

# 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.

*Presentation given at IEEE Conference on History of the Technical Societies,  
Philadelphia, PA, August 5-7, 2009.*

# 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.

# IEEE EdSoc Proposed FOI 2009

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 & 1<sup>st</sup> 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



[http://www.ieeeahn.org/wiki/index.php/Image:John\\_Ryder\\_0658.jpg](http://www.ieeeahn.org/wiki/index.php/Image:John_Ryder_0658.jpg)

# 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 Transactions on Education, Vol .1, 1958.*

# 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)

*Ryder, IRE Transactions on Education, Vol. 1, 1958.*

*These have continued to be central aspects of the IEEE Education Society today.*

# IRE-PGE 1958 Officers: Linking industry & academia

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](http://www.ieee.li/section_officers.htm)



<https://engineering.purdue.edu/CE/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*



# IRE-PGE Issues in 1958

*“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



*Ryder, IRE Transactions on Education, Vol. 1, 1958.*

# IEEE Professional Technical Group on Education (1963–1964)

- ▶ 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), 1<sup>st</sup> Editor
- ▶ 1963 Officers:
  - Chairman: John G. Brainerd (U Penn)
  - Vice Chairman: Luke H. Noggle (Westinghouse)



# IEEE Education Group (1964–1978)

- ▶ 1964: 2<sup>nd</sup> 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)

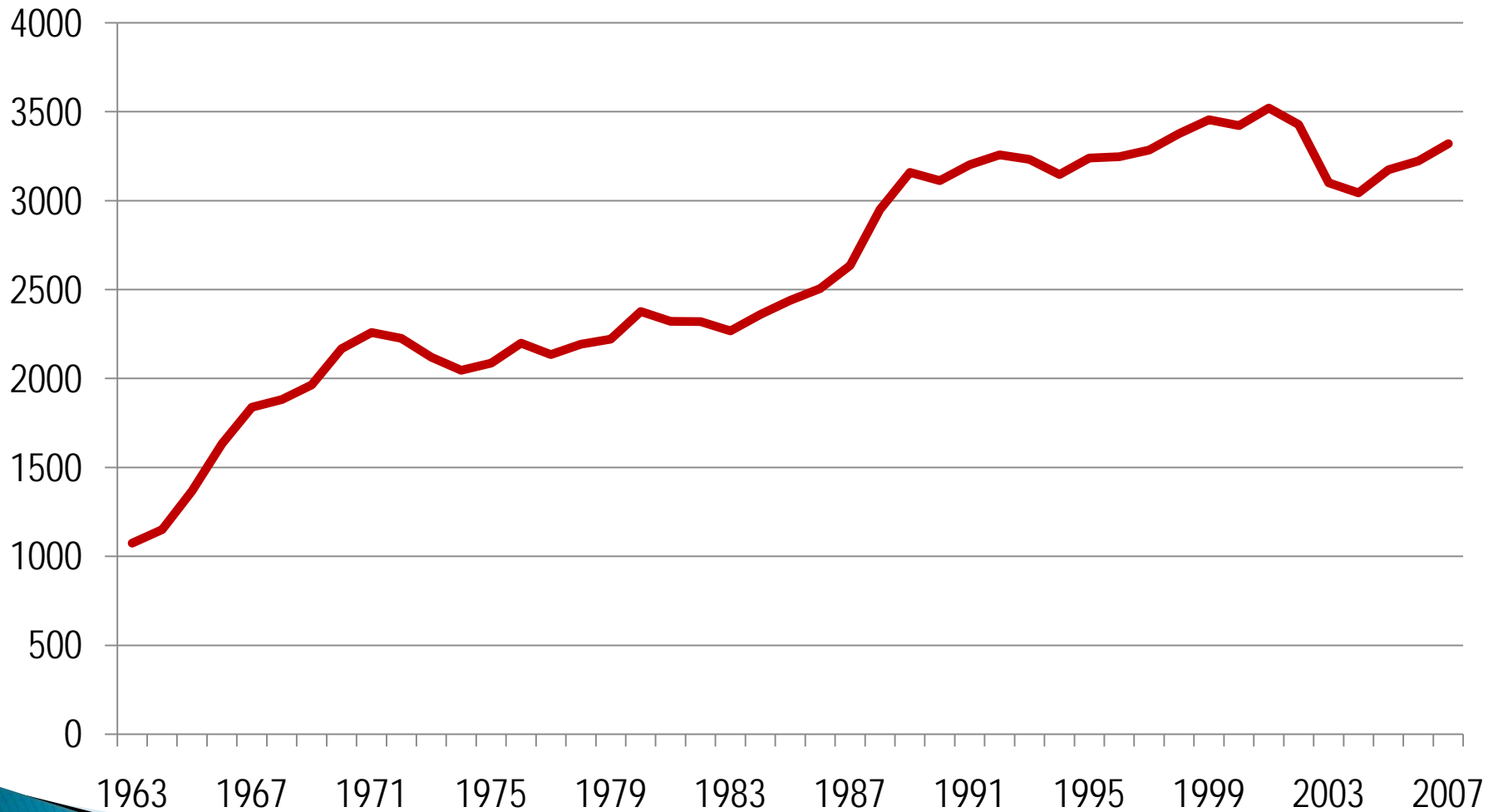
# IEEE Education Society (1979–present)

