

Foreword from Prof. B. Goba



Prof. Bonganjalo Goba

Prof. Bonganjalo Goba joined the DIT on 11th April 2005 as its Vice Chancellor and CEO. He has been involved in the academic environment for a number of years and is an acknowledged leader in Higher Education. Prof Goba holds a PhD from Chicago Theological Seminary, and an MA in Social Science from the University of Chicago. He is fluent in Zulu, English, Tswana, Xhosa and Southern Sotho. Prof Goba has published a number of books and journals. In this foreword Prof Goba speaks freely and frankly to Adv Robin Sewlal on his vision for research at the DIT . . .

"Research should not be seen as an esoteric activity but an integral component of the academic life at our institution," so says the Vice-Chancellor Prof. Goba. Taking office in April this year, he strongly believes that without a rich culture of research at DIT, no active teaching and learning can take place. The institution needs to create a climate in which research thrives. "Research must deal with real-life issues. We need to respond to the critical issues that confront us on a daily basis including alternative medicines, HIV/Aids, traditional authorities, maritime studies, entrepreneurship, indigenous knowledge systems, poverty-reduction, and stem-cells." By making research responsive, he believes that the institution would at the same time be adding true value to community upliftment.

Over and above the current research activities being engaged upon by academics across the campus, Prof. Goba envisions departments collaborating in research activities. "There has to be serious conversations across the various disciplines. Research becomes even more exciting when strict boundaries are transcended. Let's seriously also consider an inter-disciplinary approach. The introduction of the concept of schools at the institution makes this a reality."

'Action or applied research' must further be viewed as contributing to the output of the institution. He says that he is not opposed to pure research but stressed that research at DIT must benefit the community we ought to be serving.

On a practical level, the Vice-Chancellor sees the need to establish an initiative which he dubs "Research in the Real World". This would, *inter alia*, involve a core group of researchers at DIT hosting a series of seminars with learners and educators from academic departments. These seminars must yield tangible results. "Research must be promoted as an attractive option especially with young people at the institution." He expresses the fervent hope that more peer-reviewed publications in journals emanate from the institution. Departments should be deliberating on publications that ultimately promote the profile of their programmes.

Prof Goba is mindful that academics do not have enough space and time to engage in research in a meaningful way. For instance, the huge number of learners in a particular classroom must be reduced so that the work of the affected educator is more purposeful. "There is a need for staff to upgrade qualifications but it's up to the institution to provide an enabling environment with sufficient incentives. We must address the issue of 'sabbatical' leave for staff."

The Vice-Chancellor's creation of the International Linkages Programme is another shot in the arm to improve the research profile of staff at DIT. This would entail inviting Visiting Professors, exchange of staff with renowned academic institutions, and the waiver of fees to encourage staff to engage in advanced studies. Prof. Goba adds, "Staff will return rejuvenated, and will be anxious to share what they've acquired with their peers."

Prof Goba is keen to practise what he preaches. "I want to lead by example, and that means annually publishing at least two articles in accredited journals as well as spending time in the classroom teaching ethics". It's vital that both academics and learners engage in research of relevance. "And as research becomes of central focus at our institution, it would please me no end if, in the not too distant future, every academic and learner at the institution is working, at any given time, on at least one research project!"



Professor Gansen Pillay

Message from the Director (Centre for Research Management and Development)

This edition of RE@DIT is intended to bring all stakeholders at the DIT up to speed with numerous developments that have taken place within the research arena over the past three months. Some of the events have already been communicated through other avenues which include the local and national press, past editions of RE@DIT, the *Monday Edition*, *DIT Online* and the DIT's intranet.

In February, the DIT celebrated the VC's Inaugural Research Awards which recognized those researchers at the DIT who acquired, or were in possession of, a valid NRF rating. This was followed by a DIT delegation that visited India to foster

teaching and research links in an attempt to build research capacity at our institution and to facilitate staff and student exchangeships. Details regarding the visit are covered in this edition of RE@DIT.

The research profiles of some staff from the four faculties are included. Reports on the Research Days of the Arts and Health Sciences Faculties are also included, as well as the *Publications Writing Workshops* organized for the Faculties of Commerce and Health Sciences. An update on the TELP II programme, recipients of the Department of Labour's Scarce Skills Scholarships, a workshop to enhance the general management of research at the DIT, and the launch of an M.Tech. programme in Emergency Medical Care and Rescue in the Faculty of Health Sciences are covered.

Grants for research equipment of up to R 100 000-00 per applicant are still available. Details regarding applications can be obtained from the CRMD. Seed grants of up to R 10 000-00 are available to academics and researchers who are entering the research arena for the first time. Funds are also available for participation in national and international conferences, hosting of visiting researchers and post-doctoral fellows, and hosting of national and international conferences.

The CRMD is attempting to increase the number of researchers in training through the NRF's Thuthuka Programme. Academics and researchers who are currently reading for the masters or doctoral degree are urged to apply to the NRF through the CRMD.

It is pleasing to report that in assessing the research publications output of the DIT for 2004, more staff have actively participated in research and have published their findings in peer-reviewed journals. This is evident when one examines the "Publications Barometer" for 2004 which is included in this issue. We seem to have made a fair start to 2005 with a number of research manuscripts already published. It is envisaged that the *Publications Writing Workshops* being held for the various Faculties will result in an increase in the number of peer-reviewed research outputs at the DIT.

Good luck with your research!

Congratulations to Scarce Skills Scholarship Awardees!

The Department of Labour provided through the NRF six scholarships to the DIT to B. Tech. students in areas where there is a scarcity of skills in South Africa. The fields that have been identified are accounting, auditing, actuarial sciences, agricultural sciences, bioinformatics, biotechnology, chemistry, computer science, demography, engineering, geology, information systems, mathematical sciences, physics, statistics, tourism and transport studies. The scholarships are valued at R 25 000-00 per annum. A sub-committee of the Institute Research Committee met to assess some 34 applications and selected six students based on academic merit.

The CRMD takes this opportunity of congratulating the following students and their supervisors in successfully securing these scholarships:

- Mr. T. Mitchell (Department of Cost and Management Accounting);
- Ms. B. Naicker (Department of Internal Auditing);
- Ms. S.C. Simelane (Department of Biotechnology);
- Ms. N. Goba (Department of Biotechnology);
- Mr. E. Ntuli (Department of Chemistry); and



(left to right): Mr E Ntuli (Dept. of Chemistry); Ns N Goba (Dept. of Chemistry); Prof Gansen Pillay; Ms B Naicker (Dept. of Internal Auditing); Ms S C Simelane (Dept. of Biotechnology); Mr T Mitchell (Dept. of Cost and Management Accounting); and (missing from pic) Ms N C Dlamini (Dept. of Chemistry).

