



The Australasian Association for Engineering
Education

NEWSLETTER

March 2011

Lyn Brodie, Editor

President's Report, March 2011

This has certainly been a challenging new year to many of our community, and including some on our Executive. I would firstly like to express my heart-felt sympathy for those whom have experienced such hardship. Our colleagues are certainly in my thoughts, and I know I echo the sentiments of the Executive. Hopefully, all are now on the road to recovery.

As the year unfolds, AAEE leads a number of strategic and developmental initiatives.

In 2011, AAEE will continue to deliver a number of themed workshops at several key locations in both Australia and New Zealand (respectively).

- Plans are now well advanced for the inaugural AAEE Postgraduate Winter School to be held at Noosa 20-24 June 2011. There has been much interest.
- Very soon, you can expect to hear about a series of joint Engineers Australia/AAEE workshops around the revised Stage 1 Professional Competencies, top down curriculum design (based on the revised competencies), and Accreditation.
- Finally, AAEE is pleased to provide support for seven additional workshops on Evaluating Learning and Teaching Strategies to be run.

Other broad strategies planned for 2011 include the following:

- AAEE is pursuing the concept of identifying AAEE champions at each institution with the view of increased AAEE identity and communication both within our membership and within our member institutions.

Furthermore, it has been realised that a number of institutional email systems are trapping out essential AAEE correspondence. We will be in communication with respective IT departments soon to request that exceptions be put into place. This is for AAEE essential correspondence to the membership, not SPAM.

- Strategies to increase the impact and recognition of engineering education scholarship and scholarly publication within Australia and New Zealand. AAEE will embark on the process to increase the Australasian Journal for Engineering Education (AJEE) ranking from an ERA ranked "B", to "A".

This is an ambitious agenda for the year. Some of these initiatives are relatively simple to implement, some will take long-term and concerted effort. I firmly believe that, driven by my own passion and that of this Executive, we will set a very solid platform for the future of AAEE and what it stands for.



*Duncan Campbell
2011 President*

Research Initiatives and AAE

With the demise of ALTC, there is a need to find other avenues for larger research projects in engineering education. The executive of AaeE would like to explore the possibility of funding such projects through collaboration between universities and ACED. To this end we are collating research ideas which might be taken to ACED to seek multi-university support. Examples of ideas canvassed so far include:

Gender and the Epistemology of Engineering

As we know attempts to improve female representation in the discipline have had little success in recent years. Could it be that there is something inherently masculinist about engineering which is necessary to the effective practice of the discipline and which militates against attracting female practitioners and/or makes it difficult for them to remain in the field. This project would examine the epistemological bases of engineering with a view to identifying whether a masculine bias is inherent in the discipline, whether there are any areas where it may have changed and ultimately to answer the question of whether or not there can be more female engineers, given current practices.

Profiling Incoming Students

There are many attributes of incoming cohorts that are well known to institutions through data already collected, but in some areas we are quite ignorant of what new students in engineering are like and hence what they expect from their education. For instance, studies in the United States have suggested that current generations are accustomed to working in several modes simultaneously – texting while working on an assignment with television in the background, for instance. Some studies suggest that such learning habits are not the disaster they seem at first but a legitimate way of gathering and using information arising from living in a digital world. They only become a problem where institutions assume and assess for different patterns which may seem irrelevant to students. Finding out more about how, why, when and where our students study could have significant implications for curriculum design.

If you have more suggestions please let the following members of the Executive have them:

Dr Llewellyn Mann

lmann@swin.edu.au

Dr Lesley Jolly

ljolly@bigpond.net.au

AAEE 2011 Member Survey

I would like to ask you all the favour of taking ten minutes to fill out the AAEE 2011 member survey:

<http://www.surveymonkey.com/s/aaeesurvey2011>

I realise that this week (like every week) is a busy time; hopefully the semester has settled down enough for you to find a window in your schedule.

We are looking for information such as whether our AAEE resources are proving useful to you, how we can improve our AAEE annual conference, whether you attend other engineering education conferences and so on. In

particular we are looking to capture data about your engineering education publications, to help us demonstrate the extent of the research that is conducted by our community. The information will help us direct our activities for the next year, and to report back to the Deans' Council on the value that we provide to our membership.

