IEEE Education Society: Global Leader in Engineering Education

Susan M. Lord, Ph.D.
President, IEEE Education Society
Professor of Electrical Engineering
University of San Diego, San Diego, CA, U.S.A.

Outline: IEEE Education Society

- Founding & Early History
- Membership
- Publications
- Conferences
- Strategic Planning: the Future
IEEE Education Society (EdSoc)

Field of Interest (as of 1/1/09)

- Educational Methods
- Educational Technology
- Instructional Materials
- History of Science and Technology
- Educational and Professional Development Programs within Electrical Engineering, Computer Engineering, and allied disciplines.
The Education Society's FIELD OF INTEREST is the theory and practice of education and educational technology involved in the effective delivery of domain knowledge of all fields within the scope of interest of IEEE.
Founding in 1957

- Institute of Radio Engineers Professional Group on Education (IRE-PGE)
  - 10/10/1957 Constitution adopted

- John D. Ryder
  - Principal founder & 1st Chairman of IRE-PGE
  - In an IEEE Oral History interview, Ryder describes the founding
  - Dean of Engineering, Michigan State University
  - Passionate advocate for progressive engineering education
  - President of IRE in 1955
  - IEEE VP for Publications 1963-1964

IRE–PGE Objectives

- To foster improved relations between the electrical and electronic industries and the schools, colleges, and universities
- To serve as a liaison between electrical engineering education and the Institute of Radio Engineers
- To provide a means of communication to and within the electrical and electronic teaching profession, in order to further their combined efforts in improvement of education in the electrical and electronic engineering profession.

IRE–PGE Opportunities for Service

1) **Publication** of a Journal

2) Hosting **conferences** and meetings

3) Promoting **educational technology** (use of electronics as a “dynamic force in all of engineering education” particularly in terms of teaching aids)


*These have continued to be central aspects of the IEEE Education Society today.*
the most important objective of the IRE-PGE would be the improvement of electrical engineering education through tying together the teacher, the college, and interested professional engineers and industrial people.

*Ryder, IRE Transactions on Education, 1958.*

- Chairman: Ronald L. McFarlan (Raytheon)
- Vice Chairman: John N. Dyer (AIL Laboratories)
- Secretary-Treasurer: John G. Truxal, (Polytechnic Institute of Brooklyn)

http://www.ieee.li/section_officers.htm

https://engineering.purdue.edu/ECE/People/Alumni/OECE/1992/truxal.whtml
IRE Transactions on Education

- First Issue March 1958
- First Editor:
  - Ted A. Hunter from Iowa City, IA. (Collins Radio)
- 6 other Editorial Committee members,
  - 5 from industry (RCA, Bendix, Westinghouse, Collins Radio, AIL Labs)
  - 1 from academia (Roger Nolte, Missouri School of Mines)
- $3 annual dues included subscription to Transactions
“In view of the increasing realization that one of the chief problems of our generation is to provide sufficiently well-trained brains to operate our scientific world, a great many questions have arisen.”

- Changing curriculum
- Graduate school
- Industry support of academia
- Public understanding of engineering
- Employment for engineering students
- Role of laboratories


- In 1963, IRE & American Institute for Electrical Engineering (AIEE) merge to form the IEEE
- IRE-PGE became the IEEE Professional Technical Group on Education
- Dues still $3 & include journal with new name IEEE Transactions on Education (starts at Vol. 6)
- Sidney S. Shamis, (New York Univ), 1st Editor
- 1963 Officers:
  - Chairman: John G. Brainerd (U Penn)
  - Vice Chairman: Luke H. Noggle (Westinghouse)

http://www.ieee.org/web/aboutus/history_center/biography/brainerd.html
IEEE Education Group (1964–1978)

- 1964: 2nd issue of *IEEE Transactions on Education*, lists name as *IEEE Education Group*.

- Dues still $3 until 1969 when they were raised to $5.

- In 1972, the officers titles changed
  - “Chairman” → “President”
  - “Vice Chairman” → “Vice President”

- First President: Robert F. Cotellessa (Clarkson)
- First Vice President: Joseph M. Biedenbach (RCA)
IEEE Education Society (1979–present)

- In 1979, cover page of *IEEE Transactions on Education* lists name as the “IEEE Education Society” aka “EdSoc”

- 1979 Officers:
  - President: Lyle D. Feisel (South Dakota School of Mines)
  - Vice President: T. Todd Reboul (RCA)
  - Secretary-Treasurer: Jim R. Rowland (Univ of Kansas)

- Dues:
  - In 1983, raised to $8
  - By 2002, $15
  - In 2003, raised to $20 where they are today
IEEE EdSoc Membership

- 1963 (First Year as IEEE)
  - 1075 members
  - 85% U.S., 4% Canada, 6% Region 8, 5% Region 9

- By 1997
  - Majority of members outside the U.S.

