



2012 RESEARCH REPORT

2012 RESEARCH REPORT

 **DUT**
DURBAN
UNIVERSITY OF
TECHNOLOGY





A LEGACY OF SUSTAINABILITY

With a strong focus on eco-issues, environmental consciousness has become an imperative for researchers. DUT contributes significantly to such research, as it strives to apply its wealth of research to leave a legacy of innovation and improved social conditions.

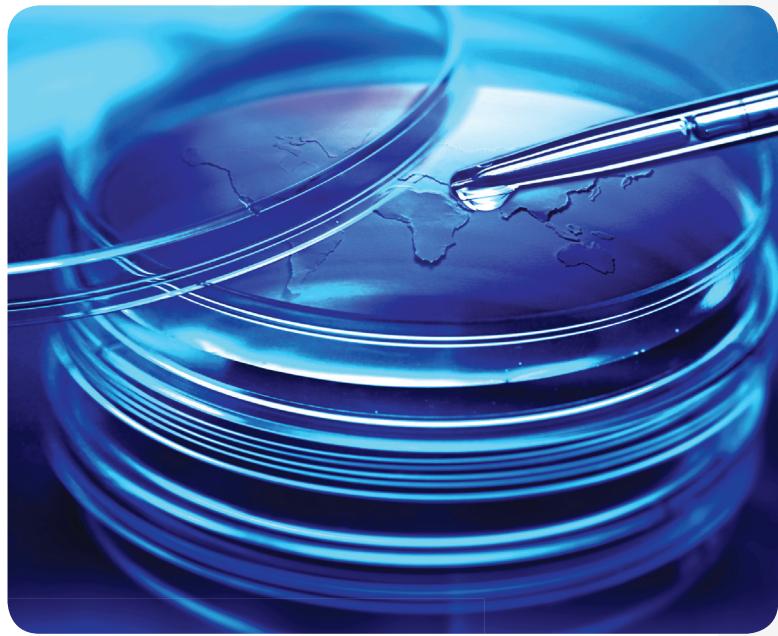
The eco-green World Tree in the DUT 2012 Research Report is symbolic of sustainability and adherence towards green living, and also of ensuring the sustainability and relevance to its local context of the University's research enterprise. The trail of leaves falling on the water's surface signifies the legacy formed by eco-consciousness, with the element of water acting as a metaphor for sustainability. The DUT logo is thus portrayed in a single droplet illustrating DUT as a catalyst for sustainable development through its research engagement.

The 'green world' ideal is portrayed in a multitude of unusual ways throughout the Report, reflecting DUT's strides to be an innovative institution, embracing its responsibility to society as an opportunity for growth and sustainability. The eco-living World Tree theme, along with all iconic elements, is therefore embedded in the design of the DUT 2012 Research Report, serving as a reflection of the legacy of sustainability to which DUT is dedicated.

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A LEGACY OF SUSTAINABILITY



MESSAGE FROM THE VICE-CHANCELLOR

With an economy that is growing at a slow rate and with official unemployment galloping at close to 26% it is clear that there is need for a significant shift in South Africa's industrial base and its ability to compete as a producer and distributor of natural resources, food and other products. Amongst many requirements, one set of conditions for this rests as a responsibility of our 23 public universities. The first is the performance of applied, basic and product-related research. The second is the production of high-level researchers through the performance of this research. These go together. We cannot have one without the other.

This is a wonderful time to be at DUT as we set about developing a new research and postgraduate education system. On the one hand we are anxious because it is such a new system and one that is building its traditions. On the other hand we must be excited about the challenges and the development of solutions and systems.

What are our largest challenges as we build a competitive research system with the limited resources available to us? There appear to be five large projects.

- The first is to understand that DUT is not going to be able to build a broad research system. We are identifying five to ten centres of research excellence which will be signatures of DUT research, and providing these with sufficient funding to allow

them to compete favourably for external resources and to grow into nationally and internationally recognised centres.

- The second large project is to ensure that the number of academic staff with doctorates continues to grow. In the last three years, the figure has grown from 11 to 15% and according to latest reports some 39 staff members are busy with studies towards doctoral degrees. So we can look forward to this figure growing to about 20% in the next two to three years.
- The third is to build the size and shape of our postgraduate programmes, our ability to construct good pipelines within DUT so that progressing into masters and doctoral studies is an option for our students, and to focus on quality, quality, quality.
- The fourth is to enhance the capacity of staff to compete for research resources. This is critically important.
- The fifth is to build the research and intellectual culture of our University so that everything we do will focus on our core activities of teaching/learning and research. We have much to do in this regard.

These are exciting challenges and we have already made some progress but much needs to be done.

All in all we have an exciting set of challenges ahead of us and I would like to encourage all members of staff (academic and support) to work with us in this regard.

PROFESSOR
AC BAWA,
VICE-
CHANCELLOR



FOREWORD

In his address at the International Education Association of South Africa, in 2012, Deputy Minister of Science and Technology, Derek Hanekom, stated that governments, universities and the private sector need to be more innovative in how they respond to the new reality of globalisation. Universities across the world are increasingly forging comprehensive and strategic networks with a view to advancing their respective interests.

For DUT, while we recognise that we are part of the global research arena, we are faced with considerable challenges at the local level. It is crucial that our research activities are located in, and solving problems for, the context in which we find ourselves.

For some time, research (including postgraduate research) at the University has encompassed a wide range of areas and research projects across the faculties. There is now a deliberate approach to identifying areas of strength and excellence. One reason for this is to transform and broaden the research base of the university, which sadly has a very small number of black researchers, but also to ensure that we focus on our areas of excellence, where we can ensure quality research outputs. Alongside these initiatives will be the promotion of quality research that is also responsive to human needs.

We continued to strengthen the research base at the University, particularly among new and emerging researchers, by offering courses aimed at deepening their ability to conduct both research and postgraduate supervision. This is evidenced by the enhanced outputs in papers and postgraduate graduations, as well as an increase in postdoctoral fellows and visiting scholars, as reflected in the statistics contained further in this report.

The Research Institutes continue to grow and attract students and funding both nationally and internationally. The Institute for Water and Wastewater Technology (IWWT) applied for and received the National Research Foundation (NRF) SARCHI Chair (tier 1) and funding from the Department of Higher Education and Training (DHET) for a new building for its research activities. This is expected to start in 2013. The Institute of Systems Science also applied for, and was successful in obtaining, an R11 million African Union Funding grant. The University was awarded a Technology Station in Renewable Energy in 2012.

Their efforts are commendable.

We have a small tally of NRF rated researchers which continues to be an area of worry. In an effort to increase this both in the short and medium to long terms, we embarked and strengthened our development initiatives through the Research and Development Grant. Further efforts to address this involved the recruitment of well-qualified academic staff in faculties.

Three further areas of work that we embarked on with reasonable success in 2012 were to enhance Technology Development and Transfer through the various directorates, technology transfer stations and incubators, the high percentage of our outputs in international journals, as well as research collaborations with others within and outside South Africa. We will continue to work on these as we move forward.

I would like to thank the staff of the various support directorates for the valuable work that they are doing to support research and postgraduate initiatives at the University, as well as sincerely thank all who contributed to the increased research outputs in 2012. Our thanks go to the National Research Foundation, the Technology Innovation Agency, Small Enterprise Development Agency, and the Department of Higher Education and Training for their support.



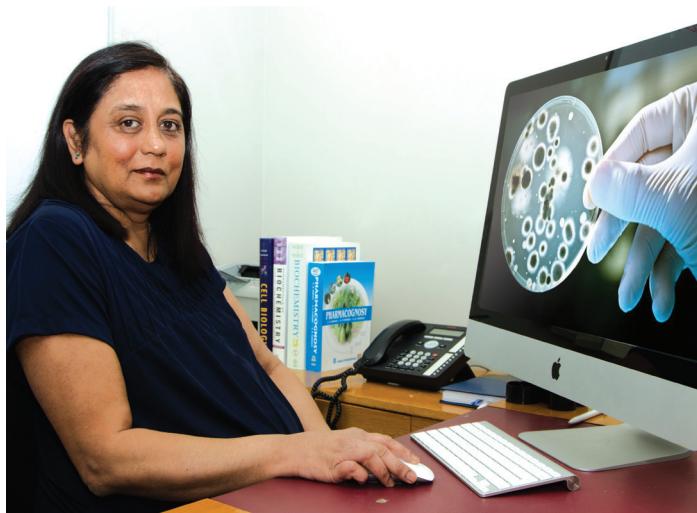
DEPUTY VICE CHANCELLOR: TECHNOLOGY, INNOVATION AND PARTNERSHIPS, PROFESSOR FAO OTIENO



RESEARCHING FOR A LEGACY OF SUSTAINABILITY



PLANT BIOTECHNOLOGY RESEARCH



The concept of growing crops for health, rather than for food or fibre only, is slowly changing plant biotechnology and medical related research.

Professor Bharti Odhav is an NRF Rated Researcher and leads a research group in plant biotechnology. She is actively involved in teaching, learning and research, and has played a significant leadership role. The plant biotechnology research group has been in operation for approximately fifteen years. Currently it is made up of a team of five staff members (Professor B Odhav; Dr V Mohanlall; Mr J Mellem; Ms S Beekram; Professor Baijanth; Dr Venugopala) and 21 postgraduate students at MTech and DTech level.

The research covers four primary categories:

1. Bioactive compounds from plants for the treatment or prevention of HIV, TB, Malaria, Diabetes, Cancer and other infectious diseases;
2. Synthesis of novel pharmaceuticals;
3. Nanotechnology for drug delivery.
4. Value addition by producing novel food commodities.

Enhancing Sustainability - Developing Useful and Beneficial Plants

The research encompasses vegetative, generative, and propagative technologies that extend ways to produce bio-chemicals, and pharmaceuticals from plants. The emphasis is on in vitro cell and tissue culture and is now advancing into new directions of molecular techniques and nanotechnology for drug development. These techniques are being used to select successful novel genotypes, isolation and cloning of favourable traits, and the creation of transgenic organisms of importance to agriculture and industry. A number of characteristics/compounds have been identified from plants with anti-bacterial properties, anti-oxidative, anti-malarial, anti-cancer and anti-HIV activity that are being transformed for enhanced compound production with beneficial characteristics and these have significant potential commercial value. These in turn can lead to agronomy development.

The research group has investigated plants for

- a. Nutritional value which can improve the nutritional status of South Africans;
- b. Bio-active compounds that can be used as pharmaceuticals or nutraceuticals;



- c. Phytochemicals for therapeutic uses; and
- d. Value addition by producing novel food commodities.

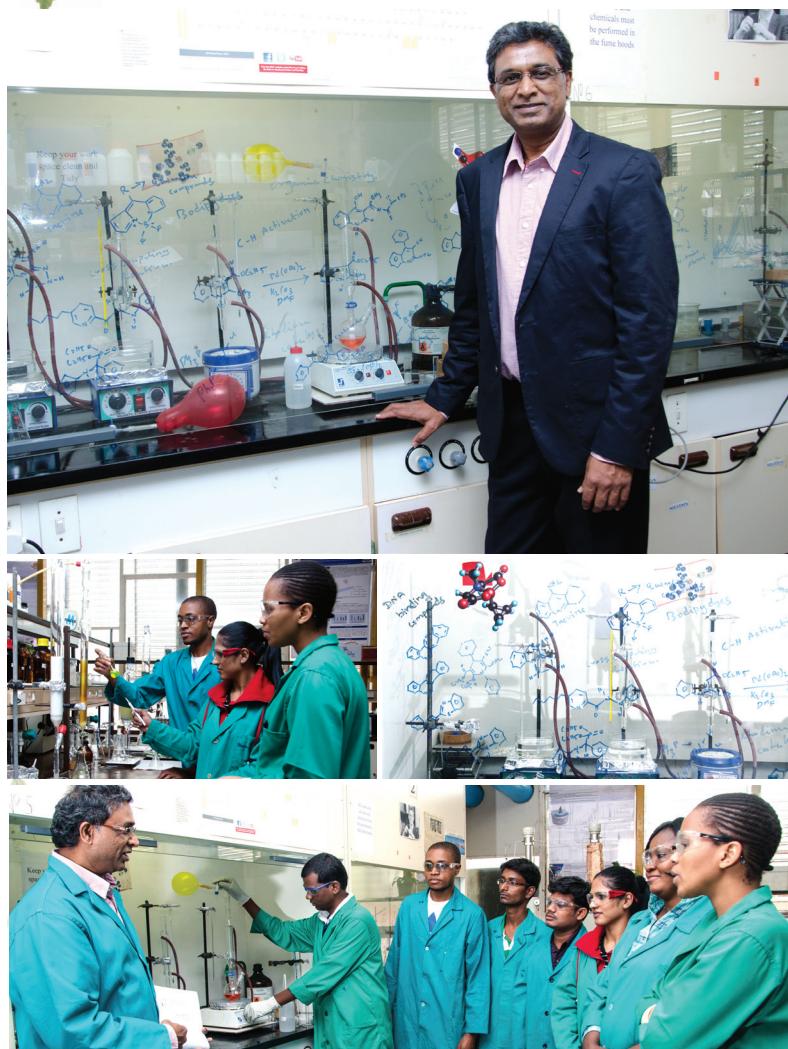
The research group has established a reference laboratory for nutritional/anti-nutritional evaluation of local plants, established standardised assays for plant compound evaluation and chemical characterisation, and established plant tissue micro-propagation techniques.

Through their research, Professor Odhav's research team hopes to alleviate poverty through more and better food, to improve the environment, and to improve life through genetic engineering, screening and identifying secondary plant metabolites.

Professor Odhav has successfully supervised numerous MTech and DTech students over the years; she has published in national and international journals and has attracted funding from national and international funding agencies.



GREEN CHEMISTRY RESEARCH



Professor Robert Gengan, Associate Director in the Department of Chemistry, has a wide range of research interests cutting across synthetic organic chemistry, organometallic chemistry, medicinal chemistry, drug discovery, nanochemistry and catalysis. His fundamental aim is to address important health issues with his research group, such as cancer, tuberculosis and HIV/AIDS; energy

Green Chemistry: Organic Synthesis and Nanoscience

issues such as dye-sensitized solar cell (DSSC); and catalysis for industrial applications.

The basic theme of the organo-synthesis laboratory under Professor Gengan's management, is to practice Green Chemistry protocols such as avoiding the use of volatile organic solvents, toxic reagents, hazardous or harsh reaction conditions and time-consuming wasteful separations. The development of organic amphiphile nano-micellar catalysis via conventional and unconventional methodologies are pursued. Green chemistry methodologies such as microwave irradiation techniques are used to assess heterogeneous catalytic systems in multi-component reactions schemes. Metal-based magnetically recoverable nano-catalysts are produced in environmentally benign solvents including aqueous mediated chemistry reactions. Nano-catalysis, which provides sustainable, economical and efficient ways to convert raw materials into valuable chemicals and fuels, is a relatively new research field of study. These nano-micelle are studied for their applications as C-H activation, C-C cross coupling, asymmetric Michael addition and Aldol reactions in aqueous systems at room temperature. The formulation of nano-micelle on novel synthesized bioactive small molecules are targeted as efficient drug delivery systems. Fluorinated heterocyclic synthesis and their protein-binding potential are also studied.

The research also supports local industries in formulating novel dyes for textile, food and in organic solar cell applications. Phytochemical studies are undertaken to elucidate novel natural products with interesting biological properties. This organo-synthesis group collaborates with local and international scientists in South Korea, Canada, India and Durban.





SUSTAINABLE TRANSPORT



It is commonly recognised that transport systems are major emitters of greenhouse gases. What might not be known is that transport systems were responsible for 23% of world energy-related GHG emissions in 2004, with about three quarters coming from road vehicles, and that percentage is increasing annually. Sustainable transport systems make a positive contribution to the environmental, social and economic sustainability of the communities they serve; they exist to provide social and economic connections.

Traditional transport planning, however, aims to improve mobility, especially for vehicles, and may fail to adequately consider broader impacts, including that of environmental sustainability. Research on greening the vital spheres of transport systems and transport planning to ensure sustainable transportation and mobility is critical.

Professor Dhiren Allopi, Associate Professor/Director in the Department of Civil Engineering and Surveying, conducts research in the areas of transportation planning, traffic engineering and public transport, amongst others.

Some of the recent external projects that Professor Allopi has been involved with include the following:

- Integrated Public Transport Facility in Ulundi
- Bridge City Public Transport routes, services & ranking requirements (initial phase)
- NMT Integration Plan for Mbombela Municipality
- South Beach Addington Hinterlands Urban Renewal Project
- Demographic Forecasts for eThekini Transport Authority

In the eThekini Transport Authority project, Professor Allopi served as the project manager for the demographic forecast survey. The purpose of the study, in a nutshell, was to determine the present and future levels and spatial distribution of population, employed residents, workplace employment and vehicle ownership for the eThekini municipal area.

The primary objective was to update the baseline information integrated into the eThekini Transport Authority's suite of transportation modeling programmes, used for traffic forecasting and travel demand analysis, that supports the strategic planning of transport infrastructure and service provision in the future.

One of the South African government's strategic objectives is to promote the use of public transport with the goal of achieving a ratio of 80:20 between public transport and private car usage, as a long term vision. Due to the high car ownership and usage in South Africa, most of our roads are operating at capacity, resulting in severe traffic congestion. In recent years, the emphasis on economic efficiency and optimum utilisation of existing transport infrastructures has featured high on government agendas globally. Professor Allopi has developed a computer simulation model for the operational analysis of minibus taxi-rail integration to promote the use and accessibility of the rail system.

At least eight students have completed their Master's qualification under Professor Allopi's supervision, and he is currently supervising ten postgraduate students mainly in the field of traffic and transportation engineering. He served on the steering committee that was responsible for the White Paper on National Transport Policy. Professor Allopi has successfully secured external funding from the Eastern Centre of Transport Development (ECoTD) which is a National Department of Transport (NDOT) initiative, which has meant that over the years, more than R1 000 000.00 has been received to assist postgraduate students in the field of traffic and transportation engineering. Professor Allopi has over 75 conference proceedings and journal papers to his name. He has been awarded the Institute of Municipal Engineering of Southern Africa (IMESA) prize twice for best paper in the IMESA journal. In 2013, he and postgraduate student,

S Saroop, aim to disclose their Green Infrastructure Toolkit at the 6th International Conference on Sustainable Development and Planning, which assists in enhancing sustainable infrastructure.



GRID ELECTRICAL ENERGY GENERATION

for Sustainability and
Social Upliftment



For many urban people, consideration of water and power consumption usually focuses on whether or not living off the grid is 'the right thing to do'. However, for a vast number of people in rural communities, the issue is not even about 'doing the right thing' but about getting access to potable water and electricity.

The University is building expertise in the areas of water and power provision for the benefit of both rural communities and to reduce the demand for power from the national grid.

The Real Time Power System Simulator (RTSS) Centre is managed by Mr Fred D'Almaine, of the Electrical Engineering Department.

The NRF (THRIP) awarded a grant to this research area for a real time power system simulator, as have ESKOM, Alectrix, Siemens, ABB and SEL TESP, as industry partners to the project. This real time digital power simulator is presently the largest such simulator in South Africa, and one of the largest at any university worldwide. The Centre concentrates on the field of electric power generation, transmission and distribution. More than twenty graduates have been produced from this area of research.

The work conducted at the Centre forms part of Mr Fred D'Almaine's three-pronged research portfolio, which also includes the investigation of hybrid renewable energy, and ocean energy - specifically in harvesting the Agulhas Current off the KwaZulu-Natal coastline for electrical energy. His research also investigates grid electrical energy generation, transmission and distribution to improve the efficiency of the Eskom grid in South Africa, thus minimising downtime and maximising resources.

The hybrid renewable energy project deploys two hybrid RE 5kW power stations in deep rural areas to provide clean drinking water to achieve social upliftment in deep rural areas of northern KwaZulu-Natal.



A station has been established in Mozambique to provide power for a school and a community centre. The project aims to set up a manufacturing facility for wind turbines and is presently developing a rapidly deployable system for deep rural areas as well as disaster relief.

The harvesting of the Agulhas Current is now becoming a priority as South Africa is experiencing power shortages, and in the long term an alternative to coal needs to be developed.

Regional Energy Forum

In expanding its base of expertise in energy, DUT - in conjunction with the National University of Lesotho (NUL), Polytechnic of Namibia (PON), University of Pretoria (UP) and the University of Botswana (UB) - has entered into a regional partnership agreement to stimulate and facilitate the intellectual life and cultural development of institutions in the countries, in the areas of renewable energy and energy efficiencies. This forms the Regional Energy Forum (REF).



CLOUD COMPUTING WITH ACCESS TO MOBILE SERVICES



Working in another kind of emerging cloud environment for ubiquitous healthcare service provisioning is the interest of Professor Olugbara, who is a professor in the Information Technology department, Faculty of Accounting and Informatics.

The limitations inherent in conventional healthcare systems, such as the low quality of service provisioning, lack of easy accessibility to a wide range of services and the high costs of services have inspired Professor Olugbara's research agenda. The emergence of novel technologies such as utility mobile grid (now called cloud computing), wireless body area network and ubiquitous computing provides a unique opportunity to overcome the current limitations of

conventional healthcare systems. Exploiting these technologies, his current objective is threefold. Firstly, to examine the role of emerging technologies in enabling ubiquitous healthcare service provisioning; secondly, to illustrate how these technologies could be integrated to realise a cloud-enabled framework for ubiquitous healthcare service provisioning; and thirdly, to evaluate the framework using an approach based on ubiquitous computing evaluation areas.

Another of Professor Olugbara's research areas is in Image processing and machine intelligence application to mobile commerce and products recommended for mobile users. This can also be linked to the cloud – or off grid – service provisioning. There is a high demand by government and society at large for services to be delivered more efficiently and effectively without geographical constraint. Moreover,

mobile customers want to access services anywhere, anytime. This research study attempts to integrate three research endeavours - image processing, mobile computing and machine intelligence - to provide an effective and efficient sales product recommendation service for mobile users.



The most recent research project that Professor Olugbara is leading at the Co-Lab of the e-Skills Institute, located at the University is entitled "e-enablement of government services". The Co-Lab is devoted to the development of innovative technologies to improve the efficiency of government services for South African citizens. The Hippocratic data sharing manager, an innovative cloud-based product is being developed to improve government service delivery process. The high interdependency of government departments, diversity in government operations and incompatibility of different government information systems have made it difficult to improve communication latency, reduce information verification processes and increase efficiency of service delivery. These raise the need to find a better and more effective way to manage data pertaining to subscribers and to share data seamlessly across disparate government departments. The data sharing manager utilises a lightweight database within the government data centre to hold data contract, data source connection information and target data location. The manager is malleable to support any type of database for enabling seamless data flow without any change to existing hardware infrastructure and software applications within government departments.

