

Faculty Newsletter

Message from the Dean

I would like to take this opportunity to extend my sincere thanks to all the staff in the Faculty for the contributions you have made over the past year. It has not been an easy year. The early start of the academic year put a lot of pressure and stress on the faculty office and departments, as did the disruption of the World Cup Soccer, the ECSA accreditation visit and the new online application system to mention a few. I greatly appreciate the support and dedication that staff have shown over the year.

I would like to especially thank the deputy deans, Paul Bowen and Candy Lang, for their ongoing support and for their assistance in running the faculty this year. Paul will be going on sabbatical next year and steps down as deputy dean responsible for undergraduate matters. Neil Armitage will be taking up this position in January 2011.

I am very sad to announce that Candy will relinquishing her position as deputy dean responsible for postgraduate studies. Candy will be returning to her very busy research group. Sue Harrison has agreed to stand in as the acting deputy dean for postgraduate studies from January 2011. Sue will be in the position until I

can make a permanent appointment.

In 2011, Vanessa Watson will be the third deputy dean, with the special projects portfolio. The two assistant deputy deans for 2011 are Jenni Case with the academic development portfolio and Mqhele Dlodlo with the internationalisation portfolio. I look forward to working with the new team.

The newsletter is full of stories of EBE students and the awards they have received as well as the amazing outreach activities that many of our students are involved in. It is very rewarding to see how many of our students are being awarded for their excellent research work. This could not be done without their supervisors so congratulations to all those involved.

I would like to take this opportunity to wish everyone a very happy and peaceful festive season. I know many of you will be taking a well-deserved break. The faculty office staff will be working flat out to ensure that all the academic offers are made and the information captured.

I look forward to seeing you all in the New Year.

CONGRATULATIONS

One of the strategic pillars of the Faculty is to strengthen our Research and Innovation focus. A key indicator to benchmark the stature of our academic staff internationally in a particular research field is the rating-system of the National Research Foundation (NRF). In fact, through our strategy we aim to increase the number of NRF-rated researchers in the Faculty.

It is against this background that I would like to congratulate the following academic staff who either obtained a rating for the first time, or had their ratings assessed:

Professor Zingoni	B2 rating	Dr Rawatlal	Y2 rating
Professor Knutsen	C2 rating	A/Professor Fraser	C1 rating
Dr Chung Kim Yuen	Y1 rating	A/Professor Armitage	C2 rating
Professor Van Steen	B3 rating	A/Professor Case	C1 rating

On behalf of the Faculty, well done!

*WISHING ALL OUR STAFF A HAPPY, SAFE
AND PEACEFUL FESTIVE SEASON*

STUDENT LEADERSHIP AWARDS

The annual Student Leadership Award function took place on 21 October 2010 and two EBE students received awards for the contribution they have made to the university as leaders.

ERIK DE RIDDER (3rd year Civil Engineering)



Erik de Ridder received the Executive Director of Student Affairs student leader award. Erik was described by his referees as being more than a leader by name, his leadership is inspirational, and he is fair and listens to the student voice. Another referee says: With humility and a blatant honesty that sets him apart, the passion for students echoes through every interaction.

In addition to all of this, he was on the Dean's Merit list in both 2008 and 2009, and received the Engineering and Built Environment Faculty's Special Award for Commitment to Social Outreach.

TAPIWA TEVERA (Honours in Materials Science)

Tapiwa Tevera received an Ackerman Family Foundation Special Award. In the view of the panel of judges, Tapiwa is not only an exemplary leader, but a man whose quiet tenacity against personal challenges has been a magnificent spur rather than a deterrent to his involvement in student life. His qualities of 'perseverance, dedication, commitment, compassion and excellence,' as described by his referee, are qualities that the panel of judges value in student leadership.



CRYSTALLISATION AND PRECIPITATION UNIT DOES IT AGAIN

IChemE is the hub for chemical, biochemical and process engineering professionals worldwide and annually they present awards which are recognised and highly regarded throughout the international chemical, process and biochemical engineering community.

A submission based on Dyllon Randall's PhD research project, *Freezing your waste water: using Eutetic Freeze Crystallization for water treatment* was a runner up in the sustainable technology section and received a highly commended award.



