensive qualitative research. In conducting this research, the UFC worked with a network of researchers from other organisations. The research took the form of oral histories, interviews, focus groups and participant observation. All of these projects were either involved in an engagement component and/or had a strong advocacy component.

## **GROUP MEMBERS AND ACTIVITIES**

### **Prof Monique Marks**

#### **Pathways into and out of street level drug use**

This project is still in the implementation stage. By mid-2018, all beneficiaries would have determined what their goals are for the ending of the OST Demonstration Project. The main focus of this current phase is to monitor and evaluate, and to provide evidence of the quality of life changes brought about by the use of opioid substitutes. The project will be complete by mid-2019. There are a number of policy outputs which will be produced by the end of 2018. An oral history book that features the lives of the beneficiaries of this project is also underway. The oral histories will be completed by August 2018, and the manuscript by June 2019.

#### **Narratives of home and neighbourhood**

The research teams are currently collating the information that they require to answer the questions posed by the UFC. The empirical work should be completed by July 2018, a joint analysis process will take place. The final writing up of the project will take place in early 2019, in line with NRF Blue Skies funding requirement. The NRF Blue Skies instrument does not cover a project manager. The Project Manager is being funded by the Research Focus Area funding.

#### **Imagining forward to Durban as a Port City**

In March 2018 a meeting of all stakeholder groupings will be facilitated by the UFC. The main goal of this meeting is to develop a project that is catalytic and that showcases the potential that Durban has to be a vibrant and inclusive port city. Catalytic project implementation will begin in May 2018 after careful planning. The project will be finalized in November 2018, and the impact of this project will then be evaluated. The exact role of the UFC beyond 2018 will be determined by the stakeholders themselves.

## GRANTS

1. Cities Alliance
2. National Institute for Humanities and Social Science
3. National Research Foundation

## PARTNERS AND COLLABORATORS

<b>Local and National Government</b>	eThekwini Safer Cities KZN Department of Health National Department of Justice and Constitutional Development Durban Metropolitan Police eThekwini Strategic Planning Department Transnet
<b>Civil Society and Research Organisations</b>	Dennis Hurley Centre TB/HIV Care Association Democracy Development Program African Solidarity Network Refugee Social Services Urban Earth Open Data Durban South Durban Community Environmental Alliance SDCEA
<b>Creative Arts Partnerships</b>	Big Brotherhood Community Theatre Group dala Empatheatre
<b>International Organisations</b>	Central Drug Authority United Nations Office on Drugs and Crime (Pretoria Office)
<b>University Partners</b>	Centre of Criminology, University of Cape Town University of KwaZulu-Natal The Centre for Urbanism and Built Environment Studies (CUBES), University of Witwatersrand University of Venda



# BANKSETA RESEARCH CHAIR IN DIGITISATION



## DR COLIN THAKUR E-SKILLS DIRECTOR

DUT is pleased to be the beneficiary of the BankSETA funded Research Chair in Digitisation which will be filled by e-Skills Director Dr Colin Thakur from 2018. The 2-year Chair is valued at R3.75M and builds on an already productive research relationship between DUT and the BankSETA.”

The 4th Industrial revolution (4IR) is an opportunity which impacts both the supply and demand side with respect to technology as well as skills. Technology, particularly digitisation in Banking has to be understood, situationally re-examined, and evangelised so that it may be leveraged to entrench South Africa (SA) as a leading banking nation. The consequential 4IR skills requirement places unique challenges on the post-secondary education and training (PSET) sector in general and universities in particular. It is to this end that contextual PSET research will be carried out to measure the scope of the opportunity and the interventions required to leverage the opportunities.

Dr Thakur is well positioned to play a role as Research Chair, given his leading roles in ICT as the current e-Skills CoLab Director, his past role with the regulatory framework at ICASA, as a past professional Chapter Chairman and National Treasurer of the Computer Society of South Africa, and his international consulting roles. He is considered an expert in Social Media and e-democracy respectively. Dr Thakur frequently writes and comments for the media and delivers several keynote addresses.

The Chair in digitisation currently falls under the DVC (Research, Innovation & Engagement) who is pleased with the positive outcome and impact it will have on skills training for the current and future skills that the sector needs. “It is forward looking and in line with the current trends”.

DUT Vice-Chancellor and Principal, Prof Thandwa Mthembu welcomed the BankSETA Research Chair adding “This Digitisation research must be viewed as a “feed forward” project. It will take feedback from technology and feed this forward to inform our strategy within the skills sector. I also urge the team to innovatively examine the unbanked with sensitivity and urgency.”

Art Piece: The Future Site visit  
Supplied by: Ntethelelo L. Ngcobo  
DUT Alumnus





# RECOGNISING RESEARCHERS



# NATIONAL RESEARCH FOUNDATION (NRF) NEWLY RATED RESEARCHERS

The NRF rating system is a key driver in the NRF's aim to build a globally competitive science system in South Africa. It is a valuable tool for benchmarking the quality of our researchers against the best in the world. The rating system encourages researchers to publish high quality outputs in high impact journals/outlets. We believe as DUT that Rated researchers will impart cutting-edge skills to the next generation of researchers and contribute to mentoring others. This year we recognize 3 additional ratings.

Name and Surname	Department	Faculty	RATING
Prof Robert M Gengan	Department of Chemistry	Applied Sciences	C3
Prof Nokuthula Sibiya	Faculty of Health Sciences	Faculty of Health Sciences	C3
Prof K Bharuth-Ram	Department of Physics	Applied Sciences	C1

## NRF RATED RESEARCHERS

SURNAME & INITIALS	TITLE	BROAD RATING CATEGORY	SPECIALISATION	RATING 2017	RATING
Amonsou, EO	Prof	Promising young researcher	Food processing, Food chemistry	Y2	Y2
Bharuth-Ram, K	Prof	Established researcher	Nanomaterial science, Nuclear solid -state physics, Hyperfine interactions, Crystal lattice defects, Magnetic materials, Emission channeling, Mossbauer spectroscopy	C2	C1
Bisetty, K	Prof	Established researcher	Computational chemistry, Electro-Analytical Chemistry, Biosensors	C3	C3
Bux, F	Prof	Internationally acclaimed researcher	Wastewater technology, Algal biotechnology, Wastewater bioremediation, Biological wastewater treatment	B3	B3
Chapman, MJF	Prof	Leading international researcher	South African literature	A2	A2
Collins, AJL	Prof	Established researcher	Critical psychology, Gender studies, Media studies, Counselling psychology, Cultural studies	C2	C2
Deenadayalu, N	Prof	Established researcher	Thermodynamics, Ionic liquids, Pulp and paper, Solvent extraction, Phase equilibria, Chemical thermodynamics, Activity coefficients, Lignocellulose, Pulp and paper - Biotechnology, Chemical biotechnology	C2	C2
Dorasamy, N	Prof	Established researcher	Governance and public management, Public administration - Ethics, Values based leadership	C3	C3
Duffy, KJ	Prof	Established researcher	Mathematical modelling, Ecological modelling, Monte Carlo methods, Computational mathematics	C3	C3
Erwin, K	Dr	Promising young researcher	Sociology, Urban, Community based research, Ethnography, Sociology - Race, Class and Gender, Urban housing, Race	Y2	Y2

Gengan, RM	Prof	Established researcher	Bio-organic chemistry, Organic synthesis, Natural products - Isolation characterization, Nanochemistry		C3
Govender, M	Prof	Established researcher	Relativistic astrophysics, Thermodynamics, Gravitation, General relativity (Physics)	C2	C2
Harris, GT	Prof	Established researcher	Public Management and Economics	C2	C3
Kanny, K	Prof	Established researcher	Nanomaterials, Conductive polymer nanocomposites, Analytical polymer science, Natural fibre reinforced composites, Robotics, Nanoclay polymers, Nanostructures, Plastic design of structures, Fatigue and fracture	C2	Pending NRF re-evaluation outcome
Kudanga, T	Prof	Promising young researcher	Biocatalysis, Bioactive compounds, Antioxidants, Biotransformations, Antimicrobials, Environmental biotechnology, Lignocellulose, Biomaterials	Y2	Y2
Kuttan Pillai, SK	Dr	Established researcher	Applied and Environmental Microbiology, Biological wastewater treatment, Biohydrogen, Microalgae, Waterborne diseases, Drug resistance, Antibiotic and metal resistance	C3	C3
Marks, M	Prof	Internationally acclaimed researcher	Community development, Community based research, Policing - Studies, Security management, Ethnography, Community engagement, Urban studies, Drug use disorders and drug policy	B2	B2
Odhav, BO	Prof	Established researcher	Antimalarial drugs, Anticancer drug development, Biochemistry (Medicinal plant), Cellular and molecular biology, Food - Nutrition, Anti-tb compound tests, Anti-diabetic drugs - Research, HIV drugs, Plant tissue culture, Algae biotechnology	C3	C3
Olugbara, OO	Prof	Established researcher	Computer science, Information technology, Computer science, Information technology, Information technology - Applications	C3	C3
Permaul, K	Prof	Established researcher	Enzyme application in biocatalysis, Microbial enzymes, Directed evolution, Enzymes - Industrial application	C2	C2
Pillay, JD	Dr	Promising young researcher	Community public health, Health Promotion through physical activity, Physical activity in the workplace, Physical activity and health, Physical activity measurement, Physical activity and non-communicable diseases, Physical activity epidemiology	Y2	Y2
Preece, J	Prof	Internationally acclaimed researcher	Adult education, Lifelong learning, Community engagement	B3	B3

Sibiya, N	Prof	Established researcher	Primary health care, Maternal and child health	C3	C3
Singh, S	Prof	Established researcher	Environmental enzymology	C1	C1
Stenstrom, TA	Prof	Internationally acclaimed researcher	Applied and Environmental Microbiology, Environmental Impacts, Applied environmental science, Advanced microbiology	B3	B3
Venugopala, K	Dr	Promising young researcher	Antimicrobial screening, Pharmaceutical sciences, Antimalarial compounds, Antituberculosis drugs, X-ray crystallography, Anticancer plant products, Antimicrobial peptides, Isolation and structural elucidation, Antioxidants, Anticancer drug development	Y2	Y2
Zloschastiev, KG	Dr	Established researcher	Superfluidity, Gravitation, Quantum physics, Degenerate quantum gases, Open quantum systems, Quantum field theory, Elementary particles, Cosmology, Differential equations, Nonlinear and complex systems	C3	C3
Ojo, JO	Prof	Established researcher	Electric power, Clean and renewable energy, Electrical motor drives, Renewable energy technologies, Power electronics and machines, Solar energy (Photovoltaics), High voltage direct current, Advanced control methods, Distributed generation of electric power, Electric current converters	C1	C1
Potgieter, CA	Prof	Established researcher	Lesbianism, gay and lesbian psychology	C3	C3
Jaganyi, D	Prof	Established researcher	Kinetics, Kinetics/reaction mechanisms, Academic management, Analysis, Postgraduate supervision	C1	C2

## UNIVERSITY RESEARCH AWARDS 2017

### TOP UNIVERSITY JOURNAL PUBLISHERS based on 2016 outputs

This category represents researchers who produced 2 units and above of DHET accredited publications.

NO	RESEARCHER	UNITS	NUMBER OF JOURNALS	POSITION
1.	Professor Faizal Bux	7.09 (15.97 centre units)	14	1
2.	Dr Ivan G Govender	5.00	5	2
3.	Professor Dimov Ilcev	5.00	5	2
4.	Professor Robert M Gengan	4.61	11	3
5.	Professor Krishnan Kanny	4.34	8	4
6.	Dr Akwesi Assensoh-Kodua	4.33	6	5

7.	Professor Krishna Bisetty	4.29	12	6
8.	Professor Gan G Redhi	4.20	10	7
9.	Professor Tosin OA Ijabadeniyi	3.81	5	8
10.	Professor Suren Singh	3.49	15	9

## TOP JOURNAL PUBLISHERS: PDF, RAS & RFS based on 2016 outputs

This category represents researchers who produced 3 or more DHET accredited publications.

NO	NAME	AFFILIATION	NO OF JOURNAL ARTICLES
1	Dr Krishnan Anand	Department of Chemistry	8
2	Dr Suvardhan Kanchi	Department of Chemistry	7
3	Dr Obiora Cornelius Collins	Institute for System Science	5
4	Dr Deepal Sharma	Department of Chemistry	5
5	Abhishek Sanjay Guldhe	Institute for Water and Waste-water Technology	4
6	Dr Suresh Babu Naidu Krishna	Biomedical and Clinical Technology	3
7	Dr Sanjay Gupta	Institute for Water and Waste-water Technology	3
8	Dr Natesh Kumar Bhajantri	Department of Chemistry	2
9	Dr Rohit Misra	Department of Chemistry	2
10	Dr Mahmoud Nasr	Institute for Water and Waste-water Technology	2

## RECOGNITION OF SUPERVISORS

This category represents supervisors who have successfully supervised the most students in the last graduation.

FACULTY	DEPARTMENT	NAME
Accounting & Informatics	Management Accounting	Dr H Garbharran
	Information Technology	Professor D Ilcev
	Information Technology	Dr D Heukelman
Applied Sciences	Food & Nutrition Sciences	Professor C Napier
	Biotechnology & Food Technology	Professor B Odhav
Arts & Design	Media, Language & Communication	Dr R L Makhubu
	Media, Language & Communication	Professor D Pratt
Engineering & the Built Environment	Chemical Engineering	Professor S Rathilal
	Electronic Engineering	Dr P Govender
Health Sciences	Nursing	Professor N Sibiya
	Homeopathy	Dr CM Hall
Management Sciences	Peace Studies	Professor GT Harris
	Peace Studies	Dr S Kaye

## **SENIOR RESEARCHER OF THE YEAR AWARD**

In this category, the researcher demonstrated commendable performance and achievements, providing significant value to the university, as well as demonstrating evidence of making a significant contribution to the relevant field of study on a national or international platform. The impact of research is considerable. The individual must be an academic/academic support staff member at the university, currently conducting research and/or creative productivity and had to have a minimum of four units of DHET subsidy for the award year.

**PROFESSOR STOJCE DIMOV ILCEV** from the Space Science Centre was the recipient of this award.

## **JUNIOR RESEARCHER OF THE YEAR AWARD**

In this category, the researcher had to be a faculty member at DUT and must have completed a doctorate within the last 5 years. The researcher had to be currently involved in research and/or creative work and have a minimum of at least two accredited publication units for the award year

**DR FIROZA HAFFEJEE** from the Department of Basic Medical Sciences, Faculty of Health Sciences was the recipient of this award.

## **WOMEN RESEARCHER OF THE YEAR AWARD**

In this category, the researcher had to have shown evidence of making a significant contribution to her field of study. The individual must be an academic/academic support staff member at the university, currently involved in research and/or creative productivity and a minimum of 3 units of DHET subsidy for award.

**PROFESSOR NIRMALA DORASAMY** from the Department of Public Management, Faculty of Management Sciences was the recipient of this award.

## **INNOVATOR OF THE OF THE YEAR AWARD**

The criteria for this award are: previous recipients of this award are not eligible for nomination within two years of the award; proof-of-concept prototypes do not qualify; the entry must be in working marketable readiness; any new technical product or process that was first available for purchase or licensing between 1 January and 31 December of the previous calendar year is eligible for the current year's nominations.

In the Student category **Mr Siyabonga Ndwalane** was the recipient of this award. In the Staff category **Professor Vincent Bisetty** from the Department of Chemistry, Faculty of Applied Sciences was the recipient of this award.

## **RESEARCH GROUP OF THE YEAR AWARD**

The criteria for this award are: the applicant must be a faculty member at DUT and a group leader who has completed a Doctorate; must be currently involved in a research group of 5 or more people; must show evidence of making a significant contribution to their field of study; previous recipients are not eligible; group leader may simultaneously be nominated for this award and Top Senior Research Award and a minimum of six (6) accredited publication units in the reporting year.

Institute for Water and Wastewater Technology - **PROFESSOR FAIZAL BUXT & PROFESSOR THOR A STENSTROM** were the recipients of this award.

## **CREATIVE OUTPUTS OF THE YEAR AWARD**

Creative Outputs of the Year Award: In this category, the researcher had to be an academic/academic support staff member at the university and currently conducting research and/or engaged in creative productivity.

**MS NIRMA D MADHOO-CHIPPS** from the Faculty of Arts and Design was the recipient of this award.

## **FACULTY RESEARCHER OF THE YEAR AWARD**

The criteria for this award are: the applicant must have been at DUT for minimum of one academic year before nomination; must be an academic staff member currently conducting research and/or creative productivity; must have a minimum of 1.5 accredited publication units for the award year; units for postgraduate students are not included in this calculation.

**FACULTY OF ACCOUNTING & INFORMATICS** - A certificate of recognition was presented to **Dr Celani John Nyide** from the Department of Finance and Information Management

**FACULTY OF APPLIED SCIENCES** - Professor **Robert M Gengan** from the Department of Chemistry was the recipient of this award.

**FACULTY OF ARTS & DESIGN** - Dr **Tabitha G Mukeredzi** from the School of Education was the recipient of this award.

**FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT** - Professor **Krishnan Kanny** from the Department of Mechanical Engineering was the recipient of this award.

**FACULTY OF HEALTH SCIENCES** - Dr **Firoza Haffejee** from the Department of Basic Medical Sciences was the recipient of this award.

A certificate of recognition was presented to **Dr Dorcas Rosaley Prakaschandra** from the Department of Biomedical and Clinical Technology and **Dr Anisa Vahed** from the Department of Dental Technology.

**FACULTY OF MANAGEMENT SCIENCES** - Professor **Nirmala Dorasamy** from the Department of Public Management was the recipient of this award.

### **TOP PUBLISHED DOCTORAL STUDENT OF THE YEAR AWARD**

In this category, the student had to be a full-time student studying towards a doctoral degree and should have been registered for the programme at DUT for at least a year before the nomination. The applicant should have conducted research and/or creative productivity and should not be a staff member at the time of nomination. The applicant should have published at least one accredited publication unit before nomination.

**Mr Vasanthakumar Arumugam** from the Faculty of Applied Sciences was the recipient of this award.

### **TOP PUBLISHED MASTER'S STUDENT OF THE YEAR AWARD**

In this category the student must be currently studying towards their Masters; involved in research and/or creative work; have published 0.5 accredited publication units before the nomination.

**Ms Grace Agbede** from the Faculty of Arts and Design was the recipient of this award

### **L'ORÉAL-UNESCO FOR WOMEN IN SCIENCE SUB-SAHARAN AFRICA REGIONAL FELLOWSHIP**

The programme which commenced in 2010 honours outstanding research work by female scientists in the African region. These researchers are recognized for their original research projects which unlocks societal and global issues. The research varies across different scientific disciplines. **A certificate of recognition was presented to:**

#### **Dr Charlette Tiloke**

Department of Chemistry  
Faculty of Applied Sciences

#### **Ms Lethiwe Mthembu**

Department of Chemistry  
Faculty of Applied Sciences

### **PROFESSORSHIPS AND ASSOCIATE PROFESSORSHIPS AWARDED IN 2017**

<b>FACULTY</b>	<b>SURNAME</b>	<b>NAME</b>	<b>RANK</b>
Faculty of Arts and Design	Wade	Jean Philippe	Professor: Video Technology
Faculty of Management Sciences	Matsiliza	Noluthando	Associate Professor: Public Mngt Law and Economics
Faculty of Applied Sciences	Pienaar	Cindy	Associate Professor: Sport Studies

# RECOGNISING RESEARCHERS



## PROFESSOR NOKUTHULA SIBIYA

Professor Sibiya is currently the Executive Dean of the Faculty of Health Sciences. In 2017, she was C3-NRF rated. She obtained the following awards: DUT 2016 Staff Awards: Chancellor's Award for Student Centeredness; Certificate of Commendation for the Project Enhancing Postgraduate Supervision of Students; Recognition of being one of the Top Supervisors in the Faculty of Health Sciences; Nursing Education Association (NEA) Excellence Award for Leadership in Nursing Education.

In 2017, Prof Sibiya published five articles in peer-reviewed accredited journals. She also published two book chapters. She successfully supervised two doctoral and seven master's students. Of the seven master's students that she successfully supervised, one was from the Faculty of Accounting and Informatics. She is the Principal Investigator of the MRC funded Faculty of Health Sciences Maternal Health Project. Out of this project, two papers were published in 2017 and three articles are under review. Prof Sibiya is a Fellow of the Academy of Nursing in South Africa. Recently, she was selected as a finalist in the South African Women in Science Awards (SAWiSA).



## PROFESSOR FAIZAL BUXT

Professor Bux, Director of the Institute for Water and Wastewater Technology (IWWT) DUT has ~28 years of experience in the field water and wastewater treatment technology. His focus research areas include wastewater technology, algal biotechnology and bioenergy production. Professor Bux has also assumed the position of NRF SARChI (South African Research Chair Initiative) Chair from 2018. As an NRF B rated researcher and Academy of Science of South Africa (ASSAf) member, he has supervised 64 Masters and Doctoral students, hosted 23 PDF's and received numerous institutional awards. The Water Research Commission has awarded Prof Bux the 'Knowledge Tree Award for Transformation and Redress' for his impact in growing PDI involvement in 2017. Prof Bux received the 2018 National Research Foundation (NRF) award, "Champion of Research Capacity Development and Transformation at South African Higher Education Institutions". He has also been recently admitted as a fellow to the International Water Association (IWA).

He is the current editor for CLEAN Soil Air Water (John Wiley & sons, Germany), Environmental Science and Health Part A (Taylor Francis, USA), Biofuels Research Journal and Water Science and Technology and as a reviewer for >50 ISI Journals. He has contributed to 140 journal articles, 18 book chapters and >146 conference presentations and led 11 WRC projects. His citations are in excess of 5000 with an H Index of 33. Professor Bux currently holds the positions of the National coordinator and Chair of International Thematic Group (ITG): Water Resource and Pollution Research of the BRICS Networks University.

He served 2 terms as a Member of IWA Management Committee specialist group Microbial Ecology and Water Engineering (MEWE) and on the Executive committee of IWA-SA as Treasurer. He was been elected as a member of the Academy of Science of South Africa in 2016. Professor Bux is admitted as a Fellow of the Water Institute of Southern Africa and Royal Society of Chemistry. He has served on the scientific program committee/Advisory board/Chair/Invited speaker of various national and International conferences and holds memberships to many professional bodies. He has an extensive network of university collaborators globally and served as scientific advisor to NGOs both locally and internationally. He has been involved in bilateral projects with India, Brazil, Egypt, China, Algeria with continuing collaboration. He currently has bilateral projects with Japan, Oman, Poland (subject to approval) and global projects involving Oklahoma University (USA) and Aalborg University (Denmark). He has played a key role in assisting the University to increase its research capacity and contribute to the Human Resource Capital Development of the country.



## PROFESSOR MICHAEL CHAPMAN

Professor Michael Chapman, a Retired Professor at DUT, is the recipient of the 2018 HSRC Medal for the Social Sciences and the Humanities. The Medal was instituted 3 years ago by the Human Sciences Research Council as recognition of life-time achievements in social science and humanities disciplines. Professor Chapman's contribution to southern African literature dates back to the late 1970s and continues today with an updated edition of his anthology-compilation, *The New Century of South African Poetry*, due to appear later this month. Author of 5 books and over 90 chapters-in-books and articles, Chapman - an A-rated NRF researcher - is acknowledged by peers, both locally and globally, as the leading authority on the literatures of the southern African subcontinent.

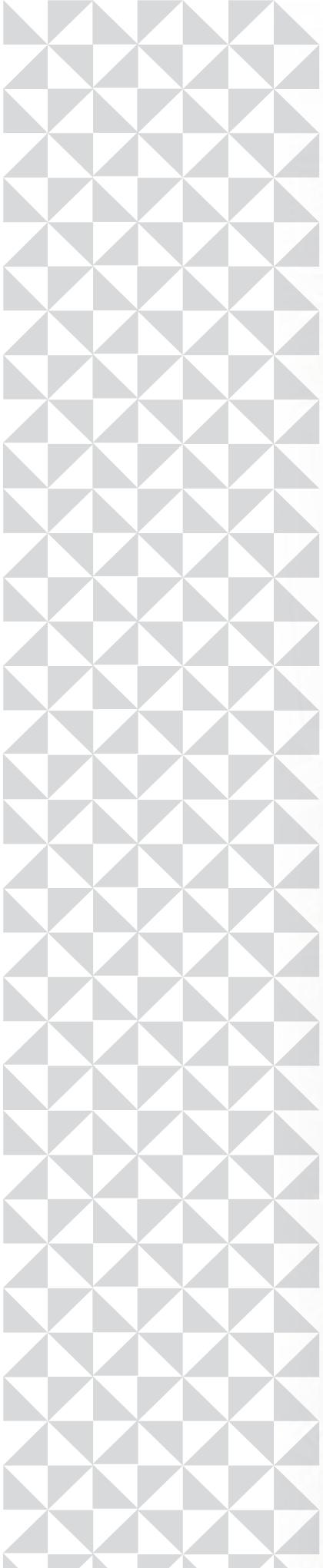
In his acceptance speech of the award, Michael Chapman thanked his nominator, Dr Maleshoane Rapeane-Mathonsi (Director of Research, Faculty of Arts & Design), and acknowledged the collegial environment at the Durban University of Technology.







# FACULTY HIGHLIGHTS





## **FACULTY OF ACCOUNTING & INFORMATICS**

### **EXECUTIVE DEAN: PROFESSOR OO OLUGBARA**



The progress of technology coupled with globalisation is rapidly transforming work and is exacerbating the need for educational institutions to focus on the right knowledge. Disruptive changes to existing business models will have a deeper impact on graduate employability and education patterns over the coming years. These changes are allied to a recent wave of the fourth industrial revolution (4IR) that would enable a gamut of intractably difficult tasks to be automated and is projected that computers would replace mostly penurious and fledgling workers. The 4IR, which is about people and technology would radically be shaped by greater disruptive forces of the internet, virtual and augmented realities, robotics, machine intelligence and wireless sensors. The manifold, moving target digital skills would be required to respond to the demands of industries and to achieve high performance in the society. The envisioned societal revolution would perceptibly demand for new educational pathways in response to sustainable development and inherently transform the fabric of learning and research. It would change education contents and student experience; provide new pedagogies and environments and significantly foster student attraction and retention.

Faculty of Accounting and Informatics is pugnaciously responding to the new educational pathways by partnering with reputable companies like Amazon and Aspen Pharmaceutical, professional connections and universities across the globe. Moreover, the cooperation is to transform teaching and research through technology rich curriculum, technology proficient staff and quality access to technology. The Faculty is hosting students on exchange programmes across the world and organising an annual international conference on ICT and Society sponsored by IEEE. Faculty researchers have special inclinations toward the areas of image processing, computer vision, machine intelligence, wireless technology, internet of all things, big data analysis, e-learning and accounting. Research collaborations have been established with international Professors, including Prof Simon Fong (Macau in China) and Prof Marcin Paprzycki (Warsaw in Poland). Prof Simon Fong (Macau in China), Prof Sonajharia Ekka Minz (India) and Prof Charles Korede Ayo (Nigeria) have been appointed adjunct Professors in a cooperative attempt to increase the publication rate and develop research capacity within the Faculty. The publication rate is rapidly increasing under the leadership of Prof O. Olugbara and Prof L. Stainbank who are NRF rated researchers. More academics are serving locally and internationally on different review panels, proving the research expertise in the Faculty.

## **FACULTY OF ARTS & DESIGN**

### **EXECUTIVE DEAN: DR R SMITH**



Transformation in Arts and Design is an overarching theme for publications and creative output from the Faculty of Arts and Design. This provides for work that is both inward and outward-focused; reflexive and output-oriented. In the year under review, much of the research undertaken by staff and students was broadly self-study or interdisciplinary work.

Notable developments include emerging researchers from the arts working with counterparts from science and technology disciplines. Faculty support for two interdisciplinary, international visual arts projects, enabled collaborative work between staff and students with partners from BRICS (Brazil) and SADC (Namibia). Both creative outputs in the form of installations integrated art, science and technology that additionally reflected themes aligned to the sustainable development goals. The 'SameSame but Different' and 'Polar' projects showcased at the Faculty's 2017 Digital festival were also submitted for the 24th International Symposium on Electronic Art.