The survey will be available online until Easter; we intend to report back on the results sometime in May.

Thanks

Euan Lindsay



22st Annual AaeE Conference 2011

**Developing Engineers for Social Justice:
Community Involvement, Ethics &
Sustainability**



Call for Abstracts and Workshop Proposals

The 22nd Annual Conference of the Australasian Association for Engineering Education invites submissions of abstracts for peer review. The theme for the conference will be: **Developing Engineers for Social Justice: Community Involvement, Ethics & Sustainability**

There will be four sub-themes for the conference:

- Humanitarian Engineering (aligning with Engineers Australia's 2011 Year of the Humanitarian Engineer)
- Inclusivity
- Ongoing Graduate Professional Development
- Pathways into Engineering

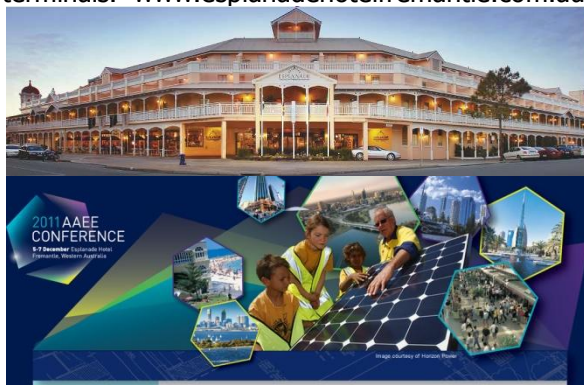
The conference will be held from Monday December 5th to Wednesday December 7th, 2011, at the Esplanade Hotel in Fremantle, Western Australia.

The conference will be accepting a range of submission types:

- Peer-reviewed Full Papers
- 90-minute Workshops to be held at the conference
- Presentations without Papers
- Posters without Papers

Venue

The Esplanade Hotel is located 20 minutes by car/taxi from the City of Perth and 30 minutes from Perth's domestic and international airport terminals. www.esplanadehotelfremantle.com.au



Key Dates

Friday, 15 April 2011	Deadline for paper and workshop abstract submissions
Monday, 16 May 2011	Notification of results
Friday, 15 July 2011	Deadline for full paper and workshop full proposal submissions
Monday, 5 September 2011	Notification of paper submission results
Friday, 30 September 2011	Deadline for submission of final camera-ready papers
Friday, 14 October 2011	Deadline for submissions of abstracts for posters or presentations without papers

Abstract requirements

- No more than 300 words in English, plain text
- Submitted via EasyChair
<http://www.easychair.org/conferences/?conf=aee2011>

Workshop proposal requirements:

- Abstracts of no more than 300 words in English, plain text
- Full Proposals of no more than 2 pages
- Submitted to the conference Workshop Chair via email at 2011workshops@aee.com.au

All abstract submissions will be reviewed by the technical committee. Authors of accepted paper abstracts will be invited to submit a full paper. All full papers to be published at the conference will be subjected to a double-blind peer review process. Submission of full papers is not contingent on authors pre-submitting abstracts.

The AAE conference holds a B-ranking from the Australian Research Council's Excellence in Research for Australia (ERA) exercise, and only peer-reviewed papers will appear in the Proceedings of the Conference.

More information regarding the conference can be found at the conference website:

<http://www.aee.com.au/conferences/2011/>



IEEE ICELIE 2011

5th International Conference on E-Learning in Industrial Electronics

7-10 November 2011, Melbourne, Australia

<http://WWW.ICELIE2011.ORG/>

co-located with IECON 2011, the flagship conference of the
IEEE Industrial Electronics Society

Call for Papers

The Conference will cover eLearning aspects in teaching Industrial Electronics-related disciplines such as:

- Mechatronics and Robotics
- Factory Automation and Industrial Informatics
- Control Systems and Applications
- Power Generation and Distribution
- Power Electronics and Energy Conversion
- Electrical Machines and Drives
- Sensors, Actuators and Systems Integration
- Information Processing and Communications
- Computational Intelligence and Industrial Applications

Topics covered in this conference include:

- eLearning-oriented devices and networks
- eLearning-oriented technologies
- Tools and platforms
- On-line learning
- Mobile learning, teaching, and training
- Hybrid learning
- Challenging technical aspects
- Assessing eLearning
- Methodology and Curricula Development

Presented papers in this conference will be included in IEEE conference proceedings and will be also internationally published through IEEE Xplore.