The sustainable technology section recognises the project or process that best demonstrates innovation in waste reduction, recycling, reuse or the lengthening of product lifecycles.

Dyllon's research project forms part of the bigger Eutetic Freeze Crystallization (EFC) project which is headed up by Professor Alison Lewis. Traci Reddy (PhD), Rinesh Jivanji and Grant Apsley (MSc students) and Jeeten Nathoo (Research Officer) are involved in the EFC project.

EXCELLENCE IN WATER RESEARCH AWARDS

Traci Reddy, a PhD student in the Crystallisation and Precipitation Unit, was one of the Young Water Research winners for the Excellence in Water research awards 2010. In October she was invited to give a presentation on her work at the CSIR in Pretoria.



HOUSING STUDENT OF THE YEAR AWARD

In October, the International Housing conference took place and as part of the conference proceedings the South African Housing Foundation held its annual national housing awards ceremony at an African evening experience at Moyo, Spier Estate, in Stellenbosch.

The Student of the Year award was awarded to Greg Coe, who completed his MSc in Property Studies in June 2009. The citation for the award said: 'In recognition of Greg's research report, making a significant contribution to the understanding of innovative opportunities for mortgage lending. This relevant and useful



Greg Coe receiving his award from Minister Bonginkosi Madikizela and John Hopkins, CEO of South African Housing

research is as a result of his focus and persistence in gaining access to key market players.'

The awards were handed over by Minister Bonginkosi Madikizela, MEC for Human Settlements in the Western Cape.

Kathy Evans supervised Greg for his dissertation and said 'He is currently working at Old Mutual doing very interesting things.'

Greg did a Business Science in Actuarial Science, which he completed in 2005.

RHODES SCHOLARSHIPS

The Faculty is extremely proud to have three graduates awarded a Rhodes Scholarship. To be selected for this prestigious scholarship one has to be strong academically, and show leadership and character, community involvement and sporting achievement.



Brennan Hodkinson, a Civil Engineering graduate, has registered for a MPhil in Sustainable Development at the University of Cambridge. The course looks at how engineering can be done in a manner that is more considerate to the economic,

social and natural environment we live in. Brennan was key to setting up the Engineers without Borders society at UCT. Brennan will be joining Mark Alexander's son, Ryan, who is also doing the course.

Malebogo Ngoepe, a Mechanical Engineering graduate, will spend three years at Oxford University. She will spend her time working in the field of biomedical engineering, focusing on cardiovascular fluid mechanics. Malebogo graduated in 2009 with a first-class honours. She received the Faculty's Special Award in 2009 for her work with the South African Science Foundation for Youth.



David Springer, a Mechatronics graduate, is currently doing his MSc in Biomedical Engineering at Oxford University and will use the Rhodes Scholarship to complete his DPhil. This is the third Rhodes Scholar in the last six years from this programme. David joins Chris Haw and Bonolo Mathibela.

Jon Tapson says: 'We have also produced two Mandela Rhodes Scholars and a Fulbright scholar from the Electrical Engineering and Electrical Computer Engineering programmes in that time. I think it reflects great credit on the Department. Given that this is the time of year when we find ourselves writing dozens of reference letters, it's nice to know that some of them pay off!'

2011 UNDERGRADUATE AND POSTGRADUATE STUDENT COUNCILS

Congratulations to the following students who were elected for the undergraduate student council:

Ntando Khanyile	Chair
Claudio Buque	Vice Chair
Razelle Naidoo	Secretary
Himal Patel	Treasurer
Kreevin Ekambaram	Academic
Thuthu Mbanjwa	Transformation and Publications
Mark Saunders	Sponsorship and IT
Veen Lawrence	Events and Sport
Nothando Khumalo	Student Life
Njabulo Xhakhaza	RAG

Congratulations to the following students who were elected for the postgraduate student council:

Denis Wong	Chair
Ragesh Pillai	Vice Chair
Alan Jones	Treasurer
Renee Miller	Secretary
Tapiwa Tevera	Advertising
Henry Liu	Academic
Bruce Raw	Events/Logistics



World AIDS Day is about raising money, increasing awareness, fighting prejudice and improving education. The World AIDS Day theme for 2010 is *Universal Access and Human Rights*. World AIDS Day is important for reminding people that HIV has not gone away, and that there are many things still to be done.

