

Engineering Council of South Africa



SIEMENS

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Dear Colleagues,

As we look towards wrapping up 2011 and planning for another successful year, we at ECSA are looking back and evaluating our 2011 achievements as an organisation and the profession. With so much work done over this year it is hard not to mention all successes, but here are my top six milestones:

1. Inaugural 2011 Engineering Summit

As you are aware, the engineering profession is plagued by challenges and it is our belief that in order to address these challenges there needs to be continuous and active stakeholder involvement and engagement. Our goal when we convened this Summit was to provide a platform where we could openly and honestly discuss measures geared towards a globally competitive and viable engineering sector, while providing stakeholders with the opportunity to shape the future of engineering in the country. The successful turnout of our stakeholders, as well as the resolutions passed, have encouraged me that while the road is slow, the commitment and passion is there and I am looking forward to making sure these resolutions are turned into action.



2. Engenius Campaign

One of the biggest challenges in growing our profession and making it representative of the country's demographic make-up is our ability to make engineering attractive and accessible to children from previously disadvantaged communities. I would like to personally congratulate the team responsible for making our Engenius programme such a success. Through this programme we have reached over 15 000 learners in less than 12 months.

3. Building Sustainable Communities through Green Building – SAWomEng 6th Annual Conference

In getting the engineering profession to be a reflection of our country's demographics we must commend the commitment that SAWomEng has taken in ensuring that we increase the number of females in the profession. SAWomEng hosted 60 of the finest female engineering students in the country. These future female engineers were given an opportunity to network with some of the country's influential men and women in business, government and Industry.

4. Exchanging Critical Skills – ECZ and ECSA Cooperation Agreement

The world is in agreement that Africa is the next economic hub. If we as Africans are to reap the benefits of this change in circumstances we need to ensure that our people are skilled enough to take advantage of this change in dynamics. The recent agreement between the Engineering Council of Zimbabwe (ECZ) and ECSA to exchange critical skills is testament

to both countries' commitment to ensuring a better future for our people. We look forward to many more similar partnerships with the rest of the African countries.

5. Washington Accord

As I mentioned, our aim as ECSA is to ensure that our professionals are on a par with their global counterparts. As a full signatory member of the Washington Accord, ECSA is subject to intermittent reviews which are aimed at establishing whether the South African BEng/BSc(Eng) qualifications meet international benchmark standards. Such a review was conducted in September 2010, where a team of international experts from other signatory countries observed ECSA's accreditation processes at the University of Cape Town and the University of KwaZulu-Natal. The review report was duly submitted and was taken under consideration at the International Engineering Alliance meeting held in Taipei, in June 2011. I am happy to announce that ECSA's review was approved and ECSA's signatory status to the Washington Accord has been extended for a further six years.

6. ECSA at The 17th Conference of the Parties (COP17)

Lastly as we look ahead to 2012, I am happy to announce that ECSA has been awarded four spots to attend the United Nations Framework Convention on Climate Change (UNFCCC) meetings at COP17 in Durban at the end of the year. This is a great opportunity for us to be at the forefront of these discussions as issues discussed will enable the profession to contribute to the future of sustainable engineering.

I wish you and your loved ones a pleasant festive holiday and looking forward to 2012!

Yours sincerely,

Ossie

ECSA's New Registration System

ECSA is pleased to announce important changes to its registration process. The revised registration process, which will be implemented in phases, will introduce new policies, standards and procedures for registration, together with a new ECSA online system to support applications, assessment of applicants and decision making.

ECSA would like to bring your attention to the following key changes:

- The introduction of formal competency standards that must be met by applicants for registration. The competency standards define the required outcomes of the process of training and experience currently defined in Policy documents R2/1A, B, C and D. The intention is to clearly define the outcomes and level of performance that supply evidence of competence without changing the standard for registration.
- Policies on registration and evaluation of educational qualifications have been reviewed and expanded.
- The registration process is defined at a high level and implemented in detail in the IT system.
- Guides for trainees and their mentors have been reviewed and expanded.
- The criteria and processes for evaluation of educational qualifications have been redefined and provide opportunities for applicants to complete educational requirements in various ways.
- The present manual system for applying for registration will be replaced by an online system.