Report on the Publications Writing Workshop for the Faculty of Commerce

A "Publications Writing Workshop" was held for the Faculty of Commerce from Friday 8th – Saturday 9th April 2005 at Gwahumbe Private Game Reserve. The workshop was facilitated by Prof. D. Pillay from the CRMD and Prof. J. Daniel from the Human Sciences Research Council. Prof. Daniel is an editor of the DoE-approved journal *Transformation*. The facilitators were ably supported by Prof. M. Wallis, Dean of the Faculty of Commerce and Dr. D. Jinabhai, a senior member of staff. A total of ten manuscripts were reviewed and edited. These are currently being tracked by the CRMD to ensure that the manuscripts are submitted for publication. The following is a summary of the manuscripts reviewed and the journals to which they are intended to be submitted:

- **Rawjee, V.P. and Jinabhai, D.** (2005). HIV/AIDS communication campaigns: Theoretical restraints. *African Journal of AIDS Research*.
- **Motha, M.J.** (2005). The impact of the public management paradigm shift on citizen participation in post apartheid South Africa. *South African Journal of Public Administration*.
- **Jinabhai, D. and Kadwa, F.** (2005). Entrepreneurship education and technology diffusion: Empirical findings on SME growth in Kwa-Zulu Natal. *South African Journal of Higher Education*.
- **Jinabhai, D. and Kadwa, F.** (2005). Deracialising the economy by state legislation for equal growth paths of SMEs in South Africa. *International Journal of African Business*.
- **Govender, V.** (2005). HIV/AIDS: The development of the right of access to health care. *Transformation*.
- **Rampersad, R.** (2005). Corporate social Investment and HIV and AIDS in SA: An investigation into communication strategies



Participants from the Faculty of Commerce with Prof. J. Daniel (Facilitator) and Prof. D. Pillay (Co-ordinator and Facilitator).

- and HIV/Aids awareness as part of corporate social investment programmes, *Journal of Communication Management*.
- **Moodley, P.** and Coopoo, Y. (2005). Factors influencing job satisfaction and security of personal trainers employed at company employed gymnasia and self employed trainers. *South African Journal for Research in Sport, Physical Education and Recreation*.
- **Reddy, K.** (2005). The horizontal application of the equality guarantees and its impact on discrimination by the retail business sector. *Tydskrif vir Suid Afrikaanse Reg*.
- **Naidoo, T.** (2005). Factors that affect change in attitudes of managers in higher educational Institutions on reaching positions of authority. *South African Journal of Higher Education*.
- **Chetty, K.D.** (2005). Formation of internet contracts. *South African Mercantile Law Journal*.

Report on the Publications Writing Workshop for the Faculty of Health Sciences

A "Publications Writing Workshop" was held for the Faculty of Health Sciences from Friday 22nd – Saturday 23rd April 2005 at Tala Game Reserve. The workshop was facilitated by Prof. D. Pillay from the CRMD, Dr. G. Baker (Editor of the *South African Journal of Science*), Dr. E. Lickindorf (Editor of *Quest*) and Dr. W. Pawlina (Sub-editor of *Clinical Anatomy*). The facilitators were ably supported by Prof. N. Gwele, Dean of the Faculty of Health Sciences and Prof. N. Lachman, a senior member of staff. A total of 15 manuscripts were reviewed and edited. These are currently being tracked by the CRMD to ensure that the manuscripts are submitted for publication. The following is a summary of the manuscripts reviewed and the journals to which they are intended to be submitted:

- **Pillay, J.D.** (2005). A case report of cadaver mutilations in the anatomy laboratory. *Clinical Anatomy*.
- **Ally, F.** (2005). Cadaver profiles as a collaborative learning and assessment tool in the first year anatomy course. *Clinical Anatomy*.
- **Mdletshe, S.** (2005). Factors that impact on the delay in the diagnosis and management of cancer within the public sector in KwaZulu-Natal, South Africa. *International Journal of Health Services*.
- **Vahed, A., Lachman, N.** and Knutsenc, R.D. (2005). Failure investigation of soldered stainless steel orthodontic joints exposed to artificial saliva. *Biomaterials*.
- **Lachman, N.** (2005). Infrequently described variants of branching patterns and arterial disposition of the left coronary system: An anatomical commentary on ethnic specificity and clinical impact on the South African patient. *Feischriff - Collection of Scientific Papers by South African Anatomists*.
- **Pillay, P.** and Knight, S.E. (2005). A cross sectional perspective of cervical cancer screening in clinics within the eThekweni Municipality. *South African Medical Journal*.
- **Pillay, N. and Lachman, N.** (2005). Motivations of alcohol consumption and alcohol induced physiological consequences among South African students. *Journal of Studies of Alcohol*.
- **May, T.** and Mason, R. (2005). The importance of staff involvement and commitment in educational mergers in South Africa. *Journal of Higher Education Policy and Management*.
- **Naidoo, S.,** Cowell, S., Alastair, D. and Heard, R. (2005).

Participants from the Faculty of Health Sciences with Drs. Baker, Lickindorf and Pawlina (Facilitators) and Prof. D. Pillay (Co-Ordinator and Facilitator).



- Restandardization of the thyroid radioactive iodine uptake values in Durban, KwaZulu-Natal. *Thyroid*.
- **Sibiya, M.N. and Grainger, L.** (2005). An assessment of the implementation of the provincial cervical screening programme in selected primary health care clinics in the Ilembe region, KwaZulu-Natal. *Curationis*.
- **Reddy, T. and Lachman, N.** (2005). Hybrid PBL as an educational tool in basic medical sciences: Perspectives based on student perceptions. *Perspectives in Education*.
- **Harris, M.** (2005). Mentoring - a work-based educational strategy for mature nursing students to promote critical reflective practice. *SA Health and Gesondheid*.
- **Razak, A.,** Ganga-Limando, R. and van der Merwe, A. (2005). Perception of sexually transmitted infections amongst students in a South African tertiary education institution. *Curationis*.
- **Adam, J.K.** (2005). Morphological changes induced by fumonisin B1 and ochratoxin A in immune cells in human carcinoma. *Toxicology*.
- **Swindon, L.** (2005). Critical cross-field outcomes: Bridging the gap between classroom and workplace. *South African Journal of Higher Education*.