In addition, participants in this conference, with a single registration fee, can enjoy both this conference and IEEE IECON 2011 which will be co-located with IEEE ICELIE 2011 and get the proceedings of both conferences.

EXHIBITION

An exhibition of selected works in the area of e-learning in Industrial Electronics will be organised within ICELIE.

A diploma will be awarded to the best e-learning solutions presented. Information may be found at

<http://www.ICEIE2011.ORG/>

Key Dates

Contributed papers	15 April 2011
Exhibition proposals	7 June 2011
Tutorial proposals	3 May 2011
Special Sessions proposals	15 February 2011
Notification of acceptance	1 July 2011
Final submission due	15 August 2011
Early registration closes	15 August 2011

PAPER SUBMISSION

Information for authors may be found at

<http://WWW.ICEIE2011.ORG>

Submission system is located at

<http://ieee-ies.org/submit/icelie11/>

Presented papers will be published in the conference proceedings, and included in the IEEE Xplore online digital library and EI Compendex database.



The Australasian Engineering Education Excellence Awards 2010

The AaeE Engineering Education Excellence Awards have stimulated some outstanding applications in the last few years and 2010 was no exception. Two awards were given last year. This newsletter features the second of the 2010 awards:- The award for Programs that Enhance Excellence in Learning in the category of 'Innovation in curricula, learning and teaching' awarded to Dr Keith Willey and Anne Gardner from the University of Technology, Sydney. The following is a summary of their work from the award winning team.



From left to right: Keith Willey (award winner), Euan Lindsay (2010 President), Anne Gardner (award winner), Prue Howard (chair awards committee)

We focus on designing assessment tasks to be learning oriented, being specifically designed to promote learning and not simply test that learning has occurred. In all our subjects we embed self and peer assessment within both summative and formative collaborative learning activities. This involves students in the assessment process to develop their professional skills including judgement and as much as possible allow feedback to be fed forward to improve subsequent learning and performance. The regular requirement to provide feedback to their peers improves students' judgement, assessment ability and critical evaluation skills.

Results from post subject surveys over multiple semesters show that students found that the introduced self and peer assessment activities assisted them in learning and developing their graduate attributes with:

- 74% agreeing that they improved their ability to both assess their work and the work of others.
- 76% agreeing they improved their ability to both give and receive feedback
- 74% agreeing it encouraged them to put more effort into their assigned work

- 69% agreeing that the feedback they received improved their contribution.

Furthermore, 60% of respondents reported that the peer feedback they received will help them to build on their strengths and weaknesses to improve their skills. Perhaps more importantly more than half the respondents reported that the feedback they received from their peers not only helped them improve their performance in the subject but would also help them improve their performance in future subjects.

Arguably our biggest contribution to assessment and feedback activities that foster independent learning is the development of the software tool SPARK^{PLUS} (<http://www.spark.uts.edu.au>). SPARK^{PLUS} is a self and peer assessment resource kit that supports self and peer assessment and the provision of feedback on individual work or contribution to a team project; graduate attribute development, including judgement and critical evaluation skills; identification of individual learning strengths and weaknesses; allows students to compare their judgement with their peers and teaching academics and facilitates moderation of tutor grading and standards in large classes. SPARK^{PLUS} has been used by almost 7000 students at UTS alone and by another 13000+ students across 15 other Australian and several international universities. For example Mining Education Australia (UNSW, UQ, UAdel and Curtin) is using SPARK^{PLUS} to assess and provide feedback on their engineering group project activities. Some of the activities we have designed that use SPARK^{PLUS} include:

Developing student's judgement and understanding of assessment requirements: Students are provided with an exemplar piece of work which they have to assess either holistically or against criteria using SPARK^{PLUS}. Students later discuss their marking in groups, re-marking the work collectively before tutors discuss how they marked the report. SPARK^{PLUS} produces a mark for each student related to how close their individual assessment was to the academic's assessment.