RESEARCH AND POSTGRADUATE SUPPORT REPORT

PROFESSOR S MOYO, ACTING DIRECTOR



Most of 2012 was focused on systems development and implementation. This ranged from policy development, putting procedures in place for reporting, grant acquisitions and monitoring, consolidation and reorganization of the Directorate. To this end, three of the Research and Postgraduate Staff were allocated two faculties each to serve. Additional training for the administrative staff members was also provided through the Southern African Research Innovation Management Association (SARIMA). Clusters of committees were established to assist with the implementation and alignment of the University's Research Strategy, and the Scholarships and Institutional Research Ethics (IREC) Committees were formed. The IREC will be

reconstituted in 2013 in alignment with the Senate approved terms of reference. There is continual monitoring and evaluation of procedures and systems as part of the total quality improvement process. As a baseline to all the activities was the endeavour to build capacity and a research culture at the University. It is pleasing to report that the University has steadily increased its research productivity units and has positioned itself to host its first South African Research Chair in the Institute for Water and Wastewater Technology.

South African Research Chairs Initiative (SARCHI)

In February 2012 the National Research Foundation (NRF) awarded 60 new Research Chairs to 19 universities under the South African Research Chairs Initiative (SARCHI). DUT was the recipient of one Research Chair in 'Development and Optimization of WasteWater Treatment Technology for Developing Economies'. A Phase 2 proposal, for evaluation and approval by the NRF of the nominated candidate was also approved in 2012. The SARCHI Research Chair will be based within the Institute for Water and Wastewater Technology. Professor Thor-Axel Stenström was approved as the SARCHI candidate for DUT and he will commence duty in 2013.

Honorary Research Appointments

The following candidates were appointed as Honorary Research Professors in 2012:

Prof REG Upshur
Health Sciences
Honorary Research Professor

Mr RC Owen
Health Sciences
Honorary Research Fellow

Mr NR Castle
Health Sciences
Honorary Research Fellow



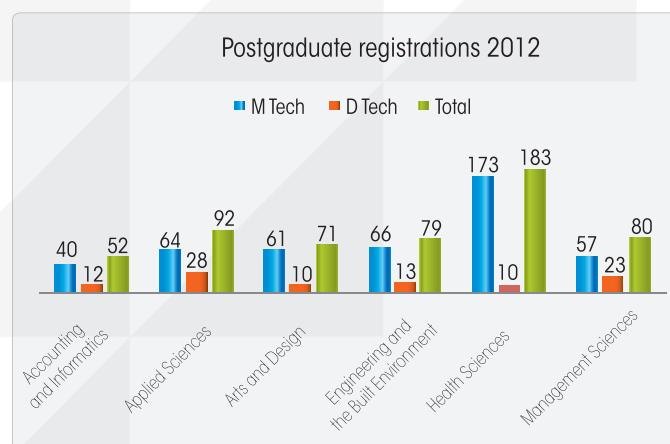
NRF Ratings 2012

Our congratulations are extended to Professors who received new NRF ratings and/or re-evaluations. Professors FAO Otieno from the Technology, Innovation and Partnerships ambit received a C1 rating and Professor K Kanny from the Mechanical Engineering Department got a C2 rating. Professor R Mason from the Department of Marketing, Retail and Public Relations in the Management Sciences Faculty was newly rated as a C3 researcher. This was the first rating received in the Faculty of Management Sciences at the Durban University of Technology.

Professor FAO Otieno is further congratulated for being admitted as a Fellow of the Academy of Science of South Africa (Assaf) in 2012.

Postgraduate Students

In 2012 there were 557 enrolments recorded in comparison to the 381 reported in 2011. This is still 2% based on 24 232 undergraduate enrolments. The enrolment per faculty is as follows:



A total of 557 students registered for postgraduate study in 2012, 461

for MTech and 96 DTech qualifications. In 2011, 85 Masters and 14 DTechs graduated.

The Postgraduate Student Forum, whose membership is open to all postgraduate students, played a vital role at the DUT Open Week, by promoting the postgraduate study opportunities at the University. A congratulatory note goes to the PGF for their efforts to contribute to postgraduate recruitment.

Staff Qualifications

Out of a total of 606, 13% of the University's academic staff have Doctorates and 47% have a Masters qualification. This marks an increase from 44% of the staff with Masters reported in 2011. The number of staff with Doctoral qualifications is expected to increase over the next few years as the number of those with a Masters qualifications increases.

Developing Capacity and a Research Culture

The Directorate hosted 35 different capacity-building initiatives facilitated by various staff from within DUT, UKZN and Stellenbosch as part of the capacity building programme and in line with the RDG initiatives for increasing supervisory capacity and supporting staff towards their postgraduate studies. In particular, an intensive four-day workshop on Postgraduate Supervision was facilitated by Professor Johann Mouton for thirty participants. Future plans include having a structured six-week course for all first-time enrolled postgraduate students.

The activities of the directorate expanded beyond training and development. The University hosted a DUT Science Day, with guest of honour Professor Roseanne Diab, CEO of the Academy of Science of South Africa (ASSAf), and presentations by DUT academic staff. In addition, the annual Institutional Research Day was hosted to provide a platform for students and emerging researchers to present their research.

Various funding entities such as the NRF, DAAD and others presented on their opportunities to staff and students, thus assisting in disseminating an understanding of what is available nationally and internationally in respect of funding and mobility opportunities.

To this end, Mr Talent Raymond Makhanya - currently enrolled for the Doctorate Degree in Chemistry, under the supervision of Dr. R.M. Gengan - was a recipient of the Commonwealth Scholarship in 2012. His research focus is on the phytochemistry and biological assessment of indigenous plants used by traditional healers. The study includes plants used by various traditional healers to relieve their patients of various illnesses, their photochemistry and impact on HIV/Aids, TB and Malaria.

The RPS Director, Professor Moyo, was also involved in facilitating training opportunities nationally. She facilitated two workshops on behalf of the Southern African Research and Innovation Managers' Association (SARIMA), on Grant applications and the Grants support. Four RPS staff attended training sessions organised by SARIMA.

Research Outputs 2011 (Note: 2012 data is not yet available)

It is pleasing to note that the University's Research Outputs increased substantially in the 2012 reporting year (on 2011 performance) as per the figures below. This represents a 45% increase from 2010 for research publications.

Student Funding 2012

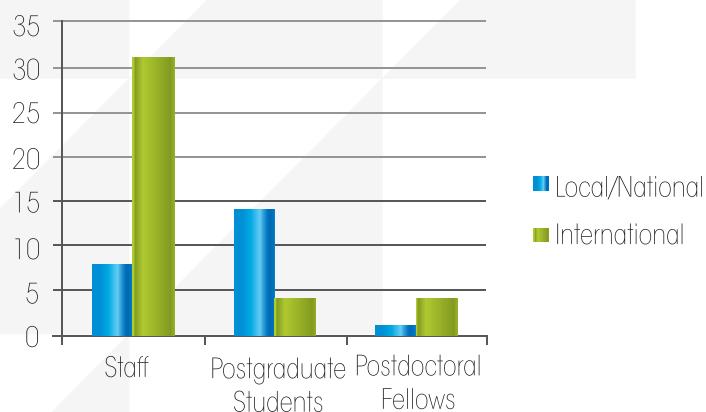
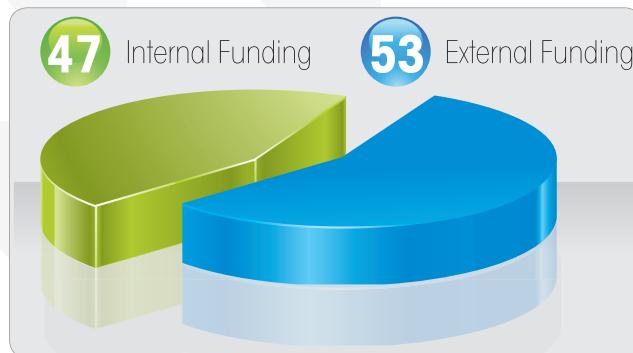
A total of R 5 390 898.00 was awarded to BTech, MTech and DTech students, including an amount of R 928 898.00, in the Thuthuka category for the PhD and Post PhD tracks for staff.

Internal Funding – Conference Attendance

A total of R1 211 936.57 was allocated to DUT researchers to present at both international and local conferences. Presenters are expected to publish their work in accredited journals and accredited conference proceedings.

Research Output	No. of Units	Amount (R'000)
Masters graduations	48	5 540
Doctoral graduations	42	4 848
Publications	88.88	10 259
TOTAL	178.88	20 647

Funding Source



Research Information Management System (RIMS)

The University is part of the RIMS consortium and has been implementing RIMS as part of the consortium. The Research output module was successfully implemented and is currently used to capture all research outputs. Reports are sent regularly to the faculties and identified line managers in the business process. Most of 2012 was spent on configuring and adapting the Grants and Contracts module of the InfoEd platform, for developing postgraduate research proposals, and tracking the progress thereof. Pilot departments in faculties were identified, who tested business process against the system configurations. The full rollout is expected to occur in 2013 and it is anticipated that reports generated from the system will provide reliable research, innovation and postgraduate data from which analysis of progress can be made. Ms Nicky Muller currently coordinates this project with the assistance of NRF/DST interns.



RECOGNISING RESEARCHERS



NEW NRF RESEARCH RATINGS

NEW RATINGS 2012:



Professor Fred Otieno



**Professor K
(Mervyn) Kanny**



**Professor Roger
Mason**

Congratulations to Professor Fred Otieno (DVC: Technology Innovation and Partnerships) on his C1 rating, and Professor K (Mervyn) Kanny (Faculty of Engineering and the Built Environment) on his C2 rating upgrades.

Professor Roger Mason (Faculty of Management Sciences) is congratulated on his first time ranking as a C3 researcher.

DUT RATED RESEARCHERS:

C1 RATED

Professor FAO Otieno
Professor S Singh

C2 RATED

Professor KJ Duffy
Professor K Kanny
Professor PY Tabakov

C3 RATED

Professor F Bux
Professor N Deenadayalu
Professor R Mason
Professor B Odhav
Professor K Permaul
Professor T Puckree

FELLOW OF THE AFRICAN ACADEMY OF SCIENCES

Congratulations to Professor Otieno on becoming a Fellow of the African Academy of Sciences in 2012.

AAS aims to be the engine for driving scientific and technological development in South Africa.



UNIVERSITY RESEARCH AWARDS 2011



UNIVERSITY RESEARCH AWARDS 2011

The 2011 Research Awards Dinner was held on 23 October 2012, with the keynote address by Mr Mahlubi (Chief) Mabizela, the Chief Director of Higher Education Policy and Development Support at the Department of Higher Education and Training.

The winners in the various categories are:

University Senior Researcher:

Prof Faizal Bux, Institute for Water and Wastewater Technology (IWWT)

University Female Researcher:

Prof Nirmala Dorasamy, Faculty of Management Sciences

University Junior Researcher:

Dr Josiah Adeyemo, Faculty of Engineering and the Built Environment

Research Group of the Year:

Plant Biology Research Group – Prof Bharti Odhav, Faculty of Applied Science

University Research Initiative

Transformative Education Studies Group – Dr Liz Harrison (CELT) and Prof Joan Connolly

Top Researcher in each faculty:

Accounting and Informatics: Prof Penny Singh

Applied Sciences: Prof Vincent Bisetty

Arts and Design: Prof Kate Wells

Engineering and the Built Environment: Prof Mervyn Kanny

Health Sciences: Dr Ray Bhagwan

Management Sciences: Prof Nirmala Dorasamy

Creative Outputs of the Year:

Mr Nkosinathi Khanyile, Faculty of Arts and Design

Runner-up:

Mr Rowan Gatfield, Faculty of Arts and Design

Innovator of the Year:

Mr Festus Mwangi, Faculty of Engineering and the Built Environment

Runner-up:

Mr Raveen Naidoo, Faculty of Health Sciences

Top Published Doctoral Student:

1. Dr Viresh Mohanlall, Faculty of Applied Sciences

2. Ms Nishani Ramdhani, Faculty of Applied Sciences and IWWT

3. Mr Ismail Rawat, Faculty of Applied Sciences and IWWT

4. Dr Yakeen Harilall, Faculty of Health Sciences

Special Award: Doctoral Research Impact:

Ms Nokuthula Mchunu, Faculty of Applied Sciences

Top Published Masters' Student:

1. Ms Reetha Nundulall, Faculty of Management Sciences

2. Ms Swatiska Juggernath, Faculty of Management Sciences



PROLIFIC AUTHORS 2012

Congratulations to the top ten authors for their outputs.

Professor D Ilcev, Technology Transfer and Innovation

Professor K Bisetty, Department of Chemistry, Faculty of Applied Sciences

Professor K Kanny, Department of Mechanical Engineering, Faculty of Engineering and the Built Environment

Professor N Dorasamy, Department of Public Management and Economics, Faculty of Management Sciences

Professor B Odhav, Department of Biotechnology and Food Technology, Faculty of Applied Sciences

Professor G Stewart, Faculty of Arts and Design

Professor D Allopi, Department of Civil Engineering and Surveying, Faculty of Engineering and the Built Environment

Professor JK Adam, Department of Biomedical and Clinical Technology, Faculty of Health Sciences

Dr S Singh, Department of Operations Management and Quality, Faculty of Management Sciences

Dr A van der Merwe, Department of Regional Governance and Development, Faculty of Management Sciences

PROFESSORSHIPS AWARDED FOR 2012

Full Professors:

Professor P Singh, Faculty of Accounting and Informatics
Professor JK Adam, Faculty of Health Sciences
Professor RB Mason, Faculty of Management Sciences

Associate Professors:

Dr RM Gengan, Faculty of Applied Sciences
Dr R Rampersad, Faculty of Management Sciences

Honorary Research Professorship:

Professor CC Jinabhai, Faculty of Health Sciences

Extraordinary Professorship:

Professor B Rigby, Faculty of Engineering and the Built Environment

Full Professors:

Professor P Singh, Faculty of Accounting and Informatics
Professor JK Adam, Faculty of Health Sciences
Professor RB Mason, Faculty of Management Sciences

Associate Professors:

Dr RM Gengan, Faculty of Applied Sciences
Dr R Rampersad, Faculty of Management Sciences

Honorary Research Professorship:

Professor CC Jinabhai, Faculty of Health Sciences

Extraordinary Professorship:

Professor B Rigby, Faculty of Engineering and the Built Environment

PROLIFIC SUPERVISORS 2012

Prolific supervisors who graduated students in the 2012 HEMIS reporting year (2011/2012) are congratulated for their research teaching output.



Prof P Singh:
Two DTech and four MTech students



Dr N Sibya:
Four MTech students as supervisor; two MTech students as co-supervisor



Prof MAH Wallis:
Three MTech students as supervisor; one DTech student as co-supervisor



Prof D Penceliah:
Three MTech students



Prof K Reddy:
Four MTech students



Dr HL Garbharran:
Three MTech students



PROLIFIC
RESEARCHERS

PROF JAMILA ADAM

Department of Biomedical and Clinical Technology, Faculty of Health Sciences

Professor Jamila Adam has been actively involved in coordinating research and academic activities in her department and is the Research Coordinator for the Faculty of Health Sciences. In her 27 years of service to the institution she has had the opportunity to teach, moderate and supervise postgraduate students in her faculty. She is currently supervising 20 masters and doctoral students, and one of her doctoral students has developed a unique technology in cardiovascular perfusion which has been patented and is in the process of international commercialisation.

Professor Adam's research focus is on the development of new technology and therapeutic procedures to enhance health care. Her research spans a broad area including clinical interventions in cardiology, neurophysiology, perfusion, reproductive biology, nephrology, critical care and pulmonology, as well as immunology, toxicology, histopathology, microbiology, physiology, cytopathology, nutrition, clinical pharmacology and health care management. She has published extensively. She serves as an external examiner for postgraduate students, both locally and internationally. She is an NRF reviewer; she also reviews for various international journals and is on the editorial board for Current Trends in Biotechnology and Pharmacology.



PROFESSOR VINCENT BISETTY

Department of Chemistry,
Faculty of Applied Sciences

Professor Bisetty's field of expertise spans a broad area ranging from Molecular Simulations using HPC to Experiments in Electrochemistry and Bio-Analytical Chemistry. His current project involves developing biosensor devices with carbon nanotubes for the detection of polyphenolic compounds using cyclic voltammetry. Using high performance computing and computer modelling experiments, his group studies the folding patterns of bio-active molecules,

which provide an improved understanding of the conformational preferences of the drug-substrate interactions, which is highly relevant in the pharmaceutical industry. He collaborates extensively with Spanish colleagues, through the SA-Spain bilateral agreements. He also collaborates with researchers in India.

Professor Bisetty has published extensively and is an active supervisor of postgraduate students. He has presented his research papers at international and local conferences and has served as an external reviewer for scientific journals and NRF project proposals.





PROFESSOR FAIZAL BUXT

Institute for Water and Wastewater Technology

Professor Faizal Bux is the Director of the Institute for Water and Wastewater Technology. He has been instrumental in establishing the research niche area of Wastewater Technology and turning this into a centre of excellence known as the Institute for Water and Wastewater Technology. He has received numerous institutional awards including the Vice Chancellor's and University Top Senior researcher awards.

Professor Bux's primary research areas are water and wastewater biotechnology, with specific focus on activated sludge population dynamics and the conversion of biomass to energy.

He has supervised over 50 Master's and Doctoral students and ten postdoctoral fellows. He is currently the editor for Environmental Science and Health Part A, serves as a reviewer

for 28 international journals and has published extensively. Professor Bux is an internationally

acclaimed scientist who is an invited member of the Management Committee of the International Water Association specialist group, Microbial Ecology and Water Engineering. He is a Fellow of the Water Institute of Southern Africa and has served on the scientific program committee and played numerous roles at various national and international conferences. Professor Bux is also currently involved in two bilateral projects with universities in India and Egypt.



PROFESSOR NIRMALA DORASAMY

Department of Public Management and Economics
Faculty of Management Sciences

Professor Dorasamy lectures in the undergraduate and postgraduate programmes at DUT, as well as at the Public Administration Leadership and Management Academy (PALAMA) and Department of Defence. Her research focuses on ethics and public sector management. Professor Dorasamy has established collaborative research with the Swinburne University of Technology and the Monash University (Australia) and the American University in Cairo and India. She has been a keynote speaker and session chair at international conferences. She is an examiner for

postgraduate studies at several local and national higher education institutions and has also successfully supervised MTech and DTech students. She has extensively published in local and international journals and serves on the editorial committees of a number of journals, and in 2010/2011 had the highest research publication output at the University. She has co-authored textbooks for senior secondary learners and books for higher education.

At the 2012 Research Awards event, Professor Dorasamy was awarded the Female Researcher of the Year 2011, and the Faculty Researcher of the Year: Management Sciences 2011.

PROFESSOR GEOFF HARRIS

Department of Public Management and Economics,
Faculty of Management Sciences

Professor Harris is the leader of the Peace Building doctoral programme at DUT. His original discipline is economics and much of his research over the years has straddled economics and the discipline of peace studies. His major project in this area concerns the relationships between economic inequality and violence. Research for developed countries has demonstrated that the higher the level of economic inequality in a country, the worse it performs on a range of social indicators. Inequality results in individuals lashing out in

anger usually at those in their own households and communities. He is examining this relationship in sub-Saharan Africa, with particular emphasis on countries with very high levels of violence.

A second major project concerns South Africa's arms deal of 1999, which involved the purchase of a range of highly sophisticated and very expensive ships and aircraft. This was despite the fact that the country faces no external threat and is, in fact, extremely secure. In addition, there are massive challenges of internal security to which much more monetary and human resources need to be applied. Corruption on the part of politicians and public sector employees is one explanation for the decision. Professor Harris is reviewing the literature in order to draw out the lessons in hope that future decisions will be more rational.



PROFESSOR DIMOU ILCEU

Technology, Innovation and Partnerships

Professor Ilcev of DUT's Space Science Research Group leads the research group whose aim is to develop research and postgraduate studies in Space Science with reference to Satellite Communications, Navigation and Surveillance and the many allied engineering, observation, broadcasting and tracking systems and platforms, both in satellite and ground segments research.

A particular focus is on enhancing skills development in Space Science and providing opportunities for specialisation, forming the Research Enhancement pillar. This should

help the country develop its own body of expertise, thus reducing the reliance on other countries to provide necessary skills and knowledge. The primary intent is to produce skilled professionals for the South African Space Programme of SANSA, and later to provide intensive Satellite CNS Space and Ground Segments research, solutions, designs and projects in collaboration with our domestic and foreign partners. An important purpose of the Research Enhancement pillar is to provide and undertake projects for the South African government and improve practitioner capacity, thus leading to the Projects Enhancement pillar. All research and innovations come with the fact that the various offerings in the Projects Enhancement pillar are driven by professional practitioners, for practitioners.





PROFESSOR MERWYN KANNY

Department of Mechanical
Engineering, Faculty of Engineering
and the Built Environment

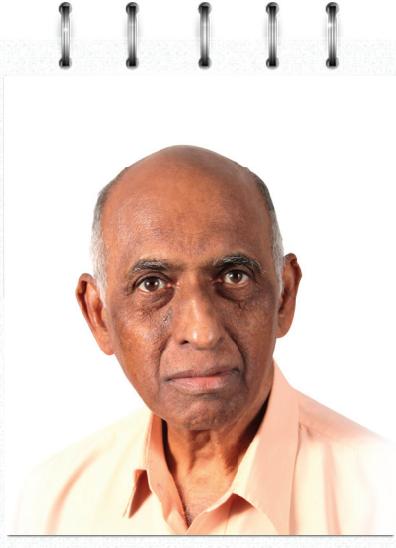
Professor Kanny has more than 27 years of teaching and research experience and holds an NRF C3 rating. In the past three years he has published in 21 international journals and ten national/international conference proceedings. He holds three patents for his innovative work and has been awarded external grants exceeding R10 million in the past decade.