Documents defining the system are available on ECSA's website (<http://www.ecsa.co.za/index.asp?x=NewReg>).

ECSA would like to draw particular attention of potential applicants for registration as a professional Engineer after 1 November 2012 to document R-03-PE listed which contains:

- A summary of changes introduced by the 2011 policy, standards and procedures in its Table 1; and
- An explanation in its Appendix A of the relationship between the current registration requirements and the competency standards that are to be introduced.

Please visit ECSA's website for a comprehensive explanation of the changes and the timing of changes for all categories of applicants.

Engineering Council of South Africa commits to the Engineering Council of Zimbabwe

By Christopher Campbell

On 20 October 2011, the President of the Engineering Council of South Africa (ECSA), Mr Christopher Campbell and Chairman of the Engineering Council of Zimbabwe (ECZ), Mr Dawson Mareya signed a Cooperation Agreement through which a platform was created for the two organisations to deal with issues of mutual benefit.

This agreement will ensure that a regional qualification framework for engineers and technicians is put in place, and that standards, registration and accreditation of the two countries' professionals are world class. ECSA will in this regard share lessons learnt and build on processes that already exist so that ECZ may at some point in the future be part of the same international agreements of which ECSA is a part. These include international education accreditation agreements such as the Washington, Sydney and Dublin Accords as well as the Mutual Exemption Agreements for professionally registered individuals.



ECSA is pleased to announce that both organisations agreed that there was a need to:

- Create a structure for the accreditation and registration of practitioners;
- Create a cooperation framework; and
- Deal with, identify gaps and help members to appreciate the difference between professional and academic qualifications.

ECSA volunteered to draw up a framework which can be shared and put into operation by the CEO's of both councils once the two sides agree on the draft framework.

ECSA is confident that this agreement will assist in empowering its Zimbabwean counterparts that were educated and registered as professionals in Zimbabwe to strengthen their Council and their profession locally, by increasing the number of registered practitioners, building robust Committee structures and ensuring that local engineering education programmes consistently meet a standard that is equal to that of other programmes offered in South Africa and other countries in the world.

This agreement is symbolic therefore of the kind of collaborative partnerships we need to ensure that as African countries we can develop the capacity to enforce the standards required in all professional engineering processes for the good of the citizens of the countries that we serve.

ECSA's signatory status to the Washington Accord has been extended for a further six years

By Professor Hu Hanrahan

The Washington Accord is an agreement between the bodies responsible for accrediting professional engineering degree programmes in each of the signatory countries. The Accord recognises the substantial equivalency of educational programmes accredited by those bodies and recommends that graduates of accredited programmes in any of the signatory countries be recognised by the other countries as having met the academic requirements for entry to the practice of engineering.

The Washington Accord is only concerned with programmes meeting educational requirements for registration as Candidate and Professional Engineers. Technologist and technician education programmes are recognised respectively under the Sydney and Dublin Accords, to which ECSA is also a signatory. The Accords, and professional-level mobility agreements, collectively form the International Engineering Alliance (IEA) which provides the secretariat for all agreements.

In ECSA's case, the Washington Accord programme accredits the four-year BEng, BSc (Eng) or BIng degree (BEng-type for short) – which means that all programmes on ECSA's list of accredited BEng-type programmes awarded after 1999 are recognised by other signatories.

ECSA has held signatory status in the Washington Accord since 1999. This signifies that the standards set for four-year BEng-type degrees are comparable with those of other signatories and that our accreditation processes conform to best practice, something that the Engineering Council of SA is firmly committed to.

While accreditation by ECSA is a non-negotiable for universities offering BEng-type programmes, Washington Accord recognition is prized by university Deans, academics and students.

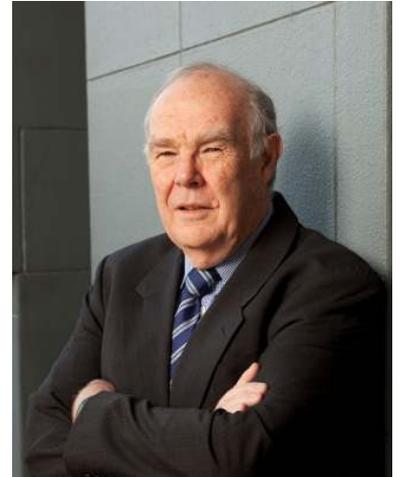
Consequently, we as ECSA are assured that incoming graduates with Washington Accord degrees from other countries meet the educational requirements

toward registering as a Professional Engineer or may register immediately as a Candidate Engineer.

