



A Workshop on Building Capability and Communities in Engineering Education Research

sponsored by the
Indian Society for Technical Education and *Journal of Engineering Education*
in partnership with the Annals of Research on 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 half-day workshop is twofold:

- (1) Introduce engineering faculty interested in developing or extending their capability to engage in educational scholarship how to approach and move their work in the direction of educational research.
- (2) Share with interested participants strategies to build and sustain a community of engineering education researchers and to help them network with other global communities.

This interactive workshop is open to up to 50 engineering faculty who are considering or are currently engaged in scholarly work focused on teaching and student learning. It is especially designed for faculty who wish to make engineering education research an important part of their scholarly portfolio, including collaborating with social science colleagues to address engineering education questions and opportunities, seeking funding for engineering educational research, and publishing the results of their work in peer-reviewed education and educational research journals and similar forums.

Outcomes

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

- (1) identify the principal features of engineering educational research and how they compare with technical engineering research,
- (2) frame research questions, situate them within appropriate theoretical frameworks, and consider alternative research methodologies,
- (3) gain familiarity of Web-based and print resources, specifically 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

The following online resources are available for the workshop participants. Participants are encouraged to peruse these resources before the workshop.

- 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/%7Esmith/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 workshop. 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

38th ISTE National Annual Convention and IFEE Asia-Pacific Regional Conference

Kalinga Institute of Industrial Technology (University)

Bhubaneswar, India

20 December 2008—More information is available at <http://www.isteonline.in/index.php?q=node/144>

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.