RESEARCH VISIT TO HEIs IN INDIA

In the transition of the former M.L. Sultan Technikon and Technikon Natal to the Durban Institute of Technology – a University of Technology, it has become critical to visit both national and international higher education institutions and research centres with a view to aligning the DIT's academic and research programmes to meet national and international standards. Parallel to this is a closer examination of the DIT's administrative and financial management systems and structures. The aforementioned is one of numerous governmental and inter-governmental initiatives aimed at building capacity at regional, national and continental levels within HEIs.



The delegation from the DIT with Prof. C.N.R. Rao, President of JNCASR and Scientific Adviser to the Prime Minister of India and Dr. S. Dhande, Director of IIT in Kanpur (extreme right).

Recently, a delegation from the DIT comprising the former Vice Chancellor and CEO, Prof. D.J. Ncayiyana, Mr. K. Naidoo (Executive Assistant to the VC), Prof. D. Lortan (Acting DVC – Academic), Mr. M. Madanjit (DVC - Resources and Planning), Prof. N. Gwele (Executive Dean – Faculty of Health Sciences) and Prof. D. (Gansen) Pillay (Director – Research Management and Development and National and International Research Linkages) visited numerous institutions in India.

The objectives of the visit were, *inter alia*, to:

- Explore and initiate new academic and research linkages with a view to networking and collaboration;
- Discuss the possibility of Faculty exchangeships (e.g., Visiting Professors' Programme);
- Discuss possible postgraduate student internships and exchangeships;
- Recruit postdoctoral fellows (PDFs);
- Strengthen South-South academic and research linkages and co-operation in line with the Millennium Development Goals, the WSSD and the International Council for Science;
- Strengthen academic and research co-operation with India in line with the National Government's tripartite agreement (India, Brazil and South Africa), the goals of NEPAD and the African Union;
- Formalise and finalise any outstanding MoUs with institutions in India;
- Complete outstanding reciprocal visits to institutions in India; and
- Honour invitations to participate in academic functions.



Members of the DIT delegation in discussions with Dr. Ramdas M. Pai (extreme right), President of MAHE and Manipal Enterprises.

Institutions visited included the Manipal Academy of Higher Education (MAHE) which has a number of colleges offering various disciplines, viz., the Kasturba Medical College, the Manipal Institute of Technology, the Manipal College of Dental Sciences, the Manipal College of Nursing, the Manipal College of Pharmaceutical Sciences, the Manipal College of Allied Health Sciences, the Manipal Centre for Information Science,

(continued on Page 5)

Research Visit to HEIs in India (cont.)

the Manipal Institute of Communication, the Manipal Institute of Management and the Graduate School of Hotel Administration.

In Bangalore the delegation visited the Manipal Medical College and Hospital, and the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) where they were hosted by Prof. C.N.R. Rao, President, JNCASR and Scientific Adviser to the Prime Minister of India. Prof. Rao visited the DIT previously. Core research units at JNCASR included Chemistry and Physics of Materials Unit, Chemical Biology Unit, Condensed Matter Theory Unit, Education Technology Unit, Evolutionary and Organismal Biology Unit, Engineering Mechanics Unit, Geodynamics Unit, Molecular Biology and Genetics Unit and The Theoretical Sciences Unit.

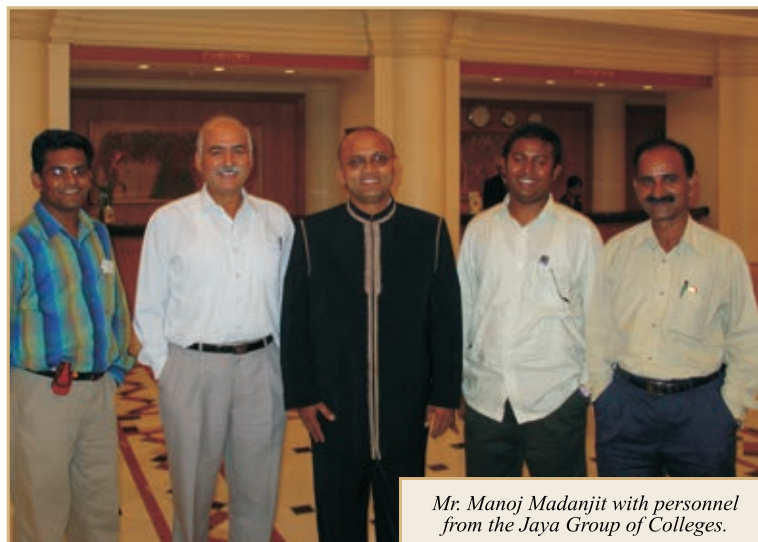
In Chennai, the delegation visited the Indian Institute of Technology, the Jaya Engineering College, and the Ragas Dental College and Hospital. Part of the delegation also held discussions with Prof. A. Aziz, Vice Chancellor of the Cochin University of Science and Technology and his faculty. These discussions focused on the M.Tech. programmes in IT and other issues on IT use within the University

In summary, the following was accomplished during the visit:

- Reciprocal visits to the JNCASR in Bangalore and Jaya Engineering College in Chennai were completed.
- An MOU between the DIT and the Jaya Educational Trust (and its group of Colleges) was signed paving the way for a formal exchange of faculty and students between both institutions.



The delegation from the DIT with (3rd from left) Dr. R.P. Pai (Professor of Community Medicine and Director of MAHE Alumni Centre) at the entrance to the Manipal Institute of Technology.



Mr. Manoj Madanjit with personnel from the Jaya Group of Colleges.

- The delegation honoured its invitation to participate in the Convocation of Jaya Engineering College with Prof. D.J. Ncayiyana as the Chief Guest.
- All the departments of the Manipal Academy of Higher Education are willing to host research students and faculty from the DIT. Faculty of MAHE are also willing to spend time at the DIT as Visiting Fellows.
- Prof. Rao, President of JNCASR is prepared to send his faculty from the relevant research units on short term visits to the DIT for technology transfer and to build research capacity. Students identified at the DIT by JNCASR faculty may fit into a "sandwich" programme for postgraduate research

whereby postgraduate students registered at the DIT may spend periods in research departments in India to benefit their studies.

- Postdoctoral fellows from the Indian Institute of Technology in Kanpur will be made available if required. Academic and research departments may be viewed on the IIT website.
- The Cochin University of Science and Technology has offered one of its faculty to spend time at the DIT to transfer technology on the Linux system. They are also prepared to host M.Tech. IT students for the research component of their degrees.

Academics and researchers at the DIT are urged to contact members of the delegation should they (i) wish to build research capacity within their departments through the hosting of postdoctoral fellows and research fellows/visiting professors; (ii) wish to spend time at any of the institutions mentioned in order to advance their research career; (iii) intend to send their postgraduate students for specialized research training; and (iv) seek specialist discipline expertise for student supervision which may not be resident at the DIT. Mr. Madanjit can be contacted regarding "decentralization" and good finance and governance practices at the various institutions visited.