Professor Kanny's research interest is primarily on the following topics:

1. Nanotechnology (Application to Engineering and Scientific needs)
2. Water (Materials for water environment, water treatment and Systems/Analysis for water industries)
3. Structural Analysis & Engineering Materials.

Building on his research group's previous successes in these research areas, Professor Kanny wishes to investigate optimum techniques for the production of nanoparticles, carbon nanotubes and nanofibres. The manipulation of these in various forms could substantially improve quality of life through the manufacture of new and better products and services, generating wealth and improving socio-economic conditions in our country.

In 2012, Professor Kanny was awarded the 'Top Faculty Researcher Award' for 2010/2011 in his faculty.



PROFESSOR KANDASAMY GOVINDSAMY MOODLEY

Department of Chemistry,
Faculty of Applied Sciences

Professor Moodley is a Retired Professor in the Department of Chemistry. His main research area is concerned with the development and application of analytical methods for analysis of various classes of organic pollutants in water. The focus of his research is to identify or devise new methods for separating, extracting and analysing chemical species that are present in water destined for human consumption. Some of these chemical species could be classed as 'pollutants' which are harmful to flora and fauna.

Water pollutants could be present at macro levels (parts per hundred), micro levels (parts per million), or sub-micro levels. At the micro and sub-micro levels the challenges lie in developing methods for pre-concentration and analysis of organic compounds in water.

Pre-concentration methods are very important because they make it possible for analysis to be done with instruments which are relatively inexpensive. Thus, this kind of research brings the analysis of organic pollutants into the ambit of 'routine analysis' which is a sine qua non for periodic monitoring of drinking water.

Professor Moodley continues to supervise postgraduate students and publish research articles.



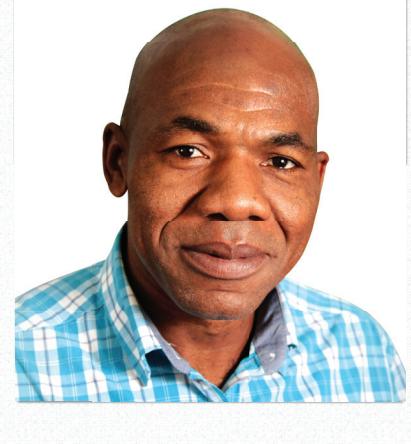
PROFESSOR SERAPHIM D EYONO OBONO

Department of Information Technology,
Faculty of Accounting and Informatics

Professor Seraphim Eyono Obono was born in 1967 in Yaounde, Cameroon. He completed his primary and secondary education in Yaounde with a *Baccalaureat C* (Mathematics and Physics) obtained in 1986. He was then awarded a bursary by the Cameroonian government to pursue his tertiary education in France, where he obtained his undergraduate qualifications at Nancy Institute, and his MSc and PhD in Computer science at Rouen University.

He is currently an Associate Professor in Information Technology (IT) at DUT.

His research interests include pattern matching inherited from his PhD days, as well as ICT research areas - such as ICT adoption, e-learning, and indigenous heritage in the context of developing countries. He has successfully supervised postgraduate research students and published several papers in these research areas, both in conference proceedings and in journals. Professor Eyono Obono is fluent in English, French and his native Eton; his work and life are motivated by his commitment in the fight against inequalities and injustices, especially in the African context.



PROFESSOR DEIRDRE PRATT

Retired Professor,
Research and Postgraduate
Support Directorate

Professor Deirdre (Dee) Pratt worked as Research Co-ordinator for the DUT Faculty of Arts & Design up to her retirement in December 2010, and is now assisting with research capacity building, co-ordinating the Language Literacy and Logistics research focus area, and continuing with supervision at the University.

Her specialist research area is systemic modelling, which has a practical application in communication, curriculum

design and research. She has designed, set up and run mixed-mode research modules for higher degree students, and has supervised two international students entirely online.

After being identified as the Faculty Quality Champion in 2006, she chaired the Arts and Design Quality Commission in 2006/2007. She organised and chaired the Faculty of Arts and Design Conference 2009, which focused on the creative output of the Faculty of Arts and Design. In 2011 she was invited to join the DUT Space Science research group.

She has published three books related to her doctoral research and its applications, one of which is listed on the Web of Science. Prof Pratt is also a prolific supervisor, having graduated doctoral and master's students.





PROFESSOR K (TONY) REDDY

Department of Applied Law,
Faculty of Management Sciences

Professor Reddy specialises in Applied Law and has conducted research using a multi-disciplinary approach in the areas of business, human rights, transformation and social justice, as well as in international law, particularly in international trade law. He has presented papers at international conferences. Recent papers include a presentation on consumer protection and ethical business practices.

Recent publications in accredited journals include *Students as consumers: The Implications of the Consumer Protection Act for Higher Education Institutions in South Africa; Ethical business practices: Transformation and the Consumer Protection*

Act in South Africa; and Developing Africa: Trade barriers, liberalization and equality in the World Trade Organization. He has also jointly contributed a chapter on 'Black Economic Empowerment, ICT and Preferential Public Procurement in South Africa', in an international publication titled *Public Sector Transformation Processes and Internet Public Procurement: Decision Support Systems*. He mentors and motivates young researchers in the faculty. His contribution to research development includes supervision of master's and doctoral students in the areas of business, social justice and transformation, BEE, consumer protection, intellectual property management, quality and literacy. He has jointly published with postgraduate students in the areas of research mentorship in higher education; literacy in the inter-mediate phase; and BEE, corporate social responsibility and transformation in South Africa. His current interests include equality and transformation in higher education, and the role of business in transformation in South Africa.



PROFESSOR SUREN SINGH

Department of Biotechnology
and Food Technology,
Faculty of Applied Sciences

Professor Singh, a C1 NRF rated scientist, is Head of the Department of Biotechnology and Food Technology and is the Co-Research Leader for the Enzyme Technology research group - which includes three postdoctoral fellows, 20 MTech and three DTech students. The group focuses on the isolation, production (shake flask to large-scale fermenters), biochemical characterisation, purification, and application of thermostable enzymes, as well as modification of these natural enzymes to enhance their

characteristic aspects and make them better suited for the industry. These include:

Xylanases - targeted towards the pulp and paper industry to reduce the chemical demand, and for the production of biofuels;

Chitinases - for the bioconversion of shellfish waste and other medical, agricultural and industrial applications;

Phytases - used for animal feed supplement to enhance the nutritive value of plant material.

The establishment of biological alternatives to current chemical methods has been the primary goal of the group. Collaborations with India, China, Malaysia, Sweden and the USA have been the hallmark of this group, with more than 50 publications in international journals.

DR NOKUTHULA SIBIYA

Department of Nursing,
Faculty of Health Sciences

Dr Nokuthula Sibiya is currently the Head of the Nursing Department. She serves on the Faculty of Health Sciences Research Committee and Institutional Research Ethics Committee.

Dr Sibiya's niche research area includes primary health care (PHC) and maternal, child and women's health (MCWH). She is an active researcher who is involved in postgraduate research supervision. She has graduated eleven Masters students and is currently involved in supervising three Doctoral and eleven Masters students.

Dr Sibiya is the provincial lead researcher in a collaborative national research on cluster randomised controlled trials of interventions to enhance cervical screening uptake in four provinces in South Africa.

She has presented papers at local and international conferences and published papers on PHC and MCWH in national and international journals, of which two were published in 2012. Dr Sibiya also has a book published by Pearson Education.



PROFESSOR GRAHAM STEWART

Deputy Dean, Faculty of Arts
and Design

An e-learning practitioner and 'evangelist', Professor Stewart's research is founded on the premise that a new South African literary history requires a radically different form of literacy with a structure that deliberately subverts vestiges of colonial era racial categorisation that continue to bedevil local studies. An encyclopaedia of Southern African literature, published as hypertext, has the unique anti-canonical capacity to resist the privileging of particular authors or languages, and is thus a suitable model for the development of an inclusive and comprehensive reference instrument to advance reclamation scholarship.

The non-hierarchical design of such a reference source promotes the uncovering and re-exploration of texts that were previously banned, marginalised or ignored under colonial and apartheid hegemonies. Beginning with the establishment of the SALIT Database during his doctoral studies, he continued his research with the development of an online KZN Literary Map, which ultimately led to his current work as associate editor of the Encyclopaedia of Southern African Arts, Culture and Heritage (ESAACH). Alongside his literary research, he has continued to investigate ways in which a multi-media encyclopaedia can contribute to innovative pedagogy via e-learning.





DR ALEX VAN DER MERWE

Department of Regional Governance and
Economics
Faculty of Management Sciences

Dr van der Merwe's research examines the role that open education could play in supporting teaching and learning in South African high schools. Open education is essentially about connecting learners and teachers to an online teaching community and resources. His research aims to gauge the potential of Open Education Resources (OERs) (including free and open source software) to empower South African public high school teachers and learners to achieve required learning outcomes. It also tests the claim by Thakrar and Zinn (2009) that the possibilities and

potential for harnessing Open Education Resources (OERs) are myriad and offer an innovative platform to support teacher learning/practice. His research probes the notion that OERs, if efficiently employed, can supplement – at little or no cost – the resources and materials available to teachers and learners. A further peripheral interest of his research assesses to what extent open source learning management systems (LMSs) could be employed to circumvent school management problems associated with under-qualified and/or absentee teachers.



EMERGING RESEARCHERS





DR RISHI BALKARAN

Faculty of Management Sciences

Dr Balkaran is the Acting Executive Dean, Faculty of Management Sciences. He has 25 years' experience in the field of the Management Sciences, ten years of which came from the public and private sectors. Dr Balkaran's experience extends to local and provincial government and the private sector. He completed his Doctoral degree in 2003. Dr Balkaran's thesis had a strong focus on Hospitality and Tourism in KwaZulu-Natal. He continues to research new ideas on enhancing this terrain.

Dr Balkaran serves at various fora within the Tourism, Business and Education sectors and is currently the National Chair of the

Tourism Educators South Africa. He is part of the National Task Team of Research on the Council of Higher Education to review Higher Education (Research) in South Africa. Dr Balkaran has published in local and international journals and has presented at several conferences internationally. He has developed and implemented creative ideas on enhancing research within the Faculty of Management Sciences and chairs a vibrant Faculty Research Committee.

His current work revolves around community-based tourism, community development and the enhancement of community engagement with universities and broader society. He has a firm belief that work-integrated learning is the most effective tool in enhancing the quality of Teaching and Learning within Higher Education.

DR LIZ HARRISON

Centre for Excellence in
Learning and Teaching (CELT)

Dr Liz Harrison, who graduated with her PhD from the University of KwaZulu-Natal in 2011, is known for her critical engagement in projects around teaching and learning, building research capacity, and identity. Dr Harrison had two publications in 2012. She reworked and published her PhD thesis as a book entitled *PaperHeads: Living doctoral study, developing doctoral identity* (Peter Lang) and she co-authored an article on the Transformative Education(al) Studies (TES) project, of which she is project leader. The TES project is an NRF funded project led by researchers from the Durban University of Technology, the University of KwaZulu-Natal, and Walter Sisulu University of Science

and Technology. TES aims to enhance and study the development of self-reflexive pedagogic, research and supervision capacity

among these participants. The project hopes to contribute to a body of academic work that explores how collaborative and social approaches to scholarship can enhance research capacity, productivity and quality in Higher Education. The conceptual underpinning is that of reflexive ubuntu, which demands a consciousness of academics developing their "selves" as researchers and supervisors and of their interrelationships with other people.

Dr Harrison is also a supervisor and co-supervisor.

Dr Harrison passed away on 28 July 2013.



DR OLUWATOSIN A IJABADENIYI

Department of Biotechnology
and Food Technology,
Faculty of Applied Sciences

Dr Ijabadeniyi is a Senior Lecturer in the Department of Biotechnology and Food Technology. His research interests include food safety regulators, with emphasis on mechanisms of adaptation, resistance and persistence of food-borne pathogens. Another vital section is the use of different interventions (such as environmentally-friendly sanitisers and bio-sanitisers) to control persistent pathogens in fresh produce. His interests also lie in the utilisation

and processing of indigenous underutilised and neglected crops.

Past research work has studied the potential of surface water used for irrigation in South Africa to contaminate broccoli and cauliflower. He has also considered the difficulty of sanitising vegetables with internalised pathogens compared to those with surface pathogens.

Finally, he has used logistic regression analysis to predict the presence of bacterial pathogens in irrigation water and vegetables. His work has brought to light the unacceptably high level of contamination of surface water in South Africa, which possibly contaminates fresh vegetables with enteric bacteria.



DR JULIAN DAVID PILLAY

Department of Basic Medical Science,
Faculty of Health Sciences

Dr Julian Pillay recently completed a PhD in Exercise Science and Sports Medicine at the University of Cape Town, in collaboration with the Vrye University, Netherlands.

His area of research centers round physical activity and public health, using pedometers (step-counters) as a tool in establishing patterns of physical activity in adults. Thus far, five papers related to his research have been published in international peer-reviewed journals.

Through an NRF scholarship he will embark on a large scale prevalence study on patterns of physical activity in the South African employed population, as well as a physical activity intervention-based randomised controlled trial. Dr Pillay will provide mentorship and supervision to other postgraduate students embarking on research within the institution. He also hopes to strengthen his collaborative links through continued research. Additionally, Dr Pillay hopes to use pedometer-based physical activity and health promotion initiatives as a vehicle for community engagement and public health awareness.





DR SURI RAJAH

Department of Maths, Physics and Statistics,
Faculty of Applied Science

Dr Suri Rajah's primary research area is in Theoretical Astrophysics and Gravity, and she has published in the area of stellar gravitational collapse.

South Africa hosting the Square Kilometre Array (SKA) has given impetus to regional collaborations, and at a KwaZulu-Natal Astrophysics and Astronomy workshop the DUT Radio Astronomy group joined a regional collaboration. A University of KwaZulu-Natal

bid to host the north node of the National Astrophysics and Space Science Programme now includes DUT offering a module in Radio Astronomy, which involves Theoretical Astrophysics. She attended the *Gravitational Wave Astronomy in Africa* workshop which forged international linkages with Africa as the exciting era of GW Astronomy dawns.

Dr Rajah's research in Plasma Physics has led to a publication with Prof J McKenzie in Wave Theory and they are currently working on a new problem on Whistler waves. Her external engagement includes being secretary of the South African Gravity Society, moderator (UKZN) and MSc reviewer.



DR VEENA P RAWJEE

Department of Public Relations
Management,
Faculty of Management Science

Dr Veena Rawjee, Head of Department, has more than 17 years' experience in the academic environment. She obtained a DPhil degree at the Nelson Mandela Metropolitan University in 2009. As a scholar, Dr Rawjee has published and presented papers both locally and internationally and has co-authored and published books. In addition, she has served as a reviewer of papers and abstracts for journals and conferences. She also serves as a moderator and external examiner for several South African universities.

Her area of research focuses on HIV/AIDS and communication planning and management. She is also actively involved in promoting postgraduate research at both department and faculty level. She supervises MTech and DTech students and she has set up a number of sub projects around HIV/AIDS with her postgraduate students which include the communication tools and communication campaigns used to educate learners in high schools. Other projects include the representation of women in the media, public relations in government hospitals, communication and shopping centre management, and challenges in communication for exchange students.



DR LALINI REDDY

Department of Biotechnology
and Food Technology,
Faculty of Applied Science

Dr Lalini Reddy, an Associate Director, has been a lecturer, research supervisor and facilitator of community service learning projects in HIV/AIDS awareness over 25 years. Her underlying teaching philosophy of educare has caused her to become extensively involved in promoting innovation in teaching and learning, curriculum development, general education, work-integrated learning and quality assurance of programmes at all levels in the institution. Having qualified with an M. Medical Science degree, she moved into the area of Plant Biotechnology for her doctoral

research in 2001. She developed her research skills in cell and molecular biology techniques during her research visits to a number of national and international universities. More recently her research interest has involved collaborations with Georgia State University in the area of science education.

Dr Reddy's research focus in plant medicine stems from her holistic approach to life, as she believes in going back to our roots of ethnomedicine where nature solves the world's health problems. Most of her research papers and international conference presentations have been on anticancer properties of traditional plants. An active supervisor and reviewer, she has attracted external research funds from the NRF and MRC, including student bursaries.



DR SHALINI SINGH

Department of Quality and
Operations Management,
Faculty of Management Science

Dr Shalini Singh, Senior Lecturer, hosts a research group called Aligning, Measuring and Harmonising Quality. The niche area is in nano-materials and food security working in accordance with Goals 1, 7 and 8 of the Millennium Development Goals.

The group focuses on quality matters related to optimising food production from farm to fork, supply chain management for access to safe water, balanced nutrition from food banking; communication management

regarding hazardous substances and responsible food labelling; innovative products (genetically modified/nano-engineered); harmonising public and private standards/guidelines by mutual agreements between retailers using conformity assessment to facilitate free movement of trade locally and internationally; and, lastly, the introduction of quality assurance models in nano-materials, specifically related to good laboratory practices, effects on humans and environment, appropriateness of personal protective clothing, and controlling naturally and unnaturally occurring nano-materials. To date, the group is conducting research projects at Masters and Doctoral levels in these areas.





DR THISHANA SINGH

Department of Chemistry,
Faculty of Applied Science



Dr Thishana Singh is from the Department of Chemistry. She is currently on a postdoctoral fellowship (October 2012 – September 2014) at Stockholm University, Sweden, with Prof Pher G Andersson.

The interests of this research group cover the disciplines of organic synthesis, asymmetric catalysis, peptide drug design and computational chemistry. She is working on a computational study of an iridium-catalysed reaction. Very little is known about the

mechanism and the enantioselectivity determining factors of asymmetric iridium-catalysed hydrogenations.

The objective of this study is to perform a combined kinetics and quantum-chemical investigation in order to reveal the reaction mechanism and to understand the selectivity process of the catalyst in the asymmetric hydrogenation reaction. The calculations are done using the Jaguar ab initio package from Schrödinger. The catalyst chosen for this study is one that is currently being tested in the lab so that this computational study is linked to the experimental work.



DR RENE ALICIA SMITH

Department of Media, Languages
and Communication,
Faculty of Arts & Design



Dr Rene Alicia Smith is a Senior Lecturer in the Department of Media, Languages and Communication. Her research interests are broadly in the areas of gender and media consumption practices.

Dr Smith is currently updating a historical study on youth, media and lifestyles, which seeks to evaluate the production, consumption and

regulation of media, in relation to youths' lifestyles and identities. She has published on popular culture, media policy and regulation; presented at conferences; and been a reviewer for accredited journals. She currently supervises across disciplines in the Faculty of Arts and Design.

Dr Smith holds a PhD in Cultural and Media Studies from the University of KwaZulu-Natal, an MA cum laude from University of Natal, and a BA Hons from Plymouth University/Falmouth College of Arts (UK). Since returning to academia, Dr Smith's research interest has evolved to include new approaches to media and journalism education and training.



MS CHUENE THAMA DUBA

Department of Maths, Physics and Statistics,
Faculty of Applied Sciences

Ms Thama Duba is a senior lecturer in the Department of Maths, Physics and Statistics. Upon completion of her doctoral studies she will be graduating with a PhD in Applied Mathematics from the University of KwaZulu-Natal, supervised by Prof JF McKenzie and Prof P Sibanda. Her field of research concerns atmosphere and ocean dynamics. In large-scale oceans and atmospheres, different types of waves exist - sound waves, gravity waves, inertia-gravity waves and Rossby waves. These play a substantial role in determining the circulation in the atmosphere and oceans. Understanding how they generate, propagate and dissipate is therefore important for a number of reasons. Rossby waves, in particular, are of most importance for

large-scale meteorological processes. These are the focus of Ms Duba's study. In the ocean, Rossby waves communicate climatic changes due to variability in the wind and buoyancy, and are observed as large-scale meanders in the jet stream in the atmosphere. They transmit energy, redistribute momentum, interact with circulation and intensify western boundary currents, for example. Rossby waves' special feature is their westward phase speed, whereas the group velocity propagation can be in any direction. The wave-forcing is particularly important in the stratosphere, where the presence of Rossby waves may cause sudden stratospheric warming. They are connected to the formation of cyclones and anticyclones. Ms Duba's research analyses the properties of Rossby waves in winds using the method of stationary phase - which determines the radiation pattern from a given source - and the JWKB method to construct the ray trajectories in zonal wind shears such as jets.



MS FARIDA ISMAIL KADWA

Department of Fashion and Textile Design,
Faculty of Arts and Design

The main focus of Ms Kadwa's research has been on small, medium and micro enterprise (SMME) development in the clothing industry in South Africa, in her research project entitled *Factors concerning SMME development in the clothing sector in KwaZulu-Natal*.

Internationally, SMMEs are perceived to contribute to economic growth and the generation of employment. Government's vision for SMME promotion in its endeavour to reach this end has not materialised, and South Africa is way behind the rest of the world on several entrepreneurship indicators.

The purpose of Ms Kadwa's study is to investigate those factors internal and external to the firm, which inhibit growth of SMMEs in the clothing industry. The study also sought to evaluate the extent to which government has contributed to assist in SMME development.

From the above study (completed in 2004 for her MTech Fashion Design qualification), Ms Kadwa and Prof Dinesh Jinabhai have co-authored five articles, with two published in 2012.

In addition to her teaching and publication activities, Farida is also supervising six students in their Masters studies. These research projects range from the creation of multicultural identities in shop fronts, to anti-establishment branding in the sportswear market, to environmentally-friendly bridal ranges, amongst others.





MR KABULO LOJI

Department of Electrical Power Engineering,
Faculty of Engineering and the Built Environment

Mr Kabulo Loji was born in Lubumbashi, DRC. Since 2006 he has been employed as a lecturer in the department of Electrical Power Engineering.

He is exploring two research areas. Firstly, his study on Electrical Power Systems with a focus on Voltage Control using the Real Time Digital Simulator (RTDS) is research conducted for a Master's Degree, in the research centre directed by Fred D'Almaine and supervised

by Professor Bruce Rigby. His second research interest lies in Teaching and Learning, and this career development research draws from everyday classroom experiences. His main interest is on how he can teach engineering learners for learning. He has presented and shared his thoughts at ten conferences in the last four years, and published a paper in 2012 in the South African Journal of Higher Education.

MS PENNY ORTON

Department of Nursing,
Faculty of Health Sciences

Ms Penny Orton is a lecturer in the postgraduate nursing programme, and is a PhD candidate. Her research project involves using a policy framework to study the implementation of access to health sciences education in institutions of higher education in South Africa. Access to higher education is a contentious issue throughout the world and is perhaps more difficult here in South Africa following her apartheid past.