Final year exhibitions also displayed an increasing focus on the influence on technology in creative design, development and output. The BTech Fashion exhibition, in particular, included innovative student work reflecting different ways in which convergence, disruption and digital transformation are being imagined and interpreted by artists and designers. Fashion Design's Nirma Madhoo was also a 2017 creative output award recipient for her digital work. The Faculty's nomination focused on the body of work that Madhoo is developing, which had already been recognised at a national level in the digital humanities category of the NIHSS Awards. During the 2017 winter graduation ceremony the Dean's address to graduates referred to the impact of rapid technological changes and in particular, the 'fourth industrial revolution'. Adaptability and co-creation are vital as graduates, students and staff navigate their way through a new era. Above all, creativity remains paramount, not just as a skill for jobs of the future but for social and emotional well-being in our real and imagined futures. The new national Policy on creative outputs - released in the year under review after years of advocacy - heralds a new era for artists as researchers, necessitating recognition of contributions made by visual and performing artists and creatives broadly.

## **FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT**

### **ACTING EXECUTIVE DEAN: PROFESSOR P MUSONGE**



The Faculty of Engineering and the Built Environment has made great strides in the 2017/2018 period due to the development of curricula for new programs and accreditation to ensure that we continue to produce recognized and relevant professionals. The university has identified the need to optimize our existing research capacity by avoiding working in silos. Efforts are underway to identify areas of collaboration within the Faculty. A key element of this collaborative effort is our engagement with the local industries, particularly in industrial and municipal wastewater treatment, micro-smart—intelligent grids, ports management and transportation, nanocomposites and nanomaterials, renewable energy and smart cities. The highlights of our 2017/2018 efforts will be on display during the 3rd International conference to be held in Port-Elizabeth from November 7-9, 2018, organized by the Composites Research Center. There will be over 20 papers presented from the Faculty at the conference. The department of construction and quantity surveying and sponsored by the CIDB organized the 5th CIDB Doctoral Research Workshop for students in the Construction on 5th October 2018 in Durban.

Although at present the impact of 4IR may appear to be less prevalent in the emerging and developing economies, the exponential impact of the 4IR in the developed nations will ultimately overflow from the latter to the former, especially in the manufacturing, fabrication, logistics and technology infrastructure industries, for which we train our students. With this in mind, the Faculty has preemptively taken the initiative to incorporate these global trends into both the under-and post-graduate programmes. These include modules and capstone projects in the BEngTech and BEngTech Honours programmes, as well as research topics at the master's and Doctoral levels. Furthermore, the Faculty is currently collaborating with several other UoTs in South Africa, as well as universities in Germany, Poland and Romania, on a cohort of coursework master's programs. These programs are being developed in accordance with the recommendations of the respective South African accreditation organisations, as well as the International Engineering Alliance and EUR-ACE® standards. In addition to promoting internationalisation within the Faculty, the core components of these coursework master's programs have been developed around multi- and inter-disciplinary systems thinking and the emerging technology breakthroughs associated with the 4IR, such as intelligent, robotic and AI systems, nanotechnology, biotechnology, additive manufacturing (3D printing), internet of things, as well as cyber-physical, cybersecurity and blockchain technologies.

## **FACULTY OF HEALTH SCIENCES**

### **EXECUTIVE DEAN: PROFESSOR N SIBIYA**



The core of the Fourth Industrial Revolution is digital transformation that pervasively impacts every aspect of life across the globe. Thus, the Fourth Industrial Revolution has the potential to raise global income levels and improve quality of life for populations across the globe. In partnership with the KwaZulu-Natal Department of Health, we are exploring an e-Health Project to use the Government's electronic District Health Information Systems (DHIS) to understand the burden of diseases, the demographic and epidemiological profiles of the population to contribute to the implementation of the National Health Insurance (NHI) programme and the fulfilment of the Sustainable Development Goals (SDGs) # (Health) and 4 (Education & Training).

During 2018, the Faculty of Health Sciences participated in the SASUF funded Swedish Universities collaboration with the Uppsala and Lund Universities to expand our research training capacity – specifically focussing on the NHI and SDG's. Both these national and international initiatives will not only strengthen our R&D capacity but also ensure that our curriculum is fully aligned with these global priorities and that our Graduates are truly global. Implementation of the NHI will greatly expand the Public Health sector, creating expanded job opportunities, improved health and well-being, economic productivity and overcome the triple scourges of poverty, inequality and discrimination.

Both the previous Millennium Development Goals (MDG's) and the current SDG's have a strong focus on poverty eradication and improvements in health to meet the targets laid down by the UN. A specific focus area of the Faculty of Health Sciences is improved maternal and child health for which we had received an MRC Grant. These new initiatives would extend this R&D programme into new areas and contribute directly to the NHI implementation and the National Strategic Priorities of the National Department of Health. The e-Health Project would not only focus on the application of ICT strategies to promote health and prevent diseases, but also on the monitoring and evaluation of health interventions using evidence-based health sciences. Enhancing these graduate attributes of the DUT students would increase their employability as well as expand the scope for research in these neglected areas.

## FACULTY OF MANAGEMENT SCIENCES

EXECUTIVE DEAN: PROFESSOR R BALKARAN



The fourth industrial revolution implements collaboration between humans and machines, which has resulted in new interdisciplinary research. Changes in the environment have evoked adaptive responses for future research and will no doubt bring wide-ranging transformation to the field.

The Faculty of Management Sciences has the highest percentage of postgraduate students (41% - 2017), enrolled for masters and doctoral studies. It has successfully expanded the base of research activity and expertise; and further increased the pool of researchers. The faculty made a substantial contribution of 54.93 units toward the overall university output of 186.38 (2017). The faculty has developed staff capacity in identified niche areas and successfully built a research and intellectual culture.

Research strategies have been designed to ensure that capacity development is entrenched in researchers, from external supervisors to graduates (trained as peer support) to established members of staff - by providing support and stimulating effectiveness throughout their research careers. This is considered in the need for supervisory capacity and the capacity to conduct multidisciplinary research, structured mentorship programmes and an efficient administration system, which is the determining factor for productivity in the faculty. The faculty has enhanced international collaboration with two German Universities and a Ugandan University.

BM Patel Library  
ML Sultan Campus  
DUT



# POSTGRADUATE DASHBOARD



## FACULTY OF ACCOUNTING & INFORMATICS

### MR MXOLISI WALTER

#### DEPARTMENT OF INFORMATION AND COOPERATE MANAGEMENT

Mr Ntoyakhe's study was titled "An investigation of students' experience of service quality delivered by administrative staff at one site of a South African Comprehensive university". Over the last decade, the institutional framework within which most universities in South Africa operate has undergone major transformation forcing the higher education sector to become more competitive in its approach to attracting and retaining quality students. Against this background, service quality has been put forward as a critical determinant of competitiveness. Higher Education Institutions are increasingly placing greater emphasis on meeting students' expectations and needs. As institutions of higher learning become more student orientated, student perceptions of higher educational facilities and services are becoming more essential. It is clear that there is a need to measure students' experience of service quality in order to develop innovative academic structures, facilities and services to retain and attract new students.

The purpose of this study was to investigate the students' experience of service quality delivered by administrative staff at one site of a South African Comprehensive University. The Wilcoxon signed ranks test was also utilized to further analyse the significance of the gaps. Various gaps between students' perceptions and expectations indicating dissatisfaction with administrative services particularly among the students were identified. The findings from the study indicated that a negative service quality gap exists at selected site of Comprehensive University in SA. The findings further suggested that issues such as service quality planning and monitoring, establishing recovery mechanisms for service failures, and student-driven service design and standards need to be high on the agenda at higher education institutions to ensure service quality.

Mr Ntoyakhe's interests include service quality in higher education institutions and also in small businesses. The researcher is currently on the verge of pursuing a PhD in Business Administration with a specific interest in small business operating in the Eastern Cape Province.



## FACULTY OF APPLIED SCIENCES

### MRS KELLY ERASMUS

#### DEPARTMENT OF CONSUMER SCIENCE FOOD & NUTRITION

Mrs. Erasmus's research study was titled "Dietary diversity and nutritional status of pregnant women attending an ante natal clinic in KZN". This research aimed to establish the socio-demographic background, nutritional status, as well as food intake patterns of pregnant women in the first trimester of pregnancy attending an antenatal clinic in Cato Manor, Durban. This study formed part of the first phase of the MRC approved study "A multi-staged multi-disciplinary healthcare approach in reducing maternal morbidity and mortality rates in a selected district in KwaZulu-Natal", aimed at pregnant women and planned by the Faculty of Health Sciences at the Durban University of Technology.

This study was a quantitative, descriptive research design and included 100 pregnant women attending a public healthcare clinic in KwaZulu-Natal. Consenting women were weighed and measured to determine Body Mass Index (BMI). Furthermore, food intake was evaluated through two 24-Hour Recall questionnaires and a Food Frequency Questionnaire.

Actual food intake was analysed for nutrient content and compared to the Dietary Reference Intake for women aged 19-30. A food variety score and food group diversity score was determined to establish the adequacy of the diet to support the first phase of pregnancy. Except for carbohydrates and vitamin A, all the nutrients consumed by the women were lower than the recommended daily amounts, the fruit and vegetable intake was half the recommended daily amount and a medium food variety score was observed. The food choices made by the women did not reflect healthy food choices to maintain a healthy pregnancy and contribute to a healthy birth outcome.

Nutrition education aimed at pregnant women is important to prepare the body for a healthy pregnancy and healthy birth outcome. The study recommended increasing the awareness among pregnant women regarding the importance of iron and folate supplementation by the health care practitioner. Furthermore, the Upper Level (UP) value of nutrients is not a risk in this group therefore fortification of deficient nutrients should be considered. Although a nutrition adviser is available at the clinic where the study was conducted, nutrition education amongst pregnant women should be prioritised.

## **FACULTY OF ARTS & DESIGN**

### **MR NTOKOZO ZULU**

#### **DEPARTMENT OF MEDIA, LANGUAGE AND COMMUNICATION**



Mr Zulu's research study was titled "The effectiveness of the language used in marketing and advertising of selected TVET colleges in Durban". The study was motivated by human communication and how students prefer the message to be sent to them through the marketing material used by TVET colleges. This was stimulated from an observation that most students do not prefer TVET colleges as their first choice and opt for universities even if their academic profiles state otherwise.

It has been witnessed on numerous occasions that even students with low pass rates would forcefully want to try their luck with universities whereas they have an option of studying at TVET colleges who also offer somehow similar services (funding, career guidance, etc.) like universities. The study found that TVET colleges have to overcome the negative views of the prospective students that their marketing strategies are meant to attract.

This research offered an approach which focused specifically on the language used in TVET marketing and the impact which this is likely to have on the prospective students. The investigation targeted first year students from 2 different TVETs (Elangeni and eThekwin) in order to ascertain their responses to the language of the TVET advertisements. The research found that target audience are not consulted or surveyed; language style did not suit the age and background of the average students it is meant to address; and the marketing strategies did not reach societies such as those in deep rural areas. These are some of the reasons why some students would opt for universities because the TVET do not thoroughly market themselves and what they offer.

The research therefore offers a fresh approach for this marketing problem where language must be strictly observed and aligned with the strategies for effective marketing and student satisfaction. An article to be published on the Journal of African Language and Linguistics is in its final stages.

## **FACULTY OF ENGINEERING & BUILT ENVIRONMENT**

### **DR FESTUS MAINA MWANGI**

#### **DEPARTMENT OF MECHANICAL ENGINEERING**



Dr Mwangi's thesis is titled Processing and characterization of Nanoclays Reinforced Metal (Aluminium) Matrix Composites. Aluminium is currently one of the most versatile and preferred engineering materials of our times. It is the world's most abundant metal. At an average rate of 5 - 7% growth annually, the worldwide demand for aluminium has more than doubled up in the last decade. Despite the marked growth in demand, there is still a dire need to redesign this material's system if it is to enjoy progressive and diverse economic feasibility and acceptability in various industrial sectors.

This study opens up a new line of thought in the challenge of repositioning the material from an economic, industrial, and environmental perspective. It explores the efficacy of integrating a low-cost nanophased reinforcement system in the form of nanoclays into aluminium or its alloys. For the current study, AMB-2712 Aluminium alloy was used as the matrix. Two nanoclays namely Nanofil 116 and Cloisite Ca++DEV were experimented with as the reinforcement system at 1% - 12.5%wt content. Test samples were processed using conventional powder metallurgy.

Results from the study show that nanoclays can feasibly be integrated into aluminium and its family of alloys. Best results were obtained with 1%wt nanoclay content. Both the load bearing capacity of the reference alloy and its percentage elongation to fracture were increased by more than 150%. Melting temperature was increased by 70C. It was further observed that nanoclays not only significantly improved thermal properties (such as heat flow, conductivity, diffusivity, specific heat capacity, and coefficient of thermal expansion), but also improved their stability. At 3%wt content, the nanoclays were observed to induce thermal barrier properties, thereby deemed ideal for use in thermal-management-systems in areas such as the automotive engine components. The successful use of nanoclays as a reinforcement system in this study presents a novel technique of preparing conventional aluminium alloys in a more economical way.



## FACULTY OF HEALTH SCIENCES

**DR JAMILA CHELLAN**  
**DEPARTMENT OF NURSING**

Dr Chellan's research study was titled "An Audit Tool for Relicensing Inspection to assess Quality and Patient Safety in eThekwini Private Hospitals". This research aimed to develop an audit tool for relicensing inspection to assess quality and patient safety in eThekwini private hospitals. In South Africa, the National Core Standards are advocated as the cornerstone for improving quality and patient safety in health care organisations. The purpose of the NCS has been to develop a common definition of quality care which should be found in all health establishments in South Africa. Detailed tools for measuring compliance with the NCS and Batho Pele principles have been developed and health establishments in the public sector have begun to self-evaluate using these tools.

To date and since its implementation in the public sector, very little is known about the national audit tool and the method used to evaluate quality and patient safety standards in private hospitals in eThekwini district. While the structural audit tool using R158 is known to the private sector, no such tool exists for the measurement of clinical practice standards for private hospitals in eThekwini district. According to the World Health Organization, the implementation of regulatory audit and feedback requires clear goals and a thorough analysis of the health care environment in question, especially if this approach is combined with incentives or penalties or is made mandatory.

An exploratory sequential mixed methods research design was used with a qualitative first phase involving a total population of 40 nurse managers through purposive sampling. Nurse managers ( $n=24$ ) were interviewed face-to-face, guided by data saturation. This was followed sequentially by a second quantitative phase in which a structured questionnaire was developed from the themes and concepts identified in the first phase. In the second phase, the total population of nurses was ( $n=569$ ) of which ( $n=270$ ) were sampled for the study through simple random sampling across ( $n=4$ ) hospitals. Documentation review, a third phase was used to corroborate the findings of the first two phases of the study. The results showed that selected private hospitals in eThekwini district have not fully implemented the approach to practice standards and healthcare audits in relation to three clinical domains of the National Core Standards (NCS) and the Batho Pele principles. These findings were significant and denoted the need for a standardised clinical audit tool for private hospitals in eThekwini district. These findings led to the development of a clinical audit tool with measurements representing elements of care that are critical to the provision of safe, quality health care services. This research was accepted for two International publications in 2018.



## FACULTY OF MANAGEMENT SCIENCES

**MS LINAH MAHLALHA**  
**DEPARTMENT OF HUMAN RESOURCES**

Ms. Mahlahla's master's research was titled "The impact of talent management on employee performance and retention strategies: A case study of Masvingo City Council in Zimbabwe". The main problem revolved around the inability to attract, attain and retain talented employees that perform effectively, intensifying service delivery challenges in City Councils. Determined to contribute to the field of talent management which has lately emerged as an area of interest for many academics and business writers, the researcher embarked on the research journey. The need for organisations to attract, select and retain talented individuals in order to become globally competitive is increasing.

Talent management has therefore become a critical determinant of the overall performance and retention of employees which in turn results in organisational success. The main findings indicated that talent management had an impact on employee performance. The findings also revealed that there is a strong relationship between the implementation of talent management and retention strategies.

The researcher recommended that Masvingo City Council should provide employees with adequate training and development, revise and improve personnel policies provide adequate resources and reward employees for outstanding performance. The study concludes by providing directions for future research. The researcher is currently working on writing a journal article of the study.

## 2017 INTERDISCIPLINARY RESEARCH AND INNOVATION CONFERENCE



## MASTERS AND DOCTORATE GRADUATES

### FACULTY OF ACCOUNTING & INFORMATICS - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
D: Information Technology	JW Wing	Developing a web-based learning technique to improve computer programming competence of information technology students	Prof T Andrew Prof D Petkov
M: Information and Communication Technology	JO Adeyemo	Development a web based smart city infrastructure for refuse disposal management	Prof OO Olugbara
M: Information and Communication Technology	P Jackson	Developing a web based blended learning technique to improve computer programming competence of information technology students	Prof OO Olugbara
M: Information and Communication Technology	J Pancham	Determining and developing appropriate methods for requirements verification and modelling of telecentre operational monitoring in a developing country	Prof OO Olugbara Dr A Singh
M: Accounting	U Kalidin	An exploration of the views of manufacturing small medium enterprise owners with regards to green tax incentives in the Ethekwini region of KwaZulu-Natal	Prof R Bhagwan Mr D Reddy
M: Administration and Information Management	NT Mazuba	The effect of office on employee's performance: A case study of Ethekwini Municipality	Dr KSV Ngwane Prof MN Sibiya

### FACULTY OF APPLIED SCIENCES - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
D: Biotechnology	VK Bhola	Mitigation of carbon dioxide from synthetic flue gas using indigenous microalgae	Prof F Bux Prof F M Swalaha
D: Chemistry	M Shahbaaz	Computational and experimental studies of putative virulence factors of <i>Mycobacterium tuberculosis</i> H37Rv	Prof K Bisetty Dr MI Hassan
D: Food Science and Technology	AO Oladunjoye	Effect of bacteriophage control and artificial neural networks prediction in the inactivation of <i>Listeria Monocytogenes</i> on fresh produce	Prof OA Ijabadeniyi Prof S Singh
D: Food Science and Technology	SA Oyeyinka	Characterization and application of Bambara groundnut starch-lipid complexes	Prof EO Amonsou Prof S Singh
M: Biotechnology	N Govindarajalu	Cloning and expression of xylanase variants in <i>Pichia pastoris</i>	Prof K Permaul Prof S Singh
M: Biotechnology	NB Mzindle	Anti-inflammatory, anti-oxidant and wound healing properties of selected South African medicinal plants	Prof B Odhav
M: Chemistry	T Mohale	Use of 1-ethyl-3-methylimidazolium ethyl sulfate for liquid -liquid equilibria for ternary mixtures	Prof N Deenadayalu
M: Chemistry	S Raghunath	Synthesis of amine-epoxy based polymers and their potential application in the remediation of selected organic dyes from synthetic effluents	Prof RM Gengan
M: Food and Nutrition	NP Ndlovu	Relationship between diet quality, nutrition status and academic performance of first and non-first-generation university students in Durban	Prof C Napier Miss X Mkhize

## FACULTY OF ARTS & DESIGN - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Graphic Design	DIF Knudsen	Contextual influences on Perception: Representations of the nude figure in public and private spaces	Dr J Roome M Wasserman
M: Photography	M Mindry	Controlled shadow in photography: The development of a technique for child portraiture	Prof DD Pratt Prof B Pearce
M: Fine Art	B Ngobese	An investigation into the depiction of Zulu customs and rituals in the work of selected Artists	Mr T Shibase Dr J Roome
M: Fine Art	K Nixon	An investigation of transience in the work of selected artists.	Dr J Roome N Ziegler
M: Fashion	PN Sokhetye	Development of a Jeans Sizing System for young Black South African women	Prof W Yu Ms F Kwada
M: Graphic Design	N Thomas	Fault Lines: Homophobic Visual Perceptions of Masculinity	Dr P Kethro Mr P Carey
M: Language Practice	NG Zulu	The effectiveness of the language used in marketing and advertising of selected Etheekwini and Elangeni TVET colleges	Dr R Hondy Dr F Awung

## FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Electronic Engineering	S Maharaj	Design and development of a thermos-electric generator for harvesting waste energy	Dr P Govender
M: Chemical Engineering	S Ganesh	Monte Carlo simulation of methanol adsorption and clustering in amorphous polymers	Mr S Ramsuroop Dr M Lasich
M: Mechanical Engineering	JO Olusanya	Fatigue performance of Nano Clay filled epoxy polymer composites under cyclic loading	Prof K Kanny
M: Industrial Engineering	J Magombo	Synthesis of a model for optimizing a portable water treatment plant and water usage analysis in the Ugu district	Dr B Dzwairo Prof S Moyo Mr M Dewa
M: Chemical Engineering	S Naicker	Development of a new static synthetic apparatus for Phase equilibria measurements	S Ramsuroop Prof P Naidoo Dr W Nelson
M: Electronic Engineering	N Pillay	Development of a process control loop performance assessment. Benchmark for nonlinear systems	Dr P Govender
M: Mechanical Engineering	S Chetty	The structural integrity of Nano Clay filled epoxy polymer composites under cyclic loading	Prof K Kanny
M: Electronic Engineering	NM Gomba	Concentration and congestion minimization on OBS networks	Prof B Nleya
M: Electrical Power Engineering	AA Adeyibi	Investigating the application of Static Synchronous Compensator (STATCOM) for mitigating power transmission line losses	Mr KT Akindeji Prof P Naidoo
D: Electrical L/C Engineering	A Mutsvangwa	Energy efficient PLIA-RWA Algorithms for transparent optical networks	Prof B Nleya
M: Chemical Engineering	KP Shabangu	Aerobic sequencing batch reactor for the treatment of Industrial wastewater from the brewery	Dr M Chetty Dr BF Bakare
M: Chemical Engineering	SK Khamati	Optimisation of the woven fibre-immersed membrane Bioreactor (WF-IMBR)	Prof S Rathilal Prof VL Pillay
D: Mechanical Engineering	WR Evans	Crashworthiness analysis of a composite light fixed-wing aircraft including occupants using numerical modelling	Prof D Jonson Prof M Walker

## FACULTY OF HEALTH SCIENCES - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
D: Health Sciences	MJ Mohapi	The efficacy of an instructional model on the quality of teaching and learning using assessment	Prof JK Adam Prof T Ngwenya
D: Health Sciences	PB Nkosi	A framework of co-operative practice between Radiation Oncologists and Traditional Health Practitioners in the management of patients with cancer in KwaZulu-Natal Province	Prof MN Sibiya Prof N Gqaleni
D: Health Sciences	VS Opollo	Impact of HIV/AIDS scale-up on non-HIV priority services in Nyanza Province, Kenya	Prof T Puckree
D: Nursing	V Naidoo	Guidelines for the implementation of Transnational Nursing Education: A collective case study approach of institutional perspectives and practices	Prof MN Sibiya Prof R Bhagwan
M: Chiropractic	R Rambrij	The effectiveness of spinal manipulative therapy compared to core muscle strengthening, on club head velocity and ball carry in asymptomatic male golfers	Dr G Harpham
M: Chiropractic	ZN Mdakane	Inter and intra-examiner reliability of lumbar spine radiograph analysis by chiropractors and its impact on clinical management	Dr PZ Ndlovu
M: Chiropractic	C Du Plessis	A comparative analysis of animal chiropractic regulation within seven countries	Dr G Matkovich
M: Chiropractic	GL Bertolotti	Examiner reliability and clinical responsiveness of motion palpation to detect biomechanical dysfunction of the hip joint	Dr G Harpham
M: Chiropractic	S Schmidt-Kinsman	The immediate effect of myofascial trigger point dry needling of four shoulder girdle muscles on the 100m lap-times of asymptomatic competitive swimmers in Bloemfontein	Dr G Harpham
M: Chiropractic	H Moti	The effects of 3 types of strapping on chronic ankle instability syndrome	Dr J Shaik Dr D Varatharajullu
M: Chiropractic	DC Van Doesburgh	An injury profile of ice hockey players in South Africa	Dr G Matkovich
M: Chiropractic	M Laing	The effectiveness of the Impulse Adjusting Instrument® compared to Dry Needling in the treatment of upper trapezius myofascial trigger points	Dr D Varatharajullu
M: Chiropractic	KP Allenbrook	The role of selected factors in the short-term prognosis of acute and chronic low back pain in patients attending the Durban University of Technology Chiropractic Day Clinic	Dr L O'Connor Ms ACJ Young
M: Chiropractic	J Jacquire	The epidemiology of work-related musculoskeletal disorders in beauty therapists working within the hotel spa industry in the eThekweni municipality	Dr L O'Connor Mrs D Borg
M: Chiropractic	A Abdul-Carim	The effect of interferential current treatment duration on chronic low back pain	Dr D Varatharajullu
M: Clinical Technology	NS Moodley	Semen analysis of renal transplant patients undergoing immunosuppressive treatment	Prof JK Adam Dr S Naidu
M: Dental Technology	A Naidoo	Colour stability of three dental zirconia ceramic systems after repeated firing.	Prof JK Adam Ms MPP Zondi
M: Dental Technology	TL Gumbi	An investigation into Dental Technology academics' discourses on the emergence of Universities of Technology in South Africa	Prof S McKenna Mr GH Bass
M: Environmental Health	PK Mhlongo	Adverse effects of shift work at a biscuits manufacturer	Prof P Reddy Mr SD Gabela
M: Homoeopathy	T Pillay	A double-blind placebo controlled proving of <i>Nelumbo nucifera</i> 30CH with subsequent comparison to its cultural significance	Dr DF Naude Dr I Botha
M: Homoeopathy	KA Belling	The relative effectiveness of the combination of spinal manipulation and homoeopathic simillimum in the treatment of chronic mechanical neck pain	Dr I Couchman Dr D Lubbe

M: Radiography	GGV Koch	Knowledge, clinical competencies and medico legal responsibilities required for the administration of intravenous contrast media by radiographers	Ms LD Swindon Prof JD Pillay
M: Medical Laboratory Science	M Baruth	Assessment of technical competencies of candidates within a Clinical Pathology discipline	Prof JK Adam Dr MJ Mohapi
M: Nursing	PG Ndlovu	Experiences of community care givers in nutritional assessment of children under 5 years in eThekwin District	Dr DG Sokhela Prof MN Sibya
M: Nursing	ID Khumalo	Knowledge, attitudes and perceptions of males with regard to medical male circumcision	Dr DG Sokhela Dr A Razak
M: Nursing	TT Mahaye	The practice of nurses in the prevention of multidrug-resistant tuberculosis at uThungulu district	Prof MN Sibya Ms M Munsamy
M: Nursing	JN Adetiba	The prevalence and risk of musculoskeletal disorders among dental technicians in South Africa	Dr PM Orton Ms BTE Kumalo

## FACULTY OF MANAGEMENT SCIENCES - 2017 MAY GRADUATION

Degree	Student Name	Approved Title	Supervisors
D: Quality	I Naidoo	A quality study of the grade 12 life sciences curriculum: perceptions and expectations for lifelong learning	Prof N Dorasamy Dr V Hamllall
D: Quality	S Moodley	A study of the quality interface between primary and secondary phase mathematics at public schools in the mafukuzela gandhi circuit in KwaZulu-Natal	Dr S Govender Prof N Dorasamy
M: Hospitality and Tourism Management	T Nxumalo	Investigating the influence of service quality on post dining behavioural intentions of customers	Dr EM Mnguni Prof N Dorasamy
M: Hospitality and Tourism Management	NA Ngxongo	Community participation in the development of tourism in South Africa: a case study of Ladysmith, KwaZulu-Natal	Dr SN Chili
M: Hospitality and Tourism Management	NEZ Mofokeng	Transformation in the South African accommodation sector: the case of clarens in the free state province.	Dr A Giampiccoli Dr S Jugmohan
M: Hospitality and Tourism Management	LB Arulappan	Impact of eco-labels in the tourism and hospitality sector of KwaZulu-Natal	Dr R Sucheran
M: Hospitality and Tourism Management	M Ahmed	The impact of business relocation on employees: a case study of King Shaka international airport	Dr R Sucheran
M: Hospitality and Tourism Management	GR Flynn-Green	Influence of consumer attitudes on purchasing practices for organic fruit and vegetables	Dr A Gianpiccoli Prof B Mason
M: Business Administration	OV Govender	An investigation into the challenges faced by a mobile service provider in meeting customer needs	Dr S Govender
M: Business Administration	E Lawa	Managerial overconfidence and its influence on share prices: evidence of the Johannesburg stock exchange 40 (jse40) stock prices	Dr F Kwenda
M: Business Administration	A Pillay	Exploring alternative revenue sources that can be utilized to improve advertising revenue for the SABC public broadcasting radio stations	Prof GJ Allen Prof D Chetty
M: Business Administration	X Qhogwana	The use of innovative strategies by automotive component manufacturers (ACMS) in Gauteng	Dr S Chetty
M: Business Administration	NN Shangase	A comparative analysis of critical success factors affecting local and foreign owned small-medium enterprises in the Ndwedwe area of KwaZulu-Natal	Dr WT Chin-yamurindi
M: Business Administration	MM Govender	The role of line managers in the implementation of skills development at a local municipality and its impact on service delivery	Dr S Govender

