Message from the Dean

This year, I have been delighted to have spent time reconnecting with our alumni in Cape Town and Johannesburg. I have found these meetings extremely valuable, and greatly appreciate the time and the feedback that the alumni have given me. Our aim is to build up an active EBE alumni community, to build networks and to welcome alumni back onto campus. To do this, we need your input, ideas, comments and feedback, so please contact Mandisa Zitha, our alumni officer, or visit our EBE alumni Facebook page, and let us know how you would like us to connect with you. Mandisa has been busy organising events and reconnecting with many alumni. She would be happy to hear from you.

We continue to focus on developing strategies to improve our undergraduate throughput rate and this year we received funding from the Department of Higher Education and Training for our new initiatives. These include an improved tutorial programme, mentoring, early warning system, boot camps, workshops, and building a coordinated strategy around holistic student support.

At the end of last year we saw a number of staff retiring. Professor Kevin Bennett, the Director of the Energy Research Centre in the Department of Mechanical Engineering, retired after 37 years at UCT. Professor Romano Del Mistro retired after 14 years in the Department of Civil Engineering, and Mr Bill Randall from the Department of Chemical Engineering retired after 37 years at UCT. We are extremely grateful for the huge contribution that they each made to the faculty.

I trust you will find the articles in the newsletter interesting, and hope that you will be proud of the work being done in the Faculty of Engineering & the Built Environment.

I look forward to meeting and interacting with many more of our alumni.

Honorary degree for 1967 civil engineering graduate

In September, Professor Klaus-Jurgen Bathe will be receiving an honorary doctorate from UCT. Professor Bathe has received many honorary doctorates from institutions around the world, so we are delighted that he has accepted the honour and will be visiting the University in September to receive the degree. “It is not often that an honorary doctorate is awarded to an engineer, and there is no greater delight than seeing a deserving scholar being honoured in this way,” said Professor Alphose Zingoni from the Department of Civil Engineering.
On 27 April, Professor George Ekama from the Department of Civil Engineering was awarded the National Order, the highest recognition in South Africa.

President Jacob Zuma bestowed the Order of Mapungubwe, in silver, to Professor Ekama. The award is given to South African citizens for achievements that have had an international impact and served the interests of the country.

Professor Ekama researches biological systems that clean and treat wastewater and sewage, and regularly teaches courses for local authorities and industry, both nationally and internationally, on the subject. The research has provided innovative solutions to enhancing and improving wastewater treatment.

He said he was honoured to have been nominated for the award, and expressed his appreciation of the government’s recognition of “such an unglamorous, yet vital area of research”. As a civil engineer, he is interested in enhancing the country’s status in the field of wastewater treatment, and lives by a simple research credo: locally inspired, globally relevant.

He has held a National Research Foundation A1 rating for more than 10 years, which recognises him as a world leader in this field. He is widely published and has written more than 150 papers on wastewater treatment in top international journals. He is also one of only four South African academics to be listed on www.ISIHighlyCited.com, an international website of the most cited academics in the world.

Describing his area of research as fascinating, Professor Ekama says: “If you are looking for a biological process that is required for treating wastewater, don’t give up. There are bacteria out there that can do amazing things. You are bound to find one.”

Professor Ekama has remained at the forefront of developments in wastewater treatment since the 1970s, primarily through a strong research group.

He supervised 43 Master’s and 24 PhD students and won the Water Institute of Southern Africa’s (WISA) Umgeni Award twice for the most significant paper on water, as well as the WISA Piet Vosloo Memorial Prize for the development of mathematical models for wastewater treatment plant design and operation.

A new laboratory with the capacity to provide a comprehensive service to water researchers will open in the Department of Chemical Engineering in the New Engineering Building in the near future. Professor Alison Lewis, who heads up the Crystallisation and Precipitation Research Unit, says the new lab will offer specialist water and brine analysis, as well as research. The intention is to offer a service to researchers who are investigating various water-related questions, such as, a researcher looking at how different river contaminants affect the aquatic life or a researcher investigating the effect of trace metals on water treatment processes, or the effect of water composition on concrete corrosion of bridges. The scope is large, and there are many potential projects. The idea is that analyses will lead to research projects and also to collaborations between the projects through the common theme of water.