Penny is an Occupational Health Nurse educator and so has an interest in occupational health nursing education and is beginning to research this area by

collaborating with a colleague, Professor Kathy Nokes - a collaborating partner from the City University of New York - to conduct a programme evaluation of the blended learning curriculum that she introduced at DUT in 2010.

Penny recently published a case-study describing the blended learning occupational health programme at DUT with Professor Nokes. Penny is the national Education Representative for the South African Society of Occupational Health Nurses. Her master's dissertation explored factors related to adherence to anti-retroviral medication during the early introduction of widespread access to treatment in South Africa.

MS VIMLA PAUL

Department of Chemistry,
Faculty of Applied Sciences

Ms Vimla Paul is a lecturer in the Department of Chemistry whose doctoral study aims to develop and characterise a novel bio-composite for automotive application in which the matrix resin is made from banana sap, and banana fibres are used as the reinforcement. The locally grown banana plant (*Musa Cavendish*) in KwaZulu-Natal was chosen as a source material for the natural fibre and a starting material for the bio-resin. Once the banana fruit is harvested, the plant is discarded as agricultural waste and the fibres and sap are used from this waste material.

The banana sap is extracted from the plant and used in the formulation of the bio-resin comprising of maleic anhydride and propylene glycol. The banana fibres are washed and cleaned and made into a non-woven mat. The sap and fibres are fully characterised by various chemical and physical tests.

Her original contribution to science is the formulation of a novel bio-derived resin using banana sap and banana fibres in the production of a biocomposite.



MS ANISA VAHED

Department of Dental Science,
Faculty of Health Sciences

Lecturer Ms Anisa Vahed is currently reading for a DTech: Operations and Quality Management degree. The focus of her study is to investigate the quality of pedagogy through games, in providing students with epistemological access to Oral Anatomy and Tooth Morphology. From a higher education perspective, the concept of literacy as a social practice could essentially provide a useful basis for understanding the quality of pedagogy through games in Dental Technology, and how learning happens within particular socio-cultural contexts, specifically a University of Technology.

Anisa has presented her research work at national and international conferences. As a developing researcher in her field, she hopes that her research will encourage others to develop appropriate teaching and learning methods that will help students to link theory to laboratory practice. In addition to her research, Anisa has been recognised in the past for excellent teaching practice, having been awarded the DUT Teaching Excellence Award, and the National Excellence in Teaching and Learning Award by the Higher Education Learning and Teaching Association of Southern Africa.





POSTGRADUATE RESEARCH





MR OLUYEMI AWOLUSI

DTech: Biotechnology

“Evaluation of Seasonal Impacts on Nitrifiers and Nitrification Performance of a Full-scale Activated Sludge System”



Mr Awolusi is a DTech student in the Department of Biotechnology and Food Technology. He is studying in the Institute for Water and Wastewater Technology, under the supervision of Professor Faizal Bux. In his research, he is evaluating the seasonal impacts on nitrifiers and nitrification performance of the full-scale activated sludge system treating wastewater. The research is designed to obtain a comprehensive understanding of the nitrifying community structure and nitrification dynamics of the plant over the various seasons. The nitrifying populations (AOB, NOB, and AOA) are being quantified and characterised using the latest molecular techniques.

The effects of environmental and operating conditions on nitrifying microbial populations is being evaluated and subsequently on the nitrification performance of the system. This is to provide a sound understanding of the complex

interplay of the environmental and operating parameters on the dynamics and functional activities of the nitrifying community. The findings should eventually provide adequate information on the seasonal influence on the whole range of nitrifiers (AOA, AOB and NOB).



MS NOKUTHULA PEACE MCHUNU-NXUMALO

DTech: Biotechnology

"Xylanase Super-producer: Genome of Thermophilic fungus, *Thermomyces lanuginosus*"

Coming from a poor rural background has not deterred doctoral student Ms Nokuthula Mchunu-Nxumalo from setting her sights high. With the support and encouragement of her family, she has been able to pursue a course of studies at the University, from diploma to doctoral level. Ms Mchunu's academic achievements during her undergraduate diploma were exceptional and she was a keen and committed student. She has translated this into her postgraduate training and is not only a dedicated student, but also a conscientious mentor to her fellow students as well. She cooperates well with the rest of the research team and with colleagues and staff in the Department of Biotechnology and Food Technology, and has shown an enthusiasm for conducting laboratory research.

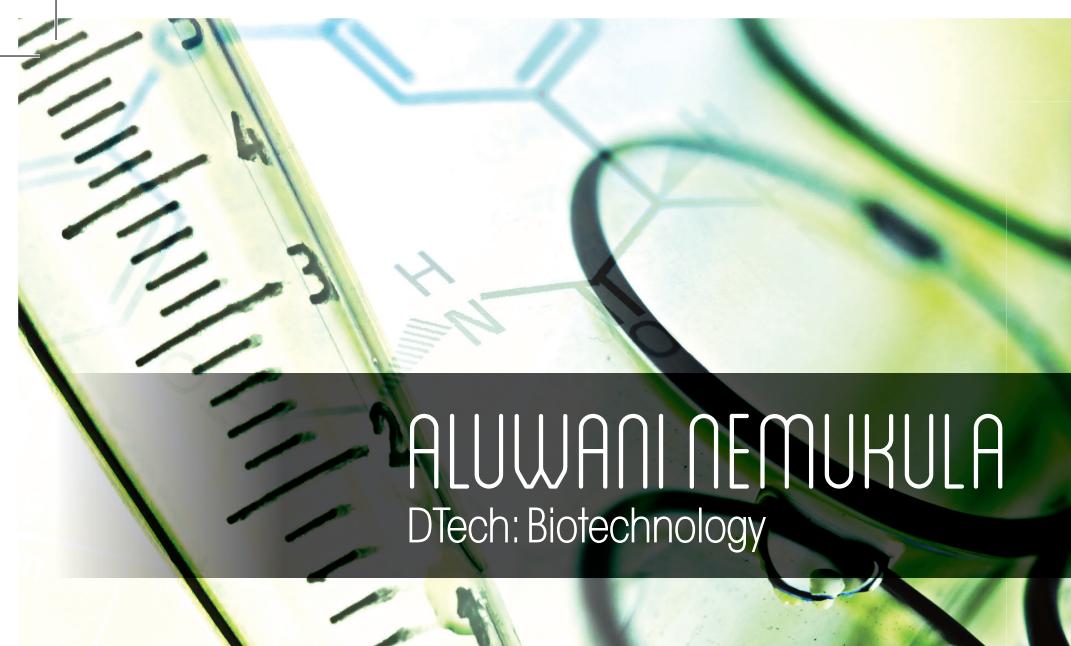
During her postgraduate years she was successful in engineering a xylanase enzyme

that had superior characteristics compared to the parent protein. Her Master's project was entitled: "*Expression of a modified xylanase in yeast*" and involved enhanced production of a genetically engineered xylanase in different yeast hosts. She has published two peer-reviewed articles from the results of her Master's project as well as defended her results at national and international conferences. In 2007 she was involved in the Biotechnology and Food Technology field in research collaboration between Lund, Sweden and DUT, headed by Professors Suren Singh and Kugen Permaul, and for the next few years spent some time in Sweden working on other aspects of the collaboration. In 2009, when Professors Singh and Permaul started collaborating with the Centre for Chemical Biology at the University Sains, Malaysia, she was approached to join in this collaboration project in plant genomes. She has since been in Malaysia for various periods of time working

on the rubber genome and the thermophilic fungus which was isolated here in Durban.

Her Doctoral project focuses on sequencing the genome of the fungus *Thermomyces lanuginosus*, cloning of novel and industrially-important genes, and identification of genes in degradative pathways of biopolymers. She recently completed ground-breaking research in the sequencing of a thermophilic genome which has significant industrial applications, including contributing to reducing environmental pollution.

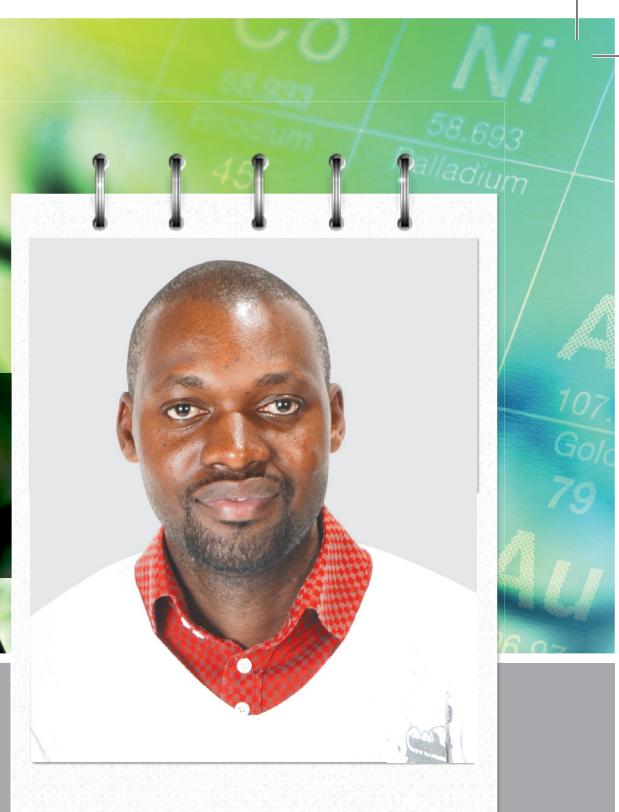
In 2012 a special award for Doctoral Research Impact was made to Ms Mchunu-Nxumalo for her ground-breaking findings, with due recognition being given to Professors Suren Singh and Kugen Permaul, her DUT supervisors and mentors.



ALUWANI NEMUKULA

DTech: Biotechnology

"Evaluation of hyper-saline microalgae for high value carotenoids"



An interdisciplinary symposium on sustainability research involving young academics from South Africa, Germany and several other countries takes place in Germany on an annual basis. This forms part of the Global Young Academy of up-and-coming researchers. One of these researchers is Aluwani Nemukula, a doctoral student attached to the Institute for Water and Wastewater Technology. He is supervised by Professor Faizal Bux.

In November 2011 the 17th United Nations Climate Change Conference (COP17) took place in Durban. Aluwani Nemukula was winner of the international *Green Talents* Competition, which is funded by the German Federal Ministry for Education and Research (BMBF). He also participated as a "Youth Ambassador for Climate Change" at COP 17. The Youth Ambassador initiative was driven

by the South African eThekini Environmental Planning and Climate Protection Department and is aimed at encouraging climate change leadership amongst youth.

In October 2012, Aluwani attended the FONA (Research for Sustainable Development) forum in Germany, specifically the *Green Talents* session in which he participated (see <http://www.fona.de/de/15012>). Aluwani says of this experience: "I strongly believe this visit has been fruitful, considering that I also had the opportunity to visit our colleagues in Karlsruhe [Karlsruhe Institute of Technology] once again, the outcome of which I am currently discussing with my supervisor Prof Bux. All in all, DUT currently enjoys a relatively outstanding reputation due to links through this *Green Talents* competition from the BMBF."

Among the many issues discussed during his time at the FONA forum, there was focus on the development of regional science centres and cooperation with international institutions; capacity-building in developing countries, and opportunities for bridging the gap between scientists and policy makers; awareness among scientists for concrete applications; translating research results for policy makers and translating policy for researchers and policy-relevant research; international exchange of research programmes on climate change; funding of projects (e.g. biodiversity); the importance of institutional structures for focusing on scientific research and the integration of different disciplines in research; the identity of scientists in a global context; the implementation of environment standards; and the awareness of 'ecological borders'.





MRS ARITHA PILLAY

MTech: Electronic Engineering

"Development of a Transit Radio Telescope
Operating at the Hydrogen Line Frequency"

DUT's Department of Electronic Engineering has been identified by the Department of Science and Technology as a primary site for preparing students to work as technologists and engineers on the Square Kilometre Array (SKA) project. The SKA will help humanity address some of the most fundamental questions that remain about the origin, nature and evolution of the universe.

The Indlebe Project – a radio astronomy project – in the Department of Electronic Engineering has students that are part of a programme run by SKA to ensure that South Africa has the technologists and engineers to make this international project sustainable.

The Radio Astronomy Technology (RAT) Centre in the Department of Electronic Engineering, has four radio telescopes at various stages of

completion. Three academic staff, six Master's students and fourteen undergraduate students - five of whom are from SKA African partner countries - make up the research and development activity of the Centre.

The RAT Centre has graduated its first Master's student. Mrs Aritha Pillay received an MTech in Electronic Engineering. Her work resulted in the now successful operation of the Indlebe Radio Telescope. The research for this project encompassed the development of a transit radio telescope at the hydrogen line frequency of 1420 MHz. The antenna is mounted on a concrete beam at the first floor level, running between two five-floor tower blocks on the Steve Biko campus of the Durban University of Technology. The majority of the components of the radio telescope antenna and receiver were designed and manufactured at DUT by

students of the Departments of Mechanical and Electronic Engineering.

The telescope saw first light in June 2008 and has been successful in detecting several radio sources including the Sun, the Moon, Sagittarius A, Centaurus A and Vela X.

MS SANDRA ROSENTRETER

MTech: Cost and Management Accounting

“Towards improving research among Cost and Management Accounting academics at universities of technology: A study of South Africa and Germany”

Sandra Rosentreter graduated *cum laude* with her MTech: Cost and Management Accounting in September 2012. She was also awarded the Dean's Merit Award. Her supervisor was Professor Penny Singh.

The research outputs of accountancy academics in South Africa seem to lag far behind those of their counterparts abroad (West, 2006:121, see also Chan Chen and Cheng, 2005). Van der Schyf (2008:1) concurs that departments of Accounting at South African universities have established a culture that is removed from research, and that is in contrast to the nature of a university. A matter of concern is that only a few institutions make up the national research output (De Villiers and Steyn, 2009:43) and universities of technology (UoTs) especially seem to lag behind traditional universities with regard to research output, as a consequence of a lack of emphasis on

postgraduate qualifications and published research in the pre-merged technikons and the merged institutes of technology (Singh, 2011:1191). This becomes challenging with regard to the New Funding Framework (SA, 2004) which provides funding based on research outputs.

Given the above, the aim of Sandra's study was to investigate research output among Cost and Management Accounting academics at UoTs in SA and toward universities of applied science (UoAs), or Fachhochschulen, in Germany, by examining their attitudes toward research, their qualifications and the structure of their Master's programs.

Underpinned by Bandura's Social Cognitive Theory, this study used a mixed methods approach to gather both qualitative and quantitative data from CMA academics at South African universities of technology



and accounting academics at German universities of applied sciences. Analysis of data revealed that academics in both countries showed a positive attitude towards research and obtaining postgraduate qualifications. Despite the absence of a German research funding policy comparable to the South African, similar factors seem to influence academics in their research activities in both countries, these are: time available for research; support systems and intrinsic motivators. South African respondents showed a lack of qualifications among their staff which reflected on their research skills and output. Based on the findings, this study makes recommendations to CMA departments at South African UoTs and Accounting departments at German UoAs toward improving research output.

2012 MTECH AND DTECH GRADUATIONS

FACULTY OF ACCOUNTING AND INFORMATICS

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
DTECH INFORMATION TECHNOLOGY	Heukelman, Delene	Developing a model to design and implement computer user interfaces in rural communities, and exploratory study	Olugbara, OO; Obono, SDE
MTECH COMMERCIAL ADMINISTRATION	Chetty, Fiona Shuknandi	The effect of job satisfaction on employee wellbeing among administrative staff at the Durban University of Technology	Singh, P; Sentoo, N
MTECH COST AND MANAGEMENT ACCOUNTING	Kheru, Sunildutt	An investigation into the accounting treatment of property, plant and equipment at public higher education institutions in South Africa	Singh, P; Kharwa, MSE
	Naidoo, Suntharmurthy Kristnasamy	The impact of communication skills as a subject in the programme Cost and Management Accounting at the Durban University of Technology	Penceliah, S; Moodley, V
	Rosentreter, Sandra Julia	Towards improving research among Cost and Management Accounting academics at university of technology: A study of South Africa and Germany	Singh, P
MTECH INFORMATION TECHNOLOGY	Eedara, Mamatha	Development of an internet-based housing demand database system for the KwaZulu-Natal Department of Human Settlements	Singh, P; Nepal, T
	Shongwe, Njabulo Samson Melusi	Empirical examination of decision making core technology adoption theory to explain youth preferences for HIV preventive actions	Olugbara, OO
	Mudaly, Sherwin	A research model to improve understanding of the extent of usage of enterprise resource planning systems in a university	Singh, P; Olugbara, OO
MTECH TAXATION	Junpath, Sachin Vir	Multiple tax amnesties and compliance in South Africa	Singh, P; Kharwa, MSE

FACULTY OF APPLIED SCIENCES

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
DTECH BIOTECHNOLOGY	Ramdhani, Nishani	Detection and quantification of nitrifying bacteria from South African biological nutrient removal plants	Bux, F
MTECH BIOTECHNOLOGY	Singh, Rishan	Cytotoxicity and gene expression of selected apoptotic markers in the human laryngeal carcinoma cell line (HEp-2) by <i>Bulbine</i> spp	Reddy, L
	Tabosa – Vaz, Sacha	A comparative analysis of stability and structure-functional relationships of different xylanases	Permaul, K; Singh, S
MTECH CHEMISTRY	Sabela, Myalowenkosi Innocent	Study of interaction between polyphenolic compounds and protein using computational and capillary electrophoresis techniques	Bisetty, K
	Singh, Sangeeta	Correlation and prediction of the physical and excess properties of the ionic liquid 1-butyl-3-methylimidazolium methyl sulphate with several alcohols as T=(298.15 to 313.15) K	Deenadayalu, N
MTECH CONSUMER SCIENCE: FOOD AND NUTRITION	Hlambelo, Nomakhosazana	Determining the contribution of lunchbox content to the dietary intake of girls (13-18 years olds) in a high school in Lindelani	Napier, CE
	Silangwe, Beauty Nontuthuzelo	Nutritional status and dietary intake of adolescent girls in Madlenkosi high school - Lindelani	Napier, CE

ARTS AND DESIGN

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
DTECH EDUCATION	Timm, Delysia Norelle	Towards the biochemical nature of learning and its implication for learning, teaching and assessment: A study through literature and experiences of learners and teachers	Conolly, JL; Edgard, S
DTECH LANGUAGE PRACTICE	Naidoo, Indira	Implementation of the National Reading Strategy by educators at Grade 3 level at selected schools in the Tongaat and Phoenix areas	Singh, P
MTECH FINE ART	Jansen Van Vuuren, Lanel	In Absentia: a re-presentation of the photographic portrait	Starkey, AR; Stewart, GDJ
	Vincent, Samantha Colleen	An exploration of my use of figurative imagery in relation to the work of Geraldine Fenn and Felieke van der Leest	De Beer, C; Starkey, AR
MTECH GRAPHIC DESIGN	Scott, Lee Nicole	TELLING TALES – Pictograms as a visual voice	Carey, P; Conolly, JL
MTECH FASHION	Slattery, Leonie	The effect of anti-establishment branding on teenage consumer behaviour within the action sportswear market	Kadwa, F; Pratt, DD

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
MTECH ENGINEERING: CHEMICAL	Ngcobo, Nkosinathi Cedrick	Evaluating the feasibility of converting crude tall oil (CTO) into biodiesel	Pillay, VL
MTECH ENGINEERING: CIVIL	Moodley, Shaun	An analytical study of vehicle defects and their contribution to road accidents	Allopi, D
MTECH ENGINEERING: ELECTRICAL/L/C	Pillay, Aritha	The development of a transit radio telescope at the hydrogen line frequency	MacPherson, SD; Mare, S
MTECH ENGINEERING: MECHANICAL	Kazadi, Samuel Dibwe	A specialised end-effector for the manufacture of complex shaped dry prepgs	Kanny, K

FACULTY OF HEALTH SCIENCES

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
DTECH NURSING	Makanya, Jabulile Nonhe Nonhanla Joyce	Towards an integrated approach in the Management of Practise Breakdown in Nursing	Gwele, NS
	De Beer, Quintin Hardus	The relative effectiveness of Kinesio® taping methods as an adjunct to a single Sacroiliac Joint Manipulation in the treatment of Chronic Sacroiliac Joint Syndrome	Jones, A
	Deonarain, Virosha	The efficacy of phonophoresis with Traumeel®S in the treatment of upper Trapezius myofascitis	Docrat, A
	Evans, Kirsten Laurie	The status of paediatric care in chiropractic practices in KwaZulu Natal	Korporaal, CM
	Jagarnath, Kathleen	The effectiveness of the Simmons Beautyrest® Pillow in the management of chronic non-specific neck pain: a controlled clinical trial	Dr L Wilson; Dr J Shaik
	Mcdonald, Murray Luke	Demographic characteristics of patients attending DUT Chiropractic Day Clinic: A comparison of trends between 1994 and 2011	Matkovich, G
	Meyer, Elsie Maria	A comparison of mobilisation and exercise in the treatment of chronic non-specific neck pain	Boodhoo, V
	Naicker, Janene Tamara	Ethnic variations of selected cervical spine radiographic parameters of females in KwaZulu-Natal	Shaik, J
	Raad, Tarnia Gaynor	The prevalence and associated risk factors of low back pain in an automotive production company	Korporaal, C
	Snow, Kirsten Moya	The knowledge, perception and utilisation of Equine Chiropractic by horse riders in KwaZulu-Natal	Matkovich, G
MTECH DENTAL TECHNOLOGY	Pillay, Thirusha	The outsourcing of dental prostheses in Gauteng	Bass, GH; Harrison, JE
	Yang, Ming	A characterisation of the thermal curing and mechanical properties of Polymethylmethacrylate/Hydroxyapatite Composites	Ross, AHA; Walker, M
MTECH EMERGENCY CARE AND RESCUE	Ashokcoomar, Pradeep	An analysis of inter-healthcare facility transfer of neonates within the eThekini Health District of KwaZulu-Natal	Adam, JK
	Mulder, Richard Kevin	Clinical decision-making by South African paramedics in the management of acute traumatic pain	Pillay, Y; Sibya, NM
	Williams-Claassen, Natalee Jean	Development of a disinfection protocol for the public sector Emergency Medical Services in the eThekini District of KwaZulu-Natal	Sibya, NM; Naguran, S
MTECH HOMOEOPATHY (Partial Research)	Chhiba, Ujaswee Prakash	A group analysis evaluation of selected synthetic recreational drug isolate remedies in terms known material medica	Maharaj, M; Somaru, N
	Govender, Saiesh	A comparison of the effectiveness of two homoeopathic dosage forms of <i>Momordica charantia</i> in the treatment of type 2 diabetes mellitus in patients on Metformin	Maharaj, M; Naude, D
	Pillay, Shavani	A study on the knowledge, attitudes and perceptions of Primary Health Care nurses in the eThekini Municipality District with regards to the inclusion of Homoeopathy in Primary Health Care	Couchman, IMS