- Today (2007 data)
  - About 3300 members
  - 44% U.S., 3% Canada
  - 28% in Region 8 (Europe, Middle East, & Africa)
  - 10% in Region 9 (Latin America)
  - 15% in Region 10 (Asia)
IEEE Education Society Membership
1963 to 2007

Data source: IEEE History Center
IEEE EdSoc Membership by Region

Data source: IEEE History Center
EdSoc Chapters

- 2003: 7 chapters
  - U.S. A.: Boston, Mid Hudson, & Los Angeles Council
  - Canada: Toronto & Winnipeg
  - Romania
  - Japan Council
  - Rob Reilly appointed Chair of Chapters Committee

- 2009: 76 chapters encompassing 121 IEEE Sections!
EdSoc Chapters

- Regions 1-6: 26
- Region 7: 3
- Region 9: 11
- Region 10: 12
EdSoc Chapters

- Region 8: 25 chapters (32 countries)
EdSoc Publications: Peer Reviewed Journals

*IEEE Transactions on Education [1958]*

- Focus on Field of Interest
- Published Quarterly
- Pioneering effort that has inspired other refereed Engineering Education Journals
- Interesting Special Issues/Sections
  - 1962 Report on Panel on Graduate EE Education
  - 1974 Black Engineering Schools
  - 1975 Women in Engineering (Martha Sloan)
  - 1977 Continuing Education
  - 2003 Vision for ECE Education in 2013 and Beyond

*IEEE Transactions on Education, Feb 1975, p.3*
IEEE Publications: Peer Reviewed Journals

- **IEEE-RITA (Revista Iberoamericana de Tecnologías del Aprendizaje) (Latin-American Learning Technologies Journal) [2006]**
  - Focused on Latin America, Spain & Portugal
  - Published Quarterly
  - Launched by Spanish Chapter of IEEE Education Society

- **IEEE Transactions on Learning Technologies [2008]**
  - Joint publication with IEEE Computer Society
  - Published Quarterly
EdSoc Publications

- **The Interface [1970]**
  - Joint with ASEE ECE Division
  - Provides current information

- **New and Notes [2002]**
  - Timely announcements, breaking news
  - Published bi-monthly on-line

- **IEEE Multidisciplinary Engineering Education Magazine (MEEM) [2006]**
  - Online student-only professional journal
  - Published Quarterly
1970: Economic recession, EdSoc in $ trouble, engineering enrollments ↓

Warren Boast (Iowa State, 1970 EdSoc Chair), Luke Noggle (Westinghouse), & Benjamin Dasher (Georgia Tech) propose new conference Frontiers in Education

1971: First FIE held at Georgia Tech
  ◦ 34 papers, 6 sessions, 100 people

1973: Purdue Univ hosts, ASEE Education & Research Methods Division (ERM) becomes cosponsor

1995: 25th anniversary, Georgia Tech hosts, IEEE Computer Society becomes cosponsor
  Proceedings on CD!
Conferences

Vision: Premier forum for computing, engineering, & technology education professionals to:

- learn best practices and innovations
- enable better teaching and learning
- share ideas and foster community

600 Participants, 400 Peer Reviewed Papers, Works-in-progress, Workshops, & Special Sessions

Topics include

- Educational Technology, Lifelong learning and Distance Education
- Learning Theories, Techniques, and Motivation
- Enrollment cycles and faculty issues (rewards, development)
- Curricular and student issues (evaluation, retention)
- Accreditation
EdSoc’s Newest Conference:

- Forum for academic, research and industrial collaboration on global engineering education
- First one: April 14-16, 2010 in Madrid, Spain
- *The Future of Global Engineering Education*
- Chairs: Manuel Castro, Edmundo Tovar, & Michael Auer
Vision
The IEEE Education Society strives to be the global leader in engineering education.

Mission
The IEEE Education Society is an international organization that promotes, advances, and disseminates state-of-the-art information and resources related to the Society’s field of interest and provides development opportunities for academic, industry, and government professionals.
2009 Strategic Plan

Objective 1  To enhance the Society's publications

Objective 2  To develop the Society’s conferences into premier, international conferences

Objective 3  To provide new professional development opportunities for members

Objective 4  To evaluate and improve the effectiveness of the governance structure of the Society

Objective 5  To increase the number of members
Thank you

- Rob Reilly
  - 2009 EdSoc Secretary, Chapters Chair,
  - Webmaster etc.

Edwin C. Jones, Jr.,
- Society Officer 1960-1976
- *Transactions* Editor-in-Chief 1984-86
- Historian etc.

- For more information on the IEEE Education Society, see [www.ieee.org/edsoc](http://www.ieee.org/edsoc) or email slord@sandiego.edu