Continuing Professional Development

The CPD unit at the University of Cape Town is accredited to run courses that will be acknowledged for obtaining CPD credits. Below are a number of courses which will be taking place in the second half of the year.

Project Management 1—6 July  
Placing design central to urban decision making 7—29 Aug  
Commercial Property Valuations 4—6 Sept  
Heritage resources management 18 Sept—30 Oct  
Research & assessing heritage resources 7—11 Oct  
Number of courses in transport studies, urban infrastructure design and management, and radar and electronic defence. Visit the CPD website for more information or call Sandra Jemaar on 021 650 5793.
International leader at the helm of Energy Research Centre

Professor Harald Winkler’s summary of his vision for UCT’s Energy Research Centre is “Use less energy, more efficiently, mostly renewables.” The centre’s new director offers a reflection on the world’s energy troubles - and the factors driving climate change.

A lead author of the Intergovernmental Panel on Climate Change since 2005, Professor Winkler has a special interest in the area. He is internationally renowned for his research work in energy and climate policy. He’s also taught and supervised students at postgraduate level since 2000.

The ERC is "unique" in South Africa; a multidisciplinary academic centre producing high-quality, targeted and relevant research that will articulate precise, practical and progressive alternatives to the energy challenges of South Africa, Africa and beyond. Professor Winkler says it will take four things to imagine a different energy future.

Firstly, affordable access to energy is pivotal, especially in South Africa. “This is critical to alleviating poverty and inequality,” adds Professor Winkler.

Second, the fuel mix must change; South Africa is too coal-dependent. Diversity is an energy policy goal in its own right, but is also critical to the third priority: reduce greenhouse gas emissions. "Weaning the world off coal and fossil fuels will take decades," he adds. "South Africa is building two new coal-fired power stations to fill energy needs."

But carbon taxes are changing the way the world views fossil fuels and will grease the wheels of transition. Talking to ERC’s renewable energy focus, Winkler points out that “huge amounts” of renewable energy sources are available: solar, wind, hydro-electricity, and biofuels among them. "And we have the technologies to use them and the economics of many are improving."

And this is where the fourth pillar, improving governance, fits neatly. "An independent system and market operator is a crucial reform for SA’s energy sector." Professor Winkler’s vision is that, together, doing excellent research on the four broad areas will "add up to imagining a different energy future in our economy and society”.

The centre plays an important role in Africa. In 2010 the ERC was selected as Africa’s Regional Designated Centre in energy planning, training African energy planners and thereby providing support to African Regional Co-operative Agreement member states. As a result, a good number of African energy students are making their way south to UCT.

The centre has also begun a feasibility study on climate change mitigation plans with Latin American and African partners - and partners within UCT, like the African Centre for Cities.

This is just a hint of the interdisciplinary work that’s growing in the Faculty of Engineering & the Built Environment.

Aqualibrium Competition- a finalist for a NSTF award

A/Professor Kobus Van Zyl and his team, which includes Marie Ashpole, the SAICE Outreach Officer, Media and Events, and Fridah Mahlangu, the SAICE Career Guidance Officer, have been selected as a finalist for the National Science and Technology (NSTF) award in the category: Outstanding contribution to SETI through communication for outreach and creating awareness.

A/Professor Van Zyl is from the Department of Civil Engineering. The Aqualibrium competition is a fun way for students to learn about water supply, what civil engineers do and the importance of protecting our water resources. The competition presents an excellent reference point for discussion of the importance of preserving natural water resources and the need to use water sparingly, as well as the application of physics and mathematics to a real-life engineering problem.
Reinitiating Spirulina production in South Africa

Researchers from CeBER, a research unit in the Department of Chemical Engineering, together with Biodelta neutraeuticals, are in the process of establishing a new company that will reinitiate Spirulina production in South Africa. Spirulina is a blue-green algae well known for its health benefits. There are currently no local producers and all Spirulina in South Africa is imported.