FACULTY OF HEALTH SCIENCES

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
MTECH NURSING	Buthelezi, Martha Agrineth	An investigation of the factors that impact on the utilisation of voluntary HIV counselling and testing services at a wellness centre in a higher education institution	Razak, A; Bhagwan, R
	Nzimande, Busisiwe Edith	Exploring the nature of partnership between African traditional and conventional health care in eThekweni District	Sibiya, NM; Gqaleni, N
	Pillay, Annezt Louise	An evaluation of the efficacy of a HIV and AIDS Management System in a multinational manufacturing organisation in KwaZulu-Natal	Orton, PM; Singh, S
	Shabangu, Ntombizakithi Yvette Thandeka	Experiences of people living with epilepsy presenting for treatment at Umlazi clinic	Sibiya, NM; Razak, A
	Sibiya, Nonhuthuzelo Elizabeth	Work-integrated learning experiences of primary health care post basic nursing students in clinical settings	Sibiya, NM
	Sithole, Ntombizodwa Margaret	An assessment of the integration of palliative care in the caring of cancer patients in selected oncology clinics in the eThekweni district in KwaZulu-Natal	Gwyther, L; Sibiya, NM

FACULTY OF MANAGEMENT SCIENCES

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
MTECH BUSINESS ADMINISTRATION	Ngcobo, Nathi Cedrick	The relationship between quality of work-life factors and organizational commitment within the Pulp and Paper industry in the Durban Metropolitan area	Dlamini, BI; Wallis, MAH
	Zheng, Jin	Towards a quality model for a university of technology postgraduate development and support centre in South Africa	Singh, P; MacLean, SV
	Bansi, Ramika	Intellectual Property Management and Protection: Low Intellectual Property Registration at Universities: A case study of Durban University of Technology	Reddy, K; Chetty, S
	Dladla, Alfred Makhosathini	Implementation of strategies and programmes aimed at boosting local economic development at Sobonakhona Makhaya Traditional Area	Wallis, MAH
	Isheloke, Byelongo Eilisee	Influence of quality initiatives on the operations of a selected metal recycling company in KwaZulu-Natal	Garbharran, HL; Moorley, MA
	Loganathan, Roland	The influence of leadership styles on job satisfaction at a cellulose pulp mill in KwaZulu-Natal: a case study	Garbharran, HL; Jinabhai, JC
	Scheming, Oleg	The role of interpersonal communications in managing South African-German business relationships	Maharaj, M; Mason, BR

FACULTY OF MANAGEMENT SCIENCES

PROGRAMME	STUDENT	PROJECT TITLE	SUPERVISOR/S
MTECH MARKETING	Konyana, Samkele Vuyokazi Mizpha	Promotional tools at selected universities in the Tshwane Metropolitan region	Penceliah, S; Maharaj, M
	Ngandu, Tshibamba Billy	Perceptions of electronic banking, among Congolese clients, of South African banks in the greater Durban area	Mason, RB; Maharaj, M
	Schnalke, Marcel	The influence of culture on marketing communications between South African and German businesses.	Mason, RB; Ngubane, Z
	Zungu, Nkululeko Praisegod	Service quality at retail banks in Durban	Raap, P; Mason, RB
MTECH PUBLIC MANAGEMENT	Brauns, Melody	Healthcare reform and service delivery: A case study of Montebello Hospital	Wallis, MAH; Balkaran, R
	Francis, Ramani	An investigation into data management as a strategic information tool and its influence at the Durban University of Technology	Jinabhai, D; Dorasamy, N
	Ngidi, Telesphorus Lindelani	Impact of Batho Pele principles on service delivery: A case study of the Durban Regional Office, Department of Home Affairs	Dorasamy, N; Adeyema, J
	Phoswa, Octavia H Duduzile	The management of community development projects in Mafunze and Inadi Tribal Authorities	Wallis, MAH
	Sosibo, Dumisani Patrick	Perceptions of community health workers of training services offered by Masikhulisané: a case study of Inanda, Ntuzuma and KwaMashu in eThekweni Municipality in KwaZulu-Natal	Dorasamy, N ; Rampersad, R
MTECH PUBLIC RELATIONS MANAGEMENT	Nchabeleng, Ntheno Vinkie	An evaluation of the Eastern Cape Health Department and Department of Local Government and Traditional Affairs Communications Strategy: A case of Ritual Xhosa Male circumcision	Ngubane, Z; Rampersad, R
	Ngobeni, Uzothile	Corporate Social Investment: Communication challenges facing selected Johannesburg Securities Exchange Listed organisations	Rawjee, V; Reddy, K
MTECH QUALITY	Gabula, Zandisile Hebert	Factors influencing the construction project success rates of Reconstruction Development Programme (RDP) housing projects in the Eastern Cape: A quality perspective, a case study	Garbharran, HL; Singh, S
	Inderlal, Ashwin	The role of Total Quality Management (TQM) in improving quality and organisational performance in footwear manufacturing organisations in KwaZulu-Natal	Reddy, K; Moodaliyar, R
	Naidoo, Ushadevi	The improvement of the quality of Intermediate Phase reading and writing through intervention strategies	Reddy, K; Dorasamy, N
	Nogaya, Noloyiso	The quality of graduates from the Department of Operations and Quality at DUT	Pillay, SS; Singh, S
	Sepeng, Thembekile Debora	Development of subcontractors as a means to improve quality in a selected telecommunications infrastructure organisation	Penceliah, S; Singh, S

POSTDOCTORAL FELLOWS 2012

In growing its research base the University sees the Postdoctoral Fellowship (PDF) programme playing an integral role in research and student training at both BTech and Postgraduate level. The contribution of the PDF's enhances the research profile and productivity of the University. The following were the PDF fellows for 2012:

PDFs/RAs/RFs 2012

Dr S' Vardhan Kanchi: Department of Chemistry

Dr V Kanikireddy: Department of Mechanical Engineering

Dr N Venugopala: Department of Biotechnology and Food Technology

Dr MK Nayunigari: Department of Mechanical Engineering

Dr A Giampiccoli: Department of Hospitality and Tourism

Dr B Dzwairo: Institute for WasteWater Treatment

Dr B Singh: Institute for WasteWater Treatment

Dr I Bahadur: Department of Chemistry

Dr LN Bhengu: Department of Public Management and Governmental Studies

Dr J Cordon: Institute for Systems Science

Dr A Govender: Department of Biotechnology and Food Technology

Dr SK Gupta: Institute for WasteWater Treatment

Dr OM Rissdorfer: Department of Biotechnology and Food Technology

Dr R Chalannavar: Department of Biotechnology and Food Technology

Dr W Rmaih: Department of Biomedical and Clinical Technology (RA)

Dr S Kumari Santosh: Institute for WasteWater Treatment (RA)

Dr A Winger: Department of Biotechnology and Food Technology (RA)

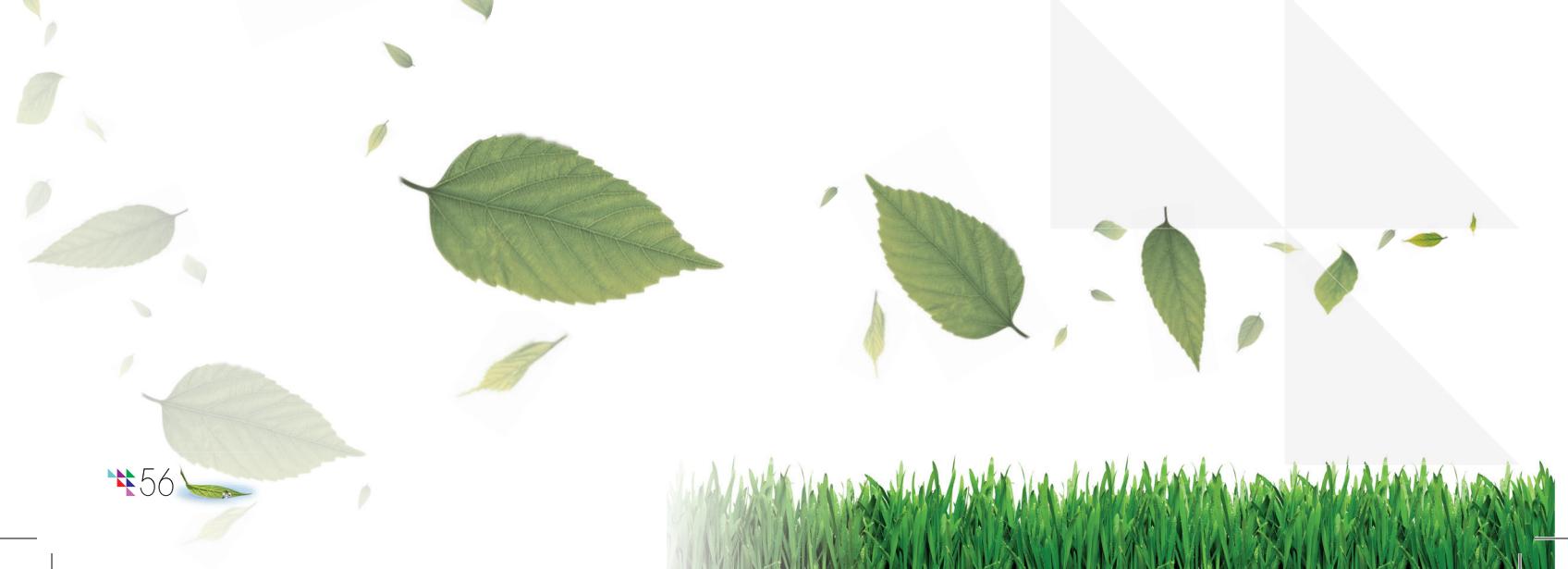
Dr P Singh: Department of Chemistry (RF)

Dr TP Mohan: Department of Mechanical Engineering (RF)

Dr T Mutanda: Institute for WasteWater Treatment (RF)

Postdoctoral Fellows Forum Meeting 2012





RESEARCH CAPACITY BUILDING PROGRAMME

The Research and Postgraduate Support Directorate runs a full programme of Research Capacity Development (RCD) initiatives, as well as organising seminars and lectures to stimulate scholarly debate and discussion.

Professor Dee Pratt, Retired Professor, facilitated a series of monthly sessions for postgraduate students and interested staff, taking students through the cycle of postgraduate research and focusing on issues and tools of importance.

The RCD programme focused on the following:

- 'The knowledge cycle', showing the interweaving of reading, writing and investigation skills involved in the research process.
- The research process
- The supervision process
- Mobilising reading resources
- Research reading skills
- Finding and organising sources
- Understanding scholarly texts
- EndNote
- Using citation and referencing conventions
- Editing and proof-reading
- Plagiarism
- Writing a literature review
- Carrying out empirical work
- Presenting data
- Writing a book
- eLearning and research
- Preparing a research proposal
- Writing up a research proposal
- Typing, language and style in research writing and layout and graphics in research writing
- SPSS Workshop By Dr Feroz Swalaha

Additional capacity development workshops were run by specialists

in their field, invited to share their expertise.

Supervisors' Workshop facilitated by Professor Johann Mouton, Director of the Centre for Research on Evaluation, Science and Technology and Director of the African Doctoral Academy at the University of Stellenbosch, a three-day intensive workshop for emerging researchers/supervisors.

Workshop objectives:

- The changing face of university research: The Gibbons thesis
- Doctoral studies in SA today: Facts and figures
- The difference between the PhD and Master's degree
- The supervisor: Roles and responsibilities
- Supervisory styles
- The student: Roles and responsibilities
- The supervisory process: Key tasks
- The doctoral research proposal
- Reviewing the literature
- Criteria of a good literature study
- A smart technique for searching the literature (Computer Laboratory Session)

Research Article-writing for Publication facilitated by Dr Graham Baker and Dr Elisabeth Lickindorf (two part workshop), which targeted researchers at any level who were ready and motivated to prepare and submit a completed set of research results for publication in a peer-reviewed journal of their choice, and researchers who were committed to attending the article writing programme. This workshop entailed a follow-up consultative and revision process during which each participating researcher revised the research paper for publication: first, with the assistance of co-author/s if any; and second, with editorial assistance from a workshop facilitator; as advice that may come from a mentor [e.g. an appropriate peer or colleague, or the researcher's academic supervisor] or from a 'second opinion' experienced peer in the field willing to act as a preliminary reviewer. Papers were prepared for submission to a targeted journal.

The End Game - Writing Up Your Research Dissertation or Thesis And Getting A Paper Published By Professor Dan Remenyi (One Day Seminar)

Dr Dan Remenyi is a Visiting Professor specialising in research methodology at the School of Systems and Data Studies at Trinity College Dublin and a Visiting Academic Fellow at Henley Business School in the United Kingdom. He works in both research methodology and the sociology of research in which he teaches and researches. He works extensively with research degree candidates and supervisors at both doctoral and master's level. He is regularly invited to examine at doctoral level. He conducts a number of seminars on topics related to improving effective academic research and obtaining better results.

Self-Study Seminars By Drs Marian Naidoo and Joan Walton (University of Bath)

Self-Study is a specialist research approach of particular relevance to mature professionals in the Social Sciences, although it can be applied in all research fields/areas. This Seminar was for staff/students that had graduated in Self Study type masters or doctorates, or are registered for masters/doctorates using a self-study approach. There were presentations (with exercises) for academics and higher degree students who would like an introduction to the concept and practice of Self Study. The seminar also catered for beginners and those interested in adopting (or supervising) a Self-Study approach.

The University has a number of **annual activities**.

The **Institutional Research Day** was attended by approximately 250 academics, research staff and postgraduate students. The guest speaker for the event was Professor Deresh Ramjugernath, Director: Thermodynamics Research Unit, University of KwaZulu-Natal. In total eighty-nine (89) abstracts were received. There were six parallel sessions, with presentations from a wide variety of disciplines in the Faculties of Applied Sciences, Health Sciences, Engineering, Accounting and Informatics, Arts and Design, and the Management Sciences. Prizes were awarded for the best oral presentation per

faculty and best poster presentation per faculty.

The **Annual Research Forum** meeting is an opportunity for researchers to discuss research strategic requirements and opportunities. The researchers were addressed by Professor Ahmed Bawa (Vice Chancellor) and Professor Fred Otieno (Deputy Vice Chancellor: Technology, Innovations and Partnerships). At the 2012 meeting, the University Research Strategy and Research Incentives; Research Focus Areas; External Grant sourcing, matching and support; Research Productivity Units, and Community Engagement and Research were discussed

DUT Science Day: A Platform for Research and Innovation, Guest speaker: Professor Roseanne Diab, Executive Officer: Academy of Science of South Africa (ASSAF). Speakers presented lectures in their areas of specialisation, interacted with researchers in the same discipline, and even engage in other outreach activities. Staff members were encouraged to extend this invitation to their students, especially postgraduates and postdoctoral.

Annual Women's Day Forum: Guest Speaker Professor Cheryl Potgieter, University Dean of Research at the University of KwaZulu-Natal. Professor Potgieter - who has extensive experience and interests in feminism as well as political and social psychology - spoke about the challenges that black women face in FET colleges and universities. In her speech she said that there is a lack of black women academics in South Africa. She indicated that her reference to 'black' included black African, Coloured, and Indian women. Factors that affect women were often over-looked, thus making it hard to succeed. Research that she had conducted over a few months had shown that there are more males in leadership position than females. Professor Potgieter concluded that women need to find it in themselves to take career risks, be selfish and work hard.





Guest lectures are presented by visiting professors/researchers/scientists who are experts in their disciplines. These included:

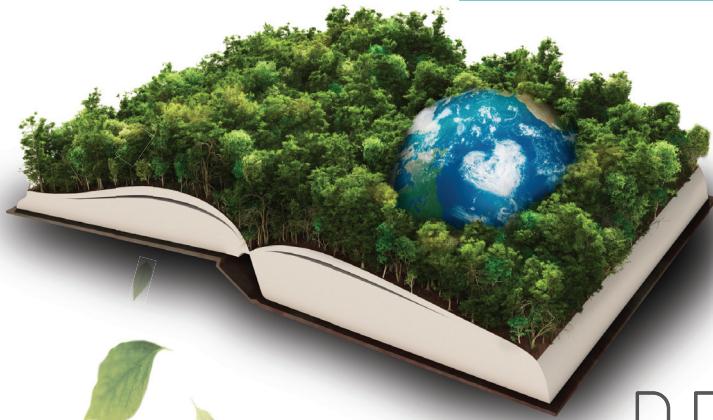
"Final fate a massive collapsing stars" by Dr Sushant G Ghosh, a professor at the Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi. He discussed one of the major open issues and challenges in black hole physics today, and the current progress on the same. The recent results investigating the final fate of a massive star within the framework of the Einstein gravity, and the gravitational collapse outcomes in terms of black holes and naked singularities were discussed. He pointed out that some of the new results obtained in recent years in the theory of gravitational collapse imply interesting possibilities.

"Promising Methods of Large-Scale Production of Nanoproducts for Broad Industrial Applications" by Galileev Sergey Mikhailovich, a Doctor of Technical Sciences, Professor and Head of Department at the St Petersburg State Engineering and Economic University. His lecture discussed methods of obtaining nanoproducts (carbon nanotubes and nanofibres, nano-sized plate glass, nanodisperse carbon spheres with a wall of nano-sized mikroperlit, nanoplate perlite). Nano-products have a stable source of raw materials, simple fulfilled technologies for the positive experience of application in composites, the lower projected cost.

The Directorate for Research and Postgraduate Support hosted an information sharing session by Professor Donald Dingwell from the European Research Council's (ERC) Secretary-General. Professor Dingwell is the ERC Secretary-General. The purpose of his visit was to raise awareness of the Council's instruments for international cooperation. The ERC has started an international outreach campaign in which the ERC Secretary General, Professor Don Dingwell, plays a crucial role in establishing good relations with the top and emerging research locations in the world. Professor Dingwell has an ambassadorial role and will enhance contact to international science communities, as well as liaise between ERC and foreign organizations and researchers.



INSTITUTIONAL
RESEARCH DAY 2012



RESEARCH PUBLICATIONS



2012 ACCREDITED JOURNALS

Faculty of Accounting and Informatics

SINGH P (2012). Environmental education: Enhancing learning and awareness through assessment. *Systemic Practice and Action Research*, Online: 1 - 14.

SINGH P, NIRANJAN I (2012). Using groupwork in the designing and playing of board games in occupational health and safety. *Groupwork*, 22 (03):65 – 82.

Faculty of Applied Sciences

BAHADUR I, DEENADAYALU N, TYWABI Z, SEN S, HOFMAN T (2012). Volumetric properties of ternary (IL +2-propanol or 1-butanol or 2-butanol + ethyl acetate) systems and binary (IL + 2-propanol or 1-butanol or 2-butanol) and (1-butanol or 2-butanol + ethyl acetate) systems. *Journal of Chemical Thermodynamics*, 49: 24 – 38.

CHALANNAVAR R, VENUGOPALA N, BAIJNATH H, ODHAV B (2012). Chemical composition of essential oil of *Psidium cattleianum* var. *lucidum* (Myrtaceae). *African Journal of Biotechnology*, 11 (33): 8341 - 8347.

DUBA CT, MCKENZIE J (2012). Propagation properties of Rossby waves for latitudinal β -plane variations of f and zonal variations of the shallow water speed. *Annales Geophysicae*, 30: 849 – 855.

GENGAN RM, MOHAN P, ULAGIR (2012). A novel alkaloid, four alkaloid precursors and a coumarin from *Feronia limonia*. *Indian Journal of Chemistry Section B-Organic Chemistry including Medicinal Chemistry*, 51B (December): 1771 – 1775.

GOVENDER S, PILLAY A (2012). ETAA studies of heavy metals in atmospheric samples - challenges and applications. *Research Journal of Chemistry and Environment*, 16 (03): 34 – 38.

GOVENDER T, RAMANNA L, RAWAT I, BUX F. BODIPY staining, an alternative to the Nile Red fluorescence method for the evaluation of intracellular lipids in microalgae. *Bioresource Technology*, 114:507-11. DOI: 10.1016/j.biortech.2012.03.024.

GUMEDE N, SINGH P, BISETTY K, SABELA MI, ESCUDER-GILABERT L, MEDINA-HERNANDEZ M, SAGRADO S (2012). Experimental-like affinity constants and enantioselectivity estimates from flexible docking. *Journal of Chemical Information and Modeling*, 52 (10):2754 - 2759.

IJABADENIYI OA, (2012). Safety of nanofood: A review. *African Journal of Biotechnology*, 11 (87):15258 – 15263.

IJABADENIYI OA, BUYS E (2012). Irrigation water and microbiological safety of fresh produce; South Africa as a case study: A review. *African Journal of Agricultural Research*, 07 (35):: 4848 - 4857.

IVE EC, COUCHMAN IMS, REDDY L (2012). Therapeutic effect of *arsenicum album* on leukocytes. *International Journal of Molecular Sciences*, 13: 3979 - 3987.

LAZARUS IJ, BHARUTHRAM R, SINGH S, LAKHINA G (2012). Arbitrary amplitude langmuir solitons in a relativistic electron-positron plasma. *Journal of Plasma Physics*, 78 (April): 175 - 180.

LAZARUS IJ, BHARUTHRAM R, SINGH S, PILLAY S, LAKHINA G (2012). Linear electrostatic waves in two-temperature electron–positron plasmas. *Journal of Plasma Physics*, 78 (06):621 – 628.

LAZARUS IJ, MOOLLA S, BHARUTHRAM R (2012). Nonlinear low-frequency structures in an electron–positron–ion plasma. *Journal of Plasma Physics*, 78 (05): 545 - 551.

MABASO MH, REDHI GG, MOODLEY KG (2012). Utilization of ionic liquids for the separation of organic liquids from industrial effluents. *South African Journal of Chemistry-Suid-Afrikaanse Tydskrif vir Chemie*, 65: 145 - 149.