RESEARCHER PROFILES



Dr. Kugen Permaul

Kugen Permaul, an Associate Director and researcher at DIT's Department of Biotechnology has always harbored human evolution as one of his pet subjects. He entered the field of science with a curious mind and a knack for what he describes as a vibrant and cutting edge field.

Permaul studied molecular biology in the Department of Microbiology at the former University of Durban Westville and completed his M.Sc. (cum laude) and PhD degrees under the supervision of DIT's Director of Research (Prof. Gansen Pillay) and Prof. Bala Pillay. It was at UD-W that his curious mind saw him at the start of some groundbreaking research. In one of his projects, Permaul conducted research involving the isolation of plasmid DNA from *Xanthomonas albilineans*, a bacterium causing leaf scald disease of sugarcane. Twelve genes were isolated from the plasmid (an extrachromosomal piece of DNA), and the findings proved that there was a conjugation system resident within the plasmid. They were therefore able to characterise the plasmid and prove that the transfer system that existed was similar to protein transport systems. What are the implications of these findings? Plasmids can be considered as a primitive life form. However, further research on the evolution of bacteria is warranted.

Permaul took up his lecturing position at DIT in the year 2000. Since then he has conducted research in the Department of Biotechnology. His research involved the search for mycotoxins in foods and the development of a system that ensured the quality checking of water and thus contributing to social development by assisting to develop a safer drinking water system for rural areas in South Africa. Permaul's most recent research involves directed evolution. The aim is to change the characteristics of enzymes through genetic manipulation. The research focuses on discovering new ways of making enzymes that exist in micro-organisms more applicable to industry.

A good example would be their effective use in the pulp and paper industry. Normally, bleach is used in the process of

whitening paper. This process uses large quantities of chlorine and has harmful effects on the environment. By changing the characteristics of enzymes, the enzyme becomes more thermostable and can be used to replace bleach. Thus, the environment is less affected.

Permaul's pride does not lie only with his advances in the research field but also with his advances in the classroom. He has previously supervised 20 post-graduate students, all of who have graduated successfully. This microbiologist hopes to further his research by developing the ability or the technology that will enable him to create specific design approaches, e.g., designing enzymes to degrade plastic or clean up oil spills.

Permaul is keen on achieving his research credibility through the awarding of a professorship and he aims to continue his research into the future. He says his primary goal is to "help students obtain their qualifications as soon as possible and to assist in the much needed establishment of greater research awareness at the DIT."

Recent publications include:

- Dawn E. Stephens, Kugen Permaul, Bernard A. Prior, and Suren Singh. 2004. Protein Engineering of Xylanases pp. 227-240. In *Lignocellulose Biodegradation*, B. C. Saha and K. Hayashi (Eds.).
- Adinarayana Kunamneni, Kugen Permaul and Suren Singh. 2005. Amylase production in solid state fermentation by the thermophilic fungus, *Thermomyces lanuginosus*. *Journal of Bioscience and Bioengineering*. In press.



Dr. Jayarani Raju

Dr. Raju commenced lecturing ten years ago in the Department of Library and Information Studies at the former M.L. Sultan Technikon. She became involved in research in 1998 and completed the PhD degree in 2002. Her passion for academia led her to exploring the discipline and use of language.

Her breakthrough was when she did a research on first level library and information science qualifications at South African universities and technikons where she did comparisons of curricula at the two institutions. "I started this research because we graduate students and they want to know the difference between graduating from the University and from the Technikon".

This research was to compare curricula from technikons and universities with particular reference to the Department of Library and Information Studies. The study was supervised by Prof. Andrew Kaniki and funded by the National Research Foundation. She has been approached by a publisher in London to write a publication on a workbook for use in tertiary level teaching and learning of information/knowledge organisation. "I'm busy writing that at the moment and it is due in two months time," she explained.

Dr Raju is currently involved in a four research programme. She is basically conducting research on the graduates from universities and technikons. Her research would involve travelling to Canada to visit academic libraries and finding out how they deal with the situation. "The first phase of this research involves a visit to McGill University. Here, I would be able to see what they do, and examine their teaching and learning practices" she pointed out.

Dr Raju is hoping to bring students along to learn and see how McGill University administers teaching and learning. "My aim is to include about three B-Tech students from different departments in order to look at this."

Meanwhile, she is currently involved in the supervision of two students who are doing their PhD degrees at the University of KwaZulu-Natal. "The students were unable to complete their studies here at the DIT because the Department does not as yet offer the M. Tech. and B. Tech. degrees".

Mrs. Catherine Wells

Mrs. Catherine Wells is a lecturer in Graphic Design at the Durban Institute of Technology. She has been involved in extensive research both within and outside of the department since 1996. Her most positive and reflective project has been "The Siyazama Project", which means "We are trying".



Wells describes her passion for art and crafts as "getting nutty over anything that people make with their hands". Her opportunity to explore the avenues of community building or developing the talents of rural women began in 1994. She had received funding from the National Monuments Trust to work at Rorkes Drift (near Dundee). Although a textile printing programme had existed there, it lacked the basic skills or infrastructure, which she aimed to provide.

She tried to run workshops, assist with guidance and to establish the strengths and weakness of the local trade. Her biggest challenge in that project was the lack of tourist support or interest, because of the low quality of dolls that were being produced. Wells redeemed the trade by "correcting" the women in that area and teaching them significant skills regarding aesthetics, colour, use of fabric, adding a base for the dolls to stand upright, adding arms and other attractive features.

Similarly, in 1996/1997, The African Art Centre asked her to

work with the "Beaded Doll Women" and once again, she began to implement basic skills. However, during the workshops, she would hear "whispering" and "giggling". As she had always taken graphic design students along with her for translation purposes, she soon realized that the women were terrified of "HIV/AIDS". The rural women were afraid of even speaking aloud, afraid that they would get the disease from merely saying the words.

The British Council had asked her to compile information on HIV/AIDS for the women, after Gugu Dlamini had died. Wells, more afraid of the trade/heritage dying out, became involved in educating the women about HIV/AIDS. In 1999, the community project became officially known as "Siyazama". The project has now reached success on national and international levels.

Wells has recently returned from a conference in Sweden, which also featured a book entitled "No Name Fever - Aids in the age of globalisation", by Maj-Lis Foller and Håkan Thörn (Eds), 2005. She is currently completing a PhD degree, while directing her attention to the second Siyazama website, (<http://www.assegaandjavelin.com/siyamazama/index/html>) which should be operational soon.