Biodelta owns a state-of-the-art Spirulina production facility on a farm near Franschhoek in the Western Cape. UCT researchers are working on process improvements that will optimise productivity and enhance the quality of the product, as well as technology developments that will reduce costs. While the first commercial product will be Spirulina powder and tablets, offering a quick route to market, CeBER are also developing methods of extracting other valuable products (e.g. pigments, bioactive compounds and proteins) from Spirulina.

The successful development of this project, supported by the unique combination of CeBER’s experience in algal cultivation and research together with Biodelta’s world-class facilities and expertise in packaging, sales and marketing, will support the revitalisation of the algal biotechnology industry in South Africa.

Engineers without Borders South Africa – embracing a vision

Over the last five years, EWB-UCT has become an institution in the Faculty of Engineering & the Built Environment at UCT. Now that the first generation of EWB volunteers has graduated and entered the workplace, new opportunities exist to link student chapters to industry. In January 2013 EWB-SA was successfully registered as an NPO and it is now driven by a group of professionals in Johannesburg. In March, a small but motivated group of young engineers got together in Cape Town to set up a professional support base in the Western Cape. As young professionals driving EWB-SA, they have made it their mandate for 2013 to give mentorship, training and guidance to the two existing student branches at UCT and Wits, to set up new student branches at UJ, UP, CPUT and Stellenbosch, and to take leadership in implementing community-based projects.

Several projects and workshops are scheduled over the next six months. Passionate individuals, creative thoughts, committed hands and sponsorship are welcome to get involved.

EWB-SA is setting out on a new path of social innovation, sustainable development and systemic change. They are looking for collaborators who accept the challenge ahead and are prepared to share in their values. It is not about giving back, it is about creating together. Join us!

To get in touch, please contact:

Wiebke Toussaint: wiebke@ewbsa.org
(EWB-SA National Coordinator)

Heloise Greeff: heloise@ewbsa.org
(EWB-Cape Town Coordinator)

Matthew Docherty: chair@ewbuct.org
(EWB-UCT Chair)
Prestigious Scholarships

A number of our 2012 graduates have been awarded prestigious scholarships to do their postgraduate studies at top international universities.

Nicholas Rice, a 2012 chemical engineering graduate, is one of four South Africans who received one of the prestigious Gates Cambridge Scholarships for postgraduate study in 2013. He will start his MPhil in advanced chemical engineering at the University of Cambridge in September.

J-P Janet and Astrid Boje, both 2012 chemical engineering graduates, had the choice between a Fulbright Scholarship and the Erasmus Mundus Scholarship, which is a European programme intended to support international, multidisciplinary collaboration. It provides full funds and living expenses for doing a double master’s degree at two universities in two different European countries.

After a very difficult decision, they both decided to take the Erasmus Mundus Scholarship. They will be starting double master’s degrees at KTH Stockholm, and then J-P will move to TU Delft for his second year, while Astrid will go to TU Berlin for her second MSc.

Dean Rynhoud, a 2012 mechatronics graduate, received the Van Staveren Scholarship from SACS High School, and will be attending Cambridge University in September to complete his MPhil in Industrial Systems, Manufacture and Management.

Heloise Greef, a 2012 mechatronics graduate, received a Rhodes Scholarship and will be going to Oxford in September 2013.

New Engineering Building

The new engineering building is nearing completion. The Department of Civil Engineering moved into their new office in December 2012. They are situated in the south end of the building. The Faculty Office and the Dean’s Suite moved into their new offices in June 2013 and the various research groups from Chemical Engineering will slowly start moving in over the next couple of months.

The Snape Building has been demolished and a new Teaching and Learning Building will be built in its place. This building will house the Department of Construction Economics and Management, and include nine multi-functional lecture theatres, a micro-lab and a satellite campus of the Library Knowledge Commons.

The civil engineering laboratories, as well as a new, spacious teaching laboratory, will be housed in the basement of the building.

A dedicated Surface Science laboratory which will house electron microscopes will be situated between the two larger buildings.