MADURAY K, ODHAV B, NYOKONG T (2012). In vitro photodynamic effect of aluminum tetrasulfophthalocyanines on melanoma skin cancer and healthy normal skin cells. *Photodiagnosis and Photodynamic Therapy*, 9: 32 - 39.

MBAMBO B, ODHAV B, MOHANLALL V (2012). Antifungal activity of stigmasterol, sitosterol and ergosterol from *Bulbine natalensis* Baker (Asphodelaceae). *Journal of Medicinal Plants Research*, 6 (October): 5135 - 5141.

MELLEM JJ, ODHAV B, BAIJNATH H (2012). Bioaccumulation of Cr, Hg, As, Pb, Cu and Ni with the ability for hyperaccumulation by *Amaranthus dubius*. *African Journal of Agricultural Research*, 7 (4): 591 – 596.

MCKENZIE J (2012). Klein-Gordon equations for horizontal transverse oscillations in two-dimensional coronal loops. *Astronomy & Astrophysics*, 541 (A53): 1 - 9.

ODHAV B, NAYAK S, VENUGOPALA N (2012). Methyl(E)-2-(3-chloro-4-cyanophenyl)imino)-4-(4-chloro-phenyl)-6-methyl-1,2,3,4-tetrahydropyrimidine-5-carboxylate. *Acta Crystallographica Section E-Structure Reports Online*, E68 2012: o2977 - o2978.

RAJAH SS, MCKENZIE J, DOYLE T (2012). Nonlinear, stationary electrostatic ion cyclotron waves: Exact solutions for solitons, periodic waves, and wedge shaped waveforms. *Physics of Plasmas*, 19: 112 – 115.

RAJAH SS, THIRUKKANESH S, MAHARAJ S (2012). Shearing radiative collapse with expansion and acceleration. *Journal of Mathematical Physics*, 53 (3): 1 - 13.

SABELA MI, GUMEDE N, ESCUDER-GILABERT L, MARTIN-BIOSCA Y, BISETTY K, MEDINA-HERNANDEZ M, SAGRADO S (2012). Connecting simulated, bioanalytical, and molecular docking data on the stereoselective binding of (\pm)-catechin to human serum albumin. *Analytical and Bioanalytical Chemistry*, 402: 1899 - 1909.

SABELA MI, GUMEDE N, SINGH P, BISETTY K (2012). Evaluation of antioxidants in herbal tea with a laccase biosensor. *International Journal of Electrochemical Science*, 7: 4918 - 4928.

SINGH P, BISETTY K (2012). A molecular dynamics study of Lunasin. *South African Journal of Chemistry-Suid-Afrikaanse Tydskrif vir Chemie*, 65: 115 - 124.

SINGH S, DEENADAYALU N, AZNAR M (2012). Densities, speeds of sound, and refractive indices for binary mixtures of 1-butyl-3-methylimidazolium methyl sulphate ionic liquid with alcohols at T = (298.15, 303.15, 308.15, and 313.15) K. *Journal of Chemical Thermodynamics*, 57 (2013): 238 – 247.

SINGH S, ZHOU L, NIU D, TIAN K, CHEN Z, PRIOR B, SHEN W, SHI G, WANG Z (2012). Genetically switched d-lactate production in *Escherichia coli*. *Metabolic Engineering*, 14: 560 - 568.

SINGH S, ZHOU L, SHEN W, NIU D, TIAN K, PRIOR B, SHI G, WANG Z (2012). Fine tuning the transcription of *ldhA* for d-lactate production. *Journal of Industrial Microbiology & Biotechnology*, 39 (March): 1209 - 1217.

SINGH T, KRUGER H, BISETTY K, POWER T (2012). Theoretical study on the formation of a pentacyclo-undecane cage lactam. *Computational and Theoretical Chemistry*, 986: 63 - 70.

TIAN K, CHEN Z, SHEN W, PRIOR B, SHI G, SINGH S, WANG Z (2012). High-efficiency conversion of glycerol to D-lactic acid with metabolically engineered *Escherichia coli*. *African Journal of Biotechnology*, 11 (21): 4860 – 4867.



VENUGOPALA N, NAYAK S, ODHAV B (2012). Methyl 2,6-diphenyl-1-p-tolyl-4-(p-tolyl-amino)-1,2,5,6-tetrahydropyridine-3-carboxylate. *Acta Crystallographica Section E-Structure Reports Online*, E68 2012: o2392 - o2393.

WEBB G, **MCKENZIE J, HU Q, ZANK G** (2012). Toroidal hydromagnetic waves in an axi-symmetric magnetic field. *Journal of Geophysical Research-Atmospheres*, 117: 1 - 14.

Faculty of Arts and Design

BLOSE M (2012). Pornographic objectification of women through Kwaito lyrics. *Agenda*, 26.3 (93): 50 – 60.

HIRALAAL A (2012). Students' experiences of blended learning in accounting education at the Durban University of Technology. *South African Journal of Higher Education*, 26 (2): 316 – 328.

MZINDLE D (2012). 'Mental models' that students possess about work integrated learning (WIL) with reference to the new curriculum framework. *South African Journal of Higher Education*, 26 (02): 249 - 267.

NETSHIOMBO KF, MASHAMBA T (2012). Social dynamics of suicide in South Africa: A theoretical perspective. *African Journal for Physical, Health Education, Recreation and Dance*, 2 (September): 95 – 103.

STEWART GDJ (2012). The challenge of designing a collaborative reference source for Southern African Literature. *English Academy Review*, 29 (2): 87 – 101.

STEWART GDJ (2012). Sharing our stories: using an online encyclopedia as the basis for a general education module on local history, creative writing and social justice. *South African Journal of Libraries and Information Science*, 78 (02): 112 – 119.

Faculty of Engineering and the Built Environment

ALLOPI D, SAROOP S (2012). Towards greener infrastructure. *IMIESA*, April: 23 – 25.

GOVENDER P, LI Z (2012). Development of an intelligent recognition and sorting system. *South African Journal of Industrial Engineering*, 23 (01): 226 – 239.

LOJI K (2012). Toward teaching methods that develop learning and enhance problem solving skills in engineering students. *South African Journal of Higher Education*, 26 (1): 120 - 135.

MOHAN P, KANNY K (2012). Chemical treatment of sisal fiber using alkali and clay methods. *Composites Part A-Applied Science and Manufacturing*, 43: 1989 – 1998.

MOHAN P, KANNY K (2012). Effect of nanoclay in HDPE-glass fiber composite on processing, structure, and properties. *Advanced Composite Materials*, 21 (04): 315 – 331.

MOHAN P, KANNY K, GEORGE P (2012). Combined effect of isophthalic acid and polyethylene glycol in polyethylene terephthalate polymer on thermal, mechanical, and gas transport properties. *Journal of Applied Polymer Science*, 126 (2): 536 - 543.

MOHAN P, KANNY K, KURIAKOSE J (2012). Water uptake and mechanical properties of natural rubber-styrene butadiene rubber (nr-sr) - Nanoclay composites. *Journal of Industrial and Engineering Chemistry*, 18: 979 – 985.

MWANGI FM, KANNY K (2012). Development of granular-medium-based impact energy management system. *International Journal of Crashworthiness*, 17 (04): 401 – 414.



PRABHU P, JAWAHAR P, **MOHAN P** (2012). An approach to use nanocomposite binders to recycle thermoset plastics. *International Journal of Engineering Research & Technology*, 1 (6): 1 – 5.

Faculty of Health Sciences

ACKERMAN W, **DUCRAY JF**, BULMER J, CARTER A, CHAILLET J, CHAMLEY L, CHEN C, CHUONG E, COLEMAN S, COLLET G, CROY B, de MESTRE A, DICKINSON H, ENDERS A, FORGATY N, GAUSTER M, GOLOST T, HAIDER S, HEAZELL A, HOLLAND O, HUPPERTZ B, HUSEBEKK A, JOHN R, JOHNSEN G, JONES C, KALIONIS B, KONIG J, LORENZON A, MOFFET A, MOREIRA DE MELLO J, NUZZO A, PARHAM P, PAROLINI O, PETROF M, PIDOUX G, RAMIREZ-PINILLA M, ROBINSON W, ROLFO A, SADOVSKY Y, SOMA H, SOUTHCOLBE J, TILLBURGS T, LASH G (2012). IFPA Meeting 2011 workshop report III: Placenta immunology; epigenetic and microRNA-dependent gene regulation; comparative placentation; trophoblast differentiation; stem cells. *Placenta*, 26: s15 - s22

ADAM JK, DYER R, **RMAIH WNS**, **HARRYPAUL A** (2012). Two year clinical outcomes after sirolimus-eluting stent implantation for the treatment of coronary artery disease. *Medical Technology SA*, 26 (1): 22 - 27.

ADAM JK, **RMAIH WNS**, PEARCE A, NAIDOO N (2012). The predictive value of proBNP levels to determine the presence and severity of coronary artery disease in patients with a positive or inconclusive exercise stress test. *Medical Technology SA*, 26 (1): 13 – 17.

ADAM JK, SHEIN K, CHETTY J, **RMAIH WNS** (2012). A comparative doppler-catherization study of the left ventricular end diastolic pressure. *Medical Technology SA*, 25 (2): 17 – 22.

BHAGWAN R (2012). Journeying into mindfulness and its relevance to therapeutic intervention. *Social Work Practitioner Researcher*, 24 (2): 155 - 158.

BRANTINGHAM J, BONNEFIN D, PERLES S, CASSAT, GLOBE G, PRIBOEVIC M, HICKS M, **KORPORAAL CM** (2012). Manipulative therapy for lower extremity conditions: Update of a literature review. *Journal of Manipulative and Physiological Therapeutics*, 35 (2): 127 - 166.

BRANTINGHAM W, PARKIN-SMITH G, CASSA T, GLOBE G, GLOBE D, POLLARD H, DeLUCA K, JENSEN M, MAYER S, **KORPORAAL CM** (2012). Full kinetic chain manual and manipulative therapy plus exercise compared with targeted manual and manipulative therapy plus exercise for symptomatic osteoarthritis of the hip: A randomized controlled trial. *Archives of Physical Medicine and Rehabilitation*, 93: 259 - 267.

CASTLE N, **NAIDOO R** (2012). Achieving prehospital analgesia. *Emergency Medicine Journal*, 29: 765 – 766.

GHUMAN S, MEYER-WEITZ A, KNIGHT S (2012). Prevalence patterns and predictors of alcohol use and abuse among Secondary School students in a southern KwaZulu-Natal District, South Africa: Demographic factors and influence of parents and peers. *South African Family Practice*, 54 (2): 132 – 138.

HOQUE M, **GHUMAN S** (2012). Contraceptive practices in the era of HIV/AIDS among university students in South Africa. *SAHARA*, 9 (1): 15 – 19.

HOQUE M, **GHUMAN S** (2012). Do parents still matter regarding adolescents' alcohol drinking? Experience from South Africa. *International Journal of Environmental Research and Public Health*, 9 (1): 110 - 122.

HOQUE M, **GHUMAN S** (2012). Knowledge, practices, and attitudes of emergency contraception among female university students in KwaZulu-Natal, South Africa. *PLOS One*, 7 (9): e46346, DOI: 10.1371/journal.pone.0046346.

IVE EC, **COUCHMAN IMS**, **REDDY L** (2012). Therapeutic effect of arsenicum album on leukocytes. *International Journal of Molecular Sciences*, 13: 3979 – 3987.



MBUTHO NP, GQUELENI N, **KORPORAAL CM** (2012). Traditional complimentary and alternative medicine: Knowledge, attitudes and practices of health care workers in HIV and AIDS clinics in Durban hospitals. *African Journal of Traditional Complementary and Alternative Medicines*, 9 (3S): 64 – 72.

MSHUNQANE N, STEWART A, ROTHBERG A (2012). Type 2 diabetes management: Patient knowledge and health care team perception, South Africa. *African Journal of Primary Health Care & Family Medicine*, 4 (1): 1 - 7.

NAIDU SB, ADAM JK, GOVENDER P (2012). The use of probiotics and safety concerns: A review. *African Journal of Microbiology Research*, 6 (41): 6871 - 6877.

ORTON PM, NOKES M (2012). Introduction of a blended teaching strategy in an occupational health nursing education programme. *Occupational Health Southern Africa*, 18 (5): 4 – 7.

PILLAY JD, KOLBE-ALEXANDER T, MECHELEN W, LAMBERT E (2012). Steps that count! The development of a pedometer-based health promotion intervention in an employed, health insured South African population. *BMC Public Health*, 12:880. DOI: 10.1186/1471-2458-12-880

PRAKASCHANDRA DR, NAIDOO P, ESTERHUIZENT (2012). The time-course changes of NT-proBNP and tissue Doppler indices in patients undergoing mitral valve replacement. *Cardiovascular Journal of Africa*, 23 (4): 200 - 205.

REDDY P, NAIDOO R, ROBINSON, MENTZ G, LI H, LONDON S, BATTERMAN S (2012). *GSTM1* and *GSTP1* gene variants and the effect of air pollutants on lung function measures in South African children. *American Journal of Industrial Medicine*, 55 (11): 01 – 09.

SIBIYA MN, GWELE NS (2012). A model for the integration of primary health-care services in the province of KwaZulu-Natal, South Africa. *Journal of Nursing Management*, DOI: 10.1111/j.1365-2834.2012.01420.x.

SINGH P, NIRANJAN I (2012). Using groupwork in the designing and playing of board games in occupational health and safety. *Groupwork*, 22 (03): 65 – 82.

Faculty of Management Sciences

BOYCE G, **HARRIS GT** (2012). Hope the beloved country: Hope levels in the new South Africa. *Social Indicators Research, Online*: 1 - 15.

DORASAMY N (2012). Institutionalising a whistle blowing culture within higher education institutions: Policy and procedure underpinning good governance at the Durban University of Technology. *Journal of Economics and Behavioral Studies*, 4 (9): 505 - 514.

DORASAMY N, BALKARAN R (2012). Inclusivity for ethical public sector governance in South Africa. *Corporate Ownership and Control*, 9 (2): 376 – 382.

DORASAMY N, NUNDULALL R (2012). Mentorship and research output: A case study of the University of Johannesburg. *Industry and Higher Education*, 26 (02): 127 – 137.

GARBHARRAN HL, GOVENDER JP, ARMSTRONG T (2012). Critical success factors influencing project success in the construction industry. *Acta Structilia*, 19 (02): 90 – 108.

GOVENDER JP, VEERASAMY D, NOEL DT (2012). International students' expectations and perceptions of service quality: The case of a Higher Education Institution in South Africa. *Journal of Economics and Behavioural Studies*, 4 (10): 588 – 594.

HARRIS GT (2012). Promoting non-violent parenting among refugee mothers in Durban. *Social Work*, 48 (4): 456 - 466.

HARRIS GT, VAN DER MERWE AD (2012). The scope for mobilising public opinion against corruption: The attitudes of KwaZulu-Natal university students. *South African Journal of Economic and Management Sciences*, 15 (03): 282 – 293.

MOONSAMY GV, SINGH S (2012). A 21st century framework for quality management. *African Journal of Business Management*, 6 (45): 11231 – 11242.

NAIDOO U, DORASAMY N, REDDY K (2012). Perceptions of educators of reading literacy: A case study of the intermediate phase in South African Primary Schools. *Journal of Economics and Behavioral Studies*, 4 (10): 555 - 569.

PARKER KM (2012). Government and the economy: Student perspectives from South Africa. *International Business and Economics Research Journal*, 11 (4): 443 – 450.

PILLAY S, DORASAMY N, VRANIC V (2012). Exploring whistle blowing intentions in South Africa: A quantitative analysis. *African Journal of Business Management*, 6 (7): 2529 – 2548.

RAWJEE VP, VEERASAMY D, GQAMANE Z (2012). The practice of public relations within selected organisations in Durban, South Africa. *African Journal of Business Management*, 6 (26): 7745 – 7749.

REDDY K (2012). Students as consumers: The implications of the Consumer Protection Act for higher education institutions in South Africa. *South African Journal of Higher Education*, 26 (03): 586 – 605.

REDDY K, RAMPERSAD R (2012). Ethical business practices: The Consumer Protection Act and socio-economic transformation in South Africa. *African Journal of Business Management*, 6 (25): 7403 - 7413.

SINGH S, MOONSAMY GV (2012). Using factor analysis to explore principal components for quality management implementation. *Quality & Quantity*, DOI 10.1007%2Fs11135-012-9790-4.

VAN DER MERWE AD, HARRIS GT (2012). Attitudes towards public sector corruption: a study of university students in KwaZulu-Natal. *International Business and Economics Research Journal*, 11 (2): 171 – 178.

VEERASAMY D, ROBERTSON N (2012). An evaluation of the emerging teen market in Durban, South Africa: Some marketing implications. *Journal of Economics and Behavioral Studies*, 4 (6): 376 – 383.

WALLIS MAH, REDDY P (2012). Local economic development: a critique of the African experience. *Politeia*, 31 (02): 70 - 88.

Executive Management and Academic Support

BAWA AC (2012). South African higher education: At the center of a cauldron of national imaginations. *Social Research*, 79 (3): 669 - 694.

HARRISON JE, PITHOUSE-MORGAN K, CONOLLY JL, MEIWA T (2012). Learning from the first year of the Transformative Education/al Studies (TES) project. *Alternation: International Journal for the Study of Southern African Literature and Languages*, 19 (02): 12 - 37.

HEMSON, C (2012). Crossing from violence to nonviolence: pedagogy and memory. *Journal of Education*, 54: 27 - 48.

KHAN S, KHAN F (2012). Provision of sustainable and liveable low income human settlements in the province of KwaZulu-Natal, South Africa - An analysis of policy contradictions and challenges. *Journal of Human Ecology*, 40 (1): 17 - 31.

SATTAR K, COOKE LA (2012). A conceptual framework for the quality assurance of programme design at the Durban University of Technology. *South African Journal of Higher Education*, 26 (02): 372 – 390.



SIBIYA MN, GWELE NS (2012). A model for the integration of primary health-care services in the province of KwaZulu-Natal, South Africa. *Journal of Nursing Management*, DOI: 10.1111/j.1365-2834.2012.01420.x: 1 – 09.

Technology, Innovation And Partnerships

DZWAIRO, OTIENO FAO, OCHIENG G, BEZUIDENHOUT J (2012). Raw water quality weight factors: Vaal basin, South Africa. *Water Science and Technology*, 66 (5): 1061 – 1068.

GOVENDER T, RAMANNA L, RAWAT I, BUX F. BODIPY staining, an alternative to the Nile Red fluorescence method for the evaluation of intracellular lipids in microalgae. *Bioresource Technology*, 114:507-11. DOI: 10.1016/j.biortech.2012.03.024.

ILCEV DS (2012). Education, education, education - E-Education using DVB-RCS. *Journal of the Institute of Telecommunications Professionals*, 6 (2): 30 – 34.

ILCEV DS (2012). Implementation of the inmarsat broadband global area network (Part 1). *Electronics World*, 118:22 - 25.

ILCEV DS (2012). Implementation of the inmarsat broadband global area network (Part 2). *Electronics World*, 118:34 – 37.

MAHARAJ S, **MOYO S**, POPOVYCH R (2012). Preface to the special issue on the tercentenary of the Laplace-Runge-Lenz vector. *Journal of Engineering Mathematics*, DOI 10.1007%2Fs10665-012-9599-0.

MURUTU C, ONYANGO M, OCHIENG A, **OTIENO FAO** (2012). Fluoride removal performance of phosphoric acid treated lime: Breakthrough analysis and point-of-use system performance. *WATER SA*, 38 (02): 279 - 286.

O'KANE AJ, DUFFY KJ, PAGE B, MACDONALD D (2012). Heavy impact on seedlings by the impala suggests a central role in woodland dynamics. *Journal of Tropical Ecology*, 28 (part 3):291 – 297.

ONYANGO M, OJIJO V, OCHIENG A, KITTINYA J, **OTIENO FAO** (2012). Simultaneous adsorption and biodegradation of synthetic melanoidin. *African Journal of Biotechnology*, 11 (22):6083 - 6090.



2012 NON-ACCREDITED JOURNALS

Faculty of Accounting and Informatics

OLUGBARA OO, OJO S, OBERHOLZER H (2012). Hippocratic privacy protection framework for relational databases. *African Journal of Computing & ICT*, 05: 132 - 149.

OLUGBARA OO, RANDLE O, LALL M (2012). Investigating the performance of minimax search and aggregate Mahalanobis Distance Function in evolving an Ayo/Awale player. *World Academy of Science, Engineering and Technology*, 68: 194 – 197.

OLUGBARA OO, ZUVA T, OJO S, NGWIRA S (2012). Image content in location-based shopping recommender systems for mobile users. *Advanced Computing: An International Journal (ACIJ)*, 3 (4): 1 - 8.

OLUGBARA OO, ZUVA T, OJO S, NGWIRA S (2012). Introducing an adaptive kernel density feature points estimator for image representation. *International Journal of Wireless Information Networks & Business Information System*, May/June: 127 – 133.

OLUGBARA OO, ZUVA T, OJO S, NGWIRA S (2012). Kernel density feature points estimator for content-based image retrieval. *The International Journal of Multimedia & Its Applications (IJMA)*, 04 (01): 103 – 111.

RIGBY B, PERERA A, KLEIN S (2012). Experiences with hardware-in-loop testing of protection relays and settings. *Energize*, December: 31 – 36.

SINGH P, DOGBE E, MILLHAM R (2012). Role and data-based constraints of data access control in a legacy system migration to a service-oriented environment. *International Proceedings of Computer Science and Information Technology (IPCSIT)*, 29: 55 - 61.

Faculty of Applied Sciences

ADAM JK, Naidu Babu, ODHAV B (2012). Probiotics: recent understandings and biomedical applications. *Current Trends in Biotechnology and Pharmacy*, 6 (1): 1 – 14.

BISETTY K, SABELA MI, SINGH P, GUMEDE N, SAGRADO S (2012). Evaluation of enantior esolution of (+-)catechin using electrokinetic chromatography and molecular docking. *Journal of Scientific Research in Pharmacy*, 1 (2): 1 - 4.

CHALANNAVAR R, MALABADI R, METI N, MULGUND G, NATARAJA K, KUMAR S (2012). Synthesis of antimicrobial silver nanoparticles by callus cultures and invitro derived plants of *catharanthus roseus*. *Research in Pharmacy*, 2 (6): 18 - 31.