According to UNAIDS estimates, there are now 33.3 million people living with HIV, including 2.5 million children. During 2009 some 2.6 million people became newly infected with the virus and an estimated 1.8 million people died from AIDS.

CONGRATULATIONS

Congratulations to Eric Marais, a final-year student in the Department of Electrical Engineering, who received third prize in the national South African Institute of Electrical Engineers Student Project Competition.

Eric competed against 12 other participants from ten tertiary institutions around the country. The title of his presentation was: *Theoretical resource assessment of marine current energy in the upper 200m of the Agulhas current, flowing along South Africa's east coast*. The competition was evaluated on structured criteria and focused particularly on presentation skills and the response to questions.

Eric had received the second prize for the Western Cape competition. Dr Chowdhury was his supervisor and said "This is a highly competitive event. He deserves our congratulations." Eric will be graduating in December and will be joining McKinsey & Company in Johannesburg.



Dr Chowdhury and Eric Marais

GREEN TALENT

Congratulations to Mike Otenio, one of the winners of this year's "Green Talents" competition which was held in Germany. The German Federal Minister of Education and Research, Professor Annette Schavan, said: "The purpose of the competition is to advance international cooperation so we can jointly contribute towards developing sustainable solutions to fighting climate change and to protect the environment."



The German Federal Minister of Education and Research, Professor Annette Schavan, and Mike Otenio

A total of 234 young scientists from 57 countries had applied to become one of the "Green Talents". A high-calibre jury of German experts selected a total of 20 award winners and Mike Otenio was one of them. In November Minister Schavan received the 20 award winners at the 7th BMBF (Federal Ministry of Education and Research) Forum for Sustainability in Berlin.

Mike's research focus is on sustainable cement and concrete materials and he is busy with his PhD under the supervision of Hans Beushausen and Mark Alexander. Mike has just returned from travelling through Germany as part of a ten-day science forum. During his stay he visited important universities, research institutions and companies, learning about trend-setting projects in various fields of technology.

WELL DONE TO GEOTECHNICAL ENGINEERING STUDENTS

Charles MacRobert, a 2009 Civil Engineering graduate was awarded the 2010 Barry van Wyk award by the South African Institute of Civil Engineers (SAICE) Geotechnical Division for the best geotechnical engineering final-year thesis at a South African University. Two other UCT students, Mughtar Pietersen and Nishaat Mowzer, were short-listed for this prize, highlighting the great work being done by the Department of Civil Engineering in better understanding geotechnical problems. All three students were supervised by Dr Denis Kalumba, a senior lecturer in geotechnical engineering.

What lies beneath has also been a question asked by many when deciding how to find a proposed structure.

As part of his final-year thesis Charles undertook to better understand two penetration tests commonly used in southern Africa. The one test was the cheaper and more efficient Dynamic Probe Super Heavy (DPSH) test. The



Charles MacRobert with Mr Ali Naidu the President of SAICE

other was the more widely accepted but expensive Standard Penetration Test (SPT). Two major concerns in using DPSH tests are the uncertain correlation with the SPT for use in design and the build-up of friction along DPSH drive rods. Charles's work addressed these concerns by developing a correlation between the two tests based on site investigations carried out across southern Africa in Angola, Botswana, Mozambique and South Africa. The study also investigated effects of probing rod friction in the sandy soil profiles common to Cape Town.

Charles is currently working as a civil engineer with Anglo American.

WORTHY HONOUR TO PROFESSOR O'CONNOR



Congratulations to Cyril O'Connor on being awarded the Brigadier Stokes Memorial Award. The Dean said: "The University, the Faculty and the Department of Chemical Engineering are proud of this achievement. The Brigadier Stokes Memorial Award is the most prestigious award presented to an individual by the Southern African Institute of Mining and Metallurgy. You received the award for your outstanding and unique contribution to the Southern African Mining Industry over a long period. By purely viewing the list of previous recipients (amongst others J Ogilvie Thompson, Pieter Cox, Brian Gilbertson, Leslie Boyd, Con Fauconnier and Patrice Motsepe), you are surely in high-level company. You really make us proud."

