

Faculty Newsletter

Message from the Dean

I was delighted at the turnout of staff at the Dean's Forum in March and hope that this event will continue to grow as it provides a great opportunity to interact with academic and PASS staff in an informal manner.

At the University Council meeting on 24 March final sign off was given to all three engineering building projects: the New Engineering Building, Teaching and Learning Building and the retrofitting of the Centlivres Building. Each project has an allocated approved budget.

The Department of Civil Engineering is expected to be moved

into the new building in November, and at the end of the final exams the demolition of the Snape Building is due to commence. The retrofitting of the Centlivres Building should start in early September. We are aware of the disruption this is going to cause and ask you to please bear with us over the next 18 months.

I am also pleased to advise that an amount has been approved and allocated for alterations to be done in the Department of Mechanical Engineering.

Congratulations to A/Professor Harro Von Blotnitz and his Technology Deployment for Sustainable

Urban Development research group who have had the VC Strategic funding renewed for 2012. The Resource Allocation Advisory Committee were impressed with the quality of the progress report for 2011 and felt that project was on track.

I would like to remind staff of ebe-speaktothedean@uct.ac.za email address which staff can use for any questions, comments or suggestions.

During the month of May we will be celebrating Africa month and would like to encourage staff and students to participate in the events that have been arranged.

RESEARCH CHAIRS

Industry is supporting three new research chairs in the Faculty.

SANRAL is sponsoring a chair in the field of transport, which will be housed in Civil Engineering, and



ESKOM is sponsoring two chairs, one in the field energy efficiency, which will be housed in Electrical Engineering, and a chair in materials science, which will be housed in the Centre of Materials Engineering. We are in the process of recruiting staff for these chairs.



SARChI Chairs

The South African Research Chairs Initiative (SARChI) is a flagship initiative of Government designed to attract and retain excellence in research and innovation at South African universities. In 2012, four SARChI chairs were awarded to the University with two of them going to EBE:

- a chair in Reaction Engineering, which will be located in the Department of Chemical Engineering, and
- a chair in Industrial Computational Fluid Dynamics, which will be located in the Department of Mechanical Engineering.

This brings the total of SARChI chairs in the Faculty to seven.

Month of May Celebrating Africa

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| 9 May | Faculty Awards Evening |
| 11 May | Mckinsey's "Infrastructure Africa" seminar |
| 17 May | "Restoring the Pride of Africa" talk by Dr Matlou, CEO of the Africa Institute. |
| 25 May | EBE Cultural Evening |



State-of-the-art equipment

A state-of-the-art Gleeble 3800 has been installed in the Centre for Materials Engineering thanks to an NRF special equipment award. The Gleeble 3800, worth \$1.05 million, is a fully integrated digital closed-loop control thermal and mechanical testing system which is able to very closely simulate actual industrial metal processes, including hot rolling, forging and extrusion.

The equipment will place the Centre at the forefront of research into the behaviour of materials during manufacture, allowing researchers to investigate novel materials processing and the processing of novel materials. The direct resistance heating system of the Gleeble 3800 can heat specimens at rates up to 10 000°C/sec, or it can hold steady state equilibrium temperatures. High cooling rates can be applied to quench after testing. The high compression capacity (20 ton, 200kN) allows for simulation of the plane-strain condition in the roll-gap during metal rolling, and thus provides a means to closely simulate the process without the need for very costly plant trials.

The research and training of postgraduate students will provide a knowledge base and a core of local expertise in the science that underpins manufacture. “By emphasising technical innovation in our student training, and interacting with local industries, we will develop skills in innovative manufacturing and production,” said Professor Rob Knutsen, Director of the Centre for Materials Engineering.

It will provide opportunities for collaboration with the local metals-producing industries that have not been



Tobile Khawula, a master's student and Dr Sarah George, a lecturer and researcher in the Centre

possible before owing to the limitations of existing equipment in South Africa. Examples include deformation and recrystallization texture studies on stainless steels and aluminium, which are critical for developing and producing competitive commodity products.

“The research that will be possible with the use of the Gleeble 3800 will directly impact on the competitiveness and growth of the existing local metals-producing industries,” said Professor Knutsen.

Furthermore, a new research thrust in the deformation processing of titanium alloys has been initiated to foster the development of a titanium metal producing industry in South Africa that will create additional opportunities for employment and economic growth. This activity is sponsored by DST through the national Titanium Centre of Competence.

