Welcome to the chapter’s second newsletter. I am pleased to report that a new team is in place and we are making great progress in rebuilding the chapter. We have been focusing on developing resources and initiatives that can bring engineering education into the spotlight.

Highlights include a new team focused on supporting female engineers in education, a growing LinkedIn group, and sponsorship of the AAEE Winter School in July.

I encourage you all to participate in discussions, attend events, and encourage others to join. Have a great 2015!

Sasha Nikolic

Message from the Chair

The chapter has formed an alliance with AAEE to offer members a great opportunity to develop a better understanding of how to conduct research in engineering education.

Have you ever wanted to conduct research in engineering education, but were unsure how? Have you ever desired to learn more about qualitative research designs? Want to network with other like minded engineering education researchers? If you answered yes to any of these questions then the AAEE Winter School would be of great interest. As an added bonus, for the first time ever IEEE NSW Education Chapter members may receive a $200 rebate.

The 2015 AAEE Winter School will be held at the University of Wollongong from the 6—10 July.

The IEEE NSW Education Chapter is providing the opportunity for up to five of its members to receive a $200 rebate in attending the winter school. This rebate will be provided on a first come, first serve basis. You will be able to monitor the number of rebates given via the chapters LinkedIn group.

To be eligible:
- If you do not belong to the IEEE Education Society, become a member.
- Join the chapters’ LinkedIn group

To claim one of the five rebates:
- From the 1st of March: Within the chapters LinkedIn group start a discussion with the text "I would like to take advantage of the $200 rebate to attend the AAEE Winter School on engineering education"
- You then have three weeks to pay for the balance of the cost.

To find out more about the winter school: http://eis.uow.edu.au/aaee-2015/index.html

Fees (excluding $200 rebate):
- $500 for PhD students (who are not full-time academics)
- $800 for academic staff

Covers instructions, materials and daytime catering
Launched in October 2014, the IEEE NSW Education Chapter LinkedIn group is rapidly growing in numbers. Group members not only belong to the chapter, but also include friends and colleagues that are passionate and interested in improving engineering education.

If you have recently published a book, journal, conference paper or any other publication related to engineering education, use this group to promote your work. Individuals have joined this LinkedIn group because they want to engage in discussions surrounding engineering education. Therefore, this is the local audience that is interested in your work. However, please note that only IEEE NSW Education members are permitted to promote their work. Promotions by non members will be removed. If you are not a member, become one!

Use your IEEE Education Society Membership as a tool to promote your research via the chapters LinkedIn group

The Education Society is only an additional US$20 for full IEEE members, and US$10 for student IEEE members. Additional benefits include four hard copies of the IEEE Transactions on Education each year, and other promotions, such as the rebate to attend AAEE Winter School in July.

All LinkedIn group members can start discussions, share articles and videos of interest. Please do not be passive, get involved in the discussions and share your ideas and opinions. However, when doing so please be respectful.

Therefore, if you have not joined the chapters LinkedIn group, click on the link below and join. We look forward to your contribution.

https://www.linkedin.com/groups/IEEE-NSW-Education-Chapter

AAEE Winter School 2015 Topics

**Q: What is covered at the Winter School?**

Attendees will learn about:

- Designing and undertaking effective education research projects
- Evaluating teaching and curriculum
- Positioning evaluation and research activities in light of current trends
- Appreciating and responding to national and local grant opportunities
- Building collaborative research partnerships across Australia and beyond
The IEEE NSW Education Chapter is growing! We are delighted to announce a new team focused on Women in Engineering Education (WiEE). The team currently consists of members from the University of Wollongong and Macquarie University, and is looking for female engineers from other NSW universities to come on board.

**WiEE leader:** Azadeh Safari

**Supported By:** Perzila Ara
Sudipta Chakraborty

The aim of the WiEE is to support female engineers involved and passionate about engineering education. This will be achieved by creating a network to exchange ideas, share experiences and support each other. The WiEE values and appreciates the contribution female engineers make, and understands the struggles they face in a male-dominated work force.

Currently, the vision of supporting women in engineering is being broadly considered by engineering societies. The WiEE is an original integration and a new concept sticking firmly to the prime goals of these societies. The emphasis on the recognition of women in engineering, development of engineering workplace and equity is derived from the “Women in Engineering and Science (WISE)”, and the concept of building strong teaching and learning environments is derived from the “IEEE NSW Education Chapter”.

To find out more about WiEE please visit the chapter's website or please email Azadeh Safari at azadehsafari2008@gmail.com to join our team!
Dr Christian Ritz—Vice Chair

(M'97, SM'08) received his B.E. degree in electrical engineering and his B.Math. degree (1998) and Ph.D. (2003) from the University of Wollongong. He joined the University of Wollongong in 2003 and is currently an Associate Professor there. He has an active research area focusing on spatial and multichannel speech and audio signal processing. He also has a keen interest in Engineering Education, which includes chairing of his Faculty’s Engineering Education Committee, leading the professional accreditation activities of his School’s disciplines including transnational programs and research-informed continuous improvement of the Engineering student experience.

Dr Peter Vial—Secretary

(M’89, SM’11) received the BE (electrical) degree in 1987, the M.E. (Honors) in telecommunications in 1996, the Graduate Diploma in Education (Mathematics) in 2000 and the Ph.D. in telecommunications in 2009 all from the University of Wollongong. He is currently a Lecturer at the University of Wollongong.

