

news from

ENGINEERING WA

ENGINEERS AUSTRALIA WA DIVISION NEWSLETTER SEPTEMBER 2010

Putting the 'grin factor' into engineering

The breakfast launch of Australian Engineering Week 2010 in WA got a real back to basics reminder that engineering is all about building things – and an insight into a high school program that's one of the engineering success stories in WA.

Brett Boughton and Paul Hogg teach the engineering course at Willetton Senior High School, which usually graduates 15 to 25 university engineering candidates a year.

The pair explained their unique approach as part of their 'Engineering in the Shed' presentation.

Brett, a physics teacher, told the audience he's basically the equivalent of an inveterate tinkerer – and it runs in his family.

His parents and family don't just buy their homes, they'll build them from scratch.

He also explained that his father used built sport cars by cannibalising other vehicles. Brett's got the same bug and is going one step further and building a replica classic sports car from scratch, even down to shaping the body from aluminium.

"I just wanted to get my hands dirty and build things," is how Brett explained his love of making things, an enthusiasm that he and Paul, a manual arts teacher, manage to pass on to their students.

The engineering subjects at Willetton SHS focuses on hands on activities with the emphasis on letting students come up with their own ideas. In fact, their motto is 'Hands on, Minds on'.

The students study engineering in Year 10, with the focus on CAD skills and metal engineering.



'Maximum grin factor' ... WA's chief scientist Lyn Beazley, tries out the student-built Eco Warrior electric tricycle at the launch of Engineering Week. With her are students and staff from Willetton High School, including Brett and Paul (in overalls)

In the senior years, subjects include skills such as lathe work, welding and drilling.

Paul not only explained how their students create and build things, they brought along an example: the Eco Warrior, an electric tricycle built by students.

The students construct the trikes from the ground up over a period of 18 months, with the project emphasising engineering skills, teamwork, leadership and sustainability issues.

"The really good thing is it goes and the kids can ride it, so it's got the maximum grin factor," Paul said.

The students are now putting their heads together to try to come up with a solar-powered charging station for electric vehicles. The audience had no doubt they'll get there.

By Tony Malkovic

Principal Partner



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ENGINEERS AUSTRALIA
Western Australia Division

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Clough appoints new Executive Vice President - Engineering

Clough recently announced the appointment of Gary Bowtell as Executive Vice President - Engineering.



Mr Bowtell has more than 25 years experience in the development and execution of oil and gas projects, and has worked internationally in Brunei, Japan and Italy, in both onshore and offshore capacities.

Prior to joining Clough Mr Bowtell was General Manager, Development

and Engineering for Woodside's LNG Development Division. He has also held senior engineering and management roles with Shell Petroleum and WorleyParsons. As Executive Vice President - Engineering, Mr Bowtell will have profit and loss responsibility for all of Clough's engineering efforts including the company's involvement in Ocean Flow International and Peritus. His primary focus will be extending Clough's engineering reach and developing engineering capacity.

"I am very pleased to welcome Gary to Clough. I am confident his depth of oil and gas industry experience will prove highly in strengthening Clough's reputation as an Engineering-led EPC contractor" said Clough CEO John Smith.

'Make it so' idea announced

More than 100,000 members of the Australian public were engaged in the first phase of the 'Make it so' campaign, submitting almost 7,000 ideas since it first launched in February this year. However, one simple concept has captured Engineers Australia's imagination and it has been selected to be made into a reality...

'Make it so' developing communities can reuse their agricultural waste to create bio-gas for cooking and heating.

The selected 'Make it so' idea was announced to National media during Australian Engineering Week and was contributed by Abdul Al-Dasooqi, an undergraduate student in South Australia. Abdul was inspired to submit the idea after studying energy proficiencies in bio-gas in first year of university. Abdul is studying a

Bachelor of Engineering (Chemical) and is only 19 years of age, showcasing the young talent and ingenuity that will undoubtedly be seen in the profession in years to come.

This humanitarian 'Make it so' idea will work two-fold – it will contribute to reducing the carbon footprint of developing countries whilst providing them with the innovative technologies to improve their daily lives. The announcement of the 'Make it so' idea coincides with the news that 2011 is set to become the Year of Humanitarian Engineering.

Engineers Australia will partner with Engineers Without Borders to bring this project to fruition. To follow the progress of the 'Make it so' project visit www.makeitso.org.au.