She is also currently involved in setting up a Non-Governmental Organisation (NGO) at DIT's City Campus in the department of Graphic Design, jointly led by Prof. Ian Sutherland, the HOD. Wells is optimistic about this new project and is aspiring to elevate it to a "Centre". The NGO, which is planned to be launched in 2006, will focus on teaching women "business training skills (to avoid exploitation), drive a 'whole market campaign' around it and go mad into mainstream marketing", she says.

Her current work has already received recognition in smaller publications such as "The Medical Research Council of South Africa (Annual report - 2004)", using imagery from Siyazama, as well as, at least 20 pages in "Untold tales of Magic - Ebelumbi" (Exhibition Catalogue).

Dedicated in her niche work, Wells intends to pursue her studies and projects extensively for the next five years.

Mrs. Jamila Adam

Mrs Adam is currently an Associate Director in the Department of Clinical Technology. Previously, her research focused on malnourished lactose intolerant patients in an effort to find an appropriate formula to assist these patients.



Findings from this research were published in two international journals.

Following this, Mrs Adam focused her research on immune responses in cancer patients. This research forms part of her studies towards the doctoral degree. Key components are summarized by Ms. Adam as follows:

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Researcher Profiles: Mrs Jamila Adam (cont)

"The complex of humoral factors and immune cells comprise two interleaved systems, innate and acquired. Immune cells scan the occurrence of any molecule that it considers to be nonself. Transformed cells acquire antigenicity that is recognized as nonself. A specific immune response is generated that results in the proliferation of antigen-specific lymphocytes. Immunity is acquired when antibodies and T-cell receptors are expressed and up-regulated through the formation and release of lymphokines, chemokines, and cytokines. Both innate and acquired immune systems interact to initiate antigenic responses against carcinomas. A new approach to the treatment of cancer has been immunotherapy, which aims to up-regulate the immune system in order that it may better control carcinogenesis. Currently, several forms of immunotherapy that use natural biological substances to activate the immune system are being explored therapeutically. The various forms of immunotherapy fall into three main categories: monoclonal antibodies, immune response modifiers, and vaccines. While these modalities have individually shown some promise, it is likely that the best strategy to combat cancer may require multiple immunotherapeutic strategies in order to demonstrate benefit in different patient populations. It may be that the best results are obtained with vaccines in combination with a variety of immunotherapy

combinations. Another potent strategy may be in combining with more traditional cancer drugs as evidenced from the benefit derived from enhancing the efficacy of chemotherapy with cytokines. Through such concerted efforts, a durable, therapeutic antitumour immune response may be achieved and maintained over the course of a patient's lifespan."

The above work has been published in *Pharmacology and Therapeutics*, an internationally accredited journal based in the UK. Mrs. Adam also supervises projects of B.Tech. and M.Tech. students in the Departments of Clinical Technology and Biotechnology. She has presented papers and posters at both local and international conferences. Last year she presented a poster titled "Modulating effects of fumonisin B₁ and ochratoxin A on human

immune cells" at the South African Society for Microbiology Conference which was held in Stellenbosch from 4th to 7th April."

Mrs Adam hopes to continue conducting research and hopes to continue having her research findings published in peer reviewed journals. She would also like to encourage students and staff to publish their research in peer reviewed journals. Recently, Mrs. Adam successfully completed her D.Tech. degree in Clinical Technology. She is the first one in the Country to obtain this degree. The CRMD extends its congratulations to Mrs. Adam on her excellent achievement! She will graduate later this month.

Report on Research-Finance Workshop



Participants at the Workshop

A Research-Finance workshop was held on 28th April 2005 at Gwahumbe to discuss various aspects impacting on researchers at the DIT. Representatives included personnel from the Research division, Finance, Procurement, Human Resources, Management Information, and Information Technology. The workshop was facilitated by Prof. Gansen Pillay from the CRMD and Mr. Ferdi van der Walt who is Director of Research at the University of Johannesburg.

Items for discussion included the DoE policy for funding of research at HEIs, organisation of finance staffing structure to support research, streamlining of procurement procedures and online requisitions, audit of research equipment, asset purchases and reconciliation, honorarium rates, consultancies, administration fees and cost recovery, procedure for purchase of forex, policy for subsistence/*per diem* allowance, postgraduate student funding and account remissions, HR policies affecting researchers, outstanding research reports and financial

statements, research account structures (general ledger and budgeting control), DIT research forms, the ITS system and capture of research data, and consolidation of the research budget.

The following draft policies/working documents/lists resulted from the workshop for presentation to the Institute Research Committee for discussion, amendment and implementation, where appropriate:

- Draft policy document for the disbursement of DoE publication subsidies to researchers;
- A proposal for the re-organisation of the finance staffing structure to support research and researchers;
- A guideline document simplifying all procedures in respect of procurement which affect researchers;
- A comprehensive, complete and current list of research equipment housed in all academic departments and research centres;
- Draft policy on eligibility and rates for honoraria;
- Policies on IP and commercialisation;
- Policy for subsistence/*per diem* allowance;
- Process for the purchase of forex;
- Policy on postgraduate student funding;
- HR policies on lecture load replacement and lecturer replacement;
- Guidelines on proposed research account categories;
- Amended forms for DIT research applications; and
- A roadmap outlining the process for research data capture, the person(s) responsible and the link between IT and researchers.

Report on the Faculty of Health Sciences Research Day

The 2nd Annual Faculty of Health Sciences Research Day was held on the 17th of February 2005 at the Mansfield Hall of the Durban Institute of Technology.

Research Day at the Faculty of Health Sciences was an event dedicated to the postgraduate and academic community for the presentation of research conducted within DIT and collaborative institutions. The event provided an opportunity for young researchers to expand their research capacity and for more experienced researchers to share and build through their expertise a culture for sound scientific research within the faculty. The Faculty of Health Sciences, whilst at the early stages of development in terms of research, showed commitment to the advancement of scholarly activity and improved scientific output.

The Faculty is pleased to have received a total of 35 papers representing a diverse and stimulating combination of both quantitative and qualitative research, as well as presentations of scientific topics of interest. It is also encouraging to have received submissions of pilot and preliminary investigations that may benefit from this research forum and progress towards its envisaged outcome.

The guest speaker for the day was Professor Ames Dhai from the University of Kwa-Zulu Natal who spoke on "Ethics in Health Science Research". The event was also attended by guests from the Department of Health and Lifeline, a community organisation.

Each presenter received a commendation and certificate of achievement. The following individuals received awards for excellence:

Independent Research: Van der Merwe Michael. "A comparison of the methods for measurement of particulate matter (PM10) used in the South Durban Health Study".