M: Business Administration	SM Ndovela	An investigation into entrepreneurial intent amongst final year commerce students at the Durban university of technology	Dr WT Chin-yamurindi
M: Business Administration	HL Dlamini	Customer's perception towards product quality of automotive SME's operating in the Durban metropolitan areas	Dr LM Lekhanya
M: Business Administration	TP Hlatshwayo	The application of information communication technologies (ict) to facilitate the upliftment of the rural community in the area of dibebe village	Dr S Neerputh
M: Business Administration	M Magagula	The influence of outsourcing the core deliverables on the business performance at Eskom distribution, South Africa	Dr RWD Zondo
M: Human Resources Management	SY Mfeka	Investigating the link between performance and labour standards in the retail sector in South Africa	Prof P Msweli
M: Human Resources Management	S Taduvana	The impact of job insecurity on job satisfaction and organisational commitment at femina garments in Zimbabwe- a case study	Prof DC Jinabhai
M: Human Resources Management	T George	An assessment of the employee assistance programme for substance abuse: a case study of a selected private hospital in KwaZulu-Natal	Dr G Chetty
M: Human Resources Management	R Utete	The effectiveness of staff training on knowledge transfer and employee retention: a case study of servcor private limited in Zimbabwe	Prof DC Jinabhai
M: Human Resources Management	LI Zulu	An investigation into organisational leadership for the development of community arts centres	Dr G Chetty
M: Marketing	TS Mdletshe	Facebook as a marketing tool to reform South African millennials in tertiary institutions on social issues	Dr C Meintjes
M: Marketing	T Ndadziyira	Brand preference for mobile phones among students at a selected higher education institution	Prof JP Govender
M: Marketing	FC Vezi	The influence of marketing communication on students' decisions to enrol at technical vocation education and training colleges in KwaZulu-Natal	Prof D Penceliah
M: Marketing	F Tinonetsana	The influence of convenience goods packaging amongst international students	Prof D Penceliah
M: Public Management	HK Fudu	Building a culture of peace: action research through youth programmes in Durban, South Africa	Dr S Kaye
M: Public Management	S Harilal	An exploratory study of mindfulness meditation as a healing tool with abused adolescents at the Durban child	Prof R Bhagwan
M: Public Management	AD Dlungwane	Violence among learners within one primary school in Umlazi township, Durban	Dr V Hamlall
M: Public Management	T Kikasu	Exploring the socio-economic role of the petroleum refining industry in the democratic republic of Congo (DRC)	Dr I Govender
M: Public Management	C Nyathi	Reducing conflicts between rural women's self-help groups in Hwange district, Zimbabwe	Prof GT Harris
M: Quality	R Thakur	The quality of food products containing Nano silica additives in south Africa	Prof S Singh
D: Business Administration	B Chazireni	Role of corporate social responsibility on sustainable growth of SMEs in the Wholesale and Retail Trade sector in the eThekweni region	Dr A Kader
D: Business Administration	K Zvitambo	Exploring humanistic management philosophy governance: a case study of Port Shepstone minibus taxi industry, KZN	Dr V Mudaly
D: Human Resource Management	JT Msukwini	An investigation into the human resources capacity needs to facilitate learner support of WIL at a UoT: a case study of Durban university of technology	Dr SS Pillay Mr B Forbes

D: Marketing	KM Corbishley	Retail loyalty programmes: relationship quality and customer loyalty between the card-holder and the retailer	Dr C Meintjes Prof RB Mason
D: Public Management	J Shonhe	An investigation of purchasing and supply chain management practices and challenges in public or state enterprises: a case study of the health sector in Zimbabwe	Prof MS Bayat
D: Public Management	S Ganesh	Management of an HIV/AIDS wellness programme: a case study of the HIV/AIDS your life programme	Prof R Rampersad Prof N Dorasamy
M: Hospitality and Tourism	NV Sithole	The contribution of tourism to local community development: the case of Shakaland Zulu Cultural Village	Dr S Jugmohan Dr A Giampiccoli
M: Hospitality and Tourism	D Naicker	Tourism graduate employability: Stakeholder perceptions of workplace learning for graduate employability	Dr KM Naidoo
D: Public Management	D Makwerere	Developing peacebuilding skills among civil society organisations in Zimbabwe	Dr S Kaye Prof G Harris
D: Business Administration	KH Quao	An investigation of financial monitoring policies of microfinance installation in Accra	Dr LM Lekhanya Prof N Dorasamy
M: Public Relations	GN Ndinisa	An assessment of external communication at the Mn-quma local municipality	N Ramlutchman Prof R Rampersad
M: Public Relations	C Mgweba	Assessing communication strategies at higher education institutions: a case of Walter Sisulu University	Prof VP Rawjee Dr P Naidoo
D: Public Management	F Chari	The assessment of disaster reduction strategies in dairy supply chains in Zimbabwe	Dr SB Ngcamu
M: Public Management	T Mhlongo	The perceptions and experiences of students regarding weapons in schools in Umgungundlovu District, KZN	Mr C Hemson

## FACULTY OF ACCOUNTING & INFORMATICS - 2017 SEPTEMBER GRADUATION

Degree	Student names	Approved Title	Supervisors
M: Accounting	MC Mdawe	Adoption of Activity-based costing at Technical and vocational educational and training in KwaZulu-Natal	Prof P Green Prof LJ Stainbank
M: Information and Communications Technology	R Bugwandin	Investigating vendor Selection criteria in Information technology Outsourcing using Multiple Criteria Decision Making	Prof OO Olugbara Prof TN Andrew
M: Information and Communications Technology	AD Freidland	Development of a frugal crop planning decision support system for subsistence farmers	Prof OO Olugbara Prof K Duffy
M: Information and Communications Technology	FM Khubisa	Developing a frugal information system to support very small enterprises transactions	Prof OO Olugbara
M: Information and Communications Technology	M Nyirenda	Developing a web-based research Administration and Management System: Case Study of a South African Higher Education Institution	Prof OO Olugbara Prof S Moyo
M: Information and Communications Technology	TB Taiwo	Colour Image segmentation using perceptual colour difference saliency algorithm	Prof OO Olugbara Dr D Heukelman
M: Information and Communications Technology	EI Uko	Development of Multi-person Multi-attribute match-making decision system	Prof OO Olugbara
M: Administration and Information Management	TO Mkhize	Learning opportunities offered to Office management and technology Students during work Integrated learning and the implications for the curriculum	Dr JP Skinner Prof P Green
M: Administration and Information Management	NM Mpanza	Evaluation of Administrative Practices in three selected Technical and Vocational educational and Training colleges in KwaZulu-Natal	Prof P Green Dr NR Sentoo

FACULTY OF APPLIED SCIENCES - 2017 SEPTEMBER GRADUATION			
Degree	Student Name	Approved Title	Supervisors
M: Biotechnology	J Gokal	Determining the efficiency of the ANAMMOX process for the treatment of high-ammonia influent wastewater	Prof F Bux Dr S Kumari Prof TA Stenstrom
M: Biotechnology	K Odayar	Active targeting of cancer cells using gemcitabine conjugated platinum nanoparticles	Prof B Odhav Dr V Mohanlall
M: Biotechnology	A Sithebe	A comparative microbiological assessment of river basin sites to elucidate fecal impact and the corresponding risks	Prof TA Stenstrom Prof F Bux Dr G Singh
M: Chemistry	NM Cele	Computational studies on the identification and analyses of p53 cancer associated mutations	Prof K Bisetty Prof MI Hassan
M: Chemistry	A Darumas Putri	Fabrication of graphene based aptasensors for early detection of prostate cancer by experimental and computational techniques	Prof K Bisetty Prof A Tiwari
M: Chemistry	NP Makhanya	Solvent-free Knoevenagel condensation over supported mixed metal oxides catalysts	Dr S Singh Dr MH Mabaso
M: Chemistry	SF Muthwa	Synthesis and characterization of binary and ternary hydro-talcites-like compounds for the hydroxylation of phenol	Dr S Singh Dr MH Mabaso
M: Chemistry	SM Nkosi	Synthesis of novel quinoline derivatives and their cytotoxicity in A549 lung cancer cells	Prof RM Gengan Prof AA Chuturgoon
M: Chemistry	B Tri Murti	Experimental and computational studies on sensing of DNA damage in Alzheimer's disease	Prof K Bisetty Prof A Tiwari
M: Chemistry	SS Zungu	Solid-phase extraction of selected acidic pharmaceuticals from wastewater using a molecularly imprinted polymer	Dr PS Mdluli Dr LM Madikizela Prof L Chimuka
M: Food & Nutrition	SN Memela	Anthropometric profile and food consumption patterns of an emerging middle-income community in Umlazi	Prof CE Napier
M: Food & Nutrition	PLN Mfeka	Socio-demographic profile, nutritional status and dietary intake of primary school children in Chesterville, KwaZulu-Natal	Prof CE Napier
M: Food & Nutrition	RLP Watson	Relationship between physical activity with dietary intake and nutritional status of adolescent girls attending a private school in Durban	Prof CE Napier
M: Food Science & Technology	B Mawoyo	Influence of growth locations on physicochemical properties of starch and flour from amadumbe ( <i>Colocasia esculenta</i> ) genotypes	Prof EO Amonsou Dr AS Gerrano
M: Food Science & Technology	AR Mukurumbira	Characterization and application of amadumbe starch nanocrystals in biocomposite films	Prof EO Amonsou Dr JJ Mellem

FACULTY OF ARTS & DESIGN 2017 SEPTEMBER GRADUATION			
Degree	Student Name	Approved Title	Supervisors
M: Graphic Design	C Warbutton	An evaluation of blended learning within the graphic design studio of a private Durban design college	P Carey Dr P Kethro
D: Language Practice	K Reddy	A critical linguistic discourse analysis of participant narratives in the construction of citizenship education at a University of Technology	Prof DD Pratt

## FACULTY OF HEALTH SCIENCES - 2017 SEPTEMBER GRADUATION

<b>Degree</b>	<b>Student Name</b>	<b>Approved Title</b>	<b>Supervisors</b>
M: Chiropractic	C Armstrong	A profile of patients presenting with spinal pain at Mahalapye and Shoshong World Spine Care clinics in Botswana	Dr L O'Connor
M: Chiropractic	ST Swanepoel	The effect of sacroiliac joint manipulation compared to manipulation and static stretching of the posterior oblique sling group of muscles in participants with chronic sacroiliac joint syndrome	Dr H Kretzmann Dr S Clifton
M: Chiropractic	GED Petersen	The effect of thoracic spine manipulation compared to thoracic spine and costovertebral joint manipulation on mid-back pain at the Durban University of Technology Chiropractic Day Clinic	Dr H Kretzmann
M: Chiropractic	NN Mahomed	Knowledge and practices of pregnant women regarding exercise during pregnancy: a comparison between private and public sector	Dr F Haffejee
M: Chiropractic	N Ganesh	Clinical experiences of first-time registered master's chiropractic students during their clinical practicum	Dr D Varatharajullu Prof MN Sibiya
M: Chiropractic	M Kahere	The effectiveness of a myofascial treatment protocol (FAKTR Concept) combined with cryotherapy compared sham laser and cryotherapy in the treatment of sub-acute and acute ankle sprains	Dr G Matkovich
M: Dental Technology	PC Dlamini	Factors associated with student recruitment and student profiles in Dental Technology at a University of Technology	Ms R Sunder Mr GH Bass Prof T Puckree
M: Dental Technology	KN Okeke	The efficacy of Hibiscus sabdariffa as a fibre-reinforcement material for denture base acrylic resins	Dr A Vahed Prof S Singh
M: Emergency Medical Care	MJ Finlayson	An analysis of emergency response times within the public sector Emergency Medical Services in KwaZulu-Natal	Mr R Naidoo Prof P Brysiewicz Mr S Naguran
M: Homoeopathy	GM Miller	Comparative nuclear magnetic resonance study of Natrum muriaticum LM1 produced in-house and obtained from commercial sources respectively	Dr I Botha Prof AHA Ross
M: Homoeopathy	SM Zondi	The efficacy of a topical application comprising Calendula officinalis Ø and Olea europaea in the management of seborrhic dermatitis of the scalp (dandruff)	Dr JC Ngobese Dr M Maharaj
M: Homoeopathy	J Lin	A comparison of the symptoms derived using a radionically prepared remedy with the existing <i>materia medica</i> : a triple-blind proving of a well proven homoeopathic remedy	Prof AHA Ross Dr I Botha
M: Homoeopathy	NN Pillay	A homoeopathic C4 trituration proving of <i>Withania somnifera</i> with a subsequent comparison to the conventional 30CH proving of <i>Withania somnifera</i>	Dr M Maharaj Prof AHA Ross
M: Homoeopathy	T Tshabalala	The efficacy of a homoeopathic Similasan Nasal Allergy Relief Spray® in the management of allergic rhinitis in terms of the CARAT questionnaire	Dr I Couchman Dr S Nienaber
M: Nursing	S Pillay	The use of traditional medicine by caregivers for children under the age of five years as health seeking behaviour	Dr P Basson
M: Nursing	BA Majola	Violence against student nurses by patients and their relatives in public hospitals in KwaZulu-Natal	Dr PM Orton Dr A Razak
M: Nursing	VT Nhlimayo	Factors influencing the uptake of long acting reversible contraceptives among women at primary health clinics in eThekweni District	Prof MN Sibiya Ms M Munsamy
M: Nursing	SD Gumede	Knowledge, attitudes and perceptions of health care users towards HIV self-testing at selected Gateway Clinics at eThekweni District, KwaZulu-Natal	Prof MN Sibiya
M: Radiography	L Gumede	Work related stressors that affect diagnostic and ultrasound radiographers in a public hospital in the Gauteng Province	Prof MN Sibiya Dr PB Nkosi

FACULTY OF MANAGEMENT SCIENCES - 2017 SEPTEMBER GRADUATION			
Degree	Student Name	Approved Title	Supervisors
D: Business Administration	K Modimoeng	The effect of entrenched corporate social responsibility on labour and community disputes resolutions in South Africa's mining industry.	Prof Netswera
M: Business Administration	SA Ogunsola	Evaluating Managerial Competence of Small, Medium and Micro Entrepreneurs to ensure Sustainable Economic Development in eThekweni Municipal Area	Dr N Potwana
M: Business Administration	S Mtshali	An investigation into the mediating role of competitive advantage between entrepreneurial orientation and business performance among SMEs in Durban, South Africa	Prof WT Chinyamurindi
M: Human Resources	T Chikukwa	The impact of extrinsic rewards on employee motivation and organisational effectiveness: A case study of the Packaging Department at Delta Beverages Private Limited in Zimbabwe	Prof DC Jinabhai
M: Human Resources	O Sibhoko	An investigation into employee Job Satisfaction and its impact on Organisational Effectiveness at Buffalo City College	Prof MS Bayat
M: Public Management	SR Nhari	Investigating Internal Service Quality at Durban University of Technology Writing centres.	Dr TI Nzimakwe
D: Business Administration	XK Ngobese	Impact of Training and Development in selected KZN Municipalities.	Dr S Hardman
D: Human Resources	CM Mabaso	The impact of employee rewards on job satisfaction and organisational commitment of academic staff at selected Universities of Technology in South Africa	Dr BI Dlamini
D: Human Resources	A Rajlal	The formulation of an Exploratory Human Capital development model aligned to Performance Management system of Administrative Staff at the Durban University of Technology	Dr BI Dlamini
D: Marketing	TP Tlapana	Customer service as a strategic tool amongst independent retail food chains in KwaZulu-Natal	Prof JP Govender
D: Public Management	R Turyamureeba	Building Peace through land access and food security in the Nakivale Refugee Settlement, Uganda	Dr S Kaye Prof G Harris
D: Public Management	NC Manjeya	A contextual and transdisciplinary analysis of operational and administrative frameworks of a Writing Centre: The case of the DUT Writing Centre (WrC)	Dr G Mhetra
D: Public Management	I Madenga	Exploring Transitional Justice options for Zimbabwe	Dr SB Kaye Prof GT Harris
M: Business Administration	A Pirthiraj	Factors affecting the motivation of first year students in the Department of Construction Management and Quality Surveying at the Durban University of Technology	Dr I Govender
M: Business Administration	P Ndlovu	Factors influencing the effectiveness of project managers in the telecommunications industry in South Africa	Dr S Chetty
M: Human Resources	N Njapha	An investigation into the perceived impact of Richards Bay Minerals' Corporate Responsibility on local communities in the Northern Region of KwaZulu-Natal	Dr LM Lekhanya
M: Marketing	V Govender	Consumer Protection and Service Delivery by the Retail Industry in the greater Durban area: The legal implications of the Consumer Protection Act 68 of 2008	Prof JP Govender Mr M Pillay
M: Marketing	FR Chibvura	Promotional tools used by Medical Insurance companies: An international student perspective	Prof S Penceliah
M: Marketing	A Ngceba	Service quality at selected health and fitness centres in townships within the great Durban area	Mr MA Pillay Prof S Penceliah
M: Marketing	KP Zuma	Marketing communication of career opportunities for students in the South African space industry	Dr M Maharaj Prof R Mason
M: Public Management	R Varjavandi	A participatory action research study of junior youth-led community action in Durban, South Africa	Prof G Harris
M: Public Management	P Musariwa	Reducing conflict and violence in schools. An action research among students at Chinhoyi High School	Prof G Harris
M: Public Management	T Mhlongo	The perceptions and experiences of students regarding weapons in schools in Umgungundlovu District, KZN	Mr C Hemson

D: Business Administration	I Nohumba	Growth strategies through diversification for a shipping company in South Africa	Prof M De Beer
D: Public Management	A Sangham	Barriers and determinants to funding Sustainable Development projects in Developing countries: A case study of eThekweni Municipality	Prof P Msweli
D: Public Management	S Lombo	Analysis of Consumption Patterns and their Effects on Wellbeing from a Zulu Cosmology Perspective	Prof P Msweli
M: Business Administration	MN Nhleko	The use of SMME's as a strategic tool for women's socio-economic empowerment in rural Northern KwaZulu-Natal	Dr LM Lekhanya
M: Hospitality and Tourism	M Gumede	Interrelatedness between Event Spend, Economic Development and Social Cohesion	Prof P Msweli
M: Human Resources	LG Luthuli	Investigating the effects of government spending on education attainment	Prof P Msweli
M: Public Management	VP Mazibuko	Towards an Index to Assess the Novelty Value of The Investment in World Cup Stadia	Prof P Msweli
M: Public Management	N Sikakane	Factors underlying intimate partner violence by young Zulu men in Oakford-Verulam and building their capacity to be nonviolent intimate partner	Dr A Tschudin

### FACULTY OF ACCOUNTING & INFORMATICS - MAY 2018 GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Information and Communication Technology	N Ramsaroop	Investigating Energy Harvesting Technology to wirelessly charge batteries of mobile devices	Prof OO Olugbara Mrs ED Joubert
M: Accounting	SP Khuzwayo	Implementation of Kaizen Costing towards improving Cost Management at the Water and Sanitation and Electricity Departments of the eThekweni Municipality, KwaZulu-Natal	Prof LJ Stainbank
M: Admin & Information Management	MW Ntoyake	An Investigation of students experience of service quality delivered by Administrative Staff at one site of a South African Comprehensive University	Mr M Ngibe Prof J Skinner

### FACULTY OF APPLIED SCIENCES - MAY 2018 GRADUATION

Degree	Student Name	Approved Title	Supervisors
D: Biotechnology	S Poonam	Assessment of microalgal ACCase and rcbL gene expression as a function of nutrient and metal stresses	Prof F Bux Dr S Kumari Dr AS Guldhe
D: Chemistry	V Arumugam	Synthesis, characterization and application of novel ionic liquids	Prof GG Redhi Prof RM Gengan
D: Chemistry	CR Reddy	Fabrication of sensors for the sensitive electro-chemical detection of anti-tuberculosis drugs	Prof GG Redhi Prof NK Bhajantri
D: Chemistry	A Murugesan	Synthesis of nitrogen heterocycles and chalcones using multicomponent reactions: A spectral and protein binding investigation	Prof RM Gengan
D: Chemistry	MI Sabela	Interaction studies of nanomaterials with plasma proteins using experimental and computational methods	Prof K Bisetty Prof S Sagrado Prof B Mwakikunga
M: Biotechnology	N Dlamini	Utilization of shrimp waste for the recovery of valuable bioactive compounds	Prof K Permaul Prof S Singh
M: Biotechnology	H Essack	Screening of traditional South African leafy vegetables for selected anti-nutrient factors before and after processing	Dr JJ Mellem Prof B Odhav
M: Biotechnology	FK Mammo	Isolation, characterization and biological activities of terpinoinds from Gunnera perpensa	Dr V Mohanlall Prof FO Shode Prof B Odhav

M: Biotechnology	RN Okongo	Comparative study of hydrolytic kinetics and thermodynamics of chit1 and chit1' and applications of microbial chitinases	Prof S Singh Prof K Permaul Dr AK Puri
M: Biotechnology	P Ramsundar	Evaluating the suitability of waste substrates for microalgal biomass production using different modes of cultivation	Prof F Bux Dr AS Guldhe
M: Biotechnology	F Seke	The effects of laccase and xanthan gum on the quality of gluten free amadumbe bread	Prof T Kudanga Prof E Amonsou
M: Chemistry	KW Kunene	Fabrication of electrochemical biosensors for the determination of phenolic compounds by experimental and computational methods	Prof K Bisetty Dr S Kanchi
M: Chemistry	N Mgxadeni	Density, speed of sound, refractive index and activity coefficients at infinite dilution for ionic liquids	Prof N Deenadayalu Prof P Naidoo Prof D Ramjugernath
M: Food and Nutrition	ST Gumede	Food consumption patterns and nutritional risks of women in low and middle income communities in KwaNdungezi, KwaZulu-Natal	Prof CE Napier

### FACULTY OF ARTS & DESIGN - MAY 2018 GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Fashion Design	BS Memela	Swag': an ethnographic study of izikhethane fashion industry	Ms N Madhoo-Chipps Prof R Gaede

### FACULTY OF ENGINEERING & BUILT ENVIRONMENT MAY 2018 GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Construction Management & Quantity Surveying	T Khahlela	Ethics in Construction (project Management Case Study)	Dr AO Olatunji
M: Construction Management & Quantity Surveying	AA Merana	An Exploration of funds management by emerging contractors	Dr AO Olatunji
M: Electrical Engineering	ZP Khumalo	Secured power line communications-based network for advanced metering in smart grids	Prof B Nleya
M: Electrical Engineering	SW Nene	An energy efficiency evaluation of a bagasse gasification system for the South African Sugar Industry	Mr GF D'Almaine Prof I Lazarus
M: Chemical Engineering	ET Ganda	Catalytic conversion of alcohol-waste vegetable oil mixtures over aluminosilicate catalysts	Dr YM Isa
M: Chemical Engineering	NI Madondo	Optimization of Anaerobic Co-Digestion of sewage sludge using bio-chemical substrates	Dr M Chetty
M: Chemical Engineering	RW Musamali	Decomposition of methane into carbon and hydrogen Over Ni-L/CaO Catalyst	Dr YM Isa
M: Chemical Engineering	MS Ndebele	Alcohols conversion over transition metal-based catalysts	Dr YM Isa
M: Chemical Engineering	N Nkosi	Infinite dilution activity coefficient measurements and predictions of organic solutes in selected deep eutectic solvents (DES) by gas-liquids chromatography	Mr S Ramsuroop
M: Chemical Engineering	OA Olagunju	Optimization of biodiesel production from vegetable oils using a packed bed membrane reactor	Prof P Musonge

## FACULTY OF HEALTH SCIENCES - MAY 2018 GRADUATION

<b>Degree</b>	<b>Student Name</b>	<b>Approved Title</b>	<b>Supervisors</b>
D: Health Sciences	ID Amoah	The risk factors of soil transmitted Helminth infections: a need for appropriate measurement methods	Prof TA Stenstrom Prof P Reddy Prof R Seidu
D: Health Sciences	G Cruickshank	A framework to support academically 'at risk' students to enhance student access: A Faculty of Health Sciences case study	Prof AHA Ross Prof DB Lortan
D: Nursing	NJ Radana	A model for managing psychological distress in undergraduate nursing students in South Africa	Dr PM Basson
D: Nursing	J Chellan	An audit tool for relicensing inspection to assess quality and patient safety in eThekwin private hospitals	Prof MN Sibiya Prof R Bhagwan
D: Nursing	EN Hlongwa	A practice framework to enhance the implementation of the Policy on Integration of Mental Health Care into primary health care in KwaZulu-Natal province	Prof MN Sibiya
D: Nursing	ST Madlala	Guidelines to facilitate acceptance of student accouchers in clinical practice at the Free State maternal health care institutions	Prof MN Sibiya Dr TSP Ngongo
M: Chiropractic	M Dhai	The effect of low intensity laser therapy on post needling soreness in trigger point 2 of the upper trapezius muscle	Dr A Docrat Dr F Ally
M: Chiropractic	D Naidoo	The knowledge, attitudes, perceptions and perceived barriers of chiropractors within the eThekwin municipality towards evidence-based practice	Dr L O'Connor
M: Chiropractic	F Amod	Origins and control of bacterial contamination during spinal manipulation	Dr FM Swalaha Prof P Reddy
M: Chiropractic	CD Levy	The relationship between ergonomics of the office workstation and related musculoskeletal disorders in library administrative staff at the Durban University of Technology	Dr PM Orton
M: Chiropractic	M Erasmus	The epidemiology of low back pain in radiographers working in the eThekwin Municipality	Dr F Ally
M: Chiropractic	KIL Nkwelo	The concurrent validity of an isiZulu Bournemouth Questionnaire in comparison to its English original	Prof AHA Ross
M: Chiropractic	H Van Der Colff	Knowledge and practices of myofascial pain syndrome of the temporomandibular joint by dentists in the Greater eThekwin Region	Prof JD Pillay Dr A Docrat
M: Chiropractic	RC Whittaker	The effect of an electromechanical adjusting instrument compared to cervical spine manipulation in the treatment of cervicogenic headaches	Dr D Varatharajulu
M: Chiropractic	KP Khumalo	The prevalence of and associated risk factors for low back pain in medical outpatients of a selected Umdoni Municipality Primary Health Care Clinic	Dr F Haffejee
M: Chiropractic	M Chihambakwe	The knowledge, attitudes and perceptions of health care professionals at the Mahalapye District hospital about the World Spine Care model in the Central District of Botswana	Dr L O' Connor Dr PM Orton
M: Chiropractic	N Davies	Perceptions of chiropractors in the eThekwin Municipality on the integration of chiropractic into the public health care sector of South Africa	Prof MN Sibiya
M: Chiropractic	SS Thondhlana	Knowledge, utilisation and perceptions of the chiropractic profession by general practitioners in Harare, Zimbabwe	Prof JD Pillay Dr CM Kell
M: Dental Technology	Y Ngombane	Dental Laboratory waste management in respect of reusing and recycling in KwaZulu-Natal	Mr GH Bass Prof AHA Ross
M: Emergency Medical Care	E Ismail	Preparedness of Western Cape ALS providers to provide clinical stabilisation and intensive care for neonates during the patient journey	Mr R Naidoo Dr Prakaschandra
M: Emergency Medical Care	TL Khoza	Exploring lived experiences of Gauteng based military prehospital emergency care providers during external deployment	Dr N Mshunqane Prof H Du Plessis Mr S Sobuwa
M: Emergency Medical Care	ME Smith	Experiential learning experiences of Emergency Medical Care students at a selected University in KwaZulu-Natal	Mr S Sobuwa Prof MN Sibiya
M: Environmental Health	KZ Bisholo	An epidemiological investigation of food-borne disease in the Ncera Villages, Eastern Cape, South Africa	Ms S Ghuman Dr F Haffejee