Continued signatory status of the Washington Accord is dependent on a review visit every six years. A team of reviewers contributed by three other signatories observe accreditation visits and the decision-making process and report to the general meeting of the signatories. ECSA received a review visit recently and its Washington Accord signatory status has been confirmed until the next review 2016/7.

All 51 BEng-type programmes offered by eight South African universities are accredited by ECSA and hence enjoy Washington Accord recognition.

South African engineering graduates contribute to the development of our economy and hold their own on a world stage, due no doubt to the quality of the engineering education delivered by our engineering academics under increasingly challenging circumstances.



Engenius and the Bloodhound SSC join forces to make it happen

By Dr Nozi Chinkanda

The Engenius Campaign in its efforts to promote the engineering profession to primary and secondary school learners has partnered with SAIMEchE and Dave Rowley, Education Director of the Bloodhound SSC to bring the Bloodhound Super Sonic Car (SSC) to the Northern Cape.

The Bloodhound SSC which aims to break the 1220km/h land speed record (of 1997) in the Northern Cape in 2012 is an ideal engineering project to inspire the next generation of engineering professionals. The project, primarily aimed at both learners and teachers, will also target Young Engineering Professionals and Science centre staff to ensure maximum impact.

To date, this partnership between Engenius through its Bloodhound workshop partners (ECSA, SAIMEchE and the University of Johannesburg) has reached over 700 learners from grade 8 to 12 as part of the national finals



of the Eskom Expo for Young Scientists.

As Engenius relies on the educators' participation and excitement, we have through the Engenius campaign reached over 90 teachers as part of the Eskom Expo for Young Scientists' teacher academy. Please visit the Engenius website (www.engenius.org.za) for more information.

The campaign works on a similar model as Engenius where all participants are encouraged to:

- Discover how engineering professionals are shaping

our world;

- Try fun engineering activities of our partners;
- Join the engineering team to make our future happen (career information); and
- Make a difference in your world.

To bring this to life, at the recent Eskom Expo for Young Scientists, which was held on 6 October, during the Discover Engineering session Vaughan Rimbault from SAIMEchE introduced learners to the Bloodhound SSC with a fun presentation on how motor cars developed over time to the engineering challenge of the Bloodhound SSC. Furthermore, Nickey Jv Rensburg, Mechanical Engineer lecturer at the University of Johannesburg (UJ) showcased the process of building a solar powered car.

To ensure that everyone understood the full scope of the engineering field, four engineering students from UJ shared their challenges as well as their future plans while giving learners the opportunity to ask questions. Learners were then introduced to the members of the engineering team, application areas of engineering as well as entry requirements.

The 'Try Engineering' session, led by Karen Walstra, managed to reach over 350 learners where they were challenged to build and optimise a balloon powered car and making design decisions based on a variety of available materials. Some cars travelled up to 7 meters! Have a look at the Engenius website for the template.

Events in November 2011

Young Engineering Professionals Workshop

Engenius hosted a workshop for young engineering professionals on 14 November 2011 to invite them to become ambassadors for the Engenius Campaign.

SAIMEchE's prestigious 'John Orr Memorial Lecture'
The SAIMEchE's prestigious 'John Orr Memorial Lecture' will this year be delivered by Wing Commander Andy Green, the driver of the Bloodhound SSC. He will outline the captivating story of how the current World Land Speed Record was set back in 1997, as well as the

amazing science and technology behind the extraordinary new Bloodhound vehicle. He will also explain why South Africa was chosen as the ideal place to attempt this remarkable new record, and how the Northern Cape is preparing the world's best race track for Bloodhound SSC.