M.Tech. Research: Vahed Anisa. "Combined effects of brazing and in vitro corrosion on microstructure of orthodontic SBSS joints: Clinical implications in removable orthodontic appliances". (co-authors: Knutsen Robert**, Somers Grant* and Lachman Nirusha).

D. Tech. Research: Harris, Maureen "An educational course for multi-cultural South African nurses, based on a model for critical reflective practice, forms the source for this two-year qualitative study".

B. Tech. Research: Ruggunan Wendy L "A bacteriological analysis using *Escherichia coli* of the Cato Crest stream situated alongside the Cato Crest informal settlement for the period June September 2004.

Poster Awards:

- Dhaver Rajeshree, Seebran Elisha and Adam Jamila K "Elevated calcium levels in Richards Bay municipal water affecting acute haemodialysis patients as compared to reverse osmosis treated water".
- Rampersad Kindeer, Mbizeni M J and Adam Jamila K "The use of echocardiographic parameters to determine the prevalence of latent LV dysfunction in patients with severe mitral regurgitation undergoing mitral valve replacement or repair".
- Conana Nozipho. "Bacterial contamination of infant milk in KZN: A sub-study of the good start infant feeding study, the national prevention of mother-to-child-transmission"

Update on TELP II Activities

The year 2005 started on a very high note for the Tertiary Education Linkages Projects (TELP II) at the DIT with a workshop held on February 4th at the Coastlands Convention Centre. This workshop created a platform for 48 delegates from the teams involved in the projects (launched in June last year) to celebrate and share their progress to date and to plan the activities for the next 5 months of implementation.

One team has been responsible for the development of a model for the quality management of the curriculum in programmes offered at multiple sites of delivery at the DIT. This 'short' project involved CQPA and CHED and has been of great benefit to the departments of Public Relations, Governmental Studies and Tourism at Durban and Pietermaritzburg. The project was completed in December 2004 and the finalization of the model is in progress.

In the 'long' project, teams from Management Information, Finance, Library, and Information and Communication Technology, have engaged in enhancing the quality management of information at the DIT. This has involved benchmarking good practices at selected national and international higher education institutions and building the capacity of staff. In 2005 the teams will be fully engaged with, for example, developing policies and procedures, establishing benchmarks and implementing good practices. The project is underpinned by the principles of quality and gender equity and ultimately the DIT community will be the beneficiaries.

The TELP office would like to express their sincere gratitude to all delegates that participated in the workshop and to wish the teams every success in 2005.

**For further information please contact the TELP office on
031-308 6803 or e-mail zamank@dit.ac.za or romikar@dit.ac.za.**

Report on the Faculty of Arts Research Day



Prof Ncayiyana at Arts Research Day

The Faculty of Arts Research Day was held on 16 February 2005 in the Arthur Smith Hall at City Campus. The day was officially opened by the Vice-Chancellor, Professor Dan Ncayiyana, who spoke on the value of the arts at DIT. Professor Darren Lortan and Professor Gansen Pillay made introductory remarks and recognition was given to the fact that in the Arts, artefacts and performances are considered to be part of the research contribution of the faculty. The programme of oral presentations began with Dr. Kenneth Netshiombo's paper on HIV/AIDS programmes in the Public Service. This was followed by an extremely well presented paper by Dr. Sioux McKenna, on "Sizing and Shaping Research in Universities of Technology". Professor Graham Stewart concluded the first session with a paper on the KwaZulu-Natal Literary Map on the Web. The second session began with Prof. Brian Pearce's paper, "Hamlet,

the Actor", followed by Prof. Joan Conolly's paper on "Oral and Indigenous Knowledge Research". The subsequent papers were devoted to research and teaching practice in various disciplines including Fashion Design, Jewellery Design and English and Communication. Bev Sutherland presented a paper on preparing Fashion students for a digitally based industry. At lunch time, Debbie Lutge and students from the Department of Drama Studies provided entertainment in the form of two "Street Theatre" presentations in the courtyard. After lunch, Philippa Kethroe gave a paper on developing research skills in Design disciplines. This was followed by a paper by Chris de Beer in which he discussed the problem of defining Research Methodology in the field of Jewellery Design. The last two papers were from the Department of English and Communication. The first was by Dee Pratt and concerned research into a "theoretical model of written composition". The final paper discussed "Online learning in the field of Communication Skills" and was presented by Carol de Kock, Rob Gutteridge, Linda Herbert, Dee Pratt and Prof. Graham Stewart. During Research Day, the library organised a book display, while there were a number of exhibitions of both staff and student work. Chris de Beer and the Department of Jewellery Design presented an interesting exhibition in the foyer of the Arthur Smith Hall, while other displays included those by the Department of Interior Design, Jan Jordaan and Artists for Human Rights, and Themba Shibase, a Masters student in the Department of Fine Art. Attendance was relatively good and the day was a successful celebration both of the arts themselves and of scholarly research in the Faculty.

Launch of the M.Tech. degree in Emergency Medical Care and Rescue



(left to right) Raveen Naidoo [Head of Department], Lloyd Christopher, Brendon Morris, Yugan Pillay, Rudi Menkveld, James Bowen, Linda Grainger [Programme Co-Ordinator].

The 14th March 2005 heralded an historic event for the Department of Emergency Medical Care and Rescue - the inception of their Masters degree programme. This full research Masters programme is the first of its kind in South Africa. Five students have registered for the degree and attended the Orientation programme (pictured on the left). They are James Bowen and Yugan Pillay (staff members), Lloyd Christopher (Head of the Department of Emergency Medical Care at Cape University of Technology and Chairman of Professional Board of Emergency Care Practitioners: HPCSA), Rudi Menkveld (Rescue trainer and part-time lecturer at the University of Johannesburg), and Brendon Morris (an instructor and consultant with Holmatro, a Netherlands based-company specializing in rescue equipment, and member of the UN International Search and Rescue Advisory Group). Their topics include research with a clinical focus, rescue orientated research and EMCR-related health systems research. Raveen Naidoo, the Head of Department, currently studying for the M.Sc. (Cardiology) degree at the University of Brighton, U.K. Robert Owen (previous HoD, now working towards his PhD at University of Surrey, U.K.), Nick Castle (MSc: Cardiology), Prof. Nirusha Lachman (PhD: Anatomy) and Dr. Linda Grainger (PhD: Nursing) will act as supervisors in the programme.

PUBLICATIONS BAROMETER# 2004

The following peer-reviewed publications were submitted to the DoE for subsidy. Congratulations to all those researchers who contributed to research output at the DIT.