Assessment and Feedback on Individual Work: Students use SPARK^{PLUS} to assess their own and their peers' work against a number of specified criteria. Subsequently, students discuss the individual strengths and weaknesses of each piece of work, focussing on the perceived

differences as reported by SPARK^{PLUS}. Tutors clarify any unresolved issues and use SPARK^{PLUS} results to produce a grade for each student.

Team contribution: Students use SPARK^{PLUS} to rate their own and their team peers' contribution to each stage of a project. SPARK^{PLUS} uses these ratings to produce individual marks by moderating the mark for the group's submission. Groups are guided through a feedback process

that begins with self evaluation and concludes with students suggesting how their peers may have approached their tasks differently to achieve a better individual and team result. Discussions conclude by teams agreeing how to improve overall team and individual performance for future group work opportunities.



For further information please contact Dr Keith Willey (Keith.Willey@uts.edu.au) or Anne Gardner (Anne.Gardner@uts.edu.au)

AaeE Postgraduate Winter School

Noosa 20-24 June 2011

Plans are now advancing for the inaugural AaeE Postgraduate Winter School to be held at Noosa 20-24 June 2011. Participants will be expected to get themselves to Brisbane by lunchtime on the 20th to join the convoy to Noosa. Alternatively you may decide to make your own way all the way to Noosa.

You will have to share a room and help with chores such as cooking and washing up. We have a separate building to use as a seminar room. Accommodation costs are covered by AaeE. Checkout is on the Friday morning and once again cars will head back to Brisbane if you'd like a ride.

We now need firm confirmation of numbers and this email is to check that you are still interested, and/or whether you have a student or colleague who might want to come. Everyone who expresses an interest now will be asked to pay \$100.00 deposit which will go towards catering costs.

Places are limited and filling fast, so be quick!

Contact details:

Dr Lesley Jolly
Strategic Partnerships
Research, Evaluation, Training, Community
Ph: 0417 902 449

*Lesley Jolly
ERM Chair AaeE Executive*



Interested in hosting an AAEE conference?

The Executive Committee of AAEE are seeking expressions of interest for hosting the 2013 and 2014 conference. The deadline for submissions is 1 June 2011. For more information, please contact the President, Duncan Campbell, da.campbell@qut.edu.au



THE UNIVERSITY OF
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Achieve International Excellence



Engineering Thresholds: an approach to curriculum renewal

<http://www.ecm.uwa.edu.au/engineeringthresholds>

Knowledge Creation Workshop

All university engineering educators are invited to a workshop on engineering threshold concepts.

Participants will investigate the thresholds in foundation introductory level engineering courses. Participants will learn how they can use threshold concept theory to improve teaching and learning in engineering, and contribute to research.

Facilitators: Erik Meyer, Founder of threshold concept theory (Durham University)
Caroline Baillie, Chair in Engineering Education (The University of Western Australia)

This workshop is part of the project *Engineering thresholds: an approach to curriculum renewal* supported by the Australian Learning & Teaching Council. Outcomes will be used to develop resources for engineering educators. The workshops are further supported by the Australian Council of Engineering Deans (ACED).

Threshold concept theory is one of the most important recent developments in discipline-based Higher Education research. Meyer, Land and others realised that there were certain concepts, central to the discipline, that would open up required systems and ways of thinking and yet were troublesome for students. It has been discovered that, not only can threshold concept theory help in focusing students' and teachers' attention, it can also be a curriculum development tool where there is a strong tendency to overcrowd the curriculum (Cousin, 2006; Land *et al.*, 2005; Meyer *et al.*, 2006).

This workshop is one of three held in 2011.

Further information:

<http://www.ecm.uwa.edu.au/engineeringthresholds>



Date: Wednesday 6 April 2011

Place: Bradley Forum
City West Campus
University of South Australia

Time: 12.30pm until 4.30pm

(NOTE: TIME HAS BEEN REVISED TWICE)

Refreshments: Light lunch provided

Cost: Free to participants

Registration Deadline: 22 March 2011

Further Information: Sally Male

sally.male@uwa.edu.au

Tel +61 8 6488 1242



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Engineering Thresholds: an approach to curriculum renewal
Knowledge Creation Workshop on Wednesday, 6 April 2011
in the Bradley Forum, University of South Australia

REGISTRATION

Title (Prof/Dr/Mr/Ms ...): _____ Full Name: _____

University: _____

Position Title: _____

Email: _____ Telephone: _____

Postal Address: _____

Engineering discipline/subject you have taught or studied: _____

Any special dietary or access requirements: _____

How did you find out about the workshop? _____

Please return to Sally Male by 22 March 2011

Email: sally.male@uwa.edu.au

Fax: +61 8 6488 1015

Post: School of Environmental Systems Engineering (M015),
The University of Western Australia, 35 Stirling Hwy, Crawley Western Australia 6009

References

Cousin, G. (2006), An introduction to threshold concepts, *Planet* No 17, December 2006.