The lectures are open to the public and for those interested. They will be held in the evenings at the following centres:

- Johannesburg: University of the Witwatersrand (Wits University) - 15 November 2011.
- Northern Cape: Kimberley (William Humphreys Art Gallery) - 17 November 2011.
- Cape Town: University of Cape Town (UCT) - 22 November 2011.
- Port Elizabeth: Nelson Mandela Metropolitan University (NMMU) - 23 November 2011.
- Durban: University of KwaZulu-Natal (UKZN) - 24 November 2011.

For registration to attend any of the above lectures, please contact Anisa on (011) 615-5660 or visit www.saimeche.org.za.



Changing the face of engineering

By Shamiso Kumbirai

From 10-15 of July 2011, South African Women in Engineering (SAWomEng) empowered our future female counterparts, when we hosted our 6th annual SAWomEng Conference. Following a rigorous application process, 60 of the finest female engineering students in the country were selected to attend the six-day event in Cape Town.

In keeping with the topical issue on everyone's lips, the theme of this year's conference was 'Building Sustainable Communities through Green Buildings'.

The conference was meticulously planned to ensure that each of the sixty delegates in attendance would experience engineering from a new perspective. Students were introduced to innovative thinkers in the world of engineering, who took great strides towards promoting sustainable engineering.

The delegates themselves were then assigned to groups and asked to introduce new and creative ways of implementing low cost green buildings in a typical South African township. This challenge proved that the engineers of tomorrow are smart forward thinkers who care deeply for the wellbeing of the environment and the upliftment of all those living in it.

In addition to the challenge, delegates were also exposed to unique opportunities such as mentorship with professionals in their fields and outside of them, and a chance to network with some of the country's influential men and women in business, government and Industry. They were also given a multitude of talks aimed at further developing their skills and talent towards becoming female engineers.

Evidently, far more than the face of engineering was changed in these five days. Lives were invaluable impacted, inspiration was found and lasting friendships were started. Here is what 3rd year Construction Studies Student, Linda Gumede, had to say about her experience at the SAWomEng Conference this year:

"Today, I can be proud of the opportunity I was given to be a part of the 6th annual conference.

I walk away from the experience as a young woman who has discovered her role in society, to positively impact people from all walks of life. Having met and engaged with inspirational females who made their mark in the various fields of engineering, made me

realise the power of a determined woman.

I walk away with contacts from a vast network of people, memories and friendships – especially those formed during the long hours of working on the technical project (Team Cherrywood).

I walk away equipped, as a future female employee in a male dominated industry, but also as a future wife and a mother with a balanced life.

I walk away with a great respect and appreciation for companies and individuals that sponsor such initiatives to invest in some of the best aspiring female engineers in the country.

As I walk away, I keep within a dream; my dream! I keep the motivation to make it a reality. I keep all that I've learnt in six days, which has fast-tracked me on my journey to realising this dream. I will remain humble for the opportunity afforded to me.

But as I walk away, I will continue on my journey and realise my dream to walk within the network of such inspirational women: South African Women in Engineering!"

Events such as these seldom take place - events where female engineers, the future leaders of the nation and world over, are offered an opportunity of a meeting of great minds. I believe all who participated, were inspired to share and learn more, to think and do more, to achieve more and to become ambassadors with aspirations of motivating, empowering and celebrating the next generation of female engineers.



COP 17 and the engineer

By Professor Philip Lloyd Pr Eng, Energy Institute, Cape Peninsula University of Technology

Two years ago there was great excitement when the world's leaders met at the 15th Conference of the Parties in Copenhagen. The hype ahead of COP 15 was followed by dismay once the event was over. Our leaders had not taken any decisions to halt global warming. Instead, they had agreed that the developed countries would



assist the developing countries to cope with climate change. COP 16 was held in Cancun, Mexico, and few of the world's leaders turned up. Some flesh was put on the skeleton of the Copenhagen Accord, but the Kyoto Protocol was effectively given a quiet send-off.

Now the Parties are to confer in Durban. It is customary for the host country to take the lead in driving the agenda for the meeting, and several of our Government departments have been actively trying to make progress. However, at least one pre-conference gathering has broken up without an agreed agenda, but with an agreement to discuss the agenda once they meet in Durban. Hopes of dramatic progress are very dim.