Chartered Status and Registration for Experienced Engineers

A recent change in legislation in Queensland (QLD) has led to Registered Professional Engineer Queensland (RPEQ) becoming a mandatory requirement for many Professional Engineers who deliver professional engineering services in QLD.

This has created an urgency for engineering organisations and engineers to gain RPEQ in the immediate future. It has also led to Professional Engineers who deliver professional engineering service outside of QLD to also seek Chartered

Status and Registration with more urgency.

The Experienced Engineers Program is a structured, detailed and practical program specifically for engineers with 5 or more years of experience who are seeking Chartered Status, Registration (eg RPEQ) and career progression.

For more information please contact Engineering Education Australia on 03 9274 9600.



Royal Charter, By Laws and Code of Ethics

Professor Tony Lucey FIEAust

At a special meeting of National Congress in late July the proposed revisions to the Royal Charter and By Laws of Engineers Australia were overwhelmingly accepted as was the revised Code of Ethics. It is now up to the membership of our organisation to determine, through a vote, whether these should be adopted. To some these changes might seem a threat to the established time-proven character of Engineers Australia. For others the changes may be perceived as irrelevant tinkering to unread arcana while the real activity of engineering marches on regardless. The reality is that the revisions yield documents that reflect what our history has made us, what we are now and allow our organisation to move forwards with confidence and clarity of purpose.

It is fair to say that a re-writing the texts that define our organisation's purpose and its governance can cause anxiety. There is a fear that in doing so we may compromise the history, wisdom and character that have been built up over nearly a century. What one does need to bear in mind is that these texts have less been re-written but rather revised and updated so as to speak to us in contemporary language and abide by accepted norms without abandoning the teleology of our organisation.

Religions that were founded centuries ago upon sacred texts have, by necessity, revised these texts and even language (in the case of the Bible, from Aramaic, to Latin, to the vernacular) to reflect societal evolution and ensure that the texts remain alive and meaningful to their adherents. The same applies in the literature that is a fundamental component of our culture; thus, for example, transpositions of Chaucer's Middle English allow the Canterbury Tales to be accessible to contemporary readers without losing the sense and moral counsel of these fables. So it is with Engineers Australia – it is a living organisation built upon enduring core values that require a form of articulation that better permits these values to be expressed through its activities and actions now and into the future.

At the heart of the Royal Charter lies the purpose of our organisation and the means for its realisation. The proposed revision now states that 'The purpose of Engineers Australia is to advance the science and practice of engineering for the benefit of the community'. This is neither radical nor is it platitudinous. It is a lucid statement, and a reminder, of what underpins what we do and why we do it. Moreover, it is readily communicable to non-engineers and the public with whom the modern practice of engineering engages.

Equally clear in the proposed revision are the actions by which Engineers Australia will achieve its purpose; these are summarised as:

- educating its members and the community;
- facilitating the exchange of ideas and information;
- encouraging the development of knowledge and competency;
- setting and maintaining high professional standards for its members; and
- informing community leaders and decision-makers.

These enable a large and diverse organisation such as Engineers Australia to retain a focus that can be translated into activities that drive forwards the effectiveness of Engineers and its concomitant recognition.

Perhaps the most controversial aspect of the by-laws revision has been the full acceptance of technologists and associates as voting members of our organisation. The original inclusion of these categories of members gave rise to fears that engineering might be swamped by a flood of 'non-professional' members, usurping Engineers Australia's character and values. Time has proved that these fears were unfounded. In contrast, time has given us an improved realisation that the engineering team is the key to successful engineering.

While we may be 're-discovering' the importance of the team in a modern historical era confronting challenges that can only be overcome by teamwork

in its widest sense, the notion is not new. Plato's Republic, the founding text of Western social and political thought, espoused the harmonious working of rulers, military (guardians) and producers as the key to a successful city-state; none of these groups is superior to the others and each is critical to the success of the community. The revisions to our by-laws promote inclusiveness and the removal of elitism to recognise that each category of engineer, and the individuals therein, play their part and make different, but equally valid, complementary contributions to best practice in Engineering.

So too, does the proposed revision of our Code of Ethics more clearly reflect the importance of the individual in practising the exemplary standards of behaviour that underpin the credibility and respect that Engineering commands and its increasing role as leader in shaping, and indeed forming, our communities now and into the future.