Land, R., Cousin, G., Meyer, J.H.F. and Davies, P. (2005), *Threshold concepts and troublesome knowledge (3): implications for course design and evaluation*, in C. Rust (ed.), *Improving Student Learning – diversity and inclusivity*, Proceedings of the 12th Improving Student Learning Conference. Oxford: Oxford Centre for Staff and Learning Development (OCSLD), pp 53–64

Meyer, J.H.F., Land, R. and Davies, P. (2006), *Implications of threshold concepts for course design and evaluation*, in Meyer, J.H.F. and Land, R. (eds.), *Overcoming Barriers to Student Understanding: threshold concepts and troublesome knowledge*, London and New York: Routledge, pp 195–206

In addition to the Adelaide workshop, an Engineering Thresholds Knowledge Creation Workshop will be held in Brisbane on Friday 17 June 2011. Please register interest with Sally Male (sally.male@uwa.edu.au or +61 8 6488 1242) to receive updates

2011 AAEE Executive



**Left to right back row Colin Kestell, Gerard Rowe, Euan Lindsay, David McCarthy
Lesley Jolly, Llew Mann, Frank Bullen, Les Dawes, Prue Howard
Front Row Duncan Campbell (2011 President)
Absent Lyn Brodie**

2011 The year of Humanitarian Engineering

A three-day International Greening Education Event will be held from 19th to 21st of October, 2011 in the "green" city of Karlsruhe, Germany. This event will take academia, education and environmental policy makers, senior members of academic institutions, representatives of government and non-governmental organisations and international development agencies, school administrators and teachers, sustainable development and environmental management professionals through the need for greening education and then discuss effective initiatives that educational institutions need to take to make sustainability an integral part of teaching and learning.

The event provides an exclusive forum to examine how global warming, climate change and other environmental concerns are reshaping education, deliberate on the role of academia in making world cleaner, greener and more sustainable, discuss cutting-edge issues in

greening education and share best practices from around the world.

Further to the knowledge sharing on greening education including topics such as ecologizing curriculum (incorporating sustainability), greening of courses and creating low carbon education institutions; the upcoming event also provides an excellent networking opportunity with academia, sustainable development practitioners and other stakeholders in Europe and beyond. An excursion (optional) on Saturday the 22nd of October, 2011 is planned which will also provide an additional and informal networking opportunity.

You are cordially invited to attend this international event and/ or nominate the member(s) of your institution.

For further information, please see the [event details](http://www.etchgermany.com/IGEE2011.pdf).

2012 AAEE conference

The 2012 AAEE conference will be hosted by Swinburne University, Melbourne. The theme of the 2012 conference is "*Re-positioning Engineering Education: The Profession and the Practice*" More details will be in the next issue of the Newsletter.

Lyn Brodie

ASEE Annual Conference and Exposition

The ASEE Annual Conference and Exposition is the only conference dedicated to all disciplines of engineering education. It is committed to fostering the exchange of ideas, enhancing teaching methods and curriculum, and providing prime networking opportunities for engineering and technology education stakeholders such as deans, faculty members and industry and government representatives. Please visit:

<http://www.asee.org/conferences-and-events/conferences/annual-conference/2011/registration>

Plan to join us in BEAUTIFUL Vancouver, British Columbia for the 118th Annual Conference & Exposition! Your Passport to Engineering Education!

For more information about the ASEE Annual Conference, click here

<http://www.asee.org/conferences-and-events/conferences/annual-conference/2011>

Contributions for the AAEE Newsletter

Do you have something of interest to the Engineering Education community? We welcome contributions from members! If you have something to share, please email the newsletter editor Lyn Brodie at Lyn.Brodie@usq.edu.au

Lyn Brodie