



Seminar on Engineering Education Research: Status of Global Efforts and Opportunities



sponsored by the
Universiti Teknologi Malaysia
in partnership with the Annals of Research on Engineering Education,
the *Journal of Engineering Education*, and the global initiative
Rigorous Research in Engineering Education

Focus

Engineering education research is a rapidly growing field of scholarship for many engineering faculty. A global community is developing supported by seminars, conferences, journals, and workshops. The focus of this one-hour seminar is twofold:

- (1) Enhance awareness of the nature of engineering educational research.
- (2) Increase familiarity with the emerging global engineering education research community.

This seminar is open to all engineering, science, mathematics and technology faculty, graduate students, administrators and staff who are interested in learning more about engineering education research. The format will be an initial small-group engaged learning activity, an approximately 30 minute presentation, a reflective dialogue, and an approximately 20 minute whole-group conversation.

Outcomes

The intended outcomes from the seminar are to help participants to:

- (1) recognize the key features of engineering educational research, and how it is different from effective and scholarly teaching;
- (2) develop a better understanding of the global growth and importance of engineering education research;
- (3) gain awareness of selected Web-based and print resources, such as the *Journal of Engineering Education*, Annals of Research on Engineering Education, *Scientific Research in Education*, *The Craft of Research*; and
- (4) become more aware of emerging global communities and their networks, and how to connect with them.

Resources

Seminar participants are encouraged to peruse the following resources.

- Adams, R., K. Smith, and L. Fleming. 2007. Becoming an engineering education researcher: Three researchers stories and their intersections, extensions, and lessons. *Proceedings, International Conference on Research in Engineering Education*; http://www.ce.umn.edu/~smith/docs/Adams-Fleming-Smith-Becoming_an_engineering_education_researcher-ICREE2007.pdf
- Annals of Research on Engineering Education; <http://www.areeonline.org>
- Borrego, M., R.A. Streveler, R.L. Miller, and K.A. Smith. 2008. A new paradigm for a new field: Communicating representations of engineering education research. *Journal of Engineering Education* 97 (2): 147-162; <http://www.asee.org/conferences/international/2008/upload/A-New-Paradigm-for-a-New-Field.pdf>
- Booth, W.C., G.G. Colomb, and J.M. Williams. 2008. *The craft of research*. 3rd ed. Chicago, IL: The University of Chicago Press. Not available online. Sample copies will be made available during the seminar. Participants are encouraged to decide whether to purchase the book after seeing the sample copies.
- Center for the Advancement of Scholarship on Engineering Education; <http://www.nae.edu/nae/caseecomnew.nsf>
- *Journal of Engineering Education*; <http://www.asee.org/publications/jee/index.cfm>
 - Guide for Authors; <http://www.asee.org/publications/jee/guide.cfm>
 - Special Issue, July 2008, Educating Future Engineers: Who, What and How; <http://www.asee.org/publications/jee/issueList.cfm?year=2008#July2008>
- National Research Council. 2002. *Scientific research in education*. R.J. Shavelson and L. Towne, eds. Washington, DC: The National Academies Press; http://www.nap.edu/openbook.php?record_id=10236&page=R1
- Smith, K.A. 2006. Continuing to build engineering education research capabilities. *IEEE Transactions on Education* 49 (1): 1-3; <http://www.asee.org/conferences/international/2008/upload/Continuing-to-Build-Eng-Education-Research-Capabilities.pdf>
- Streveler, R.A., and K.A. Smith. 2006. Conducting rigorous research in engineering education. *Journal of Engineering Education* 95 (2): 103-105; <http://www.asee.org/conferences/international/2008/upload/Conducting-Rigorous-Research-in-Eng-Education.pdf>

Location

Universiti Teknologi Malaysia

Organizers

Jack R. Lohmann is vice provost for Faculty and Academic Development and professor of Industrial and Systems Engineering at the Georgia Institute of Technology. Dr. Lohmann has held appointments at the University of Michigan, the University of Southern California, l'École Centrale Paris, and the U.S. National Science Foundation. He is a Fellow of the Institute of Industrial Engineers, the American Society of Engineering Education, and the European Society for Engineering Education, and editor of the *Journal of Engineering Education*.

Karl A. Smith is Cooperative Learning Professor of Engineering Education, Purdue University West Lafayette and Morse-Alumni Distinguished Professor of Civil Engineering, University of Minnesota. Dr. Smith has been actively involved in engineering education research and practice for over thirty years. He is a Fellow of the American Society for Engineering Education and past Chair of the Educational Research and Methods Division, and Editor-in-Chief of the Annals of Research on Engineering Education.

Ruth A. Streveler is an assistant professor in the School of Engineering Education at Purdue University. Before coming to Purdue she spent 12 years at Colorado School of Mines, where she was the founding Director of the Center for Engineering Education. Her primary research interest is investigating students' understanding of difficult concepts in science and engineering

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