There are some hopes that a formula will be found to release the very considerable funds that the developed nations have agreed in principle to provide. However, there is as yet no agreement on the basis. The developed nations want to make funding provisional on binding commitments to reduce carbon emissions.

However, the developing nations are not all happy with the idea of binding commitments – some, such as China, recognise that there is a very strong link between energy and economic development. Due to fossil fuels making up nearly 90% of the primary source of energy for most countries, it means that limiting carbon emissions would limit economic growth and no developing nation desires that! Many developing countries have plans to reduce their emissions – South Africa is in the forefront – but all

stress the need to see the funds flowing that will make reductions affordable. Meanwhile, of course, the developed world has its own economic problems. It is certainly not coming to Durban with bulging pockets, keen to pay.

It is against this background that one must ask what any engineer might expect from the meeting. ECSA will join the party from the World Federation of Engineering Organisations (WFEO). WFEO has had observer status at previous COPs, but in spite of this lowly ranking it has been admitted to virtually every session at which it wished to be present, such is the regard in which the organisation is held. Thus ECSA hopes to have a ringside view of the proceedings.

One aspect will be of concern to many engineers. It is reported that climate change will mean more frequent and more intense weather events. Many of our designs take into account historical estimates of, for instance, the expected 100-year flood or the maximum likely wind. The question therefore arises as to whether or not we should increase the factors of safety in the light of a possible increase in the severity of the weather, and, if so, when and by how much.

The question of timing arises because it is clear that the world has been slowly warming for approximately the past 150 years, but so far there has been little evidence that our design standards should be modified. There has been increasing storm damage, to be true, but when one corrects for the increasing number of structures at risk and the value of those structures, there is no clear trend. Even events such as the swamping of New Orleans by the Katrina storm surge was traceable more to design flaws in the century-old levees than to any long-term changes in sea level.

One of the problems facing the Intergovernmental Panel on Climate Change (IPCC), the body which provides technical advice to COP, is that the best models yet available for global climate are good at the macro level, but effectively useless at the meso level at which phenomena of concern to engineers occurs. It is doubtful if there will be any reports of progress on this problem at COP 17, but it will provide an opportunity for the engineers to remind the IPCC that we need to advance from the global to the regional level with confidence if the climate predictions are to be of any use to us in adapting the standards to which we build.

Advisory note regarding ECSA's Disciplinary Procedure

By Advocate Pieter Fourie

The Engineering Council of South Africa (ECSA) is a statutory body established in terms of the Engineering Profession Act, Act 46 of 2000 (EPA). An important focus of the Act is to promote the safety, health and interest of the public as these are affected by the engineering work and professional conduct of persons registered with ECSA.

ECSA's role, in partnership with the State and the engineering profession is to promote an appropriate level of education and training of practitioners in the engineering profession. This will assist in enabling full recognition of professionalism, both locally and abroad. ECSA enjoys full independence of the profession in the fair and transparent administration of its business and in the pursuit of its goals, even though it is accountable to the State.

Should there be any act of improper conduct by a registered professional; a complainant who is any member of the public can file a complaint to ECSA regarding the deed. A complaint can be lodged through an affidavit/affirmation, which is available on ECSA's website (www.ecsa.co.za). The affidavit/affirmation must include detailed allegations brought against the registered person and any documentation to substantiate those

allegations.

After a complaint has been received by ECSA, ECSA will in turn send a copy of the complaint to the respondent with an invitation to comment. The complaint will be laid before ECSA's Investigating Committee and a member of the committee will be appointed to assess the complaint.

The complainant may be required to consult with ECSA's legal representative responsible for presenting the case to the disciplinary tribunal, and to testify at the disciplinary hearing. ECSA will endeavour not to put witnesses to any unnecessary inconvenience during this process. Civil and criminal litigation against the respondent are different processes from ECSA's role in investigating unprofessional conduct and the two processes may run concurrently.

A registered person found guilty of improper conduct may appeal to the Council of ECSA within 30 days from the day s/he is sanctioned. If the appeal is dismissed, the complainant can lodge an appeal within 30 days with the Council for the Built Environment (CBE) and if dismissed by the CBE, the matter can then be heard in the High Court.