

James F. Young, Ph.D, P.E.

Contact Information

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Education

B.S.	1965	Massachusetts Institute of Technology, Electrical Engineering
M.S.	1966	Massachusetts Institute of Technology, Electrical Engineering
Ph.D.	1970	Stanford University, Electrical Engineering

Positions Held

2011–present	Professor Emeritus, Electrical and Computer Engineering, Rice University
1994–2011	Professor, Electrical and Computer Engineering, Rice University
1990–1994	Associate Professor, Electrical and Computer Engineering, Rice University
1975–1990	Professor of Electrical Engineering (Research), Stanford University
1970–1975	Research Associate, Electrical Engineering, Stanford University

Research

My scholarship currently focuses on engineering education, teaching, and learning, both undergraduate and K–12 levels. For most of my career I have been an experimentalist concentrating on the development of new optical and photonic devices and their application to solve scientific and technical problems. Research topics have included optical parametric oscillators, nonlinear optics in crystals and vapors, infrared image up-conversion, and the development of unique laser sources, including microwave-pumped excimer lasers, femtosecond terawatt lasers, and the first true extreme ultraviolet lasers. Current grants:

“Rice Engineering Design Experience,” Texas Higher Education Coordinating Board, Teacher Quality Grants Program, 1 May 2009 – 30 April 2012, \$367,600.

“Expanding Technological Literacy at National Institutions,” National Science Foundation, Course, Curriculum, and Laboratory Improvement, Type 2, 15 September 2009 – 31 August 2011, Joint with Iowa State and Ohio State Universities, and Hope College, \$53,500 at Rice.

Technical Memberships & Activities

Registered Professional Engineer, Texas license #84217.
 Fellow of the Institute of Electrical and Electronics Engineers.
 Fellow of the Optical Society of America.
 IEEE Lasers & Electro-Optics Society Distinguished Lecturer.
 American Society of Engineering Education (ASEE).
 Publications: Over 75 articles and published proceedings; two patents.
 Graduate Students: direct supervision of over 35 graduate degree recipients.
 Consultant to over ten companies.

Educational Activities

Internal Advisory Committee, Rice Center for Engineering Leadership, RCEL.
 Steering committee for Scientia Conference on Research and Innovations in Undergraduate Science and Engineering Education, February 11–12, 2011, Rice University, Houston, TX.
 Selected participant in NSF-sponsored (DUE 0714137) workshop Technological Literacy of Undergraduates: Identifying Standard Models, March 26-27, 2007, National Academy of Engineering, Washington, DC.
 Organized two-day workshops for Rice faculty on Teaching Engineering, & Evaluating Teaching, 2007.
 Organized two-day workshop for new Rice faculty on Effective Teaching, 2009.
 Dean's representative to the Engineering Education NSF Awardees Conference, September 26-28, 2007, Washington, DC.
 Founding Member, Rice University Outreach Council.
 Rice University School of Natural Science K–12 Program Review Board.
 Chair, Rice University School of Engineering Education Forum and Working Group that proposed RCEL.

Engineering Team Leader for the Southeast Regional Texas STEM Center (state sponsored), including presenting at several high school teacher training sessions.

Selected participant in NSF-sponsored (DUE 0714137) workshop *Technological Literacy of Undergraduates: Identifying Standard Models*, March 26–27, 2007, National Academy of Engineering, Washington, DC.

Presenting panel member at 37th Annual Frontiers in Education Conference session 42F, *The Technological Literacy of Undergraduates: Developing Standard Models*, October 12, 2007, Milwaukee, WI.

Developed a new course on Teaching Engineering for graduate students interested in academic positions (3 females, 1 Hispanic); established related teaching internship program.

Co-developer of a project-based course introducing engineering design to aspiring engineering majors and non-engineering majors; course instructor since 1991.

Professional Development

Three-day National Effective Teaching Institute workshop, June 15–17, 2006, Chicago, IL (see <http://tinyurl.com/252660>).

American Society of Engineering Education Annual Meeting, June 18–21, 2006, Chicago, IL. Attendance at general sessions and the workshop *Building Capacity for Engineering Education Research* (0230).

American Society of Engineering Education Annual Meeting, June 24–27, 2007, Honolulu, HI. Attendance at general sessions and two workshops: *NSF Capstone Design Assessment Workshop* (0325), and *Best Practices in the Design and Use of Concept Inventories* (0430)

Engineering Education NSF Awardees Conference, September 26–28, 2007, Washington, DC. Including special sessions on *Research Experience for Teachers in Engineering Programs*, *Assessing Engineering Education Grants*, *Project Assessment using the DIO Cycle*, and *Recruiting from Diverse Populations*.

37th Annual Frontiers in Education Conference, October 10–13, 2007, Milwaukee, WI. Attendance at general sessions and two workshops: *Tools for Team Assignments and Peer Evaluation* (2-C), and *Engineering Education Proposal Writing and Project Management* (3-B).

Publications and Presentations

Over 75 articles and published proceedings, and two patents; a selected list follows.

- "Preparing High School Teachers to Teach Design," J. F. Young, in *Proceedings of the Frontiers in Education Conference*, October 27–30, 2010, Arlington, VA, Session T4F.
- "Expanding Technological Literacy Through Engineering Minor," M. Mina, J. Krupczak, R. J. Gustafson, and J. F. Young, in *Proceedings of ASEE Annual Conference and Exposition*, Louisville, KY, 2010.
- "Development of Engineering-Related Minors for Non-Engineering Students," J. Krupczak, M. Mani, R. J. Gustafson, and J. F. Young, in *Proceedings of ASEE Annual Conference and Exposition*, Louisville, KY, 2010.
- "The Rice University Engineering Design Experience," J. F. Young, D. L. Jensen, and M. Garcia, *Conference for the Advancement of Science Teaching*, Galveston, TX, 2009 (Workshop). "Dependence of performance of a waveguide spectral encoding/decoding system on its planar element parameters," C. D. Babich, J. F. Young, C.-H. Lee, and Y. J. Chen, presented at OSA Integrated Photonics Research Conference, San Francisco, CA, June 2004.
- "Planar lightwave circuit design for programmable complementary spectral keying encoder and decoder," C.-H. Lee, S. Zhong, X. Lin, J. F. Young, and Y. J. Chen, *Electron. Lett.* **35**, 1813–1815 (1999).
- "Measurements of BER Performance for Bipolar Encoding of an SFS," T. Dennis and J. F. Young *J. Lightwave Technology* **17**, 1542–1546 (1999).
- "Optical Implementation of Bipolar Codes," T. Dennis and J. F. Young, *IEEE J. Quantum Electronics* **35**, 287–291 (1999).
- "Experimental Demonstration of Bipolar Codes for Optical Spectral Amplitude CDMA Communication," L. Nguyen, T. Dennis, B. Aazhang, and J. F. Young, *J. Lightwave Technology* **15**, 1647–1653 (1997).
- "All-Optical Encoders and Decoders for Spectral CDMA using Bipolar Codes," T. Dennis and J. F. Young, in *All-Optical Networking: Architecture, Control, and Management Issues*, J. M. Senior and C. Qiao, Editors, SPIE Vol. 3531, 73–79 (1998).