Bold-faced author names indicate staff member/student of the DIT.

1. Olaniran, A.O., **Pillay, D.** and Pillay, B. (2004). Haloalkane and haloacid dehalogenases from aerobic bacterial isolates indigenous to contaminated sites in Africa demonstrate diverse substrate specificities. *Chemosphere* **55**:27-33.
2. Singh, N., Somai, B.M. and **Pillay, D.** (2004). Smut disease assessment by PCR and microscopy in inoculated tissue cultured sugarcane cultivars. *Plant Science* **167**: 987-994.
3. Olaniran, O., **Pillay, D.** and Pillay, B. (2004). Aerobic dechlorination of cis- and trans-dichloroethenes by some indigenous bacteria isolated from contaminated sites in Africa. *Journal of Environmental Sciences* **16**: 968-972.
4. Olaniran, O., **Pillay, D.** and Pillay, B. (2004). Chloroethenes contaminants in the environment: Still a cause for concern A review. *African Journal of Biotechnology* **3**: 675-682.
5. **Sutherland, I.** (2004). Paradigm shift: The challenge to graphic design education and professional practice in post-apartheid South Africa. *Design Issues* **20**: 51-60.
6. **Wells, K.**, Seinaert, E. and **Conolly, J.** (2004). The Siyazama project. A traditional beadwork and AIDS intervention programme. *Design Issues* **20**: 73-89.
7. Godlee, F., Pakenham-Walsh, N., **Ncayiyana, D.**, Cohen, B. and Packer, A. (2004). Can we achieve health information for all by 2015? *Public Health*. **Published On-Line**. <http://image.thelancet.com/extras/04art6112web.pdf>
8. **Raju, J.** (2004). First level library and/or information science qualifications at South African universities and technikons: a comparative study of curricula. *South African Journal of Libraries and Information Science* **70**:9-19.
9. **Moyo, S.** and Leach, P.G.L. (2004). Symmetry methods applied to a mathematical model of a tumour of the brain. *Proceedings of Institute of Mathematics of NAS of Ukraine* **50**:204-210.
10. **Raju, J.** (2004). General education in library and/or information science education and training. *Education for Information* **22**: 77-97.
11. **Odhav, B.** (2004). Guidelines for routine monitoring of membrane performance for potable water production in small water treatment plant. *Water Research Commission, Report No. 1034/1/04*.
12. **Surujlal, S., Tivchev, G.,** Kasan, H.C. and **Bux, F.** (2004). Development of Biological treatment technology for the remediation of edible oil effluent. *Water Research Commission, Report No. 1084/1/04*.
13. **McKenna, S.** (2004). Lecturers' discourses about the interplay between Language and learning. *South African Journal of Higher Education* **18**: 278-287.
14. **Jinabhai, D.C.** (2004). Empirical findings on the impact of affirmative action on the training and development of black managers for corporate organisations in South Africa. *Public Personnel Management* **33**: 121-135.
15. **Sunder, R.** (2004). Osteoporosis: the shifting scores of BMD. *The South African Radiographer* **42**: 18-21.
16. Weideman, E., Barkhuysen, F., Hunter, L. and **Fassihi, A.** (2004). The yarn dismantler: a new technology for laboratories. *Proceedings from the World Cotton Research Conference* **3**: 1598-1604.
17. **Mare, S.** (2004). Detection of distortion due to mechanical imperfection in recording and playback apparatus. *Proceeding of IPET Conference 2004*. **Published on CD**.
18. **Narsee, S.D.** (2004). Navigating uncharted waters: Peace within hearts, hands and minds. *Proceedings of The international Journal of Learning* **11**: 53-57.
19. **Bisetty, K.** (2004). A computational study of PCU cage peptide. *Proceedings of the 2nd European students conference on physical, organic and polymer chemistry*. **Published On-line**.
20. **Stewart, G.D.J.** (2004). The KwaZulu-Natal literary map on the web-reconciling literary tourism and preservation. *Proceedings of the International Conference on Politics and information Systems: Technologies and Application* **1**: 142-147.
21. **Naiker, S.** and **Odhav, B.** (2004). Mycotic keratitis: profile of *Fusarium* species and their mycotoxins. *Mycoses* **47**: 50-56.
22. Okole, B. and **Odhav, B.** (2004). Commercialisation of plants in Africa. *South African Journal of Botany* **70**: 109-115.
23. **Ntuli, Z., Anderson, D. and Kassier, S.** (2004). An evaluation of student nutrient intake and anthropometric status to determine the effect of nutrition knowledge and socio-demographic factors on nutritional status. *South African Journal of Clinical Nutrition* **17**: 19-20.
24. **Naidoo, R.** and Baboolal, S. (2004). Application of the Kurganov-Levy semi-discrete numerical scheme to hyperbolic problems with nonlinear source terms. *Future Generation Computer Systems* **20**: 465-473.
25. **Davies, T.A. and Farquharson, F.** (2004). Implementing learnerships: learner recruitment and selection lessons learnt from the KwaZulu-Natal pilot projects. *South African Journal of Higher Education* **18**: 336-352.
26. Govender, S., Jacobs, E.P., Leukes, W.D., **Odhav, B. and Pillay, V.L.** (2004). Towards an optimum spore immobilization strategy using *Phanerochaete chrysosporium*, reverse filtration and ultrafiltration membranes. *Journal of Membrane Science* **238**: 83-92.
27. **Kanny, K.,** Mahfuz, H., Thomas, T. and Jeelani, S. (2004). Temperature effects on the fatigue behavior of foam core sandwich structures. *Polymers & Polymer Composites* **12**: 1-9.
28. **Ncayiyana, D.J.** (2004). Is democracy good for people's health? A South African perspective. *British Medical Journal* **329**: 1425-1426.
29. **Ncayiyana, D.J.** (2004). Doctors and nurses with HIV and AIDS in sub-Saharan Africa: "We're going to run out of people before we run out of money". *British Medical Journal* **329**: 584-585.
30. Pawlina, W. and **Lachman, N.** (2004). Dissection in learning and teaching gross anatomy: Rebuttal to McLachlan. *The Anatomical Record (part B: The new Anatomy)* **281B**: 9-11.
31. McKenna, S. (2004). The intersection between academic literacies and student identities. *South African Journal of Higher Education* **18**: 269-280.
32. **Pillay, V.L.** (2004). The evaluation and design of sludge dewatering and water filtration systems using tubular woven fabric technology. *Water Research Commission, Report No. 1172/1/04*.
33. **Pillay, V.L.** (2004). The development of small scale ultrafiltration systems for potable water production. *Water Research Commission, Report No. 1070/1/04*.
34. **Pillay, V.L.** (2004). Caustic management and refuse in the beverage bottling industry. *Water Research Commission, Report No. 1033/1/04*.
35. **Yusuf, M.P. and Allopi, D.** (2004). The impact of urban sprawl on the inhabitants of eThekweni municipality. *Proceedings of the 23th Annual South African Transportation*. **Published on CD**.
36. **Shaik, M.J. and Allopi, D.** (2004). The upgrading of roads in the Clermont/Kwadabeka area, Durban. *Proceedings of the 23th Annual South African Transportation*. **Published on CD**.