M: Environmental Health	MO Ogunlola	Longitudinal assessment of pro-angiogenic and anti-angiogenic factors in normotensive pregnancies complicated by HIV in a KZN cohort	Dr N Govender Prof P Reddy
M: Homoeopathy	CM Ngoie	The efficacy of a homoeopathic complex (Angelica sinensis 6CH, Dioscorea villosa 6CH, Matricaria chamomilla 6CH, Viburnum opulus 6CH and Zingiber officinalis 6CH) compared to a homoeopathic simillimum in the treatment of primary dysmenorrhoea	Dr CM Hall
M: Homoeopathy	N Naidoo	A homoeopathic drug proving of Carcharhinus leucas 30CH and a subsequent comparison with that of Galeocerdo cuvier hepar 30CH	Dr M Maharaj Dr V Alwar
M: Homoeopathy	IF Khan	A homoeopathic drug proving of Carcharhinus leucas 30CH with a subsequent comparison to the doctrine of signatures	Dr M Maharaj Dr V Alwar
M: Homoeopathy	N Shabangu	The efficacy of a homoeopathic complex (Nux moschata D6, Phosphoricum acidum D30, Helleborus niger D6, Opium D30) in the management of excessive daytime sleepiness	Dr DF Naude
M: Homoeopathy	G Hamilton	A homoeopathic drug proving of Anthropoides paradiseus 30CH with a subsequent comparison to selected avian remedies	Dr M Maharaj
M: Homoeopathy	L Ramdiyal	A homoeopathic drug proving of Garcinia cambogia 30CH and a comparison of the substance to its reportorial differentials	Dr M Maharaj
M: Homoeopathy	BNS Sukati	The efficacy of a Homoeopathic mother tincture complex (Vitex agnus castus, Melissa officinalis and Valerian officinalis) in the management of Premenstrual Dysphoric Disorder (PMDD)	Dr JC Ngobese-Ngubane Dr M Maharaj
M: Homoeopathy	NM Sibeko	A retrospective chart review of the guiding symptoms of the successful prescription of Natrum muriaticum at a homoeopathic satellite clinic	Dr JC Ngobese-Ngubane Dr M Maharaj
M: Nursing	L Ramlucken	Feasibility and acceptability of utilising short message service for follow-up care of outpatient mental health care users in the uMgungundlovu District	Prof MN Sibiya Ms NP Zikalala
M: Nursing	A Ngcobo	Knowledge, perceptions and experiences of nurses towards family centred care in adult intensive care units	Dr P Basson
M: Nursing	NA Williams	The knowledge, understanding and perceptions of professional nurses, working Primary Health Care clinics, about autism spectrum disorder	Dr DG Sokhela Dr P Basson
M: Nursing	IT Malunga	Clinical support to nursing community service practitioners in Ugu district, KwaZulu-Natal	Dr PM Basson
M: Nursing	NC Solwandle	Leadership competencies of professional nurses in the eThekwihi health district during the first year of registration with the South African Nursing Council	Dr PM Orton Dr A Razak
M: Nursing	NG Mufamadi	Assessment of nurses' hand hygiene practices in primary health care clinics of eThekwihi municipality	Prof MN Sibiya

## FACULTY OF MANAGEMENT SCIENCES - MAY 2018 GRADUATION

Degree	Student Name	Approved Title	Supervisors
M: Human Resources	CS Madhanga	An investigation into various leadership styles and their impact on employee performance at Subtech Group in KwaZulu-Natal: A Case Study	Prof DC Jinabhai Mrs M Lourens
D: Public Administration	BC Maphosa	Reducing gender Based Violence: an action research study among Zimbabwean youth	Dr S Kaye
D: Public Administration	RD Manungo	The re-integration of homeless street children through football in Harare, Zimbabwe	Prof G Harris
D: Public Administration	P Haripersad	The inactive participation of parents as governors at LSEN schools	Dr C Mbali
M: Quality Management	V Naicker	The adoption of lean manufacturing principles in electronic manufacturing: a case of Altech UEC	Dr M Ramchander
M: Human Resources	JM Fuchs	An exploratory survey of competency frame-worked Managerial talent for service delivery at the eThekwihi Municipality in KwaZulu-Natal	Prof P Msweli
M: Marketing	A Chitamba	A strategic perspective to determine the competitiveness of ABSA Bank in the South African banking sector	Dr E Mutambara

D: Marketing	MVM Ndlovu	Co-branding in marketing through soccer in KwaZulu-Natal, South Africa	Dr JP Govender Prof S Penceliah
D: Business Administration	T Mahohoma	The impact of entrepreneurial competencies on the performance of SMEs in the manufacturing sector in the eThekweni region	Dr S Chetty
D: Public Administration	IT Mutero	Conflict Resolution through music and dance: The case of Mkoba, in Gweru Zimbabwe	Dr S Kaye Prof GT Harris
M: Marketing	PP Ntobaki	The impact of social media marketing on Durban consumer's choice of brands.	Dr P Moodley
D: Business Administration	S Mugova	Financial Sector Development and Trade Credit: A case of Brics Countries	Dr F Kwenda
M: Hospitality and Tourism	NP Sambo	Investigating post flight food waste management policies and procedures within the airline catering industry- a study of Airchefs South Africa	Dr D Hlengwa
M: Hospitality and Tourism	MM Phori	Analysis of the Perceptions of Crime against Tourists in Florida Road, Durban	Dr C Mbali
M: Human Resources	B Kanyumba	The importance of employee training and retention strategies of Health Care Professionals for effective service delivery: A case study of Manama Mission Hospital in Zimbabwe	Prof DC Jinabhai Mrs M Lourens
M: Human Resources	S Rumutsa	The impact of training and development of academic staff as a strategic tool for enhancing job satisfaction at Bulawayo Polytechnic in Zimbabwe- A case study	Prof DC Jinabhai Mrs M Lourens
D: Business Administration	K Chetty	Explore the perceptions of servant leadership dimensions and its influence on team effectiveness among Armed Forces Hospital Managers Khamis Mushayt Saudi Arabia	Prof MS Bayat
M: Business Administration	N Cele	Customer perceptions of service delivery: a case study at a South African Container Terminal.	Dr MN Davids
M: Business Administration	D Govender	Influence of leadership styles on organisational team culture in a South African mining organization	Dr LM Lekhanya
M: Public Administration	LC Monakali	Equal Pay for work of equal value through job evaluation within the department of arts and culture	Dr TI Nzimakwe
M: Public Administration	F Chirimumimba	Female commercial Sex Workers in Zimbabwe: A participatory approach to improve relationships with the general public	Prof GT Harris
M: Public Administration	Z Mbandlwa	An evaluation on the effectiveness of public participation methods applied by municipalities when planning community development projects	Dr S Mish
M: Marketing	K Ramlall	Factors affecting brand loyalty of Cellular network providers in South Africa	Dr C Meintjes
D: Human Resources	LT Mahlahla	The impact of talent management on employee performance and retention strategies: A case study of Masvingo City Council in Zimbabwe	Dr M Lourens
D: Hospitality and Tourism	AK Zaca	Investigating the educational value of fieldtrips in tourism education: A case of high schools in Pholela circuit of KwaZulu-Natal	Dr D Hlengwa
D: Marketing	A Ijabadeniyi	Exploring Corporate Marketing Optimisation strategies for the KwaZulu-Natal manufacturing sector: A Corporate Social Responsibility Perspective	Prof JP Govender
D: Public Administration	TW Letsie	Demilitarising the mountain kingdom: an action research project in Lesotho	Prof GT Harris Dr S Kaye
D: Public Administration	NL Nchabeleng	Communication tools employed for HIV/AIDS education by student services at universities in KwaZulu-Natal	Prof R Rampersad Prof N Dorasamy

# **RESEARCH PUBLICATIONS**

## **FACULTY OF ACCOUNTING AND INFORMATICS ACCREDITED JOURNAL ARTICLES 2017**

Assensoh-Kodua, A. 2017. Social purchasing and the influence of social networking: A conceptual view. *Banks and Bank Systems*, 11(3): 44-57.

Assensoh-Kodua, A., Migiro, S. and Mutambara, E. 2017. Mobile banking in South Africa: a systematic review of the literature. *Banks and Bank systems*, 11(1): 34-41.

Green, P. E. 2017. The perceived influence on organizational productivity: A perspective of a public entity. *Problems and Perspectives in Management*, 14(2): 339-347.

Jiyane, G. V., Moyane, S. P. and Mugwisi, T. 2017. Market orientation as a strategy for service delivery in public libraries: A case study of the northern region in KwaZulu Natal, South Africa. *Mousaion*, 34(4): 59-79.

Khanyile, M. and Green, P. 2017. Application of stakeholder management for business sustainability in the higher education sector. *Journal of Human Ecology*, 15(3): 328-337.

Lan, K., Wong, S., Song, W., Vasilakos, A. V. and Millham, R. C. 2017. Self-adaptive pre-processing methodology for big data stream mining in internet of things environmental sensor monitoring. *Symmetry*, 9: 1-17.

Li, J., Fong, S., Wong, R. K., Millham, R. and Wong, K. K. L. 2017. Elitist binary wolf search algorithm for heuristic feature selection in high-dimensional bioinformatics datasets. *Scientific Reports*, 1(43): 1-14.

Mapisa, S. B., Zwane, B. K. and Nyide, C. J. 2017. Succession planning and staff retention challenges: An industrial outlook and major risk. *Risk Governance and Control*, 7(3): 17-26.

Mtengu, S. and Green, P. 2017. Forestry stewardship council in relation to market accessibility by small scale timber growers: A case in KwaZulu-Natal. *Journal of Human Ecology*, 56(3): 283-294.

Naicker, A., Venter, C. S., MacIntyre, U. E. and Ellis, S. 2017. Prevalence of selected intermediate risk factors for non-communicable diseases in an apparently healthy Indian Community in KwaZulu-Natal, South Africa. *Journal of Community Health*, 42: 122-128.

Ochieng, D. M. and Olugbara, O. O. 2017. Exploring digital archive system to develop digitally resilient youths in marginalised communities in South Africa. *Electronic Journal of Information Systems in Developing Countries*, 80(1): 1-22.

Olarewaju, O. M. and Olasehinde, T. J. 2017. Naira-dollar exchange rate volatility modeling using quadratic moving average conditional heteroscedasticity (QMACH). *EuroEconomica*, 36(2): 106-116.

Olarewaju, O. M., Olarewaju, O. O., Oladejo, T. M. and Migiro, S. O. 2017. Nexus of bank personnel and cost-income ratio (CIR) in Nigeria. *Banks and Bank Systems*, 12(4): 154-162.

Olivia, K. and Skinner, J. 2017. Mainstreaming media into disaster risk reduction and management, South Africa. *Disaster Advances*, 10(7): 1-11.

Zwane, B. K. and Nyide, C. J. 2017. SMME attitudes towards financial bootstrapping: A perspective from a developing economy. *Business and Economic Horizons*, 13(3): 347-356.

## FACULTY OF APPLIED SCIENCES ACCREDITED JOURNAL ARTICLES 2017

- Ally, N. 2017. Enhancing mathematics learning through online quiz testing at a university of technology. PONTE - International Journal of Sciences and Research, 73(11): 62-68.
- Anand, K., Kaviyarasu, K., Muniyasamy, S., Roopan, S. M., Gengan, R. M. and Chuturgoon, A. A. 2017. Bio-synthesis of silver nanoparticles using agroforestry residue and their catalytic degradation for sustainable waste management. Journal of Cluster Science, 28(4): 2279-2291.
- Anand, K., Singh, T., Madhumitha, G., Phulukdaree, A., Gengan, R. M. and Chuturgoon, A. A. 2017. Biosynthesis and computational analysis of amine-ended dual thiol ligand functionalized gold nanoparticles for conventional spectroscopy detection of melamine. Journal of Photochemistry & Photobiology, B: Biology, 169: 75-82.
- Arise, A. K., Nwachukwu, I. D., Aluko, R. E. and Amonsou, E. O. 2017. Structure, composition and functional properties of Storage proteins extracted from bambara groundnut (*Vigna Subterreneae*) landraces. International Journal of Food Science and Technology, 52: 1211-1220.
- Arumugam, V., Redhi, G. G. and Gengan, R. M. 2017. Synthesis, characterization and thermophysical properties of novel 2', 3'-Nepoxypropyl- N-methyl-2-oxopyrrolidinium acetate ionic liquid and their binary mixtures with water or methanol. Journal of Molecular Liquids, 242: 1215-1227.
- Arumugam, V., Sriram, P., Yen, T., Redhi, G. G. and Gengan, R. M. 2017. Nano-material as an excellent catalysis for reducing a series of nitroanilines and dyes: triphosphonated ionic liquid- CuFe<sub>2</sub>O<sub>4</sub>-modified boron nitride. Applied Catalysis B: Environment, 222: 99-114.
- Attimarad, M., Nagaraja, S. H., Aldhubiab, B. E., Nair, A. B. and Venugopal, K. N. 2017. Determination on vildagliptin in rat plasma by capillary electrophoresis tandem mass spectrometry: It's application to pharmacokinetic study. Indian Journal of Pharmaceutical Education and Research, 51(4): 636-643.
- Bakare, B. F., Mtsweni, S. and Rathilal, S. 2017. Characteristics of greywater from different sources within households in a community in Durban, South Africa. Journal of Water Reuse and Desalination, 7(4): 520-528.
- Bansilal, S., Brijlall, D. and Trigueros, M. 2017. An APOS study on pre-service teachers' understanding of injections and surjections. Journal of Mathematical Behavior, 48: 22-37.
- Bhola, V. K., Swalaha, F. M., Nasr, M., Kumari, S. and Bux, F. 2017. Physiological responses of carbon-sequestering microalgae to elevated carbon regimes. European Journal of Phycology, 51(4): 401-412.
- Brijlal, D. and Ndlovu, Z. 2017. Pre-service mathematics teachers' mental constructions of the determinant concepts. International Journal of educational sciences, 14(1-2): 145-156.
- Brijlall, D. 2017. Exploring in-service teachers' definition making of certain classes of geometrical shapes within a van Hiele framework. International Journal of Sciences and Research, 73(7): 305-321.
- Brijlall, D. 2017. Exploring outcomes of a postgraduate mathematics curriculum. Journal for New Generation Sciences, 15(1): 207-223.
- Brijlall, D. 2017. Exploring possible causes of poor performance by engineering students in Fourier transforms: An APOS analysis. PONTE - International Journal of Sciences and Research, 73(9): 111-123.

- Brijlall, D. 2017. Using questionnaires in the learning of congruency of triangles to incite formal and informal reasoning. International Journal of Educational Sciences, 17(1-3): 224-237.
- Brijlall, D. and Maharaj, A. 2017. Using group work as a learning strategy of laplace transform by engineering students. PONTE - International Journal of Sciences and Research, 73(6): 345-354.
- Brijlall, D. and Thabethe, B. M. 2017. An exploration of the utilisation of mathematics skills by technology education pre-service teachers during electronic system design. PONTE - International Journal of Sciences and Research, 73(5): 159-176.
- Chokkareddy, R., Bhajantri, N. K. and Redhi, G. G. 2017. A novel electrode architecture for monitoring rifampicin in various pharmaceuticals. International Journal of Electrochemical Science, 12: 9190-9203.
- Chokkareddy, R., Bhajantri, N. K. and Redhi, G. G. 2017. An enzyme-induced novel biosensor for the sensitive electrochemical determination of ioniazid. Biosensors, 7(2): 1-12.
- Chokkareddy, R., Bhajantri, N. K., Redhi, G. G. and Redhi, D. G. 2017. Ultra-sensitive electrochemical sensor for the determination of pyrazinamide. Current Analytical Chemistry, 14(4): 391-398.
- Dharma, G. B., Bhandary, S., Chropas, D., Venugopala, K. N., Gleiser R. M., Kasumbwe, K. and Odhav, B. 2017. Synthesis and characterization of a novel series of 1, 4-dihydropyridine analogues for larvicidal activity against Anopholes arabiensis. Chemical Biology & Drug Design, 90(3): 397-405.
- Dlamini, R. B., Brijlall, D. and Jojo, Z. 2017. Exploring common errors made by high school students in differential calculus. International Journal of Sciences and Research, 73(8): 310-331.
- Dlamini, R. B., Brijlall, D. and Jojo, Z. 2017. Exploring possible intervention programs to improve learner performance in certain application problems in differential calculus. PONTE - International Journal of Sciences and Research, 73(9): 189-213.
- Dlamini, R. B., Brijlall, D. and Jojo, Z. 2017. Exploring possible causes of poor performance by high school students in differential calculus. PONTE - International Journal of Sciences and Research, 73(8): 295-309.
- Essack, H., Odhav, B. and Mellem, J. J. 2017. Screening of traditional South African leafy vegetables for specific anti-nutritional factors before and after processing. Food Science and Technology, 37(3): 462-471.
- Ghose-Choudhury, A., Guha, P., Paliathanasis A., and Leach P. G. L. 2017. Noetherian symmetries of noncentral forces with drag term. International Journal of Geometric Methods in Modern Physics, 14(2): 1-15.
- Greimel, K. J., Kudanga, T., Nousiainen, P., Sipila, J., Acero, E. H., Nyanhongo, G. S. and Guebitz, G. M. 2017. Two distinct enzymatic approaches for coupling fatty acids onto lignocellulosic materials. Process Biochemistry, 59: 111-115.
- Grobbelaar, H., Napier, C. and Maistry, S. M. 2017. Reinforcing paternalism? The need for a social justice approach to prepare students for community engagement at universities technology. Journal for New Generation Sciences, 15(1): 74-93.
- Gupta, S. K., Ansari, F. A., Nasr, M., Rawat, I., Nayinugari, M. K. and Bux, F. 2017. Cultivation of chlorella sorokiniana and scenedesmus obliquus in wastewater: Fuzzy intelligence for evaluation of growth parameters and metabolites extraction. Journal of Cleaner Production, 147: 419-430.

Harsha, S., Al-dhubiab, E., Nair, B., Attimarad, M., Venugopala, K. N. and Kedarnath, S.A. 2017. Pharmacokinetics and tissue distribution of microspheres prepared by spray drying technique: Targeted drug delivery. *Biomedical Research*, 28(8): 3387-3396.

Ijabadeniyi, O. A. and Mnyandu, E. 2017. Inactivation of heat adapted and chlorine adapted Listeria monocytogenes ATCC 7644 on tomatoes using sodium dodecyl sulphate, levulinic acid and sodium hypochlorite solution. *Italian Journal of Food Safety*, 6(2): 1-11.

Ijabadeniyi, O. A. and Pillay, Y. 2017. Microbial safety of low water activity foods: Study of simulated and Durban household samples. *Journal of Food Quality*, 1-8.

Jaiyeola, A. O., Anand, K., Kasumbwe, K. Ramesh, M. and Gengan, R. M. 2017. Catalytic synthesis of amino chromone phosphonates and their antimicrobial, toxicity and potential HIV-1 RT inhibitors based on silico screening. *Journal of Photochemistry & Photobiology, Biology*, 166: 136-147.

Kanygi, M. A., Katkov, M. V. and Pershin, Y. V. 2017. Similarity between the response of memristive and memcapacitive circuits subjected to ramped voltage. *Journal of Nanophotonics*, 11(3): 1-8.

Kasumbwe, K., Venugopala K. N., Mohanlall, V. and Odhav, B. 2017. Synthetic mono/di-halogenated coumarin derivatives and their anticancer properties. *Anti-cancer Agents in Medicinal Chemistry*, 17(2): 276-285.

Kasumbwe, K., Venugopala, K.N., Mohanlall, V. and Odhav, B. 2017. Anticancer properties of mono/di-halogenated coumarins. *Anti-cancer Agents in Medicinal Chemistry*, 17(2): 276-285.

Khan, F. I., Bisetty, K., Gu, K., Singh, S., Permaul, K. and Hassan, M. I. 2017. Molecular Dynamics Simulation of chitinase I from Thermomyces lanuginosus SSBP to ensure optimal activity. *Molecular Simulation*, 43(7): 480-490.

Khan, F. I., Nizami, B., Gu, K. R., Bisetty, K., Hassan, M. I., Anwer, R. and Wei D.Q. 2017. Structure prediction and functional analyse of a thermostable lipase obtained from shewanella putrefaciens. *Journal of Biomolecular Structure and Dynamics*, 35(3): 2123-2135.

Khan, S., Shahbaaz, M., Bisetty, K., Ahmed, F., and Hassan, I. 2017. Classification and functional analyses of putative conserved proteins from Chlamydophila pneumoniae CWL029. *Interdisciplinary Science Computer Life Science*, 9(1): 96-106.

Khedr, M. A., Pillay, M., Chandrashekharappa, S., Chopra, D., Aldhubiab, B. E., Attimarad, M., Alwassil, O. I., Mlisana, K., Odhav, B. and Venugopala, K. N. 2017. Molecular modelling studies and anti-TB activity of trisubstituted indolizine analogues; molecular docking and dynamic inputs. *Journal of Biomolecular Structure and Dynamics*, 36(8): 2163-2178.

Krishnannair, A., Maharaj, A. and Brijlall, D. 2017. Mathematical literacy curriculum for the first-year non-science major university students: Impressions of purpose versus experience of purpose. *PONTE - International Journal of Sciences and Research*, 73(8): 291-310.

Kudanga, T., Nemadziva, B. and Roes-Hill, M. L. 2017. Laccase catalysis for the synthesis of bioactive compounds. *Appl Microbiol Biotechnol*, 101(1):13-33.

Leach, P. G. L., Maharaj, L. and Andriopoulos, K. 2017. Generalised Riccati Sequences. *International Journal of Sciences and Research*, 73(5): 274-288.

Madhura, L., Kanchi, S., Sabela, M. I., Singh, S., and Bisetty, K. 2017. Membrane technology for water purification. *Environmental Chemistry Letters*, 16(2): 343-365.

Madikizela, L. M. and Chimuka, L. 2017. Occurrence of naproxen, ibuprofen, and diclofenac residues in wastewater and river water of KwaZulu-Natal Province in South Africa. *Environmental Monitoring and Assessment*, 189(7): 348.

Madikizela, L. M. and Chimuka, L. 2017. Simultaneous determination of naproxen, ibuprofen and diclofenac in wastewater using solid-phase extraction with high performance liquid chromatography. *Water SA*, 43(2): 264-274.

Madikizela, L. M., Nkwentsha, N., Mlunguza, N. Y. and Mdluli, P. S. 2017. Physicochemical characterization and in vitro evaluation of the sun protection factor of cosmetic products made from natural clay material. *South African Journal of Chemistry*, 70: 113-119.

Madikizela, L. M., Tavengwa, N. T. and Chimuka, L. 2017. Status of Pharmaceuticals in African water bodies: Occurrence, removal and analytical methods. *Journal of Environmental Management*, 193: 211-220.

Maharaj, A. 2017. A brief history lie symmetries with applications to ordinary differential equations. *PONTE - International Journal of Sciences and Research*, 73(7): 425-448.

Maharaj, A. 2017. Singularity analysis of second-order ordinary differential equations. *International Journal of Sciences and Research*, 73(7): 395-405.

Maharaj, A. 2017. Symmetry properties of a differential sequence of linear equations. *International Journal of Sciences and Research*, 73(9): 285-219.

Maharaj, A. and Brijlall, D. 2017. Exploring MOODLE as a platform in promoting effective mathematics teaching and learning. *PONTE - International Journal of Sciences and Research*, 73(6): 32-49.

Maharaj, A. and Brijlall, D. 2017. Group dynamics involving engineering students solving Fourier series problems. *International Journal of Sciences and Research*, 73(8): 342-354.

Maharaj, A. and Brijlall, D. 2017. Using group work as a learning strategy for inverse laplace transform by engineering students. *PONTE - International Journal of Sciences and Research*, 73(7): 345-354.

Maharaj, A., Leach, P. G. L. and Andriopoulos, K. 2017. Differential sequences generated by first-order recursion operators. *International Journal of Sciences and Research*, 73(5): 223-237.

Maharaj, A., Lortan, D. B. and Govender, M. 2017. Symmetry properties of a novel riccati sequence. *PONTE - International Journal of Sciences and Research*, 73(11): 55-61.

Maistry, S. M. and Lortan, D. B. 2017. Lessons from the global south: Knowledge democracy and epistemic justice in higher education institutions in South Africa. *Journal for New Generation Sciences*, 15(1): 123-139.

Makolomakwa, M., Puri, A. K., Permaul, K. and Singh, S. 2017. Thermo-acid-stable phytase-mediated enhancement of bioethanol production using colocasia esculenta. *Bioresource Technology*, 235: 396-404.

Mawoyo, B., Adebola, P., Gerrano, A. S. and Amosou, E. O. 2017. Effect of genotypes and growth locations on composition and functional properties of amadumbe flours. *Journal of Food Science and Technology*, 54(11): 3577-3586.

Mkhize, B. T., Mabaso, M., Mamba, T., Napier, C. E. and Mkhize-Kwitshana, Z. L. 2017. The interaction between HIV and intestinal helminth parasites coinfection with nutrition among adults in KwaZulu-Natal, South Africa. BioMed Research International, 2: 1-13.

Mkhize, T. G., Govinder, K., Moyo, S. and Meleshko, S. V. 2017. Linearization criteria for system of two second-order stochastic ordinary differential equations. Applied Mathematics and Computation, 301: 25-35.

Mlambo, M., Harris, R. A., Mashazi, P., Sabela, M., Kanchi, S., Madikizela, L. M., Shumbula, P. N., Moloto, N., Hlatshwayo, T. T. and Mdluli, P. S. 2017. Computational and experimental evaluation of selective substitution of thiolated coumarin derivates on gold nanoparticles: Surface enhancing raman scattering and electrochemical studies. Applied Surface Science, 396: 695-704.

Molholt, T. E., Gunnlaugsson, H. P., Johnston, K., Mantovan, R., Roder, J., Adoons, V., Gerami, A. M., Masenda, H., Matveyev, Y. A., Ncube, M., Unzueta, I., Bharuth-Ram, K., Gislason, H. P., Krastev, P., Langouche, G., Naidoo, D., Olafsson, S., Zenkevich, A. and Isolde, C. 2017. Charge States and lattice sites of dilute implanted Sn in ZnO. Journal of Physics: Condensed Matter, 29(15): 1-3.

Moodley, K. G., Sobantu, P., Gericke, G., Chetty, D. K. and Pienaar, D. H. 2017. Comparison of UV and ELS detectors in HSPEC analysis of natural organic matter in dam water. Water SA, 43(3): 520-528.

Mthembu, C. L., Sabela, M. I., Mlambo, M., Madikizela, L. M., Kanchi, S., Gumede, H. and Mdluli, P. S. 2017. Google analytics and quick response for advancement of gold nanoparticle-based dual lateral flow immunoassay for malaria - Plasmodium lactate dehydrogenase (pLDH). Analytical Methods, 9(41): 5943-5951.

Mtolo, M., Gerrano, A. B. and Mellem, J. J. 2017. Effect of simulated gastrointestinal digestion on the phenolic compound content and in vitro antioxidant capacity of processed cowpea (*V. unguiculata*) cultivars. CyTA Journal of Food, 15(3): 391-399.

Mukurumbira, A. R., Mariano, M., Dufresne, A., Mellem, J. J. and Amonsou, E. O. 2017. Microstructure, thermal properties and crystallinity of amadumbe starch nanocrystals. International Journal of Biological Macromolecules, 102: 241-247.

Mukurumbira, A. R., Mellem, J. J. and Amonsou, E. O. 2017. Effects of amadumbe starch nanocrystals on the physicochemical properties of starch biocomposite films. Carbohydrate Polymers, 165: 142-148.

Murugesan, A., Gengan, R. M. and Krishnan, A. 2017. Green approach: Nanocrystalline titania-based sulfonic acid catalyst for the synthesis of piperazinyl-quinolinyl pyran derivates. Advanced Materials Letters, 8(2): 128-135.