MOHANLALL V, MAGAGULA NL, ODHAV B (2012). Optimized thin layer chromatographic method for screening pharmaceutically valuable alkaloids of *Catharanthus roseus* (Madagascar Periwinkle). *International Journal of Sciences*, December: 1 - 20.

REDDY L, SINGH R (2012). Apoptosis in the human laryngeal carcinoma (HEp-2) cell line by *Bulbine Natalensis* and *B.Frutescens* fractions. *International Journal of Biological & Pharmaceutical Research*, 3 (7): 862 - 874.

SINGH R, REDDY L (2012). Molecular immunogenetics of apoptosis: Experimental dilemmas. *International Journal of Biological & Pharmaceutical Research*, 3 (4): 550 - 559.

SINGH P, BISETTY K (2012). Cycloaddition reactions of azatrienes with sulfene. *International Journal of Organic Chemistry*, 2: 121 - 125.



Faculty of Arts and Design

JINABHAI DC, KADWA F (2012). Entrepreneurship education and application of technology Empirical findings on the clothing sector for SME growth in South Africa. *International Journal of Management & Technology*, 02 (02): 1 – 15.

JINABHAI DC, KADWA F (2012). Inter-firm linkages for export Small, Medium and Micro Enterprises in South Africa: Empirical findings on the clothing sector. *International Journal of Management & Technology*, 02 (02), December: 1 - 16.

PARTAB V (2012). Creative healing - An examination of the value of creative drama in helping South African children deal with the traumas of their lives. *Procedia - Social and Behavioral Sciences*, 69: 487 – 491.

SCOTT LN (2012). Time to play: My reflections on pictographic prompts and their potential use as a creative and educational tool. *Educational Research for Social Change*, 01 (01): 36 – 49.

Faculty of Engineering and the Built Environment

ALLOPI D (2012). An investigation on road safety within the Port of Durban. *International Journal of Engineering Science and Innovative Technology*, 1 (2): 199 - 206.

ALLOPI D, MWAIKUNGU RR (2012). The use of longitudinal roughness data as a tool for effective maintenance management of gravel. *The Tanzania Engineer*, 12 (01): 76 – 83.

RIGBY B, PERERA A, KLEIN S (2012). Experiences with hardware-in-loop testing of protection relays and settings. *Energize*, December: 31 – 36.

VSIMELANE TS (2012). To what extent are cities influenced by rural urban relationships in Africa. *Natural Resources*, 3: 240 – 247.

Faculty of Health Sciences

ADAM JK, NAIDU BABU, ODHAV B (2012). Probiotics: recent understandings and biomedical applications. *Current Trends in Biotechnology and Pharmacy*, 6 (1): 1 - 14.

GQWETA N (2012). Poor academic performance: A perspective of final year diagnostic radiography students. *Radiography*, 08: 212 - 217.

GQWETA N (2012). Role extension: The needs, perceptions and experiences of South African radiographers in primary health care. *The South African Radiographer*, 50 (01): 22 – 26.

ISAACS F, FRIEDRICH-NEL H, **SWINDON LD**, MUNRO L (2012). An analysis of the need for accredited training on the administration of intravenous contrast media by radiographers: results of an online survey. *The South African Radiographer*, 50 (2): 27 - 34.

MC CAUL MG (2012). The prehospital use of ketamine. *Sanguine*, 01 (04): 3 – 4.

NAIDOO R, GOVENDER K, MACDONALD R, GRAINGER L (2012). The pending loss of advanced life support paramedics in South Africa. *African Journal of Emergency Medicine*, 2: 59 – 66.

REDDY P, NAIDOO R, ROBINS T, MENTZ G, LI H, LONDON S (2012). GSTM1, GSTP1 and NQO1 polymorphisms and susceptibility to asthma among South African children. *American Journal of Industrial Medicine*, 27 (4): 184 – 188.

WINFIELD JA (2012). Acknowledging the other. *Child and Youth Care Work*, 30 (2): 42 - 43.

WINFIELD JA (2012). Thinking about the therapeutic millieu. *Child and Youth Care Work*, 31 (4): 30 - 32.

Faculty of Management Sciences

DORASAMY N (2012). Reflections on work integrated learning. *International Review of Qualitative Research*, 5 (1): 105 – 108.

DORASAMY N, ABDEL-BAKI M (2012). The role of personal income tax reforms in the transition to a democratic and egalitarian Egypt. *Journal of Governance and Regulation*, 1 (3): 70 – 84.

HARRIS GT, SIMWAKA K, FERRER S (2012). Technical efficiency differentials among HIV/AIDS affected households in Malawi: Evidence from time variant and invariant inefficiency models. *African Crop Science Journal*, 20 (3): 197 - 205.

JINABHAI DC, KADWA F (2012). Entrepreneurship education and application of technology - Empirical findings on the clothing sector for SME growth in South Africa. *International Journal of Management & Technology*, 02 (02), December: 1 - 15.

JINABHAI DC, KADWA F (2012). Inter-firm linkages for export Small, Medium and Micro Enterprises in South Africa: Empirical findings on the clothing sector. *International Journal of Management & Technology*, 02 (02): 1 – 16.

MAHARAJ M (2012). Customer perceptions of South African cellular network operations. *Indian Journal of Economics & Business*, 11 (2): 455 – 483.

MASON RB (2012). Product tactics in a complex and turbulent environment viewed through a complexity lens. *The Business Review, Cambridge*, 20 (01): 144 – 150.

NAIDOO P (2012). Blended and authentic learning with the net generation: A work integrated learning perspective. *Scholarly Journal of Business Administration*, 2 (23): 42 - 47.

Technology, Innovation and Partnerships

BUX F, VISWANATH B (2012). Biodiesel production of wastewater microalgae chlorella SP. under photoautotrophic and heterotrophic growth conditions. *British Journal of Engineering and Technology*, 1 (1): 251 – 264.

OJOO, OTIENO FAO, OCHIENG G (2012). Groundwater: Characteristics, qualities, pollutions and treatments: An overview. *International Journal of Water Resources and Environmental Engineering*, 4 (6): 162 - 170.

SMITH A, DUFFY KJ, PAGE B, SLOTOW R (2012). Stable isotope series from elephant ivory reveal lifetime histories of a true dietary generalist. *Proceedings of the Royal Society: Biological Sciences*, 279: 2433 - 2441.



2012 CONFERENCE PROCEEDINGS

Faculty of Accounting and Informatics

ANNIROOT J, DE VILLIERS M (2012). A study of Alice: A visual environment for teaching object-oriented programming. *Proceedings of International Association for Development of the Information Society*, Berlin, Germany, 10 – 12 May 2012.

CASSIM KM, EYONO OBONO SD (2012). Experimenting on the added value of M-Learning for the teaching of word problems. *Proceedings of the World Congress on Engineering and Computer Science 2012*, San Francisco, USA, 24 - 26 October 2012.

EYONO OBONO SD, ADEGBEHINGBE OD (2012). A framework for designing information technology programmes using ACM/ IEEE curriculum guidelines. *Proceedings of the World Congress on Engineering and Computer Science 2012*, San Francisco, USA, 24 - 26 October 2012.

EYONO OBONO SD, GOSEBO N (2012). Revisiting the theory of planned behaviour for the preparation of the adoption of municipal e-services in less developed countries. *Proceedings of the South African Institute for Computer Scientists and Information Technologists*, Centurion, South Africa, 01- 03 October 2012.

MYERS GT (2012). Solving problems: A living theory approach to research development. *Proceedings of the 11th European Conference on Research Methods*, Bolton, UK, 28 - 29 June 2012.

MYERS GT, YEARWOOD VM (2012). A journey into analysis in the development of a world of meta-science. *Proceedings of the 11th European Conference on Research Methods*, Bolton, UK, 28 - 29 June 2012.

NEPAL T, OLUGBARA OO (2012). Exploring TOPSIS based algorithm for non-homogeneous alternatives in group decision making. *Proceedings of the World Congress on Engineering and Computer Science 2012*, San Francisco, USA, 24 - 26 October 2012.

ODUNAIKE S, **OLUGBARA OO**, OJO S (2012). Improving e-learning practice using living theory methodology. *Proceedings of the 2012 Information Systems Educators Conference. Conference on Information Systems Applied Research*, New Orleans, LA, 01 – 04 November 2012.

OLUGBARA OO, MODUPE A, OJO S (2012).Comparing supervised learning classifiers to detect advanced fee fraud activities on internet. *Proceedings of the Second International Conference: Advances in Computer Science & Information Technology*, Bangalore, India, 02 – 04 January 2012.

OLUGBARA OO, ABE B, MARWALA T (2012). Hyperspectral image classification using random forest and neural networks. *Proceedings of the World Congress on Engineering and Computer Science 2012*, San Francisco, USA, 24 - 26 October 2012.

OLUGBARA OO, KALEMA B, KEKWALETSWE R (2012).Identifying key strategic issues influencing effective use of ICT in higher Institutions of Learning: a case of ERP systems. *Proceedings of the 4th International Conference on ICT for Africa 2012*, Kampala, Uganda, 21 – 24 March 2012.

OLUGBARA OO, LALL M, JOSHI M, MODIBA M, BHAVSAR V (2012). Automated matchmaking of student skills and academic course requisites. *Proceedings of the CUBE International Information Technology Conference & Exhibition*, Pune, India, 03 - 05- September 2012.

OLUGBARA OO, ODUNAIKE S, OJO O (2012). Using cloud computing to mitigate rural e-learning sustainability and challenges. *Proceedings of the World Congress on Engineering and Computer Science 2012*, San Francisco, USA, 24 - 26 October 2012.

PHIHLERAT, ODUNAIKE S, **OLUGBARA OO** (2012). A measurement framework to assess SME performance. *Proceedings of the 2012 Information Systems Educators Conference*, New Orleans, 01 – 04 November 2012.

SHONGWE NSM, OLUGBARA OO (2012). Exploring consumer core theory to predict youth adoption of technology-based HIV/AIDS preventive actions. *Proceedings of the IADIS international conference, e-society*, Berlin, Germany, 10 – 13 March 2011.

Faculty of Applied Sciences

IJABADENIYI OA (2012). Safety of Nanofood. *International Conference on Food Safety, Quality and Nutrition Greening the Food Industry*, Manchester, UK, 11 – 13 April 2012.

WEBB G, **MCKENZIE J**, HU Q, LE ROUX J, ZANK G (2012). Alfvén wave interactions in the solar wind. *Space Weather: The Space Radiation Environment*. *11th International Astrophysics Conference*, Palm Springs, CA, 19 – 23 March 2012.

Faculty of Arts and Design

CONRADIE E (2012). Designing a syllabus for the Bachelor of Education (Engineering Graphics & Design) degree - to adapt, adopt or develop. *International Higher Education Curriculum Design Review*, Hamilton, New Zealand, 02 – 03 December 2012.

GOVINDSAMY L (2012). An analysis of the discourse of religious observances in public schools to establish the hegemonic influence of colonial religious observances and their effect on school populations. *The Clute Institute International Academic Conference*, Las Vegas, USA, 15 – 17 October 2012.

MNGOMEZULU BR (2012). Factors impeding teachers from using new learning technologies in rural settings in South Africa: a case study of Ingwavuma village. *Proceedings of EDULEARN12 4th International Conference on Education and New Learning Technologie*, Barcelona, Spain, 02 – 04 July 2012.

STEWART GDJ (2012). Repurposing an LMS - Using Blackboard in Academic Management. *Proceedings of the 7th International Conference on eLearning*, Hong Kong, 21 – 22 June 2012.

SOOBHEN D (2012). Photographic representation of women in the media: A case study of the POST. *Proceedings of International Conference on Communication, Media, Technology and Design (ICCMTD 2012)*, Istanbul, Turkey, 09 – 11 May 2012.

SUTHERLAND IG (2012). The white album: Ideology, tourism, travel, music and album cover design in South Africa 1958-1985. *Conference proceedings of the Soundtracks: Music, tourism and travel*, Liverpool, UK, 09 July 2012.



Faculty of Engineering and the Built Environment

ALLOPI D, CHAITHOO DB (2012). A software tool approach to re-evaluating superelation in relation to drainage requirements and vehicle dynamics - A case study. *Proceedings of the 31st Southern African Transport Conference*, Pretoria, South Africa, 09 – 12 July 2012.

ALLOPI D, MWAIPUNGU RR (2012). The appropriate material specifications and manual are key for effective gravel roads design, construction and maintenance practice. *1st National Conference on Intermodal Transportation: Problems, Practices and Policies*, Hampton, Virginia, 11 – 12 October 2012.

ALLOPI D, MWAIPUNGU RR (2012). Environment and climatic challenges associated with gravel roads: Tanzania case study. *8th International Conference on Mitigation and Adoption to Climate Change; Social Economic and Engineering Perspectives*, Arusha, Tanzania, 06 – 08 December 2012.

ALLOPI D, MWAIPUNGU RR (2012). Review of sub-Saharan African gravel roads management system: Tanzanian case study. *Urban Transport XVIII: Urban transport and the environment in the 21st century*, Coruna, Spain, 15 – 17 May 2012.

ANDREW T, PETKOV D, PETKOVA, O (2012). Boundary judgements in engineering curriculum design using systems heuristics. *Proceedings of the World Engineering Education Forum*, Buenos Aires, Argentina, 15 - 18 October 2012.

CHAITHOO DB, ALLOPI D (2012). Re-evaluating superelevation in relation to drainage requirements and vehicle dynamics. *Urban Transport XVIII: Urban transport and the environment in the 21st century*, Coruna, Spain, 15 – 17 May 2012.

GOVENDER P, PILLAY N, MOORGAS KE (2012). ANN's vs. SVM's for image classification. *Proceedings of the 2012 International Conference on Electrical and Computer Systems*, Ottawa, Canada, 22 – 24 August 2012.

KUNENE O, ALLOPI D (2012). Maintenance of paved areas and roads within the Port of Durban. *International Conference on Software, Electrical, Electronics & Mechanical Engineering & International Conference on Applied Sciences, Biology & Pharmaceutical Science*, Dubai, UAE, 24 – 25 March 2012.

KUNENE O, ALLOPI D (2012). A survey on road users with regard to road maintenance, safety and traffic within the Port of Durban. *Proceedings of the 31st Southern African Transport Conference*, Pretoria, South Africa, 09 – 12 July 2012.

MWAIPUNGU RR, ALLOPI D (2012). The use of gravel loss predicting models for effective management of gravel roads. *Proceedings of the 31st Southern African Transport Conference*, Pretoria, South Africa, 09 – 12 July 2012.

SAROOP SH, ALLOPI D (2012). Establishing a green rating system on civil engineering infrastructure projects. *Proceedings of the 31st Southern African Transport Conference*, Pretoria, South Africa, 09 – 12 July 2012.

TABAKOV PY, WALKER M (2012). A computational methodology to select the optimal material combination in laminated composite pressure vessels. *Proceedings of the 11th WSEAS International Conference on Circuits, Systems, Electronics, Control & Signal Processing*, Montreux, Switzerland, 29 – 31 December 2012.



Faculty of Health Sciences

CRUICKSHANK G, VAHED A (2012). The collaborative exploration of teaching-and-learning strategies to reduce the "at risk" identity of students: A case study in Dental Technology. *9th ICED conference 2012: Across the globe higher education and teaching*, Bangkok, Thailand,
23 – 25 July 2012.

VAHED A, GWELE NS (2012). Student perceptions on their mentoring experiences in the Faculty of Health Sciences. *9th ICED conference 2012, Across the globe higher education and teaching*, Bangkok, Thailand,
23 – 25 July 2012.

Faculty of Management Sciences

DORASAMY N, BALKARAN R (2012). Whistleblowing: Fact or fallacy for performance management: A case study of South Africa. *The 34th AAPAM Annual Roundtable Conference*, Zanzibar,
12 – 16 November 2012.

RAWJEE VP, REDDY K, MAHARAJ M (2012). International Conference on Communication, Media, Technology and Design. *Exchange students' communication challenges: A case study of a University in South Africa*, Istanbul, Turkey, 09 – 11 May 2012.

WALLIS MAH (2012). Local economic development in the Commonwealth. *Democracy development programme strengthening local economic development (LED) for the second decade of democracy in South Africa*, 24 – 26 April 2012.

Academic Support

CRUICKSHANK G, VAHED A (2012). The collaborative exploration of teaching-and-learning strategies to reduce the "at risk" identity of students: A case study in Dental Technology. *9th ICED conference 2012: Across the globe higher education and teaching*, Bangkok, Thailand,
23 - 25 July 2012.

REDDY P (2012). The development of a language learning object repository (LLOR) for second language teachers in KwaZulu-Natal, South Africa. *Proceedings of ICERI 2012 Conference. 5th International Conference of Education Research and Innovation*, Madrid, Spain, 19 – 21 November 2012.

NEERPUTH S (2012). Academic integration of information literacy at the Durban University of Technology in preparing for lifelong learners. *The road to information literacy: librarians as facilitators of learning. International Federation of Library Associations and Institutions - Continuing development and workplace learning and information literacy sections*, Tempere, Finland, 08 – 10 August 2012.

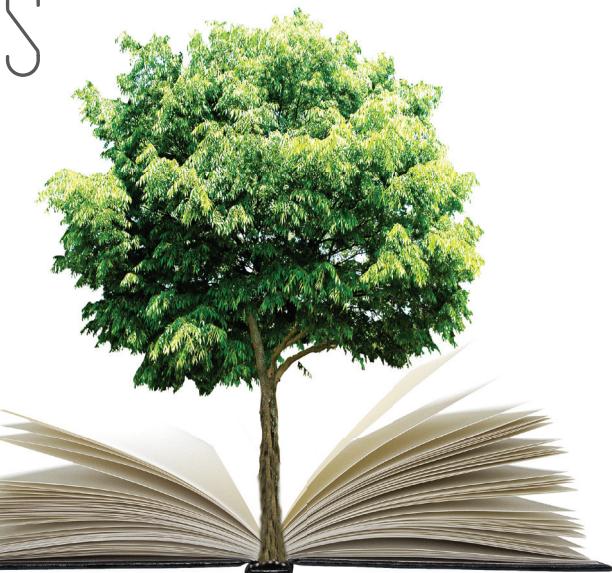


2012 AUTHORED BOOKS

DREYERA, DREYER M, HATTINGHE, **THANDAR Y** (2012). *Pharmacology for nurses and other health workers*. 3rd ed. Cape Town: Pearson Education. 274 pp.

HARRISON JE (2012). *Paper heads: Living doctoral study, developing doctoral identity*. Bern: Peter Lang International Academic Publishers. 288 pp.

TABAKOV PY, SULEJMENOVA L, LATRINA L (2012). *Expert & Intelligent Systems (Textbook)*. Kazarkhstan: Ministry of Education & Science. 166 pp.



2012 CHAPTERS IN BOOKS

DE BEER M (2012). Personal adornment and creative process as micro-resistance. In R. MOLETSANE & C. MITCHELL & A. SMITH (eds.), *Was it something I wore?*, Cape Town: HSRC PRESS. (pp. 21-25).

NAIDOO R (2012). Prehospital thrombolysis: It's all about time. In U. LAKSHMANADOSS (ed.), *Novel strategies in ischemic heart disease*, Rijeka, Croatia: Intech.

NGWENYA TH (2012). Black consciousness poetry: Writing against apartheid. In D. ATTWELL & D. ATTRIDGE (eds.), *The Cambridge History of South African Literature*, New York: Cambridge University Press. (pp. 500-522).

OLOFINTOYE OO, ADEYEMO JA, OTIENO FAO (2012). Evolution algorithms and water resources optimization. In O. SCHUTZE & C. COELLO & A. TANTAR & E. TANTAR & P. BOUVRY & D. MORAL & P. LEGRAND (eds.), *EVOLVE - A bridge between probability, set oriented numerics, and evolutionary computation II*, Dordrecht: Springer-Verlag. (pp. 491-504).

OLOFINTOYE OO, ADEYEMO JA, OTIENO FAO (2012). Impact of regional climate change on freshwater resources and operation of

the Vanderkloof dam System in South Africa. In B. SINGH (ed.), *Global warming: Impacts and future perspective*, Croatia, Rijeka: Intech. (pp. 165-184).

PETKOV D, SINGH A, ALTER S, PETKOVA O, WING JW, ANDREW TN, SUCHERAN K (2012). Project contexts and the possibilities for mixing software development and systems approaches. In M. MORA & O. GELMAN & A. STEENKAMP & M. RAISINGHANI (eds.), *Research methodologies, innovations and philosophies in software systems engineering and information systems*, Hershey PA: IGI Global. (pp. 360-375).

SIBIYA MN (2012). Challenges to cervical cancer in the developing countries: South African context. In R. Rajkumar (ed.), *Topics on cervical cancer with an advocacy for prevention*, Croatia, Rijeka: Intech. (pp. 39-50).

STARKEY AR (2012). A history of ceramics at the Durban University of Technology. In P. Machen (ed.), *All fired up: Conversations between kiln and collection*, South Africa, Durban: DUT Art gallery. (pp. 55-58).

2012 TECHNICAL REPORTS

JONSON D (2012). Finite element analysis of clarifier roof structure. For: Schematic Pty Ltd.

JONSON D (2012). Manufacture of radar absorbent future Ingwe RCS model. For: Denel Aerospace Systems.

JONSON D (2012). Finite element analysis of a wind tunnel model of the future Ingwe missile. For: Denel Aerospace Systems.

JONSON D (2012). Analysis of fan blade ELF 8 Size 34- Effect of stiffener failures. For: Howden Pty Ltd.

JONSON D (2012). Analysis of interconnecting piping for 150 foot burner boom to ASME B31.3-2006. For: Aloga Oil Pty Ltd.

KITCHING J (2012). Greater Warwick Precinct land use – Multi-level land use survey and analysis. For: eThekwini Municipality.

WELLS CL, NETSHIOMBO KF (2012). A responsive university and the Siyazama Project. In K. WELLS & M. MACDOWELL & K. DEWHURST (eds.), *Siyazama: Arts, AIDS and Education in SA*, Durban: UKZN Press. (pp. 53-60).