Due to the sensitivity of the laboratory, it will only be completed once the new Teaching and Learning Building is erected, which should be in June 2014.

We look forward to welcoming alumni back on to campus, and showing them around our new buildings and facilities.
Reimagining the City’s foreshore precinct

In 2013 the EBE Faculty partnered with the City of Cape Town to develop innovative ideas for the future of the north Foreshore precinct of Cape Town central city. The initiative will be registered to be considered as one of the projects for the Cape Town World Design Capital event in 2014.

The north Foreshore precinct is a derelict part of the city characterised by neglected and unused open spaces and remnants of an older freeway-building era. Yet there is great potential to make use of this precinct to create a vibrant, mixed use area, open and attractive to all Capetonians, demonstrating principles of integration and sustainability, and possibly re-establishing the historical link between central Cape Town and the sea. Major new planned projects in this area and in relation to the Port make this task an urgent one.

This proposed project creates the opportunity to offer the students of this Faculty a unique learning experience in 2013. Students from both undergraduate and postgraduate programmes, and in all departments in the faculty, are focusing their practical work on this project area. Currently this involves students from civil, chemical, and electrical engineering, construction economics and management, architecture, urban planning, urban design and landscape architecture.

This will encourage important interdisciplinary learning as students in each department will draw on, and make use of, information and ideas developed in other departments and programmes. Cross-faculty student presentations and talks will expose students to the perspectives and insights from disciplines other than their own. Moreover, students will be able to engage with the Cape Town Municipality, NGOs, consultants and other interest groups around a “live” and important public issue. Both these outcomes fit closely with UCT’s strategic goals and the “graduate attributes” which the university seeks to achieve.

Student work will simply aim to generate a range of possible ideas for the Foreshore precinct: implementation of these ideas is left to other parties.

You can follow the progress or join in the discussion on the Future Foreshore Facebook page.

Research Shows Gap Housing Creates Opportunities and Wealth

Research conducted by a team led by Associate Professor Francois Viruly from the Department of Construction Economics and Management into the provision of affordable housing in the so-called gap market in South Africa shows that it not only brings with it improved welfare and social cohesion, but is also an important facilitator of opportunities and wealth creation. The study found that those who obtain homes in this sector move beyond viewing them as a mere shelter. Instead, their homes become assets and through appreciation of these assets entrepreneurship, job creation and/or access to higher levels of education are stimulated.

It is the second such study commissioned by International Housing Solutions (IHS), a global private equity investor which has pioneered the financing of numerous affordable housing projects in South Africa with a total value of almost R8 billion to date.

During the past two years affordable or gap housing has been given increased prominence by government. Various programmes and subsidies have been established and many related issues – including those covered by Professor Viruly’s research – are included in the National Development Plan. Government’s "Breaking New Ground" policy is focused on increased housing delivery, housing as an asset, creating sustainable human settlements where housing developments are integrated with social infrastructure, creating employment, and creating social cohesion.

Professor Viruly’s research supports government findings that massive urbanisation is constantly adding to the housing backlog, which includes the gap market. Gauteng’s population, for instance, could increase by a further 10 million people over the next thirty years. A specific need for affordable housing for the urbanised and urbanising middle class has thus been identified, which government alone cannot address and for which private sector participation is crucial.
What are our alumni up to?

Mechanical engineering 1974 graduate

Keith Helfet is one of the few designers who has gained an international reputation in both automotive and product design.

Keith was born in Calvina and grew up in Cape Town. With a passion for car design, after completing his BSc in Mechanical Engineering at UCT he was accepted into the prestigious Royal College of Art in London to do a master’s degree in automotive design. This led to a 25-year career in the design department at Jaguar Cars, where he was responsible for designing five Jaguar sports cars, including the iconic XJ220, XJ41 (Aston DB7), XK8 and XK180 and the F-Type Concept cars. The sculptural design quality of the XJ220 was admired by a visionary medical equipment executive, who approached Keith to design their new MRI body scanner. The success of his mould-breaking design led to the creation of Helfet Design and many further medical designs, and later other product design projects, including boats, aircraft interior and merchandise. Recently Keith designed South Africa’s first electric car, the "Joule", launched in Geneva in 2010 and shelved in 2012. Keith’s work has won many awards and featured in numerous media articles, as well as in three major design reference books, Who’s Who in Design, Designing the 21st Century, and Industrial Design A to Z.