Murugesan, A., Gengan, R. M. and Krishnan, A. 2017. Sulfonic acid functionalized boron nitride nano materials as amicrowave-assisted efficient and highly biologically active one-pot synthesis of piperazinyl-quinolinyl fused benzo [c]acridine derivatives. Materials Chemistry and Physics, 188: 154-167.

Murugesan, A., Gengan, R. M. and Lin, C. 2017. Efficient synthesis of ethyl-piperazinyl quinolinyl-(E)-chalcone derivatives via Claisen-Schmidt reaction by using TiO<sub>2</sub>-BPTETSA catalyst. Journal of the Taiwan Institute of Chemical Engineers, 80: 852- 866.

Murugesan, A., Gengan, R. M., Moodley, K. G. and Gericke, G. 2017. Microwave-assisted: Boron nitride nano materials based sulfonic acid catalyst for the synthesis of biologically active ethylpiperazinyl-quinolinyl fused acridine derivatives. Advanced Materials Letters, 8(7): 752-818.

Murugesan, A., Gengan, R. M., Rajamanikandan, R. and Ilanchelian, M. 2017. One-pot synthesis via 1, 3-dipolar cycloaddition reaction to piperazinyl-quinolinyl dispiro heterocyclic derivatives and spectrofluorometric and molecular docking studies on their binding with human serum albumin. *Journal of Molecular Structure*, 1149: 439-451.

Murugesan, A., Gengan, R. M., Rajamanikandan, R., Ilanchelian, M. and Lin, C. 2017. One-pot synthesis of claisen-schmidt reaction through E-chalcone derivatives: Spectral studies in human serum albumin protein binding and molecular docking investigation. *Synthetic Communications*, 47(20): 1884-1904.

Naidoo, T., Gerrano, A. B. and Mellem, J. J. 2017. The effect of processing on in vitro protein and starch digestibility and predictive glycaemic index of five. *Fascicle VI - Food Technology*, 41(2): 31-41.

Napier, C., Oldwage-Theron, W. H. and Grobbelaar, H. H. 2017. Testing of developed food based dietary guidelines for the elderly in South Africa. *South African Journal of Clinical Nutrition*, 31(3): 55-61.

Naz, H., Shahbaaz, M., Haque Md. A., Brisetty, K., Islam, A., Ahmad, F. and Hassan Md. I. 2017. Urea-induced denaturation of human calcium/calmodulin-dependent protein kinase IV: a combined spectroscopic and MD simulation studies. *Journal of Biomolecular Structure and Dynamics*, 35(3): 463-475.

Nduli, M. and Deenadayalu, N. 2017. Thermophysical properties of binary mixtures of (methanol or 1-ethyl-3-methylimidazolium acetate + furfural or furfuryl alcohol) at various temperatures. *Journal of Molecular Liquids*, 241: 407-421.

Nzama, P. F. and Napier, C. 2017. Nutritional adequacy of menus offered to children of 2-5 years in registered childcare facilities in Inanda, KwaZulu-Natal Province, South Africa. *South African Journal of Child Health*, 11(2): 80-85.

Odun-ayo, F., Mellem, J. and Reddy, L. 2017. The effect of modified citrus pectin-probiotic on faecal lactobacilli in balb/c mice. *Food Science and Technology*, 37(3): 478-482.

Oguis, G. F., Moyo, S. and Meleshko, S. V. 2017. Complete group classification of systems of two nonlinear second-Order ordinary differential equations of the form  $y''=F(y)$ . *Commun Nonlinear Sci Numer Simulat*, 44: 318-333.

Oladunjoye, A. O., Oyewole, S. A., Singh, S. and Ijabadeniyi, O. A. 2017. Prediction of listeria monocytogenes ATCC 7644 growth on fresh-cut produce treated with bacteriophage and sucrose monolaurate by using artificial neural network. *LWT - Food Science and Technology*, 76: 9-17.

Oladunjoye, A. O., Singh, S. and Ijabadeniyi, O.A. 2017. Trisodium phosphate enhanced phage lysis of listeria monocytogenes growth on fresh-cut produce. *LWT - Food Science and Technology*, 86: 312-317.

Oyedeffi, A. B., Sobukola, O. P., Henshaw, F., Adegunwa, M. O., Ijabadeniyi, O. A., Sanni, L. O. and Tomlins, K. I. 2017. Effect of frying treatments on texture and color parameters of deep fat fried yellow fleshed cassava chips. *Journal of Food Quality*, (2017) 1-11.

Oyeyinka, S. A., Singh, S and Amonsou, E. O. 2017. Physicochemical and mechanical properties of bambara groundnut starch films modified with stearic acid. *Journal of Food Science*, 82(1): 118-123.

Oyeyinka, S. A., Singh, S., Venter, S. L. and Amonsou, E. O. 2017. Effect of lipid types on complexation and some physicochemical properties of Bambara groundnut starch. *Starch - Starke*, 69(3-4): 1-10.

Oyeyinka, S. A., Singh, S. and Amonsou, E. O. 2017. Physicochemical properties of starches extracted from bambara groundnut landraces. *Starch/Starke*, 69(3-4): 1-8.

Sanchez-Borzone, M. E., Marian, M. E., Miguel, V., Gleiser, R. M., Odhav, B., Venugopala, K. N. and Garcia, D. A. 2017. Membrane effects of dihydropyrimidine analogues with larvical activity. *Colloids and surfaces B: Biointerfaces*, 150: 106-113.

Sandeep, C., Venugopala, K. N., Khedr, M. A., Padmashali, B., Kulkarni, R. S., Venugopala, R. and Odhav, B. 2017. Design and synthesis of novel indolizine analogues as COX-2 inhibitors: Computational perspectives ans in vitro screening. *Indian Journal of Pharmaceutical Education and Research*, 51(3): 452-460.

Schmidt, L. M., Mthembu, L. D., Reddy, P., Deenadayalu, N., Kaltschmitt, M. and Smirnova, I. 2017. Levulinic acid production integrated into a sugarcane bagasse based biorefinery using thermal-enzymatic pretreatment. *Industrial Crops and Products*, 99: 172-178.

Singh, A., Venugopala, K. N., Khedr, M. A., Pillay, M., Nwaeze, K. U., Coovadia, Y., Shode, F. and Odhav, B. 2017. Antimycobacterial, docking and molecular dynamic studies of pentacyclic triterpenes from *buddleja saligna* leaves. *Journal of Biomolecular Structure and Dynamics*, 35(12): 2654-2664.

Singh, S., Bahadur, I., Redhi, G. G., Karlapudi, S., Ramjugernath, D., Hofman, T. and Ebenso, E. E. 2017. Cibulka correlation for ternary excess/deviation properties of  $\{[C2mim][EtSO_4] (X1) + \text{acetic or Propionic acid (X2)} + \text{acetonitrile (X3)}\}$  systems at different temperatures. *Journal of Chemical Thermodynamics*, 107: 153-162.

Sinuvasan, R. Tamizhmani, K. M. and Leach, P. G. L. 2017. Symmetries, travelling-wave and self-similar solutions of the Burgers hierarchy. *Applied Mathematics and Computation*, 303: 165-170.

Sipahli, S., Mohanlall, V. and Melem, J. J. 2017. Stability and degradation kinetics of crude anthocyanin extracts from *H. sabdariffa*. *Food Science and Technology*, 37(2): 209-215.

Tshemese, Z., Mlowe, S., Revaprasadu, N. and Deenadayalu, N. 2017. Synthesis of CdS quantum dots in an imidazolium based ionic liquid. *Materials Science in Semiconductor Processing*, 71: 258-262.

Tywabi, Z., Deenadayalu, N. and Sithole, B. 2017. Dissolution of South African eucalyptus sawdust wood in  $[Emim][OAc]$ /co-solvent mixtures. *Journal of Scientific and Industrial Research*, 76(3): 166-172.

Tywabi, Z., Deenadayalu, N. and Sithole, B. 2017. Study of cellulose-rich materials recovered after dissolution of sulphite pulp from South African eucalyptus wood in  $(C2mim)(OAc)$ /co-solvent mixtures. *Journal of Scientific and Industrial Research*, 76(3): 540-544.

Umapathi, R., Mkhize, T. Y., Venkatesu, P. and Deenadayalu, N. 2017. The influence of various alkylammonium-based ionic liquids on the hydration state of temperature-responsive polymer. *Journal of Molecular Liquids*, 225: 186-194.

Venugopala, K. N. 2017. Design, microwave assisted synthesis and characterization of substituted 1,2,4-oxadiazole analogues as promising pharmacological agents. *Asian Journal of Chemistry*, 29(8): 1-4.

Venugopala, K. N. 2017. Design, synthesis and characterization of benzothiazole analogues as promising pharmacological agents. *Journal of Young Pharmacists*, 9(2) 9(2): 158-161.

Venugopala, K. N., Chandrashekharappa, S., Bhandary, S., Chopra, D., Khedr, M. A., Aldhubiab, B. E., Attimarad, M. and Odhav, B. 2017. Efficient synthesis and characterization of novel substituted 3-benzoylindolizine analogues via the cyclization of aromatic cycloimmoniumylides with electron-deficient alkenes. *Current Organic Synthesis*, 15(3): 388-395.

Zungu, S. S., Madikizela, L. M., Chimuka, L. and Mdluli, P. S. 2017. Synthesis and application of molecularly imprinted polymer in the solid-phase extraction of ketoprofen from wastewater. *Comptes Rendus Chimie*, 20(5): 585-591.

## **FACULTY OF APPLIED SCIENCES ACCREDITED JOURNAL ARTICLES 2016**

Hussain, S. B. 2016. The impact of social media within sporting industry. *Problems and Perspectives in Management*, 13(4): 223-229.

## **FACULTY OF ARTS & DESIGN ACCREDITED JOURNAL ARTICLES 2017**

Agbede, G. T. and Makombe, R. 2017. Stylistics in South African and Nigerian bank advertisements. *Journal of Communication*, 8(2): 141-153.

Cavanagh, M. and Pete, M. 2017. Fashion students choose how to learn by constructing videos of pattern making. *British Journal of Educational Technology*, 48(6): 1502-1511.

Chapman, M. 2017. The academic article in an age of mechanical production or reproduction. *Current Writing*, 29(1): 66-75.

Chapman, M. 2017. Vuurbies or Firebeast. *Tydsrik van die Afrikaanse Letterkundevereniging*, XXVIII(I): 1013-4573.

Coopasami, M., Knight, S. and Pete, M. 2017. e-Learning readiness amongst nursing students at the Durban University of Technology. *Health SA Gesondheid*, 22, 300-306.

de Jong, M. and Collins, A. 2017. Love and looks: A discourse of romantic love and consumer culture. *Acta Academica*, 49(1): 84-102.

Maeko, M. S. A. and Makgato, M. 2017. The transfer of requisite civil technology hands-on practical skills to student teachers in South African civil technology teacher training universities. *International Journal of Educational Science*, 18(1-3): 147-157.

Matsha, R. M. and Stiebel, L. 2017. Deep sea writing: recent conversations with Lindsey Collen, writer and activist from Mauritius. *Journal of the Indian Ocean Region*, 13(3): 326-334.

Meyiwa, T. 2017. Transformative action research for a rural African university. *Gender and Behaviour*, 15(2): 8572-8580.

Meyiwa, T., Williamson, C., Masetle, T. and Ntabanye, G. 2017. A twenty-year review of policy landscapes for gender-based violence in South Africa. *Gender and Behaviour*, 15(2): 8607-8617.

Mheta, G. 2017. A cognitive analysis of metaphor in Shona terminological dictionaries. *Southern African Linguistics and Applied Language Studies*, 35(3): 311-320.

Mheta, G., Mangoya, E. and Makondo, L. 2017. Shona personal names of spiritual significance. *Nomina Africana*, 31(1): 1-9.

Mpungose, J. E. and Ngwenya, T. H. 2017. School leadership and accountability in managerialist times: Implications for South African public schools. *Education as Change*, 21(3): 1-16.

Mukeredzi, T. G. 2017. Mentoring in a cohort model of practicum: Mentors and preservice teachers' experiences in a rural South African school. *Sage Open*, 7(2): 1-15.

Neethling, B. 2017. The role of anthroponymic commemoration on wine labels in South Africa. *Names - A journal of Onomastics*, 35(2): 65-77.

Nkambule, T. and Mukeredzi, T. G. 2017. Pre-service teachers' professional learning experiences during rural teaching practice in Acornhoek, Mpumalanga Province. *South African Journal of Education*, 37(3): 1-9.

Oparinde, K. M. 2017. Language endangerment: The english language creating a concern for the possible extinction of Yoruba language. *Journal of Communication*, 8(2): 112-119.

Oparinde, K. M., Agbede, G. T. and Bariki, M. E. M. 2017. Student/youth leadership development in contemporary societies: A review attempt. *Journal of Social Sciences*, 53(1): 13-19.

Oparinde, K. M., Makhubu, R. L. and Bariki, I. 2017. A comparative socio-semiotic perspective of invectives in two African languages: IsiZulu and Yoruba. *Journal of Social Sciences*, 53(1): 14-26.

Preece, J. 2017. Globalisation in Africa: reflecting on Peter Jarvis's superstructure and substructure model. *International Journal of Lifelong Education*, 36(1-2): 195-209.

Rule, P. and Land, S. 2017. Finding the plot in South African reading education. *Reading and Writing*, 8(1): 1-8.

## **ACCREDITED JOURNAL ARTICLES 2016**

Makombe, R. and Agbede, G. T. 2016. Challenging power through social media: A review of selected memes of Robert Mugabe's fall. *Communicare*, 35(2): 39-54.

Naidoo, K., Naidoo, R. and Ramdass, K. 2016. Comparing a hybrid mathematics course with a conventional mathematics course: A case study at a university of technology. *International Journal of Educational Sciences*, 15(3): 392-398.

## **FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT**

### **ACCREDITED JOURNAL ARTICLES 2017**

Bakare, B. F., Shabangu, K. and Chetty, M. 2017. Brewery wastewater treatment using laboratory scale aerobic sequencing batch reactor. *South African Journal of Chemical Engineering*, 24: 128-134.

Cherop, P. T., Kiambi, S. L. and Kosgey, E. K. 2017. Effect of non-ionic cellulose ethers on properties of white portland cement. *International Journal of Applied Engineering Research*, 12(10): 2502-2508.

Cherop, P. T., Kiambi, S. L. and Kosgey, E. K. 2017. Influence of vinyl acetate-ethylene copolymer on early-age ettringite formation and behavior in OPC/CAC hemihydrate gypsum binder system. *International Journal of Applied Engineering Research*, 12(1): 11-21.

Chollom, M. N., Pikwa, K., Rathilal, S. and Pillay, V. L. 2017. Fouling mitigation on a woven fibre microfiltration membrane for the treatment of raw water. *Journal of Chemical Engineering*, 23: 1-9.

Ebhota, W. and Tabakov, P. Y. 2017. Hydropower potentials and effects of poor manufacturing infrastructure on small hydropower development in Sub-Saharan Africa. *International Journal of Energy Economics and Policy*, 7(5): 60-67.

Hamatwi, E., Davidson, I. E. and Gitau, M. N. 2017. Rotor speed control of a direct-driven permanent magnet synchronous generator-based wind turbine using phase-lag compensators to optimize wind power extraction. *Journal of Control Science and Engineering*, (2017): 1-18.

Isa, Y. M. and Ganda, E. T. 2017. Bio-oil as a potential source of petroleum range fuels. *Renewable and Sustainable Energy Reviews*, 81: 69-75.

Kosgey, K. E., Kiambi, S. L. and Cherop, P. T. 2017. Analysis of potassium nitrate purification with recovery of solvent through single effect mechanical vapor compression. *South African Journal of Chemical Engineering*, 24: 1-7.

Makhathini, T. P. and Rathilal, S. 2017. Investigation of BTEX compounds adsorption onto polystyrenic resin. *South African Journal of Chemical engineering*, 23: 71-80.

Mohan, T. P. and Kanny, K. 2017. Mechanical and thermal properties of nanoclay-treated banana fibers. *Journal of Natural Fibers*, 14(5): 718-726.

Ogunboyo, P. T., Tiako, R. and Davidson, I. 2017. Application of dynamic voltage restorer for power quality improvement in low voltage electrical power distribution network: An overview. *International Journal of Engineering Research in Africa International Journal of Engineering Research in Africa*, 28: 1-9.

Olurotimi, E. O., Sokoya, O., Ojo, J. S. and Owolawi, P. A. 2017. Observation of bright-band height data from TRMM-PR for satellite communication in South Africa. *Journal of Atmospheric and Solar-Terrestrial Physics*, 160: 24-33.

Olusanya, J., Kanny, K. and Singh, S. 2017. Bulk cure study of nanoclay filled epoxy glass fiber reinforced composite material. *Journal of Polymer Engineering*, 37(3): 247-259.

Onwubu, S. C., Vahed, A., Singh, S. and Kanny, K. M. 2017. Physicochemical characterization of a dental eggshell powder abrasive material. *Journal of Applied Biomaterials and Functional Materials*, 15(4):341-346.

Pillay, N. and Govender, P. 2017. Multi-class SVMs for automatic performance classification of closed loop controllers. *Control Engineering and Applied Informatics (CEAI)*, 19(3): 3-12.

Sincuba, N. D., Rathilal, S. and Carsky, M. 2017. Effect of sieve tray hole diameter on the efficiency of a vibrating plate extractor. *South African Journal of Chemical engineering*, 23: 38-41.

Tetteh, E. K., Rathilal, S. and Chollom, M. N. 2017. Treatment of industrial mineral oil wastewater-optimisation of coagulation flotation process using response surface methodology (RSM). *International Journal of Applied Engineering Research*, 12(3): 13084-13091.

Tetteh, E. K., Rathilal, S. and Robinson, K. 2017. Treatment of industrial mineral oil wastewater-effects of coagulant type and dosage. *Water Practice and Technology*, 12(1): 139-145.

## **FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT ACCREDITED JOURNAL ARTICLES 2016**

Alfa, D., Rathilal, S., Pillay, V. L., Pikwa, K. and Chollom, M. N. 2016. Development and evaluation of a smallscale water disinfection system. *Journal of Water, Sanitation and Hygiene for Development*, 6(3): 389-400.

Amoo, O. T. and Dzwairo, B. 2016. Trend analysis and artificial neural networks forecasting for rainfall prediction. *Environmental Economics*, 7(4): 149-160.

## **FACULTY OF HEALTH SCIENCES ACCREDITED JOURNAL ARTICLES 2017**

Adam, J. K., Singh, S. and Nasr, M. and Krishna, S. B. N. 2017. Impact of airogym exercise on solute removal and oedema on end-stage kidney disease patients: A randomised controlled trial. *Medical Technology SA*, 31(1): 1-8.

Arora, K., Sharma, S., Krishna, S. B. N., Adam, J. K., Kumar, A. 2017. Non-edible oil cakes as a novel substrate for DPA production and augmenting biocontrol activity of paecilomycesvariotii. *Frontiers in Microbiology*, 8: 1-12.  
Bhagwan, R. 2017. Community engagement within a social work programme in rural India. *Social Work*, 53(2): 315-329.

Coopasami, M., Knight, S. and Pete, M. 2017. e-Learning readiness amongst nursing students at the Durban University of Technology. *Health SA Gesondheid*, 22: 300-306.

Dalasile, M. and Reddy, P. 2017. Respiratory health risks and exposure to particulate matter (PM2.5) among informal waste pickers at a landfill site in Durban, South Africa. *African Journal for Physical Activity and Health Sciences (AJPHE)*, 23(1): 45-58.

Govender, S., Brysiewicz, P. and Bhengu, B. 2017. Pre-licensure experiences of nurses performing compulsory community service in KwaZulu-Natal, South Africa: A qualitative study. *International Journal of Africa Nursing Sciences*, 6: 14-21.

Govender, T., Reddy, P. and Ghuman, S. 2017. Obstetric outcomes and antenatal access among adolescent pregnancies in KwaZulu-Natal, South Africa. *South African Family Practice*, 60(1): 1-7.

Haffejee, F., Naicker, T., Singh, M., Kharsany, A. B., Adhikari, M., Singh, R., Maharaj, N., and Moodley, J. 2017. Placental leptin mRNA expression and serum leptin levels in pre-eclampsia associated with HIV infection. *Journal of Obstetrics and Gynaecology*, 37(1): 48-52.

Haffejee, F., Ngidi, N.D. and Singh, D. 2017. Is the HIV epidemic changing views on marriage aspirations? Perspectives of university students in Durban, South Africa. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 30(7): 853-856.

Haffejee, F., O'Connor, L., Govender, R., Sibiya, M.N., Ghuman, S., Ngxongo, T. and Borg, D. 2017. Factors associated with unintended pregnancy among women attending a public health facility in KwaZulu-Natal, South Africa. *South African Family Practice*, 1(1): 1-5.

Haffejee, F., Van Wyk, J. and Hira, V. 2017. Use of role-play and community engagement to teach parasitic diseases. *African Journal of Health Professions Education*, 9(2): 51-53.

Karamchand, A. and Kistnasamy, E. J. 2017. Experiences of community service environmental health practitioners. *SA Journal of Human Resources Management*, 15(1): 1-8.

Koch, G. V. V., Swindon, L. D. and Pillay, J. D. 2017. Training requirements for the administration of intravenous contrast media by radiographers: Radiologists' perspectives. *African Journal Health Professions Education (AJHPE)*, 9(3): 128-132.

Krishna, S. B. N., Wilson, S. L. and Adam, J. K. 2017. The vaginal microbiota in women health and disease: Current understanding and future perspectives - A review. *Currents Trends in Biotechnology and Pharmacy*, 11(2): 103-112.

Mahlanze, H. T. and Sibiya, M. N. 2017. Perceptions of student nurses on the writing of reflective journals as a means for personal, professional and clinical learning development. *Health AS Gesondheid*, 22: 79-86.

- Malapermal, V., Botha, I., Krishna, S. B. N. and Mbatha, J. N. 2017. Enhancing antidiabetic and antimicrobial performance of *ocimum basilicum*, and *ocimum sanctum* (L.) using silver nanoparticles. *Saudi Journal of Biological Sciences*, 2(24): 1294-1305.
- Mosina, N. L., Krishna, S. B. N., Ramnath, L. and Govinden, R. 2017. Screening, production and partial characterization of xylanases from woodchips fungi with potential application in bioethanol production. *Current trends in Biological and Pharmacy*, 11(4): 414-423.
- Naicker, A., Venter, C. S., MacIntyre, U. E. and Ellis, S. 2017. Prevalence of selected intermediate risk factors for non-communicable diseases in an apparently healthy Indian Community in KwaZulu-Natal, South Africa. *Journal of Community Health*, 42: 122-128.
- Ngxongo, T. S. P., Sibiya, M. N. and Gwele, N. S. 2017. Implementation of basic antenatal care approach in eThekweni district, KwaZulu-Natal, South Africa. *African Journal for Physical Activity and Health Sciences (AJPHE)*, 23(2): 273-285.
- Ngxongo, T. S. P., Sibiya, M.N. and Gwele, N. S. 2017. Implementation of basic antenatal care approach: A tailored practice framework for eThekweni district, KwaZulu-Natal. *International Journal of Africa Nursing Sciences*, 7: 62-67.
- Pillay, J. D. 2017. A case study of pedometer-recorded steps along the Himalayan mountain range. *African Journal Physical Activity and health Sciences*, 23(1-2): 152-159.
- Pillay, J. D. 2017. Selfies 2015: Peer teaching through video clips – a case study. *African Journal of Health Professions Education*, 9(4): 164-167.
- Prakaschandra, R. and Naidoo, D. P. 2017. Increased waist circumference is the main driver for the development of the metabolic syndrome in South African Asian Indians. *Diabetes & Metabolic Syndrome: Clinical Research and Reviews*, 11(1): 81-85.
- Shozi, T. and Haffajee, F. 2017. Examining First-year Student Experiences: What informs their contraceptive choices? A case study of Durban University of Technology. *Journal of Human Ecology*, 57(1-2): 11-19.
- Sibiya, M. N., Maharaj, L. and Bhagwan, R. 2017. Perception of professional nurses towards complementary and alternative modalities (CAM) in the uMgungundlovu District, KwaZulu-Natal. *International Journal of Africa Nursing Sciences*, 7: 18-23.
- Stanton, D., Hardcastle, T., Muhlbauer, D. and Van Zyl, D. 2017. Cervical collars and immobilisation: A South African best practice recommendation. *African Journal of Emergency Medicine*, 7(1): 4-8.
- Thandar, Y., Botha, J., Sartorius, B. and Mosam, A. 2017. An insight into the use of complementary and alternative medicines among patients with atopiv eczema in central Durban, South Africa. *African Journal of Traditional Complementary and Alternative Medicines*, 14(6): 10-19.
- Thandar, Y., Gray, A., and Mosam, A. 2017. Topical herbal medicines for atopic aczema: a sytematic review of randomized controlled trials. *British Journal of Dermatology*, 176(2): 330-343.
- Vahed, A. and Cruickshank, G. 2017. Integrating academic support to develop undergraduate research in dental technology: A case study in a South African university of technology. *Innovations in Education and teaching International*, 55(5): 566-574.

Van Wyk, J. and Haffeje, F. 2017. Benefits of group learning as a collaborative strategy in a diverse higher education context. International Journal of Educational Sciences, 18(1-3): 158-163.

Wilson, S. L., Adam, J. K. and Krishna, S. B. N. 2017. Effects of vaginal lubricants on in-vitro progressive spermatozoa motility. African Journal of Reproductive Health, 21(3): 96-101.

## FACULTY OF MANAGEMENT SCIENCES ACCREDITED JOURNAL ARTICLES 2017

Bakre, O. and Dorasamy, N. 2017. Driving urban-rural migration through investment in water resource management in subsistence farming: The case of Machibini. Environmental Economics, 8(1): 66-74.

Bakre, O. and Dorasamy, N. 2017. Transforming the rural agricultural landscape through groundwater optimisation: Exploring a Chinse-South African partnership. Commonwealth Youth and Development, 15(1): 1-23.

Chari, F. and Ngcamu, B. S. 2017. The impact of collaborative strategies on disaster risk reduction in Zimbabwe dairy supply chains in 2016. The Journal for Transdisciplinary Research Southern Africa, 13(1): 213-221.

Chari, F. and Ngcamu, S. 2017. An assessment of the impact of disaster risks on dairy supply chain performance in Zimbabwe. Cogent Engineering, 4(1): 1-14.

Chili, N. S. and Ngxongo, N. A. 2017. Challenges to active community involvement in tourism development at Didima Resort - a case study of Umhlwazini community in Bergville. Journal of Hospitality, Tourism and Leisure, 6(2): 1-15.

Chili, N. S. and Ngxongo, N. A. 2017. The role of community leadership in fostering an agenda of active community participation in rural regional tourism development: perspectives from Umhlwazi. Journal of Hospitality, Tourism and Leisure, 6(4): 1-12.

Chili, N. S., Ngxongo, N. A. and Dladla, S. 2017. The radical outcomes of tourism development on the natural environment in coastal areas. Journal of Hospitality, Tourism and Leisure, 6(4): 1-10.

Chollom, M. N., Pikwa, K., Rathilal, S. and Pillay, V.L. 2017. Fouling mitigation on a woven fibre microfiltration membrane for the treatment of raw water. Journal of Chemical Engineering, 23: 1-9.

Corbishley, K. M. 2017. Retail loyalty programmes: Relationships between the customer and the retailer in South Africa - An exploratory study. Journal of Business and Retail Management Research, 11(4).

Dorasamy, N. 2017. Citizen participation and needs as an input tool for local government quality management. Risk Governance and Control: Financial Markets & Institutions, 7(2): 56-66.

Fomunyam, K. G. 2017. Decolonising the future in the untransformed present in South African higher education. Perspectives in Education, 35(2): 168-180.

Fomunyam, K. G. 2017. Decolonising the engineering curriculum in a South African University of Technology. International Journal of Applied Engineering Research, 12(17): 6797-6805.

Ganesh, S., Rampersad, R. and Dorasamy, N. 2017. A review of quality management systems in South Africa HIV-AIDS programmes: A pre-requisite for sustainable health delivery. Journal of Economics and Behavioral Studies (JEBS), 9(1): 135-140.