37. Sunker, N. and Allopi, D. (2004). A tertiary perceptive on road safety. *Proceedings of the IPET Conference 2004*. Published on CD.
38. Venayagamoorthy, V., Allopi, D. and Venayagamoorthy, G.K. (2004). Neural network based classification of road pavement structures. *Proceedings of the International Conference on Intelligent Sensing and Information Processing*. Published on CD.
39. Pete, M. and Fregona, C.M.M. (2004). Sustaining online learning during times of change through a multi-disciplinary community of practice. *Proceedings of the Ed-media 2004 World Conference on Educational Multimedia, Hypermedia and Telecommunications 1: 5060-506*.
40. Merwe, M. (2004). Environmental conflict resolution is essential for successful environmental impact assessments in South Durban. *Proceedings of the 8th World Congress on Environmental Health*. Published on CD.
41. Merwe, M. (2004). Health is a neglected priority in environmental impact assessments. *Proceedings of the 8th World Congress on Environmental Health*. Published on CD.
42. Niranjan, I. (2004). Learning Occupational Health and Safety Legislation by using educational games. *Proceedings of the 8th World Congress on Environmental Health*. Published on CD.
43. Poswa, T. (2004). The importance of gender in Waste Management planning: A challenge for solid waster managers. *Proceedings of the 8th World Congress on Environmental Health*. Published on CD.
44. Barratt, G., Kistnasmy, J and Merwe M. (2004). Positive learning experiences caused by the merging of two teaching institutions delivering environmental health programs. *Proceedings of the 8th World Congress on Environmental Health*. Published on CD.
45. Fregona, C.M.M. and Pete, M. (2004). Re-drivers, scaffolders and explicadors: the role of WebCT in knowledge design for 21st century learners. *Proceedings of the WebCT Users Annual National Conference 1: 442-447*.
46. Kassier, S., Maunder, E.M.W. and Senekal, M. (2004). Current infant feeding practices and related factors of Zulu mothers with 0-6 month old infants attending PMTCT and non PMTCT clinic's in central Durban, KZN: An exploratory study. *Journal of Clinical Nutrition 17: 12*.
47. Govender, P., Ramballee, A. and Moodley, S.A. (2004). A load shedding Controller for Management of Residential Loads during peak demand periods. *Proceedings from the 2004 IEEE African Conference 1: 729-734*.
48. Govender, V. (2004). HIV/AIDS dilemma in health care: legal obligations vs political commitment. *Proceedings from the Global Business and Technology Association*. Published on CD.
1. Olaniran, O., Pillay, D. & Pillay, B. (2005). Characterization of two bacteria isolated from a wastewater treatment plant in South Africa for aerobic dehalogenation of some aliphatic chlorinated compounds. *International Journal of Environmental Studies 62: 1-10*.
2. Iyer, R., Pillay, B. and Pillay, D. (2005). Analyses of growth kinetics and the development of simple media for the growth of *Xanthomonas albilineans*. *South African Journal of Science*. In press.
3. Singh, N., Somai, B.M & Pillay, D. (2005). In vitro screening of sugarcane to evaluate smut susceptibility. *Plant Cell, Tissue and Organ Culture 80: 259-266*.
4. Singh, N., Somai, B.M & Pillay, D. (2005). Molecular profiling demonstrates limited diversity amongst geographically separate strains of *Ustilago scitaminea*. *FEMS Microbiology Letters 247: 7-15*.
5. Walker, M. and Hamilton, R. (2005), 'A technique for optimally designing fibre-reinforced laminated plates with manufacturing uncertainties for maximum buckling strength'. *Engineering Optimisation 37: 135144*.
6. Tabakov, P.Y. (2005). A three-dimensional analysis of laminated orthotropic plates. *Proceedings of the 5th International Conference on Composite Science and Technology: 221-226*.
7. Kanny, K. and Mahfuz, H. (2005). Flexural characteristics of sandwich structures at different loading frequencies. *Composite Structures 67: 403-410*.
8. Jinabhai, D.C. (2005). New challenges for South African development and training linkages to empirical research. *Public Personnel Management 34: 85-100*.
9. Jacobs, E.P., Bradshaw, S.M., Botes, J.P. and Pillay, V.L. (2005). Reverse-pressure back-flush in pilot scale, dead-end ultrafiltration of surface water. *Journal of Membrane Science 252: 51-63*.
10. Moyo, S. and Leach, P.G.L. (2005). On some aspects of ordinary differential equations invariant under translation in the independent variable and rescaling. *Proceedings of the 10th International Conference in Modern Group Analysis: 143-151*.
11. Raju, J. (2005). LIS education and training in South Africa: a historical review. *South African Journal of Library and Information Science 71: 74-84*.
12. Nyland, J., Lachman, N., Kocabey, Y., Brosky, J., Altun, R. and Caborn, D. (2005). Anatomy, function, and rehabilitation of the Popliteus Musculotendinous Complex. *Journal of Orthopaedic and Sports Physical Therapy 35: 163-180*.
13. Grainger, L.D. and Michell, K. (2005). Occupational health nursing in South Africa. *Occupational Health Southern Africa. 4-10*.
14. Xu, Q., Telukdarie, A., Lou, H.H. and Huang, Y. (2005). Integrated electroplating system modeling and simulation for near zero discharge of chemicals and metals. *Industrial Engineering and Chemical Research 44: 2156-2164*.
15. Kunamneni, A., Permaul, K. and Singh, S. (2005). Amylase production in solid state fermentation by the thermophilic fungus, *Thermomyces lanuginosus*. *Journal of Bioscience and Bioengineering*. In press.
16. Moyo, S. and Leach, P.G.L. (2005). Ordinary differential equations invariant under translation in the independent variable and rescaling: The Lagrangian formulation. *Journal of Mathematical Analysis and Applications 306: 35-54*.
17. Odhav, B. (2005). Bacterial contaminants and mycotoxins in beer and control strategies. *Reviews in Food and Nutrition Toxicity 2: 1-18*.



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