Teaching students to plan with communities

First-year master's students in the City and Regional Planning course are working together with the Langrug community in Franschhoek to look at ways of improving the living conditions for this informal settlement.

The project forms the core of the department's *Basic Planning skills in situ upgrade* course that aims to introduce the designers of South Africa's geo-political future to physical, social, economic, environmental and political circumstances that inform the current social structure. The students are tasked with recommending upgrades for the township, which is home to some 4,000 residents.

At a function held in the Groendal community hall on Mon-



day 20 February, the Deputy Director of Integrated Human Settlements for the Stellenbosch Municipality, David Carolissen, said it was important for government and other partners to work together with communities like Langrug to address the challenges they face.

The students gained some invaluable first-hand insight as they

were taken on a tour of Langrug by Alfred Ratana, a community leader. Many agreed that the most pressing need was installing safe, running water and sanitation facilities in the settlement. “Proper facilities like water and sanitation are definitely the most urgent needs,” said Aaishah Petersen, a master's student in city and regional planning.

Professor Vanessa Walton said that the project stemmed from a 2010 memorandum of understanding signed by a number of African planning schools. The schools pledged to teach students to plan *with* communities, as opposed to *for* them.

Gathering an African perspective

The African Centre for Cities (ACC) co-hosted a workshop with the Stockholm Resilience Centre in February aimed at gathering an African perspective for inclusion in the UNEP - Convention on Biological Diversity's Cities and Biodiversity Outlook publications.

The publications, which will take the form of a Synthesis document aimed at policy makers and a longer Scientific Foundation document, will present the first ever global assessment of the links between urbanisation, biodiversity, and ecosystem services.

Combining science and policy, scientists from around the world will analyse how urbanisation and urban growth impact biodiversity and ecosystems, delivering key messages on the conservation and sustainable use of natural resources to decision-makers. The publications will showcase practices on sustainability and biodiversity from cities around the world, serving as a tool through which local authorities and governments can share and learn from existing experiences on how to incorporate those topics in their agendas

and policies.

As the continent is currently experiencing the fastest rate of urbanisation, significantly in areas of corresponding high biodiversity, an African perspective was deemed a vital component of the final document.



The workshop brought together local government officials, planners, policy-makers, NGOs, and researchers all working in the realm of urban biodiversity, from seven southern African countries. The workshop served to highlight the unique features of urbanisation in Africa, which is currently the most

rapid in the world, with twenty-seven of the world's fastest-growing cities in Africa. Issues that emerged in the workshop as particularly relevant to African urbanisation included the role of ecosystems and associated biodiversity in aiding adaptation to climate change, the importance of provisioning services provided by urban green spaces for harvesting by the urban poor, the relevance of the arid nature of the continent for catchment management with the water demands of expanding cities, and the response of rural ecosystems to the abandonment of land following rural-urban migration.

This was an exciting opportunity for the ACC's Urban Ecology CityLab, which is one of a suite of thematic CityLabs set up to study the complex urban issues using the City of Cape Town as a research site. The workshop presented a unique opportunity for the Urban Ecology CityLab to meet professionals doing similar work in other African cities, allowing a rewarding opportunity to compare and share insights and views.

First Conference presentation by EWB

The UCT chapter of EWB submitted a paper to the Domestic Use of Energy Conference (DUE) held at CPUT in Cape Town from 2 to 4 April. The paper was titled "*The Township Caterer's Project (TCP): experiences from the student chapter of Engineers without Borders.*"

The paper focused on their work implementing improved cooking stoves in the township of Nyanga, Cape Town. This work is being undertaken under the framework of the Technology for Sustainable Urban Development (T4SUD) programme - an interdisciplinary project run through the Chemical Engineering Department.

Anya Boyd and Holle Wlokas from the Energy Research Centre have been working with the students to support them in implementing their work in Nyanga under the T4SUD framework. The paper was presented by Matt, Ondela and Tumi at the DUE conference on Wednesday 4 April - their first conference presentation. A very proud Anya Boyd said, "They did brilliantly and had very positive feedback from the audience!"



Holle Wlokas (Energy Research Centre), Matthew Docherty (Engineers without Borders), Ondela Mabusela (EWB), Tumelo Gabaraane (EWB), Anya Boyd (Energy Research Centre)

News in Brief

ROYAL SOCIETY INVITATION



Professor Alphose Zingoni was invited by the Royal Society of the UK to speak at the Theo Murphy International Scientific meeting on 23 and 24 February 2012. This is a great honour as it is not often that Civil Engineers get invited to speak at the Royal Society meetings. The meeting was held at the Kavli Royal Society International Centre at Chicheley Hall in

Buckinghamshire. He spoke on "Group-theoretic insights on the mechanics of symmetric structures in engineering", one of the two main areas of research he has been working on over the past 10 years. Invited papers will be published in *Philosophical Transactions of the Royal Society Part A*.

