Message from the Chair

Since commencing as chapter chair in 2014, I have been looking at ways to expand the benefits available to the education society members. Secondly I am trying to grow the membership and contributions. I am extremely passionate about engineering education, and want to help others that have the same passion.

Help Needed

For my vision to be achieved I need your help. I need individuals who are passionate about engineering education to join the committee. I call out to the engineers, computer scientists, and other related disciplines to contribute. Help organize technical meetings, resources and help generate new ideas to grow this chapter.

Introducing The New Look Education Chapter

Welcome to the first issue of the IEEE New South Wales Education Chapter Newsletter. This chapter is entering a new era, with the establishment of a new website, LinkedIn group, and newsletter.

Teaching is like no other job. Teaching involves changing the lives of others by providing the gift of knowledge. Immense satisfaction is obtained when you see the reaction on a student’s face say, “I get that!”. With technology changing so fast, we need to ensure our students are up to the challenge.

The importance of providing a high quality education to future engineers, and the importance of educational research to academics, has promoted the need to revitalize this chapter. To move forward, chapter members need to be better informed of current events and local research.

Three new tools have been introduced in October 2014 to enable IEEE members to take advantage of their Education Society Membership.

The tools, and the associated benefits include:

- Education Chapter Newsletter
  - Latest chapter news & events
  - Resources & reviews
  - Promoting member research

- Education Chapter Website
  - One stop shop for members
  - A list of member publications
  - Resources to enhance learning
  - Education publication information

- Education Chapter LinkedIn Group
  - Provide a medium for members to communicate & share ideas
  - Promote research
  - Promote Technical Meetings

The Education Chapter Newsletter will be published three times a year—October, February, and June. If you have news, research or events that you would like to share/promote please email the chapter chair, or contact via the LinkedIn group.
Introducing the LinkedIn Group

The Education Chapter, consists of a small number of members. Do you wish there was a better way to engage with these members?

With the LinkedIn group you can now ask questions, network and collaborate. More importantly promote your research with the members that want to read your work.

We are all members of the education society because we want to learn new ways of making our teaching as effective as possible. When you publish a journal or conference paper, write about it in the group and send a link to its location.

Have you tried finding suitable partners for a grant or other project? Has it been hard to find someone with the relevant experience or skill set? Use the LinkedIn group to find the members most suited to the needs of your project.

For this group to be successful we need members to join, and be active in the discussions. If used correctly this LinkedIn group can be very beneficial.

Please invite your friends, peers and colleagues who share our interests to join the group. Please note that members must be approved before they will have access to the group page.

Why should you join the chapters LinkedIn Group?

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.

https://www.linkedin.com/groups/IEEE-NSW-Education-Chapter
Patterns and principles for blended synchronous learning: Engaging remote and face-to-face learners in rich-media real-time collaborative activities


Blended synchronous learning involves using rich-media technologies to enable remote and face-to-face students to jointly participate in the same live classes. This article presents blended synchronous learning designs from seven case studies that were part of a project funded by the Australian Government Office for Learning and Teaching and articulates principles for implementation as espoused by the teachers who enacted them. A wide range of technologies (including video conferencing, web conferencing and virtual worlds), tasks (namely collaborative evaluation, group questioning, class discussion, problem solving and collaborative design) and levels of student interaction (from lightweight to tightly coupled) were present within the designs. The main issues that teachers confronted when facilitating blended synchronous lessons were those relating to communication and those relating to cognitive overload caused by split attention. Key pedagogical principles for enactment as identified by the lead teachers included the need for extensive preparation, clear instructions, composure, flexibility, advance preparation of students and savvy utilisation of support staff. Link

Frontiers of affect-aware learning technologies


Affect-aware technologies are moving the frontiers of how we understand, support, and optimize student learning. The authors explore five areas that exemplify cutting-edge research in the burgeoning field. These include intelligent tutoring systems that detect and respond to students' affective states and sometimes synthesize affect; the strategic induction of confusion as a means to stimulate deep learning; techniques to increase student engagement and reflection; systems that support the development of prosocial behaviors, resilience, and other aspects that contribute to students' well-being; and sample projects that highlight how these new ideas can be taken from laboratories into real-world classrooms. Link
Project-Based Learning in Embedded Systems Education Using an FPGA Platform

Kumar, A.; Fernando, S.; Panicker, R.C.—Volume:56 Issue:4

With embedded systems becoming ubiquitous, there is a growing need to teach and train engineers to be well-versed in their design and development. The multidisciplinary nature of such systems makes it challenging to give students exposure to and experience in all their facets. This paper proposes a generic architecture, containing multiple processors, that allows easy integration of custom and/or predefined peripherals. The architecture allows students to explore both the hardware and software issues associated with real-time and embedded systems. Furthermore, the architecture can be extended to train students in advanced concepts in embedded multiprocessor systems. This generic architecture has been used for two courses at the National University of Singapore—one on real-time embedded systems and the other emphasizing the hardware aspects of embedded systems. The project in the real-time embedded systems course has students develop a five-a-side soccer system on multiple field-programmable gate array (FPGA) boards using embedded processors. In the embedded hardware design course project, students use an embedded processor-based system to perform decryption of a block encrypted image, accelerated through a custom co-processor. The use of displays gives students a visual/interactive experience and a sense of accomplishment, while reinforcing the theoretical concepts. Both qualitative and quantitative assessment results are presented, showing how students perceived these projects and met the learning objectives.

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:
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