In closing, it needs to be said that at the special meeting of National Congress, all of the issues and concerns arising from the proposed revisions were discussed comprehensively and professionally. This process allowed all opinions to be heard and properly considered prior to the vote being taken. It now falls to the broader membership to make its voice heard through a vote on whether the revised Royal Charter, By Laws and Code of Ethics are to be adopted. I strongly encourage you to participate in this process. Democracy embraces the right, the privilege and the responsibility of the individual to determine the purpose and direction of their community – in this case Engineers Australia. Please apprise yourself of the choice that faces you and, by casting your vote, make your contribution to the definition, well-being and effectiveness of our organisation – do not leave it to others to do so.

Australian Engineering Week

Breakfast Launch

As featured on the front page, the Breakfast Launch officially kicked off Australian Engineering Week with a special presentation from teachers at Willeton SHS. Also at the event, recently appointed fellows were recognised, and Sarkis Petrossian was awarded the Engineers Australia Medal for meritorious service to the profession.



Above: Recently appointed Fellows were (L-R) Gordon Trotter, Allan Goh, Barry Heald, David Porter and Geoffrey Mitchell

Spaghetti Bridges & Towers

Students throughout the South West took part in Spaghetti building exercises as part of the Australian Engineering Week festivities. Two days of building took place at Eaton Fair Shopping Centre, Bunbury, while around the Margaret River region, sessions took place at Cowaramup, Montessori, St Thomas Moore and Margaret River Primary Schools. For the Margaret River activities, thanks goes to Aidan Rooney - Cardno, Steve Brake - TME and Tim Moore - Civil and Structural Engineers for facilitating class exercises and making the events a success.

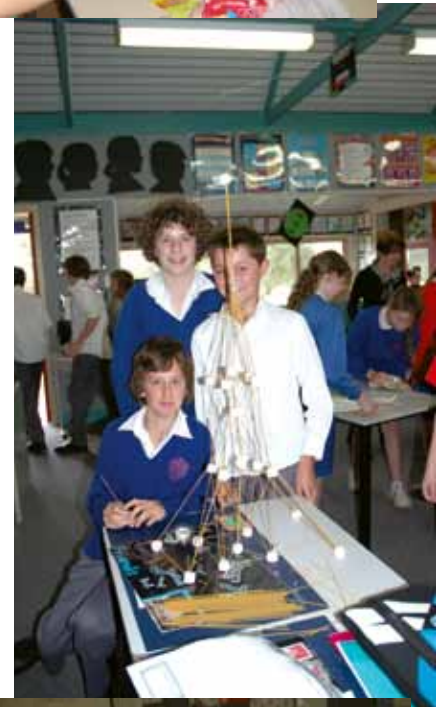


Student Nights

Engineers Australia hosted two student nights during Australian Engineering Week, where students and parents heard from young engineers about their early experiences as an engineer. The events were a huge success, with both nights attracting over 200 attendees. A big thank you to those talented young engineers who volunteered their time.



Above: Volunteers who spoke at the Student Night included (L-R) Martin Symmons - TAFE, Alice Cargeeg - Main Roads WA, Matthew Thame - EWB, Ben Bristow - Western Power, Mayuran Sivapalan - WorleyParsons
Left: Matthew Thame talks to students and parents about his experience working in Bali with Engineers Without Borders (EWB)



Engineering Leadership Geraldton

The Mid West Group of Engineers Australia hosted David Mofflin, Executive Director, WorleyParsons in Geraldton for the presentation 'Engineering Leadership in a Rapidly Changing World'.

Right: David Mofflin, Executive Director, WorleyParsons spoke in Geraldton during Australian Engineering Week



Above: Top and Bottom: Students from Margaret River Montessori School | Middle: St Thomas Moore Catholic School

Public Forum

The public was treated to some expert insight into what would be required to make central Perth car-free, or a more likely outcome, substantially reduce car dependency, at the Australian Engineering Week Public Forum held at Curtin University on August 4.

Chris Fitzhardinge emceed proceedings, and guest speakers were; Menno Henneveld, Managing Director, Main Roads WA; Peter Newman, Professor of Sustainability at Curtin University; Andre Garnaut, Principal Environmental Scientist, WorleyParsons.



