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From the Editor

The past ten years of engineering education have been marked by many changes including the introduction of outcome based accreditation criteria, the creation of the first two departments of engineering education, the funding by the National Science Foundation of an education center and an engineering research center, a national prize for contributions to engineering education, a coming together of learning scientists and engineering education researchers to break new ground and introduce new pedagogy, and the evolution of the *Journal of Engineering Education* into a first rate research publication. It is this latter development that has opened the door for a new publication—*Advances in Engineering Education*.

As we begin publishing, we look forward to an even more exciting decade for engineering education. In particular, we now must deal with globalization and its implication, address innovation, and incorporate sustainability as a routine design constraint. We must provide opportunities for our students to study abroad, and partake in service learning opportunities, both in the US and internationally. While we look towards exciting breakthroughs in such new areas as biotechnology and nanotechnology, we also see an increasing demand from a number of more traditional and recently overlooked areas including nuclear engineering, power distribution, petroleum and even mining. What all this means is that we expect to see a number of exciting advances in engineering education and, with your help, we hope to publish in a dynamic, multi-media fashion many of these achievements.

We are particularly excited about this first issue. While each of our four articles reports on a different, innovative educational achievement, collectively they demonstrate the potential of our new online format. We are particularly pleased because the authors represent a wide range of areas and institutions.

Ronald Barr, Marcus Pandey, Anthony Petrosino, Robert Roselli, Sean Brophy, and Robert Freeman report on the results of teaching a full engineering course using the challenged-based instruction (based on the widely recognized “How People Learn” pedagogy). These investigators from the University of Texas (Austin and Pan American) and Vanderbilt University introduced and assessed this course work as part the the VaNTH (Vanderbilt, Northwester, Texas and Harvard) engineering research center that focused on bioengineering. Their paper utilizes video to better present their methodology and results.

Mark Yeary, Tian-You Yu, Robert Palmer, Michael Biggerstaff, L. Dee Fink, Carolyn Ahern, and Keli Pirtle Tarp from the University of Oklahoma and the National Severe Storm Center bring together

two seeming diverse, but clearly complementary fields—electrical engineering and meteorology—to jointly educate a cadre of engineers and meteorologists who will be able to take raw radar data to better detect weather and aircraft. Their effort that is still ongoing has already developed and assessed new course work and created new research opportunities. They also utilize the new multi-media format to best demonstrate their concepts to our readers.

Ronald W. Welch (originally at United States Military Academy and now at University of Texas at Tyler) and J. Ledlie Klosky (also USMA) describe the website: www.handsonmechanics.com that includes physical teaching models developed and vetted by West Point faculty and now open to other engineering educators. These models have been created to introduce more student insight while introducing some dramatic effects into the classroom. Assessment data is presented to demonstrate the impact of these physical models on learning. Again, multi-media presentations are effectively used.

Last, but certainly not least a team of chemical engineers and psychologists from the University of Arkansas (Noel Romey, Rachel M. Schwartz, Douglas Behrend, Peter Miao, H. Michael Cheung and Robert Beitle) have developed and demonstrated a methodology for enabling visual impaired students to utilize a graphical user interface (GUI), a routine component of modern engineering software. A short video clip enables readers to follow the system as a visually impaired student utilizes it to design a chemical plant.

We hope that you will find these articles informative and highly readable. We look forward to your articles, suggestions, ideas and critiques. We promise you through, efficient and timely reviews. We are anxious to produce a peer-reviewed journal that complements *JEE* (which only has a 97 year lead on us)!

Sincerely,
Larry Shuman
Editor in Chief
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