UNIT STATUS FOR CONCRETE RESEARCH GROUP

The Concrete Materials and Structural Integrity Research Unit (CoMSIRU) has been given full accreditation as a University Research Unit at UCT. While the research group has been in existence for almost two decades, its growth and increased activities in recent years prompted the leaders of the group, Prof Mark Alexander, A/Prof Pilate Moyo, and Dr Hans Beushausen, to apply for research unit accreditation. This implies that the group meets certain criteria for research, namely a good track record of research productivity, stable research leadership, financial soundness and proper management, and clear research goals and objectives for the future.

The full establishment of the Unit was celebrated at a dinner in Cape



Pilate Moyo, Mark Alexander and Hans Beushausen

Town on 23 November 2010. Guests included Mr Bryan Perrie, MD of the C&I, and representatives from the industry and other academic institutions. During the dinner, the statistics were briefly reviewed, showed that the group has grown to a cohort of about 20 full-time postgraduate students (masters and doctoral), as well

as the research, admin and laboratory staff. Strong interest is being expressed by future postgraduate students.

Also at the dinner, Professor Mark Alexander expressed thanks to the Cement Industry, which has consistently funded the concrete research operation at UCT over the years. He mentioned the quality of the graduates being produced, who then go on to occupy key positions in industry, the profession, academia, etc. Valuable research knowledge is being created which is fed back into concrete practice in South Africa, and enables the unit to interact vigorously on the international scene.

ADVANCE VALUATIONS MODULE

A group of students returned after completing their MSc Property Studies to do an additional module on Advanced Valuations. It is the first time the Department of Construction Economics has offered this course, which provides an opportunity for their MSc graduates to register as Professional Property Valuers.

Kathy Evans said: "There is a high demand for professional property valuers, particularly with the legislated requirements of the Municipal Property Rates Act to value all properties for rates purposes every four to five years."



Kathy Evans (seated front) with the group of students who attended the Advanced Valuations module

REGIONAL EDITOR OF NEW FORMED INTERNATIONAL JOURNAL

Congratulations to Alphose Zingoni who has been appointed Regional Editor and Editorial Board Member of the newly formed International Journal of Lifecycle Performance Engineering. One of his duties will be to work closely with the Editor-in-Chief (Professor Alessandro De Stefano, Technical University of Turin, Italy) in promoting the goals of the journal and encouraging submission of papers to the journal. It is becoming increasingly necessary that all players in the design, construction and management of important civil-engineering infrastructure take into account the fact that structures have a finite lifetime, and are continuously subjected to time-varying processes in which gradual degradation and sudden environmental threats play a role and risk evolves to higher levels, all of which attract additional costs. From the point of view of safety assurance and benefit-versus-cost optimisation, structural performance clearly becomes a life-cycle issue. Topics covered include (but are not limited to):-



- Time-dependent structural performance and lifecycle modelling
- Environmental hazards (earthquakes, storms, floods) and residual safety analysis
- Structural robustness and vulnerability to explosions, blast and fire
- Damage evolution and risk analysis
- Time-dependent material degradation, fatigue and corrosion
- Structural monitoring, maintenance and retrofit
- Application of control and smart systems
- Lifecycle-oriented design criteria

Further information on the journal, and instructions on the submission of manuscripts, may be seen on the journal website: www.inderscience.com/ijlcpe Alphose looks forward to receiving contributions from academic staff.

LAUNCH OF THE SOUTH AFRICAN MINERALS PROCESSING INSTITUTE

On Monday 8 November the Department of Science and Technology (DST) hosted the launch of the South African Minerals Processing Institute (SAMMRI) . This is an initiative which is coordinated by the South African Mining and Minerals Processing Industry in collaboration with a group of research providers, the DST and the Department of Mineral Resources (DMR) .