Above: (L-R) Andre Garnaut, Chris Fitzhardinge, Menno Henneveld and Peter Newman spoke at the Public Forum at Curtin University



Above: (L-R) Professor Tony Lucey, President, Engineers Australia WA Division, Rebecca Chamberlain, Western Power, Andrew Forrest, CEO, Fortescue Metals Group, David Mofflin, Chairperson, Centre for Engineering Leadership & Management, WA.



Luncheon with Andrew Forrest

Attendees at the Centre for Engineering Leadership and Management Luncheon heard an impassioned plea from Fortescue Metals CEO Andrew Forrest about how the engineering community can assist in eliminating indigenous disparity. He strongly believes that meaningful and sustainable employment can bridge the gap and is asking industry to make a commitment to job creation and training for indigenous Australians.

Below: Anneline & Will Neethling

Cocktail Party

Russian Futurist and sometimes Comedian, Vladamir Popoff, starred in a fun-filled evening to celebrate the closing of another successful Australian Engineering Week.

It's estimated that up to 1,500 people participated in events and activities over the Week throughout Perth and regional Western Australia. A big thank you to all those who supported the initiative.



Above: Vladamir Popoff, Russian Futurist



(L-R) Phillip Murdoch, Thomas Luke, Yi Liang Liew and Sarah Cooper from Technip



(L-R) Brian Truman, Cheryl Cace, Frank Feher and Murray Jorgensen

Special Feature

Finding the next edge in engineering



Problem solving the key to engineering: Brookfield Multiplex's John Flecker FIEAust CPEng. The towering cranes in the skyline are part of the firm's City Square project

John Flecker has carved a successful career as a civil engineer out of problem solving and getting things done.

Flecker is the joint managing director of the construction and development division of Brookfield Multiplex for Australia and New Zealand. With his Sydney-based fellow director George Kostas, the pair is responsible for a huge book of projects across the two countries.

Flecker started with Multiplex Constructions, as it was then, while still at university and has been with the firm for 23 years.

He says there were several people who influenced his career.

"Probably the most inspirational was (Multiplex founder) John Roberts who wasn't actually an engineer, although I would describe him as a 'closet engineer'," he says.

"He took a personal interest in my career as a youth and was the ultimate entrepreneur with lots of enthusiasm. But he had a bit of an engineering brain and liked engineering concepts.

"He also had a sharp commercial brain while never forgetting the people aspects of the business.

"He could shout at people when needed, but was probably the consummate dealer with people at all levels, whether it was a construction labourer or the president of a

country, he could connect and communicate at all those different levels."

Over the years, Flecker has had hands on involvement with many landmark skyscrapers and developments, including Central Park, the old Swan Brewery and 235 St Georges Terrace.

Brookfield Multiplex is currently involved in billions of dollars of projects around Australia and overseas. In WA alone, the company is building the billion-dollar City Square office tower project which it will own and manage, the Alkimos wastewater treatment plant, and Claremont shopping centre. It also recently won the contract to build the second stage of the \$2 billion Fiona Stanley Hospital.

So what's the most important thing he's learned about business and engineering over the years?

"It's all about problem solving for me," he says. "First, it's recognising there's a problem to solve.

"Second is understanding that every problem is solvable.

"Third is then solving the problem or coming up with a better solution than someone else, whether it be a technical, commercial or human solution or people issue, it's all about solving problems.

"If there was one thing that was embedded in my brain through my engineering studies, it wasn't about rote learning, it was all about

the discipline of problem solving, that's the key."

Flecker believes the way to create leadership in others is giving people autonomy – and support.

"In my case, there was a sufficient degree of 'throw you in the deep end' to give you autonomy and allow you to work it out yourself, but also subtly in the background was the support when you needed it," he says.

Flecker says despite engineering being about building physical assets, a consistent leadership theme is people.

"Probably as my career progressed, the differences are twofold: the decisions you make impact more people, and there's probably more pressure on a commercial basis," he says. "But in making those decisions, I think it's important that you don't lose sight of the people implications of those decisions."

He sees two main challenges facing engineering:

"One would be globalisation. For instance, in our case, we have a construction delivery business in Middle East and the UK so the transfer of knowledge and intellectual ideas and people between countries is important.

"For instance, with some engineering firms if the design work is done in Perth, you find the actual shop drawings are created in Vietnam or somewhere else, so there's this whole globalisation concept of procurement of design of ideas transfer.