NRF RATING

Congratulations to Dr Brett Cohen on receiving his NRF C2 rating in February this year.

Brett joined the Energy systems analysis and planning programme at the Energy Research Centre in 2009. His research spans a range of projects which fall at the technology/sustainability interface, and he is currently involved in projects related to national energy systems modelling and alternative energy technology development and deployment. He has extensive experience in stakeholder engagement and is an experienced facilitator on projects related to problem structuring and problem analysis in complex decision problems with multiple stakeholders in the energy sector.



WATER QUALITY—USING CELLPHONE MONITORING IN DEVELOPING COUNTRIES

Professor Ulrike Rivett gave a seminar on the development of a cellphone application which is being used to monitor the quality of the water in rural areas. Her research group has worked in the rural areas of the Eastern Cape, Mozambique, Cambodia and Vietnam. The work they have done has shown that they can reduce the costs of water quality testing, improve the ability to test in the remote rural areas and improve communication to the relevant authorities. For more information you can watch a video on <http://www.icomms.org/>



WELCOME TO NEW POSTGRADUATES



The Dean hosted an event on Wednesday 7 March to welcome all the new postgraduates to the Faculty. Professor Sue Harrison, Deputy Dean responsible for postgraduate studies, gave them tips and information on their studies. Chantel Reed from the Postgraduate Funding Office gave them detailed information on all the funding opportunities available to them.

EXCEPTIONAL YOUNG SCIENTIST RECEIVES RENOWNED SUSTAINABILITY PRIZE

Dr Dyllon Randall, from the Crystallization and Precipitation Research Group in the Department of Chemical Engineering, was one of three South African scientists to receive the renowned "Green Talents" sustainability prize in a competition organised by the German Federal Ministry of Education and Research in Berlin.



Incoming HODs for 2013

CIVIL ENGINEERING



A/Professor Neil Armitage has been selected as the new HOD for Civil Engineering from January 2013. Neil will step down as Deputy Dean to take up his new position.

ELECTRICAL ENGINEERING

Professor Martin Braae will be taking over from Professor Barry Downing on 1 January 2013

CHEMICAL ENGINEERING

Interviews with Chemical Engineering staff for the new HOD for 2013 took place on 18 April and a decision will be made shortly on who the incoming HOD will be.

2012 JENNINGS MEMORIAL LECTURE



Mrs Burland, Dr Denis Kalumba and Emeritus Professor John Burland

Dr Denis Kalumba from the Department of Civil Engineering hosted the 2012 Jennings Memorial Lecture where Professor John Burland presented a paper on "Interaction between Geotechnical and Structural Engineers." John Burland is an Emeritus Professor and Senior Research Investigator at Imperial College London. He is a Fellow of both the UK Royal Academy of Engineering and the Royal Society of London and was appointed Commander of the Most Excellent Order of the British Empire in 2005. He has advised on many geo-technical aspects of major projects in the UK, including ensuring the stability of the Big Ben clock tower. He was also a member of the Italian Prime Minister's Commission established to stabilise the Leaning Tower of Pisa.

The lecture was well attended with many industry guests, staff and students attending. Dr Kalumba said it was a great honour to have Professor Burland presenting at UCT.

LANDMARK CONVENTION SHOWCASES SA INDUSTRIAL EXPERTISE TO GLOBAL MARKET

In early April, c*change, the DST NRF Centre of Excellence in Catalysis in the Department of Chemical Engineering hosted the Syngas Convention, in association with Sasol and PetroSA. This was a first-of-its-kind convention dedicated to synthesis gas conversion – one of the key industrial technologies underpinning the South African economy – and it brought together some of the world's top scientists and industry experts to build valuable international collaborations. These relationships could foster greater industrial and scientific developments and benefit both the South African economy and the environment.

The technology, known as the **Fischer-Tropsch** process, provides 40% of South Africa's current liquid fuels requirements from coal and natural gas. And as oil reserves dwindle and the world looks for greater diversity and security of energy supply, opportunities are opening up to deliver these same benefits to others.