- Giampiccoli, A. 2017. The Italian tourism market and South Africa: an initial investigation on the potential honeymoon market. *African Journal of Hospitality, Tourism and Leisure*, 6(1): 1-11.
- Govender, I. G. 2017. Demand and readiness for monitoring and evaluation in a developmental state: A case study of KwaZulu-Natal province, South Africa. *Journal of Human Ecology*, 58(1-2): 34-40.
- Govender, I. G. 2017. Development monitoring and evaluation systems enhancing local economic development outcomes in South Africa. *The Anthropologist*, 28(1-2): 19-29.
- Govender, I. G. 2017. Evaluating the use of the mixed research strategy in the department of public management and economics: A case of the University of Technology. *Journal of Public Administration*, 52(1): 247-259.
- Govender, J. P. and Govender, K. 2017. Evaluating service quality at a public hospital in a developing economy: An exploratory study. *International Journal of Applied Business and Economic Research*, 15(25): 1-16.
- Hove, M. 2017. The necessity of security sector reform in Zimbabwe. *South African Journal of Political Studies*, 44(3): 425-445.
- Hove, M. and Chenzi, V. 2017. Prophets of doom': The Zimbabwean Christian community and contemporary politics. *Insight on Africa*, 9(2): 173-195.
- Hove, M. and Ndawana, E. 2017. Regime-change agenda: the Egyptian experience from 2011 to 2015. *Contemporary Arab Affairs*, 10(1): 32-50.
- Jali, L. F. and Lekhanya, M. L. 2017. Critical analysis of leadership governance and its implications in the universities: A case study of South African universities. *Problems and Perspectives in Management*, 15(3): 157-165.
- Lekhanya, L. M. and Dlamini, H. L. 2017. Customer's perception towards product quality of automotive SMEs operating in Metropolitan areas, and consideration of environmental impact. *Environmental Economics*, 8(1): 36-45.
- Lekhanya, L. M. Olajumoke, N. G. and Dorasamy, N. 2017. Exploring fast moving consumer goods (FMCG) small, medium and micro enterprises manufacturers' need for innovation to achieve growth. *Environmental Economics*, 8(2): 8-16.
- Mabaso, C. M. and Dlamini, B.I. 2017. Impact of compensation and benefits on job satisfaction. *Research Journal of Business Management*, 11: 80-90.
- Magadulela, N. 2017. Tackling sexual and gender-based violence on campus: An intervention at the Durban University of Technology. *Agenda*, 31(2): 99-108.
- Matsiliza, N. 2017. Corporate governance of the state-owned enterprises in an emerging country: Risk Management and related issues. *Governance & control: Financial markets & Institution*, 7(3): 35-43.
- Matsiliza, N. 2017. Motoring and evaluation of municipal planning. *Public and Municipal Finance*, 6(4): 15-22.
- Matsiliza, N. 2017. Seeking strategies for sustainability in tourism entrepreneurship in South Africa. *African Journal of Hospitality, Tourism and Leisure*, 6(4): 1-10.
- Matsiliza, N. and Zonke, N. 2017. Accountability and Integrity as unique column of good governance. *Public and Municipal Finance*, 6(1): 75-82.

- Memka, D. and Lekhanya, M. L. 2017. Technological challenges influencing the implementation of green energy in the SME sector in KwaZulu-Natal (KZN). *Environmental Economics*, 8(3): 157-164.
- Mnguni, E. M. and Giampiccoli, A. 2017. Community-based tourism development: A hiking trails perspective. *African Journal of Hospitality, Tourism and Leisure*, 6(1): 1-17.
- Moloantao, M. E. and Dorasamy, N. 2017. Job satisfaction among academic employees in institutions of higher learning. *Problems and Perspectives in Management*, 15(3): 193-200.
- Mtapuri, O., Giampiccoli, A. and Jugmohan, S. 2017. Marketing community-based tourism ventures: Pathways in a marketing route model. *Journal for New Generation Sciences*, 15(1): 385-401.
- Mugova, S. 2017. Financial sector development and firm growth in BRICS countries. *Risk Governance and Control: Financial Markets and Institutions*, 7(4): 126-134.
- Mugova, S. 2017. Trade credit and bank credit as alternative governance structures in South Africa: Evidence from banking sector development. *Banks and Bank Systems*, 12(3): 204-214.
- Mugova, S. and Sachs, P. R. 2017. Corporate governance and credit financing in a developing economy. *Corporate Ownership & Control*, 14(4): 341-349.
- Ngcamu, B. S. 2017. Quality of worklife dimensions in universities: A systematic review. *Global Journal of Health Science*, 9(10): 118-126.
- Ngcamu, B. S. 2017. The effects of leadership traits on transformation: A case study of a South African university. *The Journal for Transdisciplinary Research Southern Africa*, 13(1): 1-12.
- Ngobese, N., Mason, R. B. and Maharaj, M. 2017. The effect of service delivery in public community service centres: A case of an emergency economy. *Risk Governance & Control: Financial Markets and Institutions*, 7(3): 44-54.
- Ngxongo, N. and Chili, N. 2017. The nature of host community participation in informative consultation and decision-making processes in tourism development: A case study of Umhluwazini, Bergville, KwaZulu-Natal. *Journal of behavioral Studies*, 9(5): 93-105.
- Njapha, Z. and Lekhanya, M. L. 2014. The implications of company corporate social responsibilities on the development of local communities. *Corporate Ownership & Control*, 14(4): 405-412.
- Penceliah, D. and Tinonetsana, F. 2017. The influence of packaging elements on buying behavior for convenience goods amongst customers. *Journal of Economics and Behavioral Studies*, 9(5): 200-208.
- Pillay, M. A., Mbambo, S. N. and Mason, R. B. 2017. Service quality's role in students' decisions to study at further education and training colleges. *International Journal of Educational sciences*, 18(1-3): 87-100.
- Pillay, S., Reddy, P. S. and Morgan, D. 2017. Institutional isomorphism and whistle-blowing intentions in public sector institutions. *Publication Management Review*, 19(4): 423-442.
- Quao, K. H., Lekhanya, L. M. and Dorasamy, N. 2017. An investigation of the financial monitoring policies for microfinance institutions in Ghana. *Investment Management and Financial Innovations*, 14(4): 90-104.
- Ramchander, M. 2017. Contextual factors influencing student absenteeism at a higher education institution in South Africa. *Africa Education Review*, 14(2): 1-14.

Rampersad, R. 2017. Corporate social responsibility: Applying sustainability principles in stakeholder engagement. *Corporate Ownership and Control*, 14(2): 222-229.

Veerasamy, D. and Govender, J. P. 2017. E-Communication and Customer Satisfaction: A Case of the Mobile Telecommunications Industry in South Africa. *Journal of Economics and Behavioral Studies*, 9(2): 189-200.

Zegeye, E. A., Mbonigaba, J. and Kaye, S. B. 2017. HIV-positive pregnant women attending the prevention of mother-to-child transmission of HIV/AIDS (PMTCT) services in Ethiopia: Economic productivity losses across urban-rural settings. *Psychology, Health and Medicine*, 23(5): 525-531.

Zegeye, E. A., Mbonigaba, J., Kaye, S. B. and Wilkinson, T. 2017. Economic evaluation in Ethiopian healthcare sector decision making: Perception, practice and barriers. *Applied Health of Economics and health Policy*, 15(1): 33-43.

Zondo, R. W. D. 2017. Evaluating the effectiveness of a gainsharing programme for labour productivity improvement. *Acta Commercii*, 17(1): 1-10.

Zungu, N. P. G. and Mason, R. B. 2017. Young clients' attitudes to service quality at retail banks in a developing country. *Banks and Bank Systems*, 12(1): 44-53.

## FACULTY OF MANAGEMENT SCIENCES ACCREDITED JOURNAL ARTICLES 2016

Govender, I. G. 2016. Imperatives for co-operative governance: A case study of local municipalities in KwaZulu-Natal, South Africa. *Journal of Social Sciences*, 49(1-2): 123-133.

Govender, I. G. 2016. Monitoring and evaluating service delivery as a wicked problem in South Africa. *Journal of Human Ecology*, 55(1-2): 21-34.

Govender, I. G. 2016. Monitoring and evaluation capacity development of municipalities in the province of KwaZulu-Natal, South Africa. *Journal of Human Ecology*, 56(3): 263-271.

Govender, J. P. and Govender, T. L. 2016. The influence of green marketing on consumer purchase behavior. *Environmental Economics*, 7(2): 77-85.

Hussain, B. 2016. The impact of social media within sporting industry. *Problems and Perspectives in Management*, 13(4): 223-229.

Lekhanya L. M. 2016. Business characteristics of small and medium enterprises in rural areas: a case study on southern region of KwaZulu-Natal province of South Africa. *Problems and Perspectives in Management*, 14(3): 108-114.

Lekhanya, L. M. and Visser, K. 2016. Critical environmental dynamics: Barriers restraining business growth in rural areas of southern region of KwaZulu-Natal province of South Africa. *Problems and Perspectives in Management*, 14(4): 33-40.

Lekhanya, M. L. 2016. Critical analysis of entrepreneurial spirit, attitudes and perceptions of young South Africans in KwaZulu-Natal province. *Problems and Perspectives in Management*, 14(3): 179-184.

Maharaj, R. and Mason, R. B. 2016. An exploratory critique of action learning in higher education in South Africa: Barriers and challenges. *International Journal of Educational Sciences*, 13(3): 298-309.

Ngibe, M. and Lekhanya, M. L. 2016. Perceptions of research structures and service quality within various faculties at Durban University of Technology: Staff and students' perspective. *Problems and Perspectives in Management*, 14(1): 63-71.

Penceliah, S., Konyana, S.V.M. and Maharaj, M. 2016. The choice of public universities in a restructured and transforming Higher Education landscape: a student perspective. *Problems and Perspectives in Management*, 14(3): 276-282.

## **OFFICE OF THE DVC: RESEARCH, INNOVATION AND ENGAGEMENT RESEARCH AND POSTGRADUATE SUPPORT DIRECTORATE ACCREDITED JOURNAL ARTICLES 2017**

Ngcobo, M., Gqaleni, N., Naidoo, V. and Cele, P. 2017. The Immune Effects of an African Traditional Energy Tonic in In Vitro and In Vivo Models. *Hindawi Evidence-Based Complementary and Alternative Medicine*, (2017): 1-15.

## **INSTITUTE FOR SYSTEM SCIENCE ACCREDITED JOURNAL ARTICLES 2017**

Adetiba, E., Iweanya, V.C., Popoola, S. I., Adetiba, J. N. and Menon, C. 2017. Automated detection of heart defects in athletes based on electrocardiography and artificial neural network. *Cogent Engineering*, 4(1): 1-21.

Alvarez, P. D., Canfora, F., Dimakis, N. and Paliathanasis, A. 2017. Integrability and chemical potential in the (3+1)-dimensional Skyrme model. *Physics Letters A*, 1-15.

Canfora, F., Dimakis, N. and Paliathanasis, A. 2017. Topologically nontrivial configurations in the 4d Einstein-nonlinear  $\sigma$ -model system. *Physical Review D*, 95: 1-14.

Canfora, F., Paliathanasis, A., Taves, T. and Zanelli, J. 2017. Cosmological Einstein-Skyrme solutions with nonvanishing topological charge. *Physical Review D*, 95: 1-12

Dai, X., Zhang, W., Xu, J., Duffy, K. J. and Guo, Q. 2017. Global pattern of plant utilization across different organisms: Does plant apparentness or plant phylogeny matter? *Ecology and Evolution*, 7(8): 2535-2545.

Dimakis, N., Giacomini, A., Jamal, S., Leon, G. and Paliathanasis, A. 2017. Noether symmetries and stability of ideal gas solutions in galileon cosmology. *Physical Review D*, 65: 1-14.

Giacomini, A., Jamal, S., Leon, G., Paliathanasis, A. and Saavedra, J. 2017. Dynamical analysis of an integrable cubic Galileon cosmological model. *Physical Review D*, 95: 1-25.

Jamal, S. and Paliathanasis, A. 2017. Group invariant transformations for the Klein-Gordon equation in three dimensional flat spaces. *Journal of Geometry and Physics*, 117: 1-17.

Karpathopoulos, L. and Paliathanasis, A. 2017. Lie and noether point symmetries for a class of nonautonomous dynamical systems. *Journal of Mathematical Physics*, 58: 1-14.

Leach, P. G. L., Morris, R. M. and Paliathanasis, A. 2017. The algebraic properties of the space and time-dependent one-factor model of commodities. *Quaestiones Mathematicae*, 40(1): 91-106.

Paliathanasis, A. 2017. Analytical solution of the Starobinsky model for inflation. *European Physical Journal C*, 77: 1-4.

Paliathanasis, A. 2017. Cosmological evolution and exact solutions in a fourth-order theory of gravity. *Physical Review D*, 95(6): 1-11.

- Paliathanasis, A. 2017. De sitter and scaling solutions in a higher-order modified teleparallel theory. *Journal of Cosmology and Astroparticle Physics*, 8: 1-21.
- Paliathanasis, A. and Leach, P. G. L. 2017. Symmetries and singularities of the Szekeres system. *Physics Letters A*, 381(15): 1277-1280.
- Paliathanasis, A. and Tsamparlis, M. 2017. Exact solution of the Einstein-skyrme model in a Kantowski-Sachs spacetime. *Journal of Geometry and Physics*, 114: 1-13.
- Zloshchastiev, K. G. 2017. Stability and metastability of trapless Bose-Einstein condensates and quantum liquids. *A Journal of Physical Sciences*, 72(7): 77-687.
- Zloshchastiev, K. G. 2017. Sustainability of environment-assisted energy transfer in quantum photobiological complexes. *Annalen Der Physik*, 529: 1-5.
- Znojil, M., Ruzicka, F. and Zloshchastiev, K. G. 2017. Schrodinger equations with logarithmic self-interactions: From antilinear PT -symmetry to the nonlinear coupling of channels. *Symmetry*, 9: 1-18.
- INSTITUTE FOR WATER AND WASTEWATER TECHNOLOGY (IWWT)  
ACCREDITED JOURNAL ARTICLES 2017**
- Adegoke, A. A., Faleye, C. A., Singh, G. and Stenström, T. A. 2017. Antibiotic resistant superbug: assessment of the interrelationship of occurrence in clinical settings and environmental niches. *Molecules*, 22: 1-17.
- Amoah, I. D., Reddy, P. and Stenström, T. A. 2017. Effect of reagents used during detection and enumeration of *Ascaris suum* in environmental samples on ova viability. *Water Science and Technology*, 76(9-10): 2389-2400.
- Amoah, I. D., Singh, G., Reddy, P. and Stenström, T. A. 2017. Detection of soil transmitted helminths in environment: current state of art and future perspectives. *Acta Tropica*, 169: 187-201.
- Ansari, F. A., Gupta, S. K., Srivastav, A., Guldhe, A., Rawat, I. and Bux, F. 2017. Evaluation of various solvent systems for lipid extraction from wet microalgal biomass and its effects on primary metabolites of lipid-extracted biomass. *Environmental Science and Pollution Research*, 24: 15299-15307.
- Ansari, F. A., Shrivastav, A., Gupta, S., Rawat, I. and Bux, F. 2017. Exploration of microalgae biorefinery by optimizing sequential extraction of major metabolites from *Scenedesmus obliquus*. *Industrial & Engineering Chemistry Research*, 56: 3407-3412.
- Ansari, F. A., Singh, P., Guldhe, A. and Bux, F. 2017. Microalgal cultivation using aquaculture wastewater: Integrated high-quality biomass generation and nutrient remediation. *Algal Research*, 21: 169-177.
- Ansari, F. A., Wahal, S., Gupta, S. K., Rawat, I. and Bux, F. 2017. A Comparative Study on Biochemical Methane Potential of Algal Substrates: Implications of Biomass Pre-treatment and Product Extraction. *Bioresource Technology*, 234: 320-326.
- Awolusi, O. O., Kumari, S. and Bux, F. 2017. Pyrosequencing analysis of ammonia oxidizing bacteria in municipal activated sludge system. *European Water*, 58: 7-14.
- Bhola, V., Swalaha, F. M., Nasr, M. and Bux, F. 2017. Fuzzy intelligence for investigating the correlation between growth performance and metabolic yields of a *Chlorella* sp. exposed to various flue gas schemes. *Bioresource Technology*, 243: 1078-1086.
- Cabezas, L., Cabanzo, W., Santa, F., Olano, V. A., Sarmiento, D., Vargas, S., Jaramillo, J. F., Stenström, T. A., Overgaard, H. and Matiz, M. I. 2017. Distribución espacial del mosquito *Aedes aegypti* (Diptera: Culicidae) en el área rural de dos municipios de Cundinamarca, Colombia. *Biomedica*, 37(2): 41-49.

Enitan, A. M., Adeyemo, J., Swalaha, F. M., Kumari, S. and Bux, F. 2017. Optimization of biogas generation using anaerobic digestion models and computational intelligence approaches. *Reviews in Chemical Engineering*, 33: 309-335.

Faleye, A., Adegoke, A., Ramlukan, K., Bux, F. and Stenström, T. A. 2017. Identification of antibiotics in wastewater: current state of extraction protocol and future perspectives (WEJ-8371-17). *Journal of Water and Health*, 15(6): 982-1003.

Farghaly, A., Tawfik, A., Enitan, A. M., Kumari, S. and Bux, F. 2017. Polyhydroxyalkanoates production from fermented paperboard mill wastewater using acetate-enriched microbial culture. *Clean Technologies and Environmental Policy*, 19: 935-947.

Guldhe, A., Ansari, F. A., Singh, P. and Bux, F. 2017. Heterotrophic cultivation of microalgae using aquaculture wastewater: A biorefinery concept for biomass production and nutrient remediation. *Ecological Engineering*, 99: 47-53.

Guldhe, A., Kumari, S., Ramanna, L., Ramsundar, P., Singh, P., Rawat, I. and Bux, F. 2017. Prospects recent advancements and challenges different wastewater streams for microalgal cultivation. *Journal of Environmental Management*, 203: 299-315.

Guldhe, A., Moura, C. V. R., Singh, P., Rawat, I., Moura, E. M., Sharma, Y. and Bux, F. 2017. Conversion of microalgal lipids to biodiesel using Chromium-Aluminum mixed oxide as a heterogeneous solid acid catalyst. *Renewable Energy*, 105: 175-182.

Guldhe, A., Singh, P., Ansari, F. A., Singh, B. and Bux, F. 2017. Biodiesel synthesis form microalgal lipids using tungstated zirconia as a heterogeneous acid catalyst and its comparison with homogeneous acid and enzyme catalysts. *Fuel*, 187: 180-188.

Gupta, S. K., Ansari, F. A., Nasr, M., Rawat, I. and Bux, F. 2017. Cultivation of Chlorella sorokiniana and Scenedesmus obliquus in wastewater: Fuzzy intelligence for evaluation of growth parameters and metabolites extraction. *Journal of Cleaner production*, 147: 419-430.

Nnadozie, C. F., Kumari, S., and Bux, F. 2017. Status of pathogens, antibiotic resistance genes and antibiotic residues in wastewater treatment systems. *Reviews in Environmental Science and Biotechnology*, 16(3): 1-25.

Overgaard, H. J., Olano, V. A., Jaramillo, J. F., Matiz, M. I., Sarmiento, D., Alexander, N. and Stenström, T. A. 2017. A cross-sectional survey of Aedes aegypti immature abundance in urban and rural household containers in central Colombia. *Parasites and Vectors*, 10(1): 1-12.

Ramanna, L., Rawat, I. and Bux, F. 2017. Light enhancement strategies to improve the production of microalgae biomass. *Renewable and Sustainable Energy Reviews*, 80: 765-773.

Ramsundar, P., Guldhe, A., Singh, P. and Bux, F. 2017. Assessment of municipal wastewaters at various stages of treatment as potential growth media for microalgae under different modes of cultivation. *Bioresource Technology*, 227: 82-92.

Ramsundar, P., Guldhe, A., Singh, P., Pillay, K. and Bux, F. 2017. Evaluation of waste activated sludge as a potential nutrient source for mixotrophic and heterotrophic cultivation of Chlorella sorokiniana. *Algal Research*, 28: 108-117.

Reddy, K., Nasr, M., Kumari, S., Kumar, S., Gupta, S., Enitan, A. and Bux, F. 2017. Biohydrogen production from sugarcane bagasse hydrolysate: effects of pH, S/X, Fe<sup>2+</sup> and magnetite nanoparticles. *Environmental Science and Pollution Research*, 24(9): 8790-8804.

Renuka, N., Guldhe, A., Singh, P., Ansari, F., Rawat, I. and Bux, F. 2017. Evaluating the potential of cytokinins for biomass and lipid enhancement in microalga *Acutodesmus obliquus* under nitrogen stress. *Energy Conversion and Management*, 140: 14-23.

Sahoo, N. K., Gupta, S., Ansari, F.A., Rawat, I., Singh, P., Naik, S. N. and Bux, F. 2017. Sustainable Dewatering and Drying of Self-flocculating Microalgae and Study of Cake Properties. *Journal of Cleaner Production*, 159: 248-256.

Singh, G., Manohar, M., Adegoke, A.A., Stenström, T. A. and Shanker, R. 2017. Novel Aptamer Linked Nanoconjugate Approach for Detection of Waterborne Bacterial Pathogens: An update. *Journal of Nanoparticles Research*, 19(4): 1-11.

Singh, G., Sithebe, A., Enitan, A., Kumari, S., Bux, F., and Stenström, T.A. 2017. Comparison of droplet digital PCR and quantitative PCR for the detection of *Salmonella* in sediments. *Journal of Water and Health*, 15(4): 505-508.

Singh, P., Kumari, S., Guldhe, A., Singh. G, and Bux, F. 2017. ACCase and rbcL gene expression as a function of nutrient and metal stress for enhancing lipid productivity in *Chlorella sorokiniana*. *Energy Conversion and Management*, 148: 809-819.

Srivastava, V., Gusain, D., Bux, F., Sharma, G. C. and Sharma, Y. C. 2017. Optimization of Important Process Parameters for the Removal of Cr(Vi) By A Modified Waste Material. *Environmental Engineering and Management Journal*, 16(12): 2719-2730.

Vannavong, N., Overgaard, H.J., Chareonviriyaphap, T., Dada, N., Rangsin, R., Sibounhom, A., Stenström, T.A. and Seidu, R. 2017. Assessing the factors of *E.coli* contamination of household drinking water in suburban and rural Laos and Thailand. *Water Science and Technology: Water Supply*, 18(3): 886-900.

Vannavong, N., Seidu, R., Stenström, T. A., Dada, N., Overgaard, H. J. 2017. Effects of socio-demographic characteristics and household water management on *Aedes aegypti* production in suburban and rural villages in Laos and Thailand. *Parasites and Vectors*, 10(1): 1-14.

## **GENERAL EDUCATION ACCREDITED JOURNAL ARTICLES 2017**

Nel, J. L., Le Maitre, D. C.Roux, D. J., Colvin, C., Smith, J. S., Smith-Adoa, L.B., Maherry, A., Sitas, N. Strategic water source areas for urban water security: Making the connection between protecting ecosystems and benefiting from their services. *Ecosystem Services*, 28: 251-259.

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# **CONFERENCE PROCEEDINGS**

## **FACULTY OF ACCOUNTING & INFORMATICS CONFERENCE PROCEEDINGS 2017**

Adetiba, E., Adebiyi, M. O. and Thakur, S. 2017. Breathogenomics: A Computation Architecture for Screening, Early Diagnosis and Genotyping of Lung Cancer. In: Rojas, I. and Ortuno, F. eds. The 5th International Work-Conference, IWBBIO 2017 Granada, Spain, 26-28 April 2017. Springer International Publishing.

Adetiba, E., Badejo, J. A., Thakur, S., Matthews, V. O., Adebiyi, M. O., and Adebiyi, E. F. 2017. Experimental Investigation of Frequency Chaos Game Representation for in Silico and Accurate Classification of Viral Pathogens from Genomic Sequences. In: Rojas, I. and Ortuno, F. eds. The 5th International Work-Conference, IWBBIO 2017 Granada, Spain, 26-28 April 2017. Springer International Publishing.

Dlalisa, S. 2017. Acceptance and usage of learning management amongst academics. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

Heukelman, D. 2017. Measuring e-readiness: A case study. The 1st International Conference on Next Generation Computing Applications, NextComp 2017, Mauritius, 19-21 July 2017. IEEE.

Lingwati, M. L. 2017. The playability of a selected computer game and its impact towards the improvement of English vocabularies. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

Oyetade, K. E. and Mhlongo, D. S. 2017. Student perception of the contribution of hackathon and collaborative learning approach on computer programming pass rate. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

Ramsaroop, N., Joubert, E. and Olugbara, O. O. 2017. Exploring Energy Harvesting Technology for Wireless Charging of Mobile Device Batteries. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

Sunker, J. and Emmanuel, O. K. 2017. Operational Use of Mobile Learning in Helping with Understanding and Retention of Course Content. In: Ogbonnaya, U.I. and Simelane-Mnisi, S. eds. The South Africa International Conference on Educational Technologies (SAICET 2017), South Africa, Pretoria, 24-26 April 2017. African Academic Research Forum.

Wing, J., Andrew, T. and Petkov, D. 2017. The Changing Nature of User Involvement in Information System Development. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

## **FACULTY OF APPLIED SCIENCES CONFERENCE PROCEEDINGS 2017**

Graham, B., Lortan, D., Maistry, S. and Walker, M. 2017. Articulation, mobility and educational pathways, between TVETS and UoTs, as described by the national qualifications framework of South Africa. The 7th International Research Conference on Education, Language and Literature (IRCEELT-2017), Georgia. IRCEELT.

Graham, B., Lortan, D., Maistry, S. and Walker, M. 2017. Using epistemic justice as a framework for underpinning articulation between technical and vocational education and training colleges and higher education engineering programmes. In: Collier-Reed, B. ed. The 4th Biennial conference of the South African Society for Engineering Education, (SASEE 2017), Cape Town, 14-15 June 2017. SASEE.

## **FACULTY OF ARTS & DESIGN CONFERENCE PROCEEDINGS 2017**

Carey, P. 2017. Past+Present=Future? The potential role of historical visual material and contemporary practice in de-colonising visual communication design courses. In: Giloi, S. and Botes, H. eds. The 14th National Design Education Conference (DEFSA), 27-29 September 2017, Tshwane University of Technology & Inscape Education Group. Design Education South Africa.

Mchunu, K. 2017. Preparing fashion students for a socially engaged university project through Zulu proverbs. In: Giloi, S. and Botes, H. eds. The 14th National Design Education Conference (DEFSA), 27-29 September 2017, Tshwane University of Technology & Inscape Education Group. Design Education South Africa.

## **FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT CONFERENCE PROCEEDINGS 2017**

Adebiyi, A. A. and Akindeji, K. T. 2017. Investigating the effect of static synchronous compensator (STATCOM) for voltage enhancement and transmission line losses mitigation. 2017 IEEE PES & IAS Power Africa Conference, 27 -30 June 2017, Accra, Ghana. IEEE.

Agbodo, E., Maharaj, A., Adeyemo, B. and Davidson, I. E. 2017. Transforming the West African regional electricity market - lessons and experiences. 2017 IEEE PES & IAS Power Africa Conference, 27 -30 June 2017, Accra, Ghana. IEEE.

Agumba, J. and Musonda, I. 2017. Early retirement of construction workers in South Africa: Case of occupation permanent disability. In: Mwanaumo, E.M., Musonda and Muleya, F. The 4th International conference on Infrastructure Development and Investment Strategies for Africa DII - 2-17), 30 August - 1 Septemebr 2017, Livingstone, Zambia. DII Conference Series.

Aiyetan, A. and Smallwood, J. 2017. Designers' Resolution of Lack of Commitment Relative to Project Delivery in South Africa. In: Emuze, F. Behm, M. eds. Joint CIB W099 and TG59 International Safety, Health, and People in Construction Conference, Cape Town, 11-13 June 2017. Department of Built Environment.

Aiyetan, A. O. and Merana, A. A. 2017. Financial management: A study of emerging contractors' practices. In: Mwanaumo, E.M., Musonda and Muleya, F. The 4th International conference on Infrastructure Development and Investment Strategies for Africa DII - 2-17), 30 August - 1 Septemebr 2017, Livingstone, Zambia. DII Conference Series.