The focus of SAMMRI is to ensure that South Africa has the necessary high level skill base and cutting edge technology in future to maintain its globally competitive position in minerals processing. The following companies have committed each R 100 000 p.a for two years for a pilot programme commencing in 2011:

- Anglo American,
- Exxaro,
- Impala Platinum,
- Lonmin and
- AngloGold Ashanti.

DST has contributed R 950 000 to this Pilot Research Programme. An inaugural SAMMRI Board will be formed, comprising of representatives of the companies mentioned above, the DST and DMR

OUTREACH

UCT ENGINEERING STUDENTS TAKE ENGINEERING INTO HIGH SCHOOLS

UCT's student branch of the Institute of Electrical and Electronics Engineers unveiled a wind turbine and a small solar panel installation at Oaklands High School in Lansdowne, Cape Town, on Thursday, 2 December, as the first phase of a project they are spearheading to double the school's computer lab capacity while reducing the costs of running it. At the same time, they have been teaching basic principles of electrical engineering to high school learners who designed and built two models of the project.

"The aim of our project is to establish a new computer lab at an under-resourced high school in Cape Town, using 20 computers donated by the EBE Faculty," said project manager Mr Nana Ampofo Ampofo-Anti. "One of our goals is to increase access to information and educational tools in under-resourced schools. Another is to expose high school learners to engineering as a possible career path, and to encourage the learners to be innovative."

The new lab at Oaklands High School will be fed by a combination of power from the Eskom grid and renewable power produced on site by the wind turbine and solar panels. Two models of the project have been designed and built by a group of high school learners. Eleven grade 10 learners (five from Oaklands High School and six from Oude Molen Technical High) have been selected by their schools to take part in the wind turbine project. The learners were taught basic electrical engineering principles in three project technical sessions held on campus. The sessions included a briefing on the importance of using renewable energy and energy conservation. The learners participated in an energy audit of the existing lab at Oaklands High School, and then developed the design for the project model, which was constructed at Oude

Molen Technical High School. Eventually the group was split into two with each team led by one of the learners; designing and building one of the models.

Through its partnership with the Khanya project (a

Western Cape Education Department initiative) the projects committee identified Oaklands High as a highly under-resourced school. The school currently has one computer lab of 20 machines that service about 1000 learners and staff members. The Western Cape Education Department will build new school buildings for Oaklands High starting in January 2011, so the project has been split into two phases. The first phase is the installation of the wind turbine;

the computers will be installed once the new school buildings are complete. The second phase of the project in 2011 will be led by the current student branch projects committee vice chairperson Mr David Oyedokun.

The UCT IEEE branch secured funding to purchase the Oaklands High wind turbine from the IEEE Power and Energy Society, which donated \$10 000 towards the project. Cape Town-based suppliers Earthpower and MLT provided the wind turbine at a discounted cost. The second phase of the project will be the installation of the 20 new computers in the new computer lab. UCT IEEE members are now developing additional learning software that will be installed on the computers in the new lab.



The 2010 UCT IEEE SB Projects Committee; from left to right: Milton Edimu (Lead Technical Coordinator), Blessing Katsande (Technical Coordinator), Joel Makara (Logistics Coordinator), Nana Ampofo Ampofo-Anti (Chairperson & Project Manager), Tenele Dhladhla (Schools Liaison Officer), and David Oyedokun (Secretary General & Vice Chair)



ENGINEERS WITHOUT BORDER UCT

Engineers without Borders (EWB) UCT are part of the Township Catering Project which received funding from the VC's strategic bid.

EWB partnered with the Department of Chemical Engineering to address informal street caterers' practice of burning treated construction timber which results in toxic ash created by the chromated copper arsenic in the timber and causes public health issues. Both the social and technical components of the project allowed students to apply their acquired skills in the 'real world' and think critically about the role of engineering in climate change efforts.

Members of the project have been looking at alternative cooking stoves to address these health issues. At the end of October, they gathered to test three different types of high-efficiency cooking stoves and cooked Chakalaka, "yummy cabbage" and sausages. This semester, EWB has also partnered with SHAWCO Health and the Baphumelele Orphanage. Using design and construc-



Rhea Naidoo and Anya Boyd watching over the stoves

tion skills, students designed special drop bins for cloth collection for SHAWCO's new charity shop as well as a pharmacy dispensing cart for SHAWCO health clinics.