Professor Michael Claeys, director of c*change, said



that as the host of the event, c*change was extremely happy at the very strong turnout both from local players and international delegates. "This was the first syngas convention of its kind and presented us with a great opportunity to tell one of the great research and technology development success stories of this country, as well as foster valuable links and build our research capabilities. We hope that it will become an annual affair as this technology continues to gain ground," he said.

The convention was preceded by an Autumn School on "Fundamental aspects in Heterogeneous Catalysis" with lectures by leading experts in their field.

STAFF NEWS

WELCOME TO NEW STAFF

JANUARY 2012

Mr Albertrum Crowder joined Architecture as a Lecturer

Mr Simon Hull joined Geomatics as a lecturer

Mr Michael Louw joined Architecture as a lecturer

Ms Mignon Wells joined Geomatics as a Senior Technical Officer

FEBRUARY 2012

Mr Kevin Fellingham joined Architecture as a Senior Lecturer

Miss Muriel Mlanjana joined the Department of Construction Economics and Management as a Senior Secretary.

FAREWELL TO STAFF

In January, Dr Stephen Allen left the Department of Construction Economics and Management

In March, Ms Shaunelle Adams left the Faculty Office and has joined Student Housing as a receptionist



The new Faculty Office staff are from left to right: Erin Pienaar, Nuraan Isaacs, Margo Mitchell and Debby Chuter

CONGRATULATIONS

Chemical Engineering

Congratulations to Klaus and Bongani Möller on the birth of their son Kaedon Mthombeni-Möller who was born 9 December 2011



Architecture

Congratulations to Nic Coetzer and his wife Katie on the birth of their son Finnegan Irvine Coetzer born 8 March 2012



Peer Mentoring Video

Nazeema Ahmed has over the past year developed and produced a video on the EBE student peer mentoring programme with the help from staff in the Film and Media Studies department. The video can be accessed on UCT's YouTube channel.

http://www.youtube.com/watch?v=xoliwlYPTd0&list=UUL8m_0Hg7prQS1hYsF5X74A&index=1&feature=plpp_video

Funding for the video came from Xstrata.

MINTEK QUIZ PARTICIPANTS AT UCT

Lucky Nkolonzi and Zolani Madolo from Percy Mdala High School in Knysna attended the 2011 Mintek Quiz, which was organised by the Department of Chemical Engineering at Wynberg Boys' High School. Both boys had never been to Cape Town before and were very excited to be here. They enjoyed participating in the quiz and felt they learned a lot. Their involvement with the quiz motivated them to apply to study at UCT. We are delighted to say that both boys are here—Lucky is in Aspect for Electrical Engineering and Zolani is in Geomatics. We wish them both well in their studies and look forward to seeing them graduate.



Lucky Nkolonzi and Zolani Madolo

INFRA-STRUCTURE PROJECTS

NEW ENGINEERING BUILDING

The New Engineering Building presents an unique opportunity for academic teaching to be complimented with real-life, on-site construction activities. To manage access to the project in a fair and reasonable manner for both students, lecturers and the contracting team, it is proposed to use a Vula site to facilitate the process.

The Department of Construction Economics and Management has volunteered to administer this process on behalf of the university. The contact person is Karen Le Jeune. (karen.lejeune@uct.ac.za)



TEACHING AND LEARNING BUILDING

At the University's Council meeting on 24 March, approval was given for the new Teaching and Learning Building and the retrofitting of the Centlivres Building. The original Snape Building will be demolished and the new Teaching and Learning Building built in its place will be five stories in height and will constitute a total of 3,250 square metres. An amount of R70.5 million has been allocated for this building. The top floor will house the Department of Construction Economics and Management, and space has also been allocated to the department for a computer laboratory and tutor space. The balance of the space in this building will be allocated to six flat-floor teaching venues of 130 seats each (two per floor – interleading), and social learning space on the basement level.

CENTLIVRES BUILDING

With Construction Economics and Management moving to the Teaching and Learning Building, space will be made available for growth for Architecture within the Centlivres Building. Opportunities to optimise the use of space within the building and expand into the space which will be vacated by CEM will provide many solutions to the space requirements of the School. An amount of R52 million has been provided for this project. New teaching spaces will be created within the current footprint, and multi-use of space becomes plausible.

TRANSFORMATION

DINNER WITH THE DEAN

On 22 March, another successful “Dinner with the Dean” evening was organised by Sanet Minnaar, Chair of the Values and Culture working group. An academic and a PASS staff member are invited from each department, and on the 22nd, 16 staff members enjoyed the dinner which was held at the Brooklands Guesthouse in Rondebosch. Jeff Jawitz from CHED was the guest speaker and spoke about the University’s admission policy. Belinda Davids from the faculty office said, ‘It was a very enjoyable evening and great to socialise and talk to people who I do not come in contact with at work.’”