Beires, L. and Lincoln, G. M. 2017. Smart regional planning: Unlocking innovative resource use and economic competitiveness - A look at biomass energy infrastructure provision at local municipal scale in eThekwin and Ilembe, South Africa. In: Ek, L., Ehrnrooth, H., Scarlat, N., Grassi, A. and Helm, P. eds. The 25th European Biomass Conference: Setting the course for a biobased economy, 12-15 June 2017, Stockholm, Sweden. ETA-Florence Renewable Energies & Elsevier.

Chamane, M. N., Gitau, M. N. and Davidson, I. E. 2017. A study of the performance of VSC-HVDC transmission system during faults. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIEE.

Cherop, P. T., Kiambi, S. L. and Musonge, P. 2017. Kinetics of Granulated Waste Tyre Pyrolysis via Thermogravimetry and Model-free Methods. In: Cinar, O. 3rd International Conference on Environmental Science and Technology, 19-23 October 2017, Budapest. ICOEST.

Chetty, M. 2017. Assessment model: A case study of chemical engineering work-integrated learning at Durban University of Technology. Zegwaard, K.E. and Marty, F. eds. Proceedings of the 20th WACE World Conference on Cooperative and Work Integrated Education, Chiang Mai, Thailand, 5-8 June 2017. WACE.

Chetty, M. and Naicker, A. 2017. The new emerging curriculum at the Durban University of Technology. In: Collier-Reed, B. ed. The 4th Biennial conference of the South African Society for Engineering Education, (SASEE 2017), Cape Town, 14-15 June 2017. SASEE.

Chollom, M. N., Rathilal, S., Swalaha, F. M., Bakare, B. F. and Tetteh, E. K. 2017. Study of the start-up of an upflow laboratory-scale anaerobic sludge blanket for the treatment of slaughterhouse wastewater. The 4th Conference on Water and Society, WIT Transactions on Ecology and the Environment. WIT Press.

Davidson, I. E., Lasabi, O. A. and Ogunboyo, P. T. 2017. Assessment of a two-dimensional (2D) FEM model of a 22kV silicon rubber DC insulator. In: Okafor, K.C., Atimati, E.E. and Achumba, I.E. eds. IEEE 3rd International Conference on Electro-Technology for National Development (NIGERCON), 7-10 Novemeber 2017, Federal University of Technology, Owerri, Nigeria. IEEE.

Dewa, M. 2017. Focused improvement for education of crowner losses for a packaging line. In: Van Dyk, L. ed. The 28th Southern African Institute for Industrial Engineering (SAIIE) Annual Conference, 25-27 October 2017, Vanderbijlpark, South Africa. SAIIE.

Dewa, M. 2017. Implementing cleaner production methodology in a brewery. In: Van Dyk, L. ed. The 28th Southern African Institute for Industrial Engineering (SAIIE) Annual Conference, 25-27 October 2017, Vanderbijlpark, South Africa. SAIIE.

Dewa, M., Dzwairo, B. and Nleya, B. 2017. Development of an energy consumption baseline and performance indices for a galvanising plant. In: Van Dyk, L. ed. The 28th Southern African Institute for Industrial Engineering (SAIIE) Annual Conference, 25-27 October 2017, Vanderbijlpark, South Africa. SAIIE.

Fatunmbi, R. O., Okoye, O. O., Lasabi, O. A and Davidson, I. E. 2017. FPGA implementation of open-loop controller for five-level three phase modular multilevel converter. In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Francoise, B. M. M., Agumba, J. N. and Ansary, N. 2017. Exploratory factor analysis (EFA) to determine critical success factors of managing joint venture construction projects in South Africa. The 11th Built Environment Conference, Association of Schools of Construction of Southern Africa (ASOCSA), 6-8 August 2017, Durban, South Africa. ASOCSA.

Gomba, M. and Nleya, B. 2017. Architecture and security consideration for internet of things. Global Wireless Summit (GWS 2017), 15-18 October 2017, Cape Town, South Africa. IEEE.

Gomba, M. and Nleya, B. 2017. Enhanced congestion management in OBS networks. In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Goqo, Z., Sewchurran, S., Davidson, I. E. and Ojo, O. 2017. An assessment of voltage rise phenomenon on existing eThekwin electricity low-voltage distribution network. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Graham, B., Lortan, D., Maistry, S. and Walker, M. 2017. Articulation, mobility and educational pathways, between TVETS and UoTs, as described by the national qualifications framework of South Africa. The 7th International Research Conference on Education, Language and Literature (IRCEELT-2017), Georgia. IRCEELT.

Graham, B., Lortan, D., Maistry, S. and Walker, M. 2017. Using epistemic justice as a framework for underpinning articulation between technical and vocational education and training colleges and higher education engineering programmes. In: Collier-Reed, B. ed. The 4th Biennial conference of the South African Society for Engineering Education, (SASEE 2017), Cape Town, 14-15 June 2017. SASEE.

Hamatwi, E., Gitau, M. N. and Davidson, I. E. 2017. Control of a direct-driven permanent magnet synchronous generator-based wind turbine to achieve maximum wind-power extraction. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Hamatwi, E., Gitau, M. N. and Davidson, I. E. 2017. Control of a wind turbine equipped with a permanent magnet synchronous generator for maximum Power point tracking. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIEE.

Hamatwi, E., Gitau, M. N. and Davidson, I. E. 2017. Pitch-angle control of a wind turbine equipped with a permanent magnet synchronous generator. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIEE.

Ininahazwe, G. and Davidson, I. E. 2017. A numerical investigation of the effects of external field on electric field distribution around glass insulator. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIEE.

Iruansi, U., Tapamo, J. R. and Davidson, I. E. 2017. Insulator condition using local binary patterns combined with support vector machines. In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & Innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Kangwa, N., Venugopal, C. and Davidson, I. E. 2017. A review of the performance of VSC-HVDC and MTDC system. 2017 IEEE PES & IAS Power Africa Conference, 27 -30 June 2017, Accra, Ghana. IEEE.

Khalil, M. H., El Saay, H. A. I., Othman, A. A. E. and Agumba, J. N. 2017. A field study investigating the role of talent management as a novel approach for developing innovative solutions for Egyptian heritage communities' development. The 11th Built Environment Conference, Association of Schools of Construction of Southern Africa (ASOCSA), 6-8 August 2017, Durban, South Africa. ASOCSA.

Khan, S. Y. and Davidson, I. E. 2017. Underground pumped hydroelectric energy storage in South Africa using aquifers and existing infrastructure. In: Schulz, D. ed. Proceedings of NEIS Conference, Helmut Schmidt University, Hamburg, 15-16 September 2017. Springer Fachmedien Wiesbaden.

Khumalo, P. and Nleya, B. 2017. System architecture and security overview for Smart Grids. SmartGRID Conference, 19-21 September 2017. SAIEE.

Lasabi, O. A., Swanson, A. G. and Davidson, I. E. 2017. Surface charge accumulation on DC insulators: An overview. 25th Southern African Universities Power eEngineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIEE.

Maharaj, A. and Davidson, I. E. 2017. Lifecycle cost optimization of electric utility transmission and distribution assets. 2017 IEEE PES & IAS Power Africa Conference, 27 -30 June 2017, Accra, Ghana. IEEE.

Mludi, S. and Davidson, I. E. 2017. Dynamic analysis of Southern Africa power tool (SAPP) network. 2017 IEEE PES & IAS Power Africa Conference, 27 -30 June 2017, Accra, Ghana. IEEE.

Mukwekew, L., Venugopal, C. and Davidson, I. E. 2017. A review of the impacts and mitigation strategies of high PV penetration in low voltage networks. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Nleya, B. and Chidzonga, R. 2017. Overview of power aware-RWA in optical backbone supported networks. In: Cornish, D.R. ed. 2017 IEEE Africon, Science, Technology & Innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Nleya, B. and Khumalo, P. 2017. A review of energy efficiency considerations in optical backbone supported clouds. SmartGRID Conference, 19-21 September 2017. SAIEE.

Okoro, C., Musonda, I. and Agumba, J. 2017. A desk study of road infrastructure performance measurement criteria. In: Mwanaumo, E.M., Musonda and Muleya, F. The 4th International conference on Infrastructure Development and Investment Strategies for Africa DII - 2-17), 30 August - 1 Septemebr 2017, Livingstone, Zambia. DII Conference Series.

Olagunju. O. A. and Musonge, P. 2017. Production of biodiesel using a membrane reactor to minimize separation cost. In: Jose, R.S. ed. The 8th International Conference on Environmental Science and Technology (ICEST 2017), 12-14 June2017, Madrid, Spain. IOP Publishing.

Olalere, I. O., Dewa, M. and Nleya, B. 2017. Remote condition monitoring for fault indication in elevators using IoT technology for improved maintenance. In: Van Dyk, L. ed. The 28th Southern African Institute for Industrial Engineering (SAIIE) Annual Conference, 25-27 October 2017, Vanderbijlpark, South Africa. SAIIE.

Olatunji, A. A. 2017. Information communication technology (ICT) impact on building construction management practices in the South West of Nigeria. In: Ejdys, J., Chua, D. and Smallwood, J. eds. The 8th International Conference on Engineering, Project and Production Management, 19-22 September 2017, Amman-Jordan. Griffith School of Engineering.

Oni, O. E. and Davidson, I. E. 2017. Technical performance and cost analysis of a 600kV HVDC link on South Africa's EHV network. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Oni, O. E., Davidson, I. E. and Parus, N. 2017. Dynamic analysis of ESKOM eastern power grid. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIIE.

Rampersadh, N. and Davidson, I. E. 2017. Grid energy storage devices. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Renault, B. Y., Agumba, J. N. and Ansary, N. 2017. Critical success metrics for measuring construction project success in small and medium enterprises: An exploratory factor analysis study. The 11th Built Environment Conference, Association of Schools of Construction of Southern Africa (ASOCSA), 6-8 August 2017, Durban, South Africa. ASOCSA.

Renault, B. Y., Agumba, J. N. and Ansary, N. 2017. Investigating the impact of risk factors on project outcome of small and medium contractors in South Africa. In: Mwanaumo, E. M., Musonda and Muleya, F. The 4th International conference on Infrastructure Development and Investment Strategies for Africa DII - 2-17), 30 August - 1 September 2017, Livingstone, Zambia. DII Conference Series.

Renault, B. Y., Agumba, J. N. and Ansary, N. 2017. Obstacles to risk management implementation in construction small and medium enterprises in South Africa. In: Mwanaumo, E. M., Musonda and Muleya, F. The 4th International conference on Infrastructure Development and Investment Strategies for Africa DII - 2-17), 30 August - 1 September 2017, Livingstone, Zambia. DII Conference Series.

Sewchurran, S. and Davidson, I. E. 2017. Introduction to the South African renewable energy grid code version 2.9 requirements (part 1). In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Sewchurran, S. and Davidson, I. E. 2017. Introduction to the South African renewable energy grid code version 2.9 requirements (part 2). In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Sewchurran, S. and Davidson, I. E. 2017. Introduction to the South African renewable energy grid code version 2.9 requirements (part 3). In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Sewchurran, S., Davidson, I. E. and Ojo, O. 2017. Drivers barriers and a method for evaluating the feasibility of residential rooftop solar PV in Durban (part 1). 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Sewchurran, S., Davidson, I. E. and Ojo, O. 2017. Drivers barriers and a method for evaluating the feasibility of residential rooftop solar PV in Durban (part 2). 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Sewchurran, S., Davidson, I. E. and Ojo, O. 2017. Study of renewable energy resources found within local municipalities: An eThekweni municipality case study. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Sibanda, H. and Nleya, B. 2017. Model analysis of dynamic priority segmented burstification and deflection routing. In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Singh, E., Davidson, I. E. and Venayagamoorthy, G. K. 2017. Methodology for measuring and enhancing tower footing resistance for lightning protection in an 88KV line. 25th Southern African Universities Power Engineering Conference (SAUPEC 2017), 30 January-1 February 2017, Stellenbosch, South Africa. SAUPEC & SAIIEE.

Sokkar, D. A. A., El Saay, H. A. I., Othman, A. A. E. and Agumba, J. N. 2017. Good-to-great concept; A novel approach for addressing the skills gap in architectural design firms in developing countries. The 11th Built Environment Conference, Association of Schools of Construction of Southern Africa (ASOCSA), 6-8 August 2017, Durban, South Africa. ASOCSA.

Taiwo, O. P., Tiako, R. and Davidson, I. E. 2017. An improvement of voltage unbalance in a low voltage 11/0.4kV electric power distribution network. 2017 IEEE PES & IAS Power Africa Conference, 27-30 June 2017, Accra, Ghana. IEEE.

Taiwo, O. P., Tiako, R. and Davidson, I. E. 2017. Effectiveness of dynamic voltage restorer in enhancing voltage profile in low voltage electric power distribution networks under normal mode operation. In: Okafor, K. C., Atimati, E. E. and Achumba, I. E. eds. IEEE 3rd International Conference on Electro-Technology for National Development (NIGERCON), 7-10 Novemeber 2017, Federal University of Technology, Owerri, Nigeria. IEEE.

Taiwo, O. P., Tiako, R. and Davidson, I. E. 2017. Investigation of voltage unbalance in low voltage electric power distribution network under steady state mode. In: Okafor, K. C., Atimati, E. E. and Achumba, I. E. eds. IEEE 3rd International Conference on Electro-Technology for National Development (NIGERCON), 7-10 November 2017, Federal University of Technology, Owerri, Nigeria. IEEE.

Taiwo, O. P., Tiako, R. and Davidson, I. E. 2017. Voltage profile enhancement in low voltage 11/0.4kV electric power distribution network using dynamic voltage restorer under three phase balance load. In: Cornish, D.R. ed. 2017 IEEE Africon, science, Technology & innovation for Africa, 18-20 September 2017, Cape Town. IEEE Africon.

Tetteh, E. K., Rathilal, S. and Chollom, M. N. 2017. Pre-treatment of industrial mineral oil wastewater using response surface methodology. The 4th Conference on Water and Society, WIT Transactions on Ecology and the Environment. WIT Press.

Wing, J., Andrew, T. and Petkov, D. 2017. Choosing action design research for the process of development, application and evaluation of a framework. The 1st International Conference on Next Generation Computing Applications, NextComp 2017, Mauritius, 19-21 July 2017. IEEE.

Wing, J., Andrew, T. and Petkov, D. 2017. The Changing Nature of User Involvement in Information System Development. 2017 Conference on Information Communication Technology and Society (ICTAS 2017). IEEE.

## **CONFERENCE PROCEEDINGS 2016**

Akindenji, K. T. and Davidson, I. E. 2016. Microgrid and active management of distribution networks with renewable energy sources. Proceedings of the 24th Southern African Universities Power Engineering Conference (SAUPEC 2016). 26-28 January 2016, VUT & SAIEE, Vereeniging, South Africa. SAUPEC & SAIEE.

Olatunji, A., Botha, B., Adderndorff, C. and Mxube, L. 2016. Integration of green building (GB) concept in design: An explorative study. Association of Schools of Construction of Southern Africa: The 10th Built Environment Conference Environment Conference, 31 July-2 August 2016, Port Elizabeth, South Africa. Association of Schools of Construction of Southern Africa.

## **FACULTY OF HEALTH SCIENCES CONFERENCE PROCEEDINGS 2017**

Vahed, A. and Singh, S. 2017. Facilitating epistemological access by developing students' experiences of undergraduate research. In: Soria, J. D. I., Vela, M. C. V., Poza, E. and Blazquez, D. eds. The 3rd International Conference on Higher Education Advances, (HEAD'17). Universitat Politecnica de Valencia.

## **FACULTY OF MANAGEMENT SCIENCES CONFERENCE PROCEEDINGS 2017**

Chunderpaul, P. and Pillay, S. 2017. Contemporary impact of university of Technology's new curricula on industry's needs: A case study of Durban University of Technology. In: Zegwaard, K.E. and Marty, F. eds. Proceedings of the 20th WACE World Conference on Cooperative and Work Integrated Education, Chiang Mai, Thailand, 5-8 June 2017. WACE.

Govender, I. 2017. Wicked Leadership for Sustainable Business Development. In: Ndaba, Z. and Mokoteli, T. eds. 5th International on management leadership and Governance ICMLG 2017. Academic Conferences and Publishing International Limited Reading, UK.

Matsiliza, N. S. 2017. Curriculum reform as a vehicle for change the field of public administration. In: Delener, N. and Scheikert, C. eds. Changing business environment: Gamechangers, opportunities and risks, (Global Business and Technology Association), Vienna, Austria, 11-15 July 2017. The Global Business and Technology Association.

Orakwue, N. E. and Dorasamy, N. 2017. Role of Leadership Capabilities for Dynamic Change Management in 21st century. In: Ndaba, Z. and Mokoteli, T. eds. 5th International Conference on management leadership and Governance ICMLG 2017. Academic Conferences and Publishing International Limited Reading, UK.

Vahed, A. and Singh, S. 2017. Facilitating epistemological access by developing students' experiences of undergraduate research. In: Soria, J.D.I., Vela, M.C.V., Poza, E. and Blazquez, D. eds. The 3rd International Conference on Higher Education Advances, (HEAd'17). Universitat Politecnica de Valencia.

## CONFERENCE PROCEEDINGS 2016

Zondo R. W. D. 2016. Assessing the role of private institutions for Higher Learning (HI) on entrepreneurship education in South Africa. The 12th International Conference on Economics and Social Sciences (ICESS-2016), Durban University of Technology, Durban, South Africa, 19-20 November 2016. IFRD.

Zondo R. W. D. 2016. The Financial Impact of Quality Management System (QMS) Accreditation on Small Training Providers in KwaZulu-Natal (KZN). The 12th International Conference on Economics and Social Sciences (ICESS-2016), Durban University of Technology, Durban, South Africa, 19-20 November 2016. IFRD.



# CHAPTERS IN BOOKS

## FACULTY OF ACCOUNTING & INFORMATICS CHAPTERS IN BOOK 2017

Milham, R. and Thakur, S. 2017. Social media and big data. In: Geetam, S.T., Chaudhari, N.S., Bhadoria, R.S. and Deka, G.C. eds. *The human element of big data: Issues, analytics and performance*. Parkway NW: CRC Press, 175-188.

Olanrewaju, O. A. and Olanrewaju, C. C. 2017. The importance of predicting energy consumption in industrial sectors: The application of ANN. In: Acosta, M.J. ed. *Advances in Energy*. New York: NOVA Science Publishers, 199-218.

## FACULTY OF APPLIED SCIENCES CHAPTERS IN BOOK 2017

Bopape, M., Ren, J., Sabela, M., Muliwa, A. and Onyango, M. S. 2017. Magnetic mollusk shell-Fe<sub>3</sub>O<sub>4</sub> composite powder used as seeding adsorbent to purify Zn(II) and Pb(II) contaminated wastewater. In: Inamuddin, M. A. and Asiri, A. M. eds. *Inorganic pollutants in Wasterwater: Analysis, removal and treatment*. Millersville: Materials Research Foundations, 247-274.

Enitan, A. M., Adeyemo, J., Singh, G. and Adeyemo, F. 2017. Optimizing the performance of wastewater treatment plants and effluent quality using evolutionary algorithms. In: Shukla, P. ed. *Microbial biotechnology: An interdisciplinary approach*. Parkway NW: CRC Press Taylor and Francis Group, 287-310.

Gokal, J., Awolusi, O. O. Enitan, A. M., Kumari, S. and Bux, F. 2017. Molecular characterization and quantification of microbial communities in wastewater treatment system. In: Shukla, P. ed. *Microbial biotechnology: An interdisciplinary approach*. Parkway NW: CRC Press Taylor & Francis Group, 59-114.

Ijabadeniyi, O. A. 2017. Quality & safety of nanofood. In: Monique, A. V. and Axelos, M. V. eds. *Nanotechnology in agriculture and food science*. Germany: Wiley-VCH verlag GmbH & Co. KGaA, 299-309.

Kanchi, S., Sabela, M. I., Nuthalapati, V. N. and Bisetty, K. 2017. Chitosan: A promising biosensing and adsorbent material for heavy metals. In: Ikram, S. and Ahmed, S. eds. *Natural polymers: Derivatives, blends and composites*. New York: NOVA Science Publishers, 17-36.

Kumar, B. N., Jyothi, N. V., Naidu, N. V. and Redhi, G. G. 2017. Bovine serum albumin: An efficient adsorbent and drug delivery transporter. In: Ikram, S. and Ahmed, S. eds. *Natural polymers: Derivatives, blends and composites*. New York: NOVA Science Publishers, 55-72.

Kumar, S., Arumugam, N., Permaul, K. and Singh, S. 2017. Thermostable enzymes and their industrial applications. In: Shukla, P. ed. *Microbial biotechnology: An interdisciplinary approach*. Parkway NW: CRC Press Taylor and Francis Group, 115-162.

Kumari, S., Nasr, M. and Kumar, S. 2017. Technological advances in biohydrogen production from microalgae. In: Gupta, S.K., Malik, A. and Bux, F. eds. *Algal Biofuels: Recent advances and future prospects*. Switzerland: Springer International Publishing AG, 347-360.

Madhura, L. and Singh, S. 2017. A review of the progress of desalination technologies: Application to wastewater treatment. In: Inamuddin, M.A. and Asiri, A.M. eds. Inorganic pollutants in Wastewater: Analysis, removal and treatment. Millersville: Materials Research Foundations, 343-369.

Madhura, L. and Singh, S. 2017. Recent progress of magnetic nanoparticles as nanoadsorbent for water treatment to remove heavy metals. In: Ikram, S. and Ahmed, S. eds. Natural polymers: Derivatives, blends and composites. New York: NOVA Science Publishers, 246-255.

## **FACULTY OF ARTS & DESIGN CHAPTERS IN BOOK 2017**

El Muhammady, F. F., Rawlinson, W. and Pillay, D. 2017. Mount Merapi and the Trencadis bench: Negotiating personal-professional identities through working with photographs as treasured objects. In: Pillay, D., Pithouse-Morgan, K. and Naicker, I. eds. Interpretive Possibilities for Educational Research. Rotterdam: Sense Publishers, 163-174.

Mago, S. 2017. North-South research collaboration and the sustainable development goals: Challenges and opportunities for academics. In: Halvorsen, T., Ibsen, H., Evans, H. and Penderis, S. eds. Knowledge for justice: Critical perspectives from southern African-Nordic research partnerships. Cape Town: African Minds and The Southern-African-Nordic Centre, 163-173.

Marks, M., Matsha, R. M. and Caruso, A. 2017. Cities, walls and the Anthropocene. In: Holley, C. and Shearing, C. eds. Criminology and the Anthropocene. London: Routledge Taylor and Francis Group, 134-152.

Meskin, T., Van Der Walt, T., Scott, L., De Beer, C. and Pithouse-Morgan, K. 2017. Shoes, Suitcases, Stones. Creative Engagement with Ourselves as Artist-Researcher-Teachers through Object Inquiry. In: Pillay, D., Pithouse-Morgan, K. and Naicker, I. eds. Interpretive Possibilities for Educational Research. Rotterdam: Sense Publishers, 175-196.

Meskin, T., Van Der Walt, T., Scott, L., De Beer, C. and Pithouse-Morgan, K. 2017. A Religious Object Medley: Objects as Signifiers of the Values, Beliefs and Practices of Servant Leaders. In: Pillay, D., Pithouse-Morgan, K. and Naicker, I. eds. Interpretive Possibilities for Educational Research. Rotterdam: Sense Publishers, 197-213.

Mohale, D. 2017. Culture of arrested development in South Africa's local governance. In: Amtaika, A. ed. Socio-economic development in Africa: Challenges and dimensions. Texas: Pan-African University, 185-200.

## **FACULTY OF ENGINEERING & THE BUILT ENVIRONMENT CHAPTERS IN BOOK 2017**

Dzwairo, B. and Mujuru, M. 2017. Assessment of impacts of acid mine drainage on surface water quality of Tweelopiespruit micro-catchment, Limpopo basin. In: Tutu, H. and Grover, B. P. eds. Water Quality. London: InTech Open, 337-359.

## **FACULTY OF HEALTH SCIENCES CHAPTERS IN BOOK 2017**

Bhagwan, R. 2017. The sacred in traditional African spirituality: Creating synergies with social work practice. In: Crisp, B.R. ed. The Routledge handbook of religion, spirituality and social work. New York: Routledge, 64-72.

Bhagwan, R. 2017. Traditional Hindu wisdom at the juncture of contemporary social work practice with children and youth. In: Dhiman, L. and Retting, H. eds. Spiritualitat und religion: Perspektiven fur die soziale arbeit. Basel: Beltz Juventa, 103-117.

## FACULTY OF MANAGEMENT SCIENCES CHAPTERS IN BOOK 2017

Adebayo, J. O. 2017. Building capacity for conflict-sensitive reportage of elections in Nigeria: an action research study. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 119-142.

Basabose, J. D. 2017. Anti-corruption education as a way of building positive peace in Rwanda. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 31-52.

Hemson, S. 2017. Exclusion, violence and education. In: Ramrathan, L., Grange, L. and Higgs, P. eds. Education Studies for Initial Teacher Development. South Africa: Juta & Company (Pty) Ltd, 291-303.

Hlengwa, D. 2017. Postgraduate supervision at a young university: The role of supervision initiatives. In: McKenna, S., Clarence-Fincham, J., Boughey, C., Wels, H. and Van Den Heuvel, H. eds. Strengthening postgraduate supervision. Stellenbosch: SUN MeDIA, 215-228.

Kiyala, J. C. 2017. Combining social justice with restorative and transitional justice: An agenda for an integrative justice model in transitional societies. In: Evans, J. ed. Restorative and Transitional Justice. Switzerland: Springer, 81-178.

Kiyala, J. C. 2017. Reintegrating former child soldiers in the eastern Democratic Republic of Congo. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 223-238.

Maphosa, B. 2017. Reducing gender-based violence: Action research among Zimbabwean youth. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 95-118.

Moyo, N. 2017. Using restorative justice approaches with ex-prisoners and their families: An action research project in Zimbabwe. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 207-222.

Muchemwa, C. 2017. Moving towards reconciliation: Ndebele and Shona relations in Zimbabwe. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 143-166.

Ngwenya, D. 2017. Healing the wounds of violence: A participatory action research project in Zimbabwe. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 167-184.

Pillay, G. 2017. Developing social entrepreneurs to reduce poverty among unemployed youth. In: Kaye, S. and Geoff, H. eds. Building Peace Via Action Research African Case Studies. Addis Ababa: UPEACE, 73-94.

Singh, S. 2017. Finding a supervision niche: The importance of disciplinary focus. In: McKenna, S., Clarence-Fincham, J., Boughey, C., Wels, H. and Van Den Heuvel, H. eds. Strengthening postgraduate supervision. Stellenbosch: SUN MeDIA, 137-156.

## INSTITUTE FOR WATER & WASTEWATER TECHNOLOGY (IWWT) CHAPTERS IN BOOK 2017

Ansari, F. A., Shekh, A. Y., Gupta, S. K. and Bux, F. 2017. Microalgae for biofuels: applications, process constraints and future needs. In: Gupta, S.K., Malik, A. and Bux, F. eds. Algal Biofuels: Recent Advances and Future Prospects. Switzerland: Springer International Publishing AG.

Guldhe, A., Ramlukan, K., Singh, P., Rawat, I., Mahalingam, S. K. and Bux, F. 2017. Catalytic Conversion of Microalgal Lipids to Biodiesel: Overview and Recent Advances. In: Gupta, S. K., Malik, A. and Bux, F. eds. Algal Biofuels: Recent Advances and Future Prospects. Switzerland: Springer International Publishing AG.

Singh, G., Manohar, M., Arya, S.K., Siddiqui, W. A. and Stenström, T. A. 2017. Potential Biomedical Applications of Chitosan - and Chitosan based nanomaterials. In: Ahmed, S. and Ikram, S. eds. Chitosan: Derivatives, Composites and Applications. Scrivener Publishing and Wiley, 385-408.

Singh, G., Sharma, D., Stenström, T. A. 2017. Bionanocomposites in water and wastewater treatment. In: Ahmed, S., Ikram, S., Kanchi, S. and Bisetty, K. eds. Biocomposites: Biomedical and Environmental Applications. New York: Pan Stanford Publishing Ltd.