Prestigious award for 2011 civil engineering graduate

The Barry van Wyk Award is presented annually to the author of the best final-year dissertation on a geotechnical topic at a South African university. Charles Warren-Codrington received the award for his dissertation titled “An investigation into the stability of structures adjacent to bulk excavations for the University of Cape Town’s new engineering building.” A related article, by Charles and three co-authors, appeared in SAICE’s April 2012 Civil Engineering magazine.

Charles graduated in 2011 with a BSc in Civil Engineering and is busy doing his master’s degree under the supervision of Dr Denis Kalumba.

Bonisile Isaac, a 2006 Honours in Materials Science graduate.

In support of South Africa’s sugar industry, which grows and processes some 2,5-million tons of sugar every season and contributes R6-7-billion to the South African economy, Afrox is rolling out a comprehensive service and product offering for the hard facing of washboards, cane knives, shredder hammers and mill rolls. African Fusion talks to Bonisile Isaac, the company’s product manager for hard facing electrodes.

Read more
Western Cape alumni event

Denis Goldberg and Heliose Greef

Denis Goldberg, a 1953 civil engineering graduate, was the guest speaker at the first EBE Alumni networking event held in Cape Town. There was a great turn-out with alumni ranging from recent graduates to a 1943 graduate.

Denis was active in the struggle against apartheid, and was a member of the South African Communist Party, and a leader of the Congress of Democrats. During the State of Emergency in 1960, he was detained for 4 months without trial. In 1963, he received a banning order and was one of the defendants in the Rivonia Trial in 1964 (along with Walter Sisulu, Govan Mbeki and Nelson Mandela, to name a few). Goldberg was sentenced to life imprisonment. He was released in 1985, after 22 years in prison and went into exile to London. He returned to South Africa in 2002. In 2010, he published his autobiography, The Mission, A Life for Freedom in South Africa. He is a very active social campaigner and Founder of Community H.E.A.R.T.

Denis is still very active and passionate about improving the living standards of our poor communities.

His talk was a heart-warming and at times humorous autobiographical journey. He challenged engineering and built environment professionals about their role in building the new South Africa.

Comments from alumni:

“I was so inspired by Denis. It is an inspiration like this that catapults us to do more, be more.”

“Tomorrow when I walk into my office, I am going to do things differently - what an inspiration.”

Dear Alumni

The EBE Alumni office has placed a special focus on serving the needs and interests of our alumni. This has determined our activities over the last 6 months. We have recently hosted a small lunch and individual meetings with EBE alumni to engage in conversations on how we can improve our relationship with alumni.

It has been an honour for the Dean, Prof Petersen, and me to meet some of our architects at their beautiful offices in Cape Town and Johannesburg. We have received interesting feedback on alumni engagement, academic issues, transformation, vac work and internship for students and graduates. The suggestions received will certainly invigorate our core alumni programmes. We are grateful for the time these alumni gave us.

I would like to take this opportunity to appeal to alumni to help us fulfil our mandate by getting involved. The EBE alumni office provides alumni with opportunities to reconnect with their classmates, and career development through the many CPD courses offered in the faculty, as well as various ways to support the Faculty. Please do not hesitate to contact me to discuss this further.

Our next alumni event will be taking place in Gauteng. We are looking for a great speaker so please feel free to send your suggestions to me.

Event: Gauteng Annual Alumni Event
Date: 1 August 2013
Time: 5.30pm for 6pm until 8pm
Venue and Speaker TBC
RSVP: Mandisa.Zitha@uct.ac.za

Please join our groups on Facebook and LinkedIn for more interactive discussions between you and fellow alumni.

Warm regards
Mandisa Zitha