VISIT TO THE HOLOCAUST MUSEUM

The Values and Working Group is arranging another visit to the Holocaust Centre on 14 June. This is a great experience for staff who have not been there and we would like to encourage staff to attend. Following is a description of

what the centre strives to achieve through its education programmes:

- To provide accurate historical content knowledge of the Holocaust to develop an understanding of the past
- To facilitate the making of connections between the Human Rights atrocities committed during the Holocaust so that the moral and ethical issues raised can be instructive in dealing with contemporary challenges of human rights abuses, for example xenophobia, racism and bigotry
- To encourage a commitment to the protection of Human Rights to support the building of a Human Rights culture and to encourage respect for diversity
- To encourage social activism and a greater individual responsibility to building the community
- To encourage empathy and compassion and a deeper understanding of what it means to be human.

YOUNG ENGINEERS SCHOLARSHIP (YES)



Mandiwakhe Ntlabathi, a first-year Chemical Engineering student, is the first recipient of the Young Engineers scholarship (YES). The scholarship is the brainchild of two Chemical Engineering graduates, Harshad Bhikha and Sergio Cieverts, who work at Sasol in Secunda. They got the buy-in from their colleagues at Sasol and 17 of them contributed to the YES scholarship to support a first-year engineering student who, despite the

odds, was able to excel at school, and needed financial assistance to pursue their dream of studying engineering at UCT. The scholarship is worth R45 500

Mandiwakhe is from Nyanga and attended Nelson Mandela High school in Crossroads. His mother and father are both involved in informal trading in order to make ends meet. Mandiwakhe achieved seven distinctions in matric, which is testament to his hard-working nature. He loves figuring out how things work and that is what led him to chemical engineering.

The donors to the scholarship will make themselves available via email to answer any questions Mandiwakhe may have on life in the engineering industry and offer some guidance and mentorship should he



Four alumni who contributed to the YES scholarship visited the University to interview three candidates for the scholarship. From left to right: Siraj Jardine, Sonya Samson, Harshad Bhika and Sergio Cieverts

desire it. “We would like the scholarship to more than just a name on a page but something interactive and personal which will really benefit the student,” said Harshad Bhika.

VISIT TO SA NAVY IN SIMONSTOWN

Staff from the Departments of Chemical, Electrical and Mechanical Engineering were invited to spend a day at the SA Navy in Simonstown. The Dean, Head of Mechanical, Electrical and Chemical Engineering, academic and PASS staff were entertained for the day by different manoeuvres, touring submarines, and the various vessels in dock. The day was organised for the UCT staff to find out more about the Navy's University Reserve training programme.



EBE POSTGRADUATE COUNCIL'S SOCCER DAY

Postgraduate students can find life at UCT lonely when they are involved in their research work. Annually, the EBE postgraduate student council organises a soccer tournament to give the postgraduate students in the faculty an opportunity to socialise and network together.

This year the event was an indoor football tournament held in the UCT Sports Centre with 12 teams with eight players each. A large crowd came out to support their teams. There were many slick moves and cracking shots in the group stages.

In the semi-finals, the games were very tight, hard-fought encounters and a couple of the matches had to be decided by penalty shoot-outs.

In the final, the team called "COMSIRU", the defending champions from the EBE PGSC football tournament of 2011, played the team called "The Germans". Everyone in the crowd got behind their favourite team and much cheering was heard. After a colourful display of football, the winning team was "The Germans", and they walked away with the prizes.

The best dressed team was the "Green Island", whose players mostly came from the quantity surveying and construction studies.

Graham Morrison, the Chair of the EBE PGSC, summed up the day, "It was a great success and an enjoyable event for all EBE postgraduates," and hinted at another football day being held later this year.



The winning "Germans" soccer team

CLASS REPS' WORKSHOP

The EBE undergraduate student council held a class rep workshop for all the newly elected class reps in the faculty. The event was to ensure that the class reps clearly understand the important role they play. The Dean attended the workshop and emphasised the need for good communication between the student body and his office to ensure that we address any issues that arise. It was clear to the EBESC and to the Dean that there is still a lot of confusion around the role of the class rep.



Members of the EBESC 2012 with the Dean



OPEN DAY 2012