Singh, G., Singh, P., Guldhe, A., Stenström, T. A., Bux, F. and Kumari, S. 2017. Biotechnological intervention to enhance the Potential Ability of Bioenergy Plants for Phytoremediation. In: Bauddh, K., Singh, B. and Korstad, J. eds. Phytoremediation Potential of Bioenergy Plants. Singapore: Springer Singapore.

## AUTHORED BOOKS 2017

### FACULTY OF ACCOUNTING & INFORMATICS

Ilcev, S. D. 2017. Global Mobile Satellite Communications Theory: for maritime, Land and aeronautical applications. Switzerland: Springer.

### FACULTY OF ARTS & DESIGN

Preece, J. 2017. University Community Engagement and Lifelong Learning. Switzerland: Springer Nature.

### FACULTY OF MANAGEMENT SCIENCES

Rappert, B. and Gould, C. 2017. Dis-Eases of Secrecy: Tracing History, Memory and Justice. Auckland Park: Jacana Media.

### INSTITUTE FOR WATER & WASTEWATER TECHNOLOGY (IWWT)

Gupta, S. K., Malik, A. and Bux, F. eds. 2017. Algal Biofuels: Recent Advances and Future Prospects. India: Springer International AG.

### RESEARCH FELLOWS

Bauk, S. 2017. Maritime issues in Digital age. Montenegro: ELIT.

Xulu-Gama, N. 2017. Hostels in South Africa: Places of Perplexity. Pietermaritzburg: UKZN Press.

# INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREC)

The Institutional Research Ethics Committee (IREC) has the responsibility of evaluating, approving and monitoring research involving humans, animals and the environment. It does so by following ethical guidelines for research as stated by the Department of Health of South Africa and the Declaration of Helsinki as well as other relevant declarations and statements in the area of research ethics. It aims to protect the rights and welfare of research participants by adhering to the principles of beneficence, justice and respect for people, especially vulnerable populations. In so doing it assesses the ethical implications of the study design and research methodology.

Ethics Training Workshops/ Seminars attended by Committee Members:

- Prof R Gaede (Faculty of Arts) attended the ARESA 6th Annual Seminar 2017 – 11 & 12 May
- Prof J K Adam attended the ARESA 6th Annual Seminar 2017 – 11 & 12 May
- Prof J K Adam and Ms L Deonarian attended the meeting between National Health Research Ethics Council, Human Research Ethics Committees and Animal Research Ethics Committees and other Interested Parties – 18 May 2017

Research Ethics Training 2017:

Dr Shenuka Singh: Chairperson: Humanities & Social Sciences Research Ethics Committee University of KwaZulu-Natal facilitated an Ethics Training Workshop - 4-5 September 2017.

## IREC Statistics 2017

Total Number of Proposals Received	189
Total Number of Proposals Approved	148
Number of Independent Proposals Received (External)	1
Number of Independent Proposals Approved (External)	1
Number of Independent Proposals Received (Internal)	26
Number of Independent Proposals Approved (Internal)	22
Number of Proposals Withdrawn	3



## RESEARCH GRANT ACQUISITION REPORTING YEAR: 2017 - 2018

The awards in the table below are from NRF for staff and students' grants that started in 2017. While awards were done to the value of 21,139,751 (balance), funding releases totalled 19,247,510. NRF is the major of all funding stakeholders that are managed through the Grants Management Division of the Research and Postgraduate Support Directorate. The funding record was extracted from the NRF system on 10 August 2018.

<b>Grant-holder</b>	<b>Programme</b>	<b>Start</b>	<b>End</b>	<b>Grants Allocated</b>
Durban University of Technology	Block Grant - S&F - Innovation Doctoral Scholarships	1-Jan-17	31-Dec-17	2,964
Durban University of Technology	Block Grant - S&F - Innovation Scholarships for Non-South African citizen	1-Jan-17	31-Dec-17	278,474
Durban University of Technology	Block Grant - S&F - Scarce Skills Doctoral Scholarships	3-Jan-17	31-Dec-17	240,000
Durban University of Technology	Block Grant - S&F - Scarce Skills Doctoral Scholarships	3-Jan-17	31-Dec-17	120,000
Durban University of Technology	Block Grant - S&F - Scholarships	6-Jan-17	6-Dec-17	650,000
Durban University of Technology	Block Grant - S&F - Scholarships	3-Jan-17	31-Dec-17	300,000
Durban University of Technology	Block Grant - S&F - Scholarships & Fellowships Programme	1-Jan-17	31-Dec-17	300,000
Marks, M	Blue Skies Research Programme	1-Jan-17	31-Dec-19	925,000
Govender, IG	Community Engagement Programme	1-Jan-17	31-Dec-19	1,400,751
Preece, J	Community Engagement Programme	1-Jan-17	31-Dec-18	153,210
Deenadayalu, N	Competitive Programme for Rated Researchers	1-Jan-17	31-Dec-19	847,241
Lortan, D	Development Grant for Kfd	1-Jan-17	31-Dec-17	95,360
Permaul, K	Incentive Funding for Rated Researchers	1-Jan-17	31-Dec-17	30,000
Pillay, JD	Incentive Funding for Rated Researchers	1-Jan-17	31-Dec-17	30,000
Sibiya, MN	Incentive Funding for Rated Researchers	1-Jan-17	31-Dec-17	30,000
Rajah, SS	Indigenous Knowledge Systems	1-Jan-17	31-Dec-19	403,193
Bux, F	International Science and Technology Agreements	1-Jan-17	31-Dec-21	1,394,244
Kudanga, T	IRG - Germany / South Africa Research Cooperation Programme	1-Jan-17	31-Dec-20	856,362
Kudanga, T	IRG - South Africa / Austria Joint Scientific and Technological Cooperation Programme	1-Jan-17	31-Dec-18	219,175
Bux, F	Knowledge Interchange and Collaboration	1-Jan-17	31-Dec-17	6,123
Bisetty, K	National Equipment	1-Jan-17	31-Dec-17	7,800,000
Bux, F	National Equipment	1-Jan-17	31-Dec-17	2,099,208
Musonge, P	Scholarship - S&F - Collaborative Postgraduate Training	1-Jan-17	31-Dec-19	1,149,267
Kandolo, KM	Scholarship - S&F - Innovation Doctoral Scholarships	1-Jan-17	31-Dec-18	120,000
Madhura, L	Scholarship - S&F - Innovation Doctoral Scholarships	1-Jan-17	31-Dec-19	157,913
Thakur, R	Scholarship - S&F - Innovation Doctoral Scholarships	1-Jan-17	31-Dec-19	120,000
Xaba, NA	Scholarship - S&F - Innovation Doctoral Scholarships	1-Jan-17	31-Dec-19	120,000

Musetsho, P	Scholarship - S&F - Innovation Masters Scholarships	1-Jan-17	31-Dec-18	90,000
Kiyala, JC	Scholarship - S&F - NRF Free-standing Post-doctoral Fellowships	1-Jan-17	31-Dec-18	200,000
Naiker, TS	Scholarship - S&F - NRF/DAAD Scholarships	1-Jan-17	31-Dec-18	80,000
Amobonye, AE	Scholarship - S&F - NRF-TWAS African Renaissance PhD Fellowship Programme	1-Jan-17	31-Dec-19	120,000
Beato, Z	Scholarship - S&F - Scarce Skills Masters Scholarships	1-Jan-17	31-Dec-18	90,000
Mabotja, MB	Scholarship - S&F - Scarce Skills Masters Scholarships	1-Jan-17	31-Dec-18	90,000
Msomi, P	Scholarship - S&F - Scarce Skills Masters Scholarships	1-Jan-17	31-Dec-18	90,000
Ncishane, F	Scholarship - S&F - Scarce Skills Masters Scholarships	1-Jan-17	31-Dec-18	90,000
De Beer, CTJ	Sabbatical Grants to Complete Doctoral Degrees	1-Jan-17	31-Dec-17	4,880
Makanjana, OZ	Sabbatical Grants to Complete Doctoral Degrees	1-Jan-17	31-Dec-17	12,420
Partab, V	Sabbatical Grants to Complete Doctoral Degrees	1-Jan-17	31-Dec-17	61,830
Sobuwa, S	Sabbatical Grants to Complete Doctoral Degrees	1-Jan-17	31-Dec-17	1,600
Govender, N	Thuthuka	1-Jan-17	31-Dec-19	216,000
Mchunu, NP	Thuthuka	1-Jan-17	31-Dec-19	4,137
Ngwane, CN	Thuthuka	1-Jan-17	31-Dec-19	140,399
<b>Total Funding awarded to DUT as at January 2017</b>				<b>21,139,751</b>

## SOUTH AFRICA SWEDEN UNIVERSITY FORUM COLLABORATIVE SEED FUNDING (SASUF)

The South African Sweden University Forum (SASUF) put out a call for collaborative seed funding for researchers to facilitate collaboration which was co-funded by the Department of Higher Education and Training (DHET). The aim of the seed funding is to initiate or further develop collaboration between Sweden and South Africa. In total, 35 proposals were submitted from 30 partner universities in SASUF involving 220 researchers from both countries. Of the 28 proposals that were found eligible, two DUT researchers were included:

1. **Prof Nokuthula Sibiya**, in collaboration with Prof Per-Olof Östergren from Sweden presented a proposal on: Aligning the SDG goals of Health (SDG3) and Education (SDG4) to the burden of diseases and health systems responses in South Africa And Sweden.
2. **Dr Kira Erwin** in collaboration with Dr Vanja Berggren from Sweden presented a proposal on: Migration, gender and health: sharing knowledge across national contexts.

## GRANTS MANAGEMENT TEAM

Dr. Bloodless Dzwairo	Senior Researcher: Grants Management Division
Ms Slindile Mdletshe	Grants Assistant
Mr Bongumenzi Mncwango	Grants Assistant
Mr Itumeleng Tshabalala	Grants Assistant
Mr Langelihle Shange	Grants Assistant
Ms Samukelisiwe Gambu	Grants Assistant

### CONTACT DETAILS:

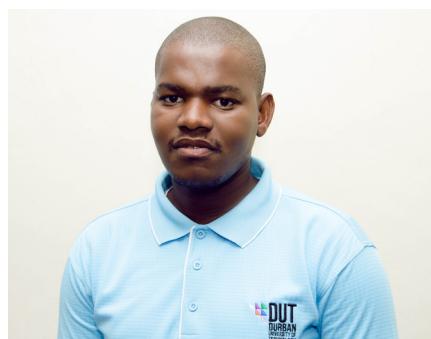
DIRECTORATE FOR RESEARCH AND POSTGRADUATE SUPPORT

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## MESSAGE FROM THE MANAGER (ACTING) & COORDINATOR-RESEARCH CAPACITY DEVELOPMENT

### MS VANESHREE GOVENDER

The Fourth industrial revolution is changing how we live, work and communicate. It is re-shaping government, healthcare and most importantly, education. New technologies will become a powerful agent for change. Education and access to information has the potential to change billions of lives. Notably, as a result of a number of intractable disadvantages, African countries have some of the lowest rates of post-graduates and by inference, this suggests an increased risk of comparatively lower rates of social and economic upward mobility. This has been largely attributed to the combined effects of colonisation, poor infrastructure, limited numbers of educators who are generally poorly remunerated, with heavy teaching loads and a resulting lack of inability to mentor young faculty (Sawyer 2004). South Africa, in particular, urgently needs more researchers as it is performing well below expectations particularly with respect to knowledge production and innovation (Mckenna, 2015). Much of this has been attributed to the failure by the country's educational system, to produce graduates who are not only knowledge consumers but graduates who are knowledge-producers and who can contribute to societal development through innovative contributions (Hokmes 2013; Altbeker and Storme 2013).

The Directorate for Research and Postgraduate Support primarily focuses on managing the university's research activities and supporting academic and research staff. One of the ways that the Directorate supports staff is through a number of Research Capacity Development (RCD) activities in the form of workshops, seminars and conferences that are run during the course of the academic year. Masters and Doctoral completion rates are disproportionately low in South Africa despite a number of learner support efforts to improve students' success. Most strikingly, student success patterns appear to be even worse among the universities of technologies by comparison to the country's traditional universities. This is especially problematic given that the centre of technological advancement and innovation has traditionally been these Universities of Technology. It is against this background that the RCD programme is conceptualized to assist with building research capacity amongst DUT staff and researchers.

The overarching idea of the RCD programme is that it has to address the needs of researchers at the DUT. The RCD programme used a multi-pronged approach to develop capacity. This approach included the flagship programme called Doctoral Mentoring Proposal Development Programme which involves mentoring of pre-doctoral candidates; increasing the number of accredited publications by staff; training supervisors; increasing the number of staff who have masters and doctorates; providing support for female researchers; increasing awareness around funding opportunities; providing research support for postgraduate students and incentives for staff who publish and supervise postgraduate students. The RCD programme provides opportunities for staff and students to develop their research skills and create communities of practice and peer support networks. Workshop facilitators are highly respected researchers and academics who are experts in their field. The RCD programme for the reporting period focused on the following:

- Finding information for your research
- Managing your information (EndNote)
- Three Minute Writing Thesis Competition
- DUT Doctoral Mentoring Programme
- Research Methodology Course
- How to write a literature review
- Word4thesis
- Strengthening Postgraduate Supervision workshop
- 2nd Interdisciplinary, Research, Innovation and Postgraduate Conference.
- Institutionalizing Research and Ethical Leadership into the DUT curriculum
- Statistical Package for Social Sciences (SPSS) Training
- Debate: Decolonisation in Higher Education: A Durban University Of Technology Introspection
- Guest lecture: "The Human Factor Model and Radical Economic Transformation in South Africa"
- Supervisor's Workshop
- Article Writing Course
- Doctoral Programme Workshop

- Leadership and Management Workshop
- Research and Innovation Leadership Skills
- Introduction to Article-Writing for Research Publication 2017
- Predatory Journal/Turnitin workshop

Capacity development strategies are usually context specific and must be designed and tailored to suit both the researchers' needs (Segrott et al 2006) and drive the institutional agenda in terms of improving capacity development. At the DUT, the RCD programme has grown over the last five years and has had impact on increasing research and postgraduate participation rates in addition to the individual Faculty programmes. A number of benchmarking exercises are continuously undertaken to ensure our programmes remain relevant and innovative within the sector. The real measure, though, is on the impact and evaluation of these programmes which, in some cases, require continuous modifying delivery modes in collaboration with Faculty and other higher education institutions.

## RESEARCH CAPACITY DEVELOPMENT TEAM

Manager (acting) & Coordinator: Research Capacity Development  
Ms Vaneshree Govender

Research Administrator: Research Capacity Development  
Ms Zethu Letta Mnguni

Research, Innovation and Engagement Liaison  
Mr Zenande Ndakisa

Research Administrator: Gatekeeper's Committee  
Ms Lebo Ramakatsa

Conference Administrator  
Mr Theophilus Adedokun

Post Doctoral Fellow  
Dr Kunle Oparinde

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## REFERENCES

- Altbeker, A. and Storme, E. 2013. Graduate unemployment in South Africa: A much exaggerated problem. Johannesburg: The Centre for Development and Enterprise.
- Holmes, L. 2013. Realist and relational perspectives on graduate identity and employability: A response to Hinchliffe and Jolly, British Educational Research Journal, 39(6): 1044-1059.
- McKenna, S., 2015. Growing the next generation of researchers: A handbook for emerging researchers and their mentors, L. Holness: book review. Critical Studies in Teaching and Learning (CriSTaL), 3(2): 83-88.
- Sawyerr, A., 2004. Challenges facing African universities: Selected issues. African studies review, 47(1): 1-59.
- Segrott, J., McIvor, M. and Green, B. 2006. Challenges and strategies in developing nursing research capacity: A review of the literature. International Journal of Nursing Studies, 43(5): 637-651.



# NANOAFRICA2018 CONFERENCE REPORT

## 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY IN AFRICA, 22 – 25 APRIL 2018, SALT ROCK HOTEL, DURBAN

### Background

The 7th International Conference on Nanoscience and Nanotechnology, NanoAfrica2018, was organised jointly by The University of KwaZulu-Natal (UKZN) and by The South African National Nanotechnology Initiative (Sani), held from 22–25 April 2018 at Salt Rock Hotel North of Durban. The NanoAfrica is a series of conferences that are held every two years and attracts academics, researchers and engineers from universities, the private sector, industry, research councils and government structures with the common goal of engaging all South Africans who are involved in the exciting field of nanotechnology and nanoscience. Over the three-day period there were a total of 183 delegates representing many universities in South Africa, as well as a number of international delegates from the UK, Brazil, the USA, Ghana, Cameroon and Kenya. The scientific programme was excellent which included 5 plenary speakers, 6 keynote speakers and with 40 oral presentations in 2 parallel sessions over the 3 days.

The NanoAfrica2018 conference focussed on the frontline areas of nanoscience and nanotechnology, including:

Synthesis and characterization of nanomaterials

Nanochemistry and nanophysics

Nanomaterials for water purification

Nanomaterials for health and bio-applications

Nanomaterials for energy applications

Fabrication of nanosystems for sensing, diagnostics, imaging and electronic applications

Risk assessment of nanomaterials

Nanocommercialization

### Highlights

#### Opening Ceremony

Prof Moyo, DVC: Research, Innovation and Engagement, was among the dignitaries who addressed the delegates at the opening ceremony on Monday 23 April. Her talk entitled, “Research and Innovation in Higher Education Institutions: A South African Perspective” was informative and also included a brief overview of the research ethos at DUT.

Prof S Moyo receives a token of appreciation from Prof V Nyamori, Chair of NanoAfrica 2018 organizing committee and SACI president. Looking over is Prof Edward Nxumalo, SANI president.



#### Commercialization workshops

On Tuesday morning there was a 3rd parallel session, nanocommercialization workshop, and was very well attended. It was organized by the UKZN InQubate team. Later that afternoon there was a second workshop organised by the Water Research Commission (wrc).

#### DUT Chemistry Student scoops award

Ms Kwanele Kunene was awarded a second prize of R3000 for her poster presentation. The poster entitled “Hydrothermal Synthesis and Characterization of Zinc Oxide Nanorods” was co-authored by Kwanele Kunene, Myalowenkosi Sabela, Suvardhan Kanchi, Roman Viter, Donats Erts and Krishna Bisetty.

## Oral Presenters

Prof K Bisetty	Fabrication of graphene based aptasensors for early detection of prostate cancer by experimental and computational techniques
Dr PS Mdluli	Recent advancement in the application barcodes paper-based diagnostic devices fabricated with gold nanoparticles
Poster Presenters	
Prof Shalini Singh	Critical Factors for the Commercialisation of Nanotechnology
Ms K Kunene	Hydrothermal synthesis and characterization of zinc oxide nanorods
Mr M Moyo	Thermal and morphological effects of nanoclay on plant fibres
Ms A Mbambo	Development of a gold nano-enabled colorimetric sensor for the detection of sodium chloride in seawater
Mr SC Onwubu	An In Vitro Assessment on the Buffering and Acid-Resistant Properties of a Nano-Dental Eggshell-Titanium Dioxide Material

## OUTCOMES

Professor Anil Chuturgoon from UZN requested a meeting with Dr Shalini Singh to be held between DUT and UKZN to establish potential collaborative projects.

Professors Vincent Nyamori and Thirumala Govender expressed interest to partner with Prof K Bisetty to establish collaborative projects in the area of Field Flow Fractionation Techniques applied to research in nanomedicine.

## ACKNOWLEDGEMENTS

Financial support from Prof S Moyo and Prof S Singh, Executive Dean FAS

DUT Research Conference Funding for student support

NRF Funding for student support

Research Outputs Cost Centre: Prof K Bisetty; Dr PS Mdluli and Prof Shalini Singh.



Left to right: Prof S Moyo, Ms A Mbambo, Ms K Kunene, Ms L Chunnial, Prof K Bisetty (centre), Prof S Singh, Mr SC Onwubu, Mr M Moyo and Dr PS Mdluli



## **MESSAGE FROM THE DIRECTOR: TECHNOLOGY TRANSFER AND INNOVATION**

### **PROFESSOR GERHARD PRINSLOO**

The Technology Transfer and Innovation (TTI) Department at the Durban University of Technology (DUT) was established in terms of the Intellectual Property from Publicly Finance Act (IPR Act 51 of 2008) to provide assistance to DUT researchers in terms of technology commercialization, innovation assistance, technology development fundraising as well as the development of appropriate skills among personnel for successful technology transfer.

This year our theme “applied research innovation” plays on the creative approach to problem solving wherein successful innovation involved the application of knowledge and research. Several notable outputs have been achieved under this thematic directive, including the processing of 12 Seed Fund applications (valued around R6million) for the commercialization of DUT Technologies, 36 research contracts signed, 3 invention disclosures considered, 2 patent applications made, and 2 new patents granted to DUT. DUT TTI further participated in the “Innovation Bridge Program”, a joint initiative between the Department of Science & Technology (DST), South African Technology Network (SATN) and National Intellectual Property Organization (NIPMO) to support the promotion of university-initiated market-ready innovations. In terms of support to Student Entrepreneurs as Small and Medium Enterprises (SMMEs), DUT have made great strides.

The Technology Innovation Agency (TIA) awarded the DUT TIA Technology Stations with grant funding to the value of around R8million to support an estimated 65 SMEs and to offer 50 Technology Transfer Packages to post-graduate students and entrepreneurs in the region. TIA further approved grant funding for the establishment of a Third DUT TIA Technology Station before the end of 2018. The DUT Entrepreneurial Help Desk was established to support DUT students and Alumni with the establishment of their own businesses and with the commercialization of their own technologies and technology ideas.

In the past year, the DUT Entrepreneurial Help Desk supported 83 DUT students to kick start their own projects and to establish their own SMME businesses, further awarding DUT Seed Funding to 20 students, 2 of these master's degree students. Another entrepreneurial support unit, which operates under the Faculty of Accounting and Informatics, the DUT App Factory assisted 8 students to engage on industry related projects under the Microsoft banner to support SMEs with the development of Mobile Phone and Smartphone Applications. Finally, the DUT Centre for Social Entrepreneurship (CSE) is funded by the government's Small Enterprise Development Agency (SEDA) to the value of R6million, the unit supports entrepreneurs and students through the SEDA Entrepreneurship support Program.

The DUT TTI Department thus fulfilled its role in bringing together various stakeholders to partner with the DUT in order to participate in the process of commercialising research projects within the South African (SA) Science Technology and Innovation (STI) domains. The TTI activities at the DUT supports SA's National System of Innovation (NSI), defined in terms of the priority areas formulated in the SA Government's 2030 National Development Plan (NDP). TTI Department continues to provide a service to researchers with assistance on commercialisation of research, implement policies and procedures towards maximising R&D Income for DUT and to ensure value creation through growth of DUT portfolio of spin off companies, thus helping the Deputy Vice Chancellor and Executive Deans to raise the profile of DUT as a key industry partner university.



## ENERGY TECHNOLOGY STATION

STATION MANAGER: PROFESSOR IAN LAZARUS

The DUT Energy Technology Station known as “KZN Industrial Energy Efficient Training and Resource Centre (IEETR)” was established in July 2012 to respond to the need for awareness, innovation, development, empowerment, research and technology in energy, and subsidized services in energy efficiency and energy projects within KZN. It is one of many technology stations based within South African Universities and is funded by TIA (Technology Innovation Agency).

A key focus area of this technology station is to assist SME's, commercial and industry in the field of energy. It also focuses on community engagement projects and training in energy. To facilitate the production of technology and services in energy efficiency and renewable & sustainable energy, research is being conducted in the following areas, viz: Solar Thermal, Solar Photovoltaics, Wind and Photovoltaic Hybrid Systems, Energy Management Systems, Biogas, Gasification and Building Energy. Some of the facilities available for research and innovation is a sun tracker weather station, a radiation and monitoring laboratory as well as its newly established Thin Film Solar Research Laboratory, where solar cells are fabricated. The centre has 8 masters and 4 doctoral students conducting research studies in various energy focus areas.

The technology station engages with a number of key energy role-players as well as private, industrial and student partners in the research and development of innovative energy projects. The technology station sources funds for the prototyping, research and development and implements these innovative projects with the aim of commercialization, resulting in creating entrepreneurship opportunities for their clients.

The IEETR Centre recently established an accredited energy training centre to serve the needs of industry and provides certified skills training courses. It offers both contact as well as online energy training courses, which is a first in South Africa. The technology stations involvement in community engagement projects includes the ongoing electrification of rural schools using renewable energy systems, the installation and research monitoring of photovoltaic roof-top systems and its ‘energyDRIVE energy awareness project. The unique innovative community engagement energyDRIVE Project is in keeping with the DUT’s strategy of building sustainable student communities of living and learning and takes on the form of a roadshow involving participation from students and interns. Students were tasked with the development of laboratory-based exhibition energy units.



The project addresses pertinent national issues in terms of skills and technology transfer, entrepreneurial development and commercialization. The campaign promotes, advances and develops public awareness of alternative energy and energy efficiency. Awareness of DUT skills and training programs are promoted with special focus on the engineering and science fields, emphasizing the current need in South Africa for specialized skilled labour. The potential is there to make a significant impact on the lives of over 100 000 scholars. The project has already drawn significant response and interest from the corporate sector and there is further scope in terms of its Corporate Social Investments (CSI) strategy. The project will ultimately contribute towards efforts to combat unemployment, and support for people living in poorer areas.

The energyDRIVE truck is the 'first of its kind' in Africa and to our knowledge, the first in the world. It started its roadshows in February 2017 and has to date visited about 50 rural schools, targeting over 15 000 scholars; 15 exhibitions and careers expos reaching over 20 000 public, private, conference delegates and energy and environment colleague's. The project has been a great success and has been well received with a number of articles on various well-known media platforms. The project has received a number of awards, recently receiving two prestigious national awards.

- National Energy Education Award received from the South African National Energy Association (SANEA). This award was received for the impact that the energyDRIVE community engagement project had on the youth in our country.
- Energy Globe Award which was received from an international organization for the best national project focusing on energy efficiency and renewable energy and its influence on the youth in a country.

The energyDRIVE project will continue its renewable awareness journey over the next few years with the aim of reaching many more communities and thousands more youth in our country. The IEETR Centre's plans to expand its facilities and hence assist entrepreneurs in bringing high potential energy technologies closer to commercialisation through research and innovation.



# **ACKNOWLEDGEMENTS**

## **EDITORIAL TEAM**

Ms Vaneshree Govender

Dr Kunle Oparinde

Prof Carin Napier

## **SUB-EDITORIAL TEAM**

Ms Zethu Mnguni

Mr Zenande Ndakisa

## **With additional support from:**

Prof Paul Musonge

Prof Renitha Rampersad

Prof Nokuthula Sibiya

Prof Oludayo Olugbara

Dr Maleshoane Rapeane-Mathonsi

Dr Bloodless Dzwairo

Mrs. Zanele Ngcobo

Ms Lavisha Deonarain

Ms Philisiwe Cele

Research Finance

Departments of Management Information and IT Support Services

Technology, Transfer and Innovation Directorate

## **PHOTOGRAPHS**

DUT Audio Visual Team

African Mediums (PTY) LTD (Snapz Digital)

## **DESIGN, ART, LAYOUT & PRINTING**

Mr Ntethelelo Lungelo Ngcobo African Mediums (PTY) LTD

Synopsis: Mr Ngcobo is a Graphic Designer/Illustrator who completed his studies at the DUT (Arts & Design: Visual Communications). This annual report has been an opportunity for him to showcase his design skills and creative expression.

## **PRODUCED BY:**

Directorate for Research and Postgraduate Support

Durban University of Technology

This report is printed on bio-degradable paper.



This image is a complex abstract visualization of a network graph, titled "Movement of Innovation" by Ntethelo L. Ngcobo. The graph is composed of numerous small, yellow circular nodes connected by a dense web of thin, multi-colored lines (pink, blue, orange, purple) forming various geometric shapes like triangles and hexagons. The background transitions from dark purple at the top to a lighter blue towards the bottom right. In the bottom right corner, there is a white text block containing the title and the artist's information.

Art Piece: Movement of Innovation  
Supplied by: Ntethelo L. Ngcobo  
DUT Alumnus



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