At Baphumelele Orphanage, students engaged in detailed analysis to ascertain the cause of the respiratory problems faced by the babies. A ventilation system was designed and installed that was sensitive to the needs, budget, and maintenance capacity of the orphanage.

The mission of EWB is to be a structured body that provides a platform for Engineering and the Built Environment students to become socially conscious individuals by engaging with under-served communities. "We aim to offer engineering

support where resources are scarce and realise our potential as students and professionals," said Wiebke Tousaint, the Chair of the 2011 EWB committee.

EWB looks forward to an exciting year full of stimulating events, speakers and projects.

GETTING SCHOOLS INVOLVED IN WATER EDUCATION



Young Simondium Primary school learners participated in the WaterBus project

On Friday, 8 October 2010, a group of students from UCT, CPUT, UWC and Stellenbosch University visited Bridgehouse School and Simondium Primary School in Franschoek to educate the learners about water monitoring in conjunction with the World Water Monitoring Day. This was a pilot programme and gave the students an opportunity to see what worked and what would need improvement. They hope to roll it out to many schools in South Africa. In planning the programme, they received support from World Monitoring Day, who supplied the testing kits, and had input from the Wild Life Society of South Africa and Emanti Management, who assisted them with the actual water testing.

At Bridgehouse the Grade 6 learners were given talks on the water cycle and an overview of the World Water Monitoring Day tests before they were taken down to the Franschoek river to test the quality of the

water. This was then repeated at Simondium Primary School.

The driving force behind the WaterBus project is Bernelle Verster, who is doing her PhD on water treatment under the supervision of Professor Sue Harrison in the Department of Chemical Engineering at UCT.

Bernelle is a member of the Western Cape Wildlife and Education Society of South Africa (WESSA) and is the Vice-Chair of Young Water Professionals. She is passionate about water and has the title of Water Maverick in the Dutch-South African water partnership. They aim to raise awareness and to get as many schools as possible involved in water education.

STAFF NEWS

FAREWELL

We would like to wish a number of our colleagues a happy and well-deserved retirement. They have all been here for a substantial number of years and each played an important role in the Faculty. We would like to thank them for the contributions they made in their own different ways to ensure that the Faculty continues to go from strength to strength in all its activities.

Barry Downing from the Department of Electrical Engineering joined UCT in 1983 and after 27 years he will be “retiring”. However, we are delighted to say that Barry will be returning next year to head up the department for another year.

After 37 years in the School of Architecture, Planning & Geomatics, **Dave Dewar** is retiring. Dave was a Deputy Dean in the Faculty for a number of years under the deanship of Cyril O’Connor.

Erica Schulschenk from the Dean’s Office will be retiring after 35 years at UCT. Erica started her working life at UCT down in Bremner before moving up to the Dean’s office, where she has worked for four deans.

Peter Wilkinson from the School of Architecture, Planning & Geomatics will be retiring after 28 years at UCT. Our thoughts and prayers are with Peter and his family during this difficult time of Peter’s ill-health.

Roger Wood has been at UCT for 12 years. Roger was in the Department of Mechanical Engineering and was responsible for the drawing course. He was also responsible for student recruitment for the faculty.

Taliep Lakay, the laboratory manager of the Water laboratory in Civil Engineering, will be taking early retirement after 41 years at UCT.

The Dean hosted a function at Rhodes Memorial on 1 December to celebrate the retirements.



DATES TO REMEMBER

		1 Feb 2011	Parents’ Orientation
		2 - 4 Feb 2011	EBE orientation & registration for first years
17 Dec 2010	Built Environment graduation	7 - 8 Feb 2011	Registration for returning students
18 Dec 2010	Engineering graduation	10 Feb 2011	Sax Appeal Day
29 Jan 2011	Parents’ Orientation	11 Feb 2011	First meeting for first years
1 Feb 2011	Residences open	14 Feb 2011	First day of lectures