Azadeh Safari—Women in Engineering Education

(M’10) received the BE (electrical) degree in 2006 from Azad University, Masters in Electronics in 2009 from University Malaya, and PhD in 2014 from Macquarie University. Azadeh has a passion for increasing education opportunities for others, and to encourage the promotion of engineering for women.

Why Education Research?

**Q: Why should you care about education research?**

I have heard many conversations about the conflicting nature between publishing papers in journals and teaching. In the argument surrounding conflicting time constraints, one area that many academics forget is educational research. With careful planning, the time and effort you put into the classroom to provide that exceptional engineering education experience, can be transformed into world class research. Alternatively the research of others can help transform your teaching with less effort, with many proven ideas ready for you to take advantage of.
TALE 2014

The IEEE International Conference on Teaching, Assessment, and Learning for Engineering was held in Wellington New Zealand in 2014

TALE 2014 was held during December in Wellington New Zealand. The conference was co-located with AAEE 2014 and held in the beautiful Te Papa Tongarewa National Museum of New Zealand. The museum showcased New Zealand's history, together with a special appearance by Tyrannosaurs Rex. Approximately 250 IEEE and AAEE members attended the joint event.

Workshops included: addressing publication review criteria; supporting diverse student cohorts through their engineering studies; MATLAB and Simulink for project based learning using Lego Mindstorms; Toward a modern curriculum for computer engineering; and computing education.

A diverse range of conference papers was presented by members throughout the world.

Chapter Goals

2014 Goals

Increase chapter members by 30%

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Goal</th>
<th>Percentage Increase</th>
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<tbody>
<tr>
<td>01 Jan</td>
<td>31 Dec</td>
<td>28 members</td>
<td>40%</td>
</tr>
</tbody>
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Develop resources for chapter members

- Chapter website developed and deployed
- Chapter LinkedIn group established

Create alliance with AAEE

- Alliance established for the promotion of AAEE Winter School

2015 Goals

Increase chapter members by 30%

- Reach 36 members by Dec 2015

Grow group membership to LinkedIn group

- Reach 30 members by Dec 2015

Encourage member contributions

- Afternoon get together in the city
- At least two technical meetings
- Promotion of member publications

Encourage IEEE participation at AAEE Winter School

- Fund a rebate program for chapter members

On the eve of Google’s IPO in 2004, Larry Page and Sergey Brin vowed not to be evil. Today, a growing number of technologists would go further, trying to ensure that their work actively improves people’s lives. Technology, so pervasive and ubiquitous, has the capacity to increase stress and suffering; but it also has the less-heralded potential to improve the well-being of individuals, society, and the planet. In this book, Rafael Calvo and Dorian Peters investigate what they term “positive computing”—the design and development of technology to support psychological well-being and human potential.

Calvo and Peters explain that technologists’ growing interest in social good is part of a larger public concern about how our digital experience affects our emotions and our quality of life— which itself reflects an emerging focus on humanistic values in many different disciplines. Synthesizing theory, knowledge, and empirical methodologies from a variety of fields, they offer a rigorous and coherent foundational framework for positive computing. Sidebars by experts from psychology, neuroscience, human–computer interaction, and other disciplines supply essential context. Calvo and Peters examine specific well-being factors, including positive emotions, self-awareness, mindfulness, empathy, and compassion, and explore how technology can support these factors. Finally, they offer suggestions for future research and funding. Link


Many can now conclude that utilizing educational technologies can be considered the primary tools to inspire students to learn. Combining these technologies with the best teaching and learning practices can engage in creativity and imagination in the engineering field.

Using Technology Tools to Innovate Assessment, Reporting, and Teaching Practices in Engineering Education highlights the lack of understanding of teaching and learning with technology in higher education engineering programs while emphasizing the important use of this technology. This book aims to be essential for professors, graduate, and undergraduate students in the engineering programs interested learning the appropriate use of technological tools.

Link
Cloud-Based Virtual Laboratory for Network Security Education

Le, Xu; Dijiang Huang; Wei-Tek Tsai—Volume:57 Issue:3

Hands-on experiments are essential for computer network security education. Existing laboratory solutions usually require significant effort to build, configure, and maintain and often do not support reconfigurability, flexibility, and scalability. This paper presents a cloud-based virtual laboratory education platform called V-Lab that provides a contained experimental environment for hands-on experiments using virtualization technologies (such as Xen or KVM Cloud Platform) and OpenFlow switches. The system can be securely accessed through OpenVPN, and students can remotely control the virtual machines (VMs) and perform the experimental tasks. The V-Lab platform also offers an interactive Web GUI for resource management and a social site for knowledge sharing and contribution. By using a flexible and configurable design, V-Lab integrates pedagogical models into curriculum design and provides a progressive learning path with a series of experiments for network security education. Since summer 2011, V-Lab has served more than 1000 students from six courses across over 20 experiments. The evaluation demonstrates that the platform and curriculum have produced excellent results and helped students understand and build up computer security knowledge to solve real-world problems.

More Resources

To get access to more resources in regards to engineering education, and educational research please visit the chapters website.

About this Newsletter

This newsletter was created by the IEEE NSW Education Chapter Chair: Sasha Nikolic
February 2015