"It's not a brand new challenge, but it's not one that too many people have got the best value out of yet.

"The other would be just finding the next 'edge'. There are so many clever people looking for the next edge for their business.

"Whether it's a procurement edge, a construction methodology edge, a design edge, a corporate philosophical edge or whatever – finding that edge is the challenge."

By Tony Malkovic

As part of the Year of Engineering Leadership, the Centre for Engineering Leadership and Management (CELM) is profiling prominent engineers for their thoughts on the profession and leadership.

Special Notices & Events

Call for Volunteers

The Science & Engineering Challenge is a competition for year 9 high school students which aims to present engineering in an inspirational manner through a variety of well designed tasks.

We need engineers to assist us in inspiring this next generation! If you can assist with any of the below dates and locations, please contact:

Beatriz Clark
Email: bclark@engineersaustralia.org.au

Oct 28 - Kalgoorlie | Nov 1 - Geraldton | Nov 4 & 5 - Australind
Nov 8 - Mt Barker | Nov 11 - Rockingham | Nov 15 - 19 - Perth

Watershed Premium Wines Members Only Offer

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Watershed Premium Wines is a jewel in the crown of the Margaret River wine growing region of Western Australia. Today Watershed produces 15 wine styles, over three ranges, and approximately 100,000 cases annually from its state of the art award winning production facility, and yes, they are still winning awards for their wines.

Have something to say? Put your presentation skills to the test and win \$2,000!

O. F. Blakey Award

Young Engineers Public Presentation Competition

If you are a Young Engineer, enjoy public speaking, and have something to say on a topic related to engineering you should consider entering the O. F. Blakey Public Presentation Competition. Entrants are required to submit an abstract on a technical or non-technical topic of their choice and be available to make a presentation in November. Finalists will then be asked to present at the Engineers Australia WA Division Annual Dinner, with the winner on the night receiving a \$2,000 Cash Prize and the O. F. Blakey Medal.

Nominations close Monday 18th October 2010.

For more information see our website www.engineersaustralia.org.au/wa



Inspiring the next generation of engineers and scientists

The Science & Engineering Challenge is a competition for year nine high school students that is designed to inspire the study of science and engineering at a senior level.

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www.engineersaustralia.org.au/wa/scienceandengineeringchallenge

Dates for your Diary

ENGINEERS AUSTRALIA
WA DIVISION NEWSLETTER

Date/Time	Host	Event & Venue	For more information
Tue 28 Sep 5:45 PM	Engineers Australia WA Division Goldfields Group and Centre for Engineering Leadership & Management	Engineering Leadership in a Rapidly Changing World (Goldfields) Speaker: David Mofflin FIEAust CPEng Executive Director, WorleyParsons Hannan Club 44 Brookman St, Kalgoorlie, WA	Register Online: www.engineersaustralia.org.au/wa
Wed 06 Oct 6:00 PM	Engineers Australia WA Division Peel Group	Networking Bowling Night Mandurah Tenpin Bowl 96 Mandurah Tce, Mandurah, WA	Flyer with RSVP instructions available online: www.engineersaustralia.org.au/wa
Thu 21 Oct 5:30 PM	Engineers Australia	Chartered Status Workshop Auditorium, Engineers Australia WA Division	Register Online: www.engineersaustralia.org.au/wa
Thu 28 Oct 9:00 AM	Society for Underwater Technology	Autonomous Underwater Technology - Subsea Solutions for a new Decade	Please contact Joyce Bremner on j.bremner@sut.org Tel +61 8 9446 9903
Thu 2 Dec 6:00 PM	Engineers Australia WA Division	Engineers Australia Annual Dinner featuring the O. F. Blakely Public Presentation Competition	Contact: Fiona Thorniley ftorniley@engineersaustralia.org.au
12 - 16 Dec	Engineers Australia's National Committee on Applied Mechanic & the Australian Institute for Non-Destructive Testing (AINDT)	The 6th Australasian Congress on Applied Mechanics Perth Convention and Exhibition Centre	Visit the congress website at: www.acam6.org or email acam6@acam6.org
Wed 15 Dec 5:30 PM	Engineers Australia	Chartered Status Workshop Auditorium, Engineers Australia WA Division	Register Online: www.engineersaustralia.org.au/wa

Some event dates and times are subject to change. Please check our website www.engineersaustralia.org.au/wa/events for up-to-date information

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