
EDITORIAL

By the time this issue reaches your hands, fall semester will be over and we will be entering the year 2003. We wish all our readers a very happy and prosperous New Year.

As seasons change, educational systems and methodologies also need to change. That is the message communicated by Dr. Wm. A. Wulf, President of the National Academy of Engineering in his article, "The Urgency of Engineering Education Reform." He is worried that half of what we are teaching now to our students in some fields is obsolete by the time they graduate. In the field of computer science, for example, topics may become out-of-date in as little as 2.5 years. He also wants educators to raise students' awareness of the ethical issues involved in the design and manufacture of complex systems whose behavior is unpredictable. He stresses the need for technological literacy for all citizens and points out that engineering inventions make major changes to people's lives; for example, the simple availability of clean water has prolonged the lifespan of people from 46 to 76 years. His article is interesting and provocative and should be essential reading for all engineering educators and students.

The second article, by Jane Fedorowicz and Janis Gogan, includes a broad range of examples of how emerging technologies can be quickly incorporated into existing courses or used as the basis for new course offerings. They also challenge the notion of what constitutes "high-quality research?" They suggest that mechanisms for funding faculty development, research, and curricula need to be revised to reduce artificial barriers between "research" and "curriculum."

The third article, by Abhijit Nagchaudhuri and Geoffrey Bland, discusses a program that involved a group of undergraduate students in SMET curricula in an "out of classroom" active learning and exploratory research experience. The students flew an instrumented payload on a tethered blimp filled with helium to a height of almost 2500 feet. Involvement with this project is also allowing the students to become aware of career opportunities at NASA.

The fourth article, by Muhammad Ali, Mohammad Javed Khan and Daniel Nyatuame, explains a new approach to consolidating high performance computing fundamentals and concepts taught to undergraduate students by reinforcing the concepts with laboratory experiments based on "real life" applications. The experiments are described in this paper and could easily be used in your own classes.

In his article, John Duggan reviews descriptions of Henry's Law to demonstrate the potential effects on student learning and professional practice that may result from the oversimplification of this engineering principle. He shows how abbreviated descriptions of a given concept may result in unintended outcomes in student learning. He suggests that over-reliance on an abbreviated description of Henry's Law by a student may lead to design errors in the classroom and, ultimately, in practice.

Cheryl Cobb describes a workshop conducted by LITEE and highlights what the attendees learned from the workshop in her article. A page of photographs from the workshop follows this article, showing the faculty members actively engaged in learning sessions.

The final article in this issue, by P.K. Raju, Chetan S. Sankar, Gerald Halpin and Glennelle Halpin, provides an overview of the four workshops that were run by the LITEE team during 2000-2002. These workshops provided engineering educators with an opportunity to work hands-on with new instructional materials that bring real world issues into classrooms that have been developed by the team. The feedback and evaluations from these workshops have been extremely positive. The participants enjoyed the program and facilities, and were impressed by the energy and excitement of workshop members. The article concludes by stating that focused workshops are an excellent means of disseminating innovative educational materials.

In this issue, in addition, you will find a review of Cabell's list of journals, SMET-related citations, and announcements.

We are stepping into the fourth year of publishing this journal and we thank you for your continued support. We are actively pursuing the idea of making the journal electronic, which arose during discussions with members of our International Advisory Board and leading engineering educators and industry leaders. We are currently negotiating with potential e-journal providers so that we could host the four issues per year electronically in the near future. Once this is done, the release of the physical issues each year will be reduced to either one or two volumes, to reduce mailing costs. We will keep you updated on this item. We expect these changes to help you access the articles quickly and reduce the lag time between acceptance of an article and eventual publication.

We welcome your comments on this issue and look forward to working with you,

P.K. Raju and Chetan S. Sankar