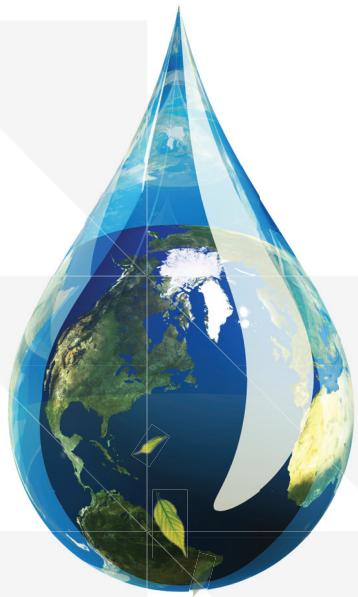
WELLS CL (2012). Reflections on the Siyazama Project. In K. WELLS & M. MACDOWELL & K. DEWHURST & M. DEWHURST (eds.), *Siyazama: Arts, AIDS and Education in South Africa*, Durban: UKZN Press. (pp. 43-53).

WALKER M, HAMILTON R (2012). Laminate design of wind turbine blade. For: Walter Sisulu University.

WHELAN D (2012). Expert Report. Nhlapheni Community Land claim. For: State Attorney's Office.

WHELAN D (2012). Heritage Impact Assessment, Clairwood Turf Club. For: Back of Port Development.

WHELAN D (2012). Heritage Impact Assessment and Statement of Significance. For: Umzimkulu Memorial Hall.



RESEARCH
FUNDING



External Research Funds Received for 2012

FUNDING ENTITY	GRANT TYPE	GRANTEE	AMOUNT
National Research Foundation	SA Research Chair - NRF	NRF SARCHI Chair - IWWT	R 2 000 000.00
National Research Foundation	DUT Researchers Grants Awarded	DUT Academic Research Grants Awarded	R 3 854 790.00
National Research Foundation	Real Time Power System Simulator	Dept of Power Engineering - Mr F D'Almaine	R 840 000.00
Ethekwini Metro	Algae Demo Plant - Kingsburgh Plant	IWWT - Prof F Bux	R 688 611.00
Water Research Commission	Sub-Contract: Constructed Wetland Project	IWWT - Prof F Bux	R 160 000.00
Dept. of Transport	Road Infrastructure Development	Civil Engineering & Survey Students - Mr D Allopi	R 65 175.00
ESKOM	Determine & Treatment of Short Chain Organic Acids & matter in Raw & Treated Water	Dept of Chemistry - Prof K G Moodley	R150 000.00
ESKOM	Water Purification Research (Unspecified)	IWWT - Prof F Bux	R 150 000.00
ESKOM (Industry Partner)	Real Time Power System Simulator	Dept of Power Engineering - Mr F D'Almaine	R 200 000.00
Alectrix (Industry Partner)	Real Time Power System Simulator	Dept of Power Engineering - Mr F D'Almaine	R 475 000.00
Technology Innovation Agency (TIA)	Industrial Energy Efficient & Training Centre	Dept Maths Statistics & Physics - Dr Ian Lazarus	R 825 000.00
Technology Innovation Agency (TIA)	Technology Station - Mechanical Engineering	Technology Station - Prof M Walker/Prof D Jonson	R 1 940 500.00
University of Kwa-Zulu Natal	Water Filtration Research Project - Collaboration	Dept of Chemical Eng - Prof V L Pillay	R 48 000.00
Umgeli Water Board	Water Filtration Research Project - Collaboration	Dept of Chemical Eng - Prof V L Pillay	R 164 000.00
SANPAD	Rural Water Filtration System - Bizana Region	Dept of Chemical Eng - Prof V L Pillay	R 360 000.00
Water Research Commission	Filteration of Solids in Harvested Water	IWWT - Prof F Bux	R 148 600.00
Water Research Commission	Microbial Database Tool for Evaluating BNR Process	IWWT - Prof F Bux	R 260 000.00
Water Research Commission	Woven Fabric Microfilters in Immersed Membrane Bioreactors	Dept of Chemical Eng - Prof V L Pillay	R 135 000.00
SUB-TOTAL			R 12 464 676.00

Other Projects

FUNDING ENTITY	GRANT TYPE	GRANTEE	AMOUNT
African Union	HIV/AIDS	DUT - RMD/Post Grad.Studies - Prof S Moyo	R 41 575 000.00
General Industry Grants	Student Assistantship & General IWWT Activities	IWWT - Prof F Bux	R 251 439.00
AMTS/ITS	Q Free Africa - Electronic Road Toll Systems	Mr Seren Reddy - Electronic Engineering	R 40 000.00
General Industry	Industrial Sales - Manufacturing/Innovation Activities	Prof M Walker / Prof D Jonson	R 963 091.00

SUB-TOTAL **R 1 296 105.00**

Research Development Grants

FUNDING ENTITY	GRANT TYPE	GRANTEE	AMOUNT
DHET	RDG (Institutional Research Development Grants)	DUT - RMD/PGDS	R 9 806 000.00

SUB-TOTAL **R 9 806 000.00**

Other Student Bursaries & Scholarships

FUNDING ENTITY	GRANT TYPE	GRANTEE	AMOUNT
National Research Foundation	NRF Student Bursaries /Scholarships/Post Doc	DUT	R 7 511 413.00
Claude Leon Foundation	DUT Post Doc Fellowship Grants	DUT	R 357 299.00
African Union	DUT Post Doc Student Bursaries	DUT	R28 134.28
Investec	DUT Postgraduate Scholarships	DUT	R 100 000.00
H W Webb Trust	DUT Postgraduate Student Bursaries	DUT	R 16 000.00
Project MD	Postgraduate Bursary	Ms A Vahed	R 100 000.00

SUB-TOTAL **R 8 112 846.28**

TOTAL **R 31 679 627.28**

Thuthuka Funding - 2012

RESEARCHER	AREA	TITLE	NRF CONTRIBUTION	DUT CONTRIBUTION	TOTAL (Rands)
Mr. JD Pillay Health Sciences	Researchers in Training	Impact of anatomical variations on Sports performance	R 7 500.00	R 7 500.00	R 15 000.00

TOTAL

R 1 054 000.00 R 554 888.66 R 1 608 888.66

Institutional Research Development Programme (RNAs) Funding - 2012

RESEARCHER	AREA	TITLE	NRF CONTRIBUTION	DUT CONTRIBUTION	TOTAL (Rands)
Prof. K Duffy Applied Sciences	Systems Research	Ecosystems Simulation	R 179 000.00	R 44 666.67	R 223 666.67
Prof. F Bux Applied Sciences	Water & Wastewater Technology	Activated Sludge Population Dynamics	R 191 000.00	R 127 333.33	R 318 333.33
Prof. B Odhav Applied Sciences	Plant Biomass Utilisation	Botanical Therapeutics	R 110 000.00	R 73 333.00	R 183 333.33
Prof. K Permaul Applied Sciences	Plant Biomass Utilisation	Directed Evolution of Enzymes	R 100 000.00	R 66 666.67	R 166 666.67
Dr. P Govender Engineering and the Built Environment	Systems Research	Computational Intelligence	R 150 000.00	R 53 555.33	R 203 555.33
Mr. S MacPherson Engineering and the Built Environment	Systems Research	Development of a Transit radio Telescope	R 80 000.00	R 53 333.33	R 133 333.33
Prof. S Singh Applied Sciences	Plant Biomass Utilisation	Enzyme Technology	R 244 000.00	R 136 000.00	R 380 000.00

TOTAL

R 1 054 000.00 R 554 888.66 R 1 608 888.66



Thuthuka Funding - 2012 (New)

RESEARCHER	AREA	TITLE	NRF CONTRIBUTION	DUT CONTRIBUTION	TOTAL (Rands)
Ms V Paul Applied Sciences	PhD Track	Formation of Bio-composite	R 124 450.00	R 124 450.00	R 248 900.00
Ms R Sucheran Management Sciences	PhD Track	Environmental Management in Hotels	R 5 000.00	R 5 000.33	R 10 000.00
Ms P Pillay Health Sciences	PhD Track	Female genital schistosomiasis	R 105 080.00	R 105 080.00	R 210 160.00
Ms C Smith Management Sciences	PhD Track	Knowledge sharing behaviour	R 17 575.00	R 17 575.00	R 35 150.00
Ms C Burnett Arts and Design	PhD Track	Outsiders and digital technology	R 98 044.00	R 98 044.00	R 196 088.00
Mr D Nel Management Sciences	PhD Track	Transculturation in SA texts	R 34 000.00	R 34 000.00	R 68 000.00
Dr A v/d Merwe Management Sciences	Post PhD	Open education resources in schools	R 31 500.00	R 31 500.00	R 63 000.00
Dr R Rampersad Management Sciences	Post PhD	HIV/AIDS Campaigns	R 78 800.00	R 18 800.00	R 97 600.00
TOTAL			R 494 449.00	R 434 449.00	R 928 898.00

2012 POSTDOCTORAL FELLOWS, RESEARCH ASSOCIATES, RESEARCH FELLOWS

CATEGORY	DUT Amount	NRF Amount
Postdoctoral Fellow	R 2 102 000.00	R 545 000.00
Research Associates	R 652 000.00	
Research Fellows	R 504 000.00	



Internal Grants Awarded - 2012

NAME	DEPARTMENT	CATEGORY	AMOUNT AWARDED
Dr J Adeyemo	Department of Civil Engineering and Surveying	Research Grant Allocation	R 10 000.00
Mr SN Jugmohan	Department of Regional Governance & Development (Midlands)	Research Capacity Development	R 3 440.00
TOTAL			R 13 440.00
Ms NP Mchunu	Department of Biotechnology and Food Technology	Seed Funding	R 20 000.00
Dr OA Ijabadeniyi	Department of Biotechnology and Food Technology		R 20 000.00
Ms J Anniroot	Department of Information Technology		R 8 842.00
TOTAL			R 48 842.00
Ms P Zigana	Department of Clothing & Textile Studies	Lecturer Replacement	R 37 440.00
Mr K Loji	Department of Electrical Power Engineering		R 37 800.00
Ms A Vahed	Department of Dental Technology		R 39 680.00
Mr D Nel	Department of Applied Management		R 40 000.00
Ms S Vermeer	Department of Food and Nutrition Consumer Sciences		R 30 237.50
Mr N Khanyile	Department of Fine Art and Jewellery Design		R 40 000.00
Mr TP Govender	Department of Information Technology		R 40 000.00
Mr NK Naicker	Department of Information Technology		R 40 000.00
Ms A Redd	Department of Food and Nutrition Consumer Sciences		R 30 400.00
TOTAL			R 335 557.50
GRAND TOTAL			R 397 839.50



TECHNOLOGY AND INNOVATION



TECHNOLOGY TRANSFER AND INNOVATION REPORT



PROFESSOR G PRINSLOO,
DIRECTOR

The Technology Transfer and Innovation (TTI) Department serves as an agent to engage the funding community at large and to initiate within DUT the creative potential of staff and students, as well as promote technology transfer, innovation and an entrepreneurial atmosphere. TTI facilitates this by making available the materials, infrastructure and resources required in the generation of technology and mind-to-market innovations. The TTI Department also offers professional advice and support regarding legal, technical and business related concerns in order to ensure the successful commercialisation of intellectual property. Strategic public, private sector and international partnerships permits the department to support/validate innovation and technology transfer.

During 2012, the TTI Department was the key driver of the Kresge Inyathelo Advancement Grant Application for DUT. DUT was selected out of fourteen applications to receive the prestigious grant as well as international collaboration with the Kresge Foundation (USA). The project will commence in 2013 with a grant of R1 449 972.00 preceded by an annual bonus grant of around R1 000 000.00 per year to assist in establishing and strengthening fundraising proficiencies at the University.

DUT has been awarded a second Technology Innovation Agency (TIA) Technology Station for Energy efficiency training, consultation and prototype development services. TIA has committed funds over the first three-year cycle for staff and operational costs of the DUT Technology Station. The Technology Station will be promoting the development of SMMEs in the region, developing the skills base within the energy sector in Durban, promoting linkages with the ICT sector and creating an Energy Office space that is accessible and visible to the public.



The TTI Department is responsible for coordinating the DUT Eskom Energy Board Savings Project, which aims to identify areas of energy and electricity that can be conserved at the University's campuses and residences. It will also identify and support research initiatives and projects in this field. This ongoing project should result in considerable fiscal savings for the University. A project presentation was made to the DUT Council Finance Committee and a decision on the budget and installation route is to be decided. An additional energy improvement is that the business sites of all legal vendors on DUT campuses have been installed with prepaid meters and the University retails electricity prepaid vouchers to the said vendors, which is another form of financial acquisition/dividend to the institution.

Remaining on the energy theme, the TTI Department submitted a number of proposals for funding, including the Greenride Project to TIA and EWSETA, the Agulhas Current project (TIA), National Lottery Board (five proposals), as well as tenders for professorial chairs; Rand Water Board and research panels (Presidency, Department of Monitoring and Evaluation).

In the reporting year DUT elected to become a member of the DST Regional Technology Transfer Office in KwaZulu-Natal. This Office coordinates Intellectual Property commercialisation of the four universities in the province and hosts quarterly meetings in order to discuss collaborative projects, joint ventures and government funding initiatives for IP projects in the province.

TTI facilitated the signing of an agreement with a consortium of universities to collaborate on energy research projects. These universities include University of Lesotho, Namibia Polytechnic, University of Zambia and Pretoria University. The aim is to pursue collaboration with universities in Japan through the JICA Foundation. Another facilitation process resulted in the signing of an agreement with the company HEEL in Germany, whereby staff from the Faculty of Health Sciences will perform experiments on homoeopathic formulations used in the treatment of patients. This project will commence in 2013. The TTI office also compiled and finalised the Development Bank of South Africa (DBSA) Grant Agreement which was signed between DUT and the DBSA for a project within the

Institute of Water and Wastewater Technology, to develop a new technology that concentrates on rainwater harvesting.

TTI engaged in revising the Intellectual Property and Copyright Policy as well as the Third Stream Income Policy of DUT. Revisions of the policies have been scrutinized by the University's commercial attorney

and submissions made to the National Intellectual Property Management Office (NIPMO). Following NIPMO's approval, the revised policies will be circulated amongst the DUT community for their inputs and comments. The TTI Department continued to provide customer service in alignment with the objectives of the Intellectual Property and Copyright Acts which also sustains/supports the University's long term strategy, providing for the management and commercialisation of DUT's IP. This includes establishing working relationships with the academic community and researchers to ensure they are fully aware of opportunities related to the protection and management of IP by holding awareness workshops.

The Copyright office continues normal operations through its engagements with DALRO, and other agencies, on the copies approved and printed at the DUT campuses. The office facilitates payments to authors for material copied by staff and students in terms of the policies and procedures of the University and national legislation.



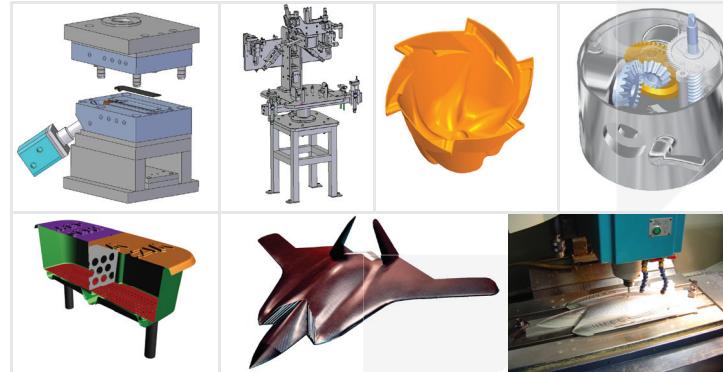
TECHNOLOGY STATIONS AND INNOVATION INCUBATOR

Having recognised the role that technological innovation and related skills upgrading play in the competitiveness of South African small and medium-sized enterprises (SMMEs), the Department of Science and Technology (DST) through its various agencies, has, in the past decade, launched a number of Technology Stations at South African institutions of higher education. The purpose of the Stations is to use the existing expertise vested in the country's academic institutions to increase the innovative ability of SMMEs in targeted sectors. DUT has two Technology Stations.

The Reinforced and Moulded Plastics TS, under the directorship of Professor Mark Walker, has been in existence for some time, and continues to play a strategic technology transfer and development role.

The Technology Innovation Agency (TIA) awarded DUT a second Technology Station for energy efficiency training, consultation and prototype development services, in 2012. The Technology Station is shared with Mangosuthu University of Technology. TIA has committed funds over the first three-year cycle for staff and operational costs. The Technology Station will be promoting the development of SMMEs in the region, developing the skills base in the energy sector in Durban, promoting linkages with the ICT sector and creating an Energy Office space that is accessible and visible to the public.

In addition to the Technology Stations, we also feature the work of DUT's innovation incubator, InvoTech.



TECHNOLOGY STATION: REINFORCED AND MOULDED PLASTICS

The Technology Station in Moulded and Reinforced Plastics in the Department of Mechanical Engineering continues to provide cutting edge technological solutions to industry partners and SMEs. Professor Mark Walker is the Director, and the Technology Station has developed into the very successful technology transfer arm of the Department's Centre for Advanced Materials, Design and Manufacturing Research (CADENCE). The Station officially began its operations at DUT in 2004.

The operations of the Station are split into three divisions:

1. Design Unit, where the product/structural design is handled
2. Composites and Prototyping Unit, which sees to the fabrication of composite structures and prototypes
3. Advanced Manufacturing Laboratory, where the design of plastic tooling and fabrication of plastics tooling is carried out, along with any other general machining operations required by industry.

In 2012, this Station engaged in 74 projects, with a total monetary worth of R787 000.00, of which 62 were short term projects and have been completed. The majority (72) were for SMEs and large companies. In total, the Station has provided service to 32 SMEs, nine large companies and three DUT departments.

ACKNOWLEDGEMENTS

EDITORIAL TEAM

Ms Vaneshree Govender

Ms Nicky Muller

Ms Selisha Ramduth

Prof Sibu Moyo

With additional support from:

Ms Philisiwe Cele

Ms Charmaine Naidoo

Mr Sagie Govender

Departments of Management Information and IT Support Services

PHOTOGRAPHS

Mr Morgen Kisten

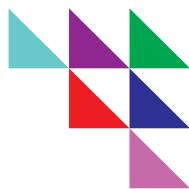
DUT Audio Visual Team

African Mediums

DESIGN, LAYOUT & PRINTING

African Mediums Pty Ltd





DUT DURBAN
UNIVERSITY OF
TECHNOLOGY

Postal Address

P.O. Box 1334, Durban
South Africa, 4000

Tel: +27 (0) 31 373 2106

Fax: +27 (0) 31 202 2475

E-mail: mbadinom@dut.co.za

Website: www.dut.co.za





ENERGY TECHNOLOGY STATION

The DUT Energy Technology Station known as the KwaZulu-Natal Industrial Energy Efficient Training and Resource Centre (IEETR) is located in the Physics Unit and is in the process of being established as one of many technology stations based within South African universities. The Energy Technology Station was created in July 2012 and is funded by the Technology Innovation Agency (TIA) to respond to the need for awareness, innovation, development, empowerment, research and technology, and provide competitive services in energy efficiency within KwaZulu-Natal.

As part of the station's 'green-ride' awareness project, a demonstration unit showcasing the uses of renewable energies is being developed in the laboratory by postgraduate students. A roadshow to urban and rural schools and industry will facilitate the demonstration of energy efficiency and aspects of renewable energies.

Specifically identified areas to be implemented in energy empowerment include education and training in energy efficiency, renewable energies and energy management systems. SETA accredited courses in renewable energy are being designed for offerings in 2013. These educational programmes will increase the pool of qualified South African solar energy installers, ensuring the sustainability of solar energy systems and creating entrepreneurial opportunities. The Technology Station has purchased modular training solar thermal and photovoltaic equipment which is also being used as a research tool by DUT postgraduate students.

To facilitate the production of technology and services in energy efficiency, research has commenced on the establishment of a solar water heating (SWH) testing facility at DUT to create a scientific testing process for systems for SMEs. To generate scientific information on solar and wind energy, a weather station is being setup on a DUT roof top.

Further research in solar thermal energy, wind energy, hybrid systems, energy management systems, smart grid systems and building efficiency in energy efficiency and renewable energy has commenced as postgraduate research studies. The modelling and the designing of a wind and photovoltaic hybrid system for implementation at rural schools is underway.

The Technology Station is a member of the planning team in the Solar Theme Park envisaged for the KwaZulu-Natal North Coast area. DUT will be responsible for the renewable energy training at the academy and research work in harnessing bio-energy from the sugar cane, banana and chicken plantations will be conducted by DUT postgraduate students.

The DUT Energy Technology Station is managed by Dr Ian Lazarus who currently heads the Physics Unit. The human capacity of the Station now includes a project administrator, a postdoctoral fellow, an energy efficiency officer and postgraduate students to assist in achieving its outlined goals.



FROM MIND TO MARKETPLACE

Invo Tech is the Innovation and Technology Business Incubator based at DUT. It is funded by the Seda STP (Small Enterprise Development Agency Seda Technology Programme). Invo Tech sets best practice standards for the business incubator industry and provides mentorship based on a unique model. Invo Tech is positioned to be a leading business incubator in South Africa to convert innovations and new technologies into sustainable and commercially viable enterprises.

The 2012 financial year was a defining period for Invo Tech and has seen the incubator in its second year of business advance to the next level of the business processes development, moving it closer to international benchmarks and operations. During this period Invo Tech entered into partnership agreements with Microsoft and the Enterprise Development Institute of India to ensure a more rapid growth of technology businesses. The incubator continues to build on its profile and entrench the work of Seda and DUT. The Minister of Higher Education and Training, the Honourable Blade Nzimande, visited Invo Tech and applauded its incubation efforts.

Invo Tech also won the very prestigious and coveted award of being the Brand of the Year at MACE 2012.

In 2012, Invo Tech supported 90 clients, assisted in establishing 15 new businesses and worked with a number of existing firms expanding operations and increasing jobs. Invo Tech has also assisted Ryan Ramcharan of Tease Your Taste Buds to secure funding from the Department of Trade and Industry to develop a full quality management system for a production process. Amelia Rampersad will be promoting her business Bio Research & Development in

Switzerland in 2013 as she was one of the top achievers of the Bio Entrepreneurship week, of which Invo Tech was a partner to the programme with the University of Pretoria and the Technology Innovation Agency. Colin Thakur, a Director of Invo Tech, also lectured a section of the programme and was evaluated an A+ rating. Invo Tech clients Devan Moodley and Luciano Vandiar developed their own brand of energy drink, registered a trademark brand and started a small scale production. Invo Tech also conducted a number of interventions and networking sessions throughout the year for clients, ensuring that continuous development is taking place.