- ▶ 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

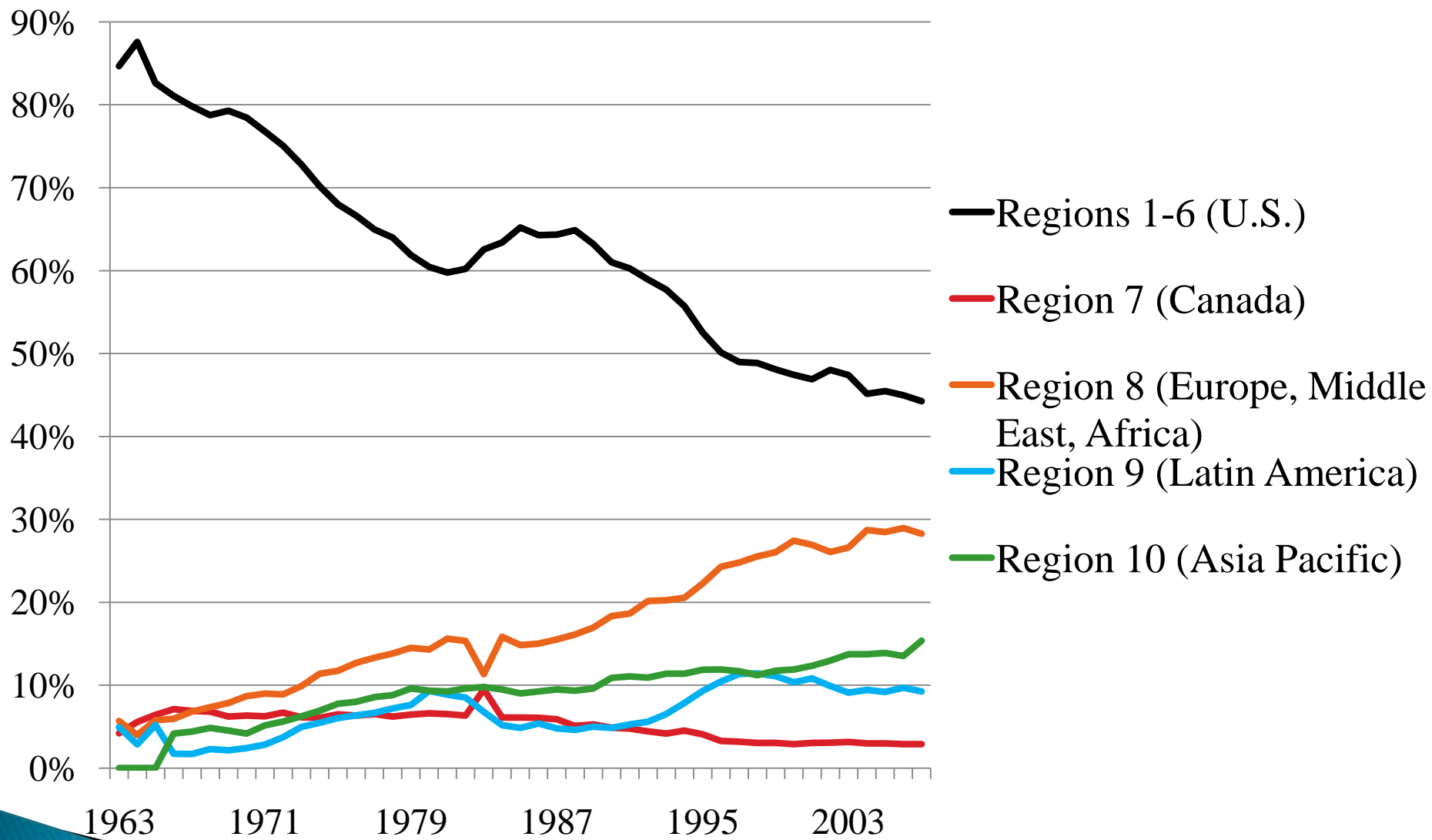
- ▶ 1963 (First Year as IEEE)
  - 1075 members
  - 85% U.S., 4% Canada, 6% Region 8, 5% Region 9
- ▶ By 1997
  - Majority of members outside the U.S.
- ▶ Today (2007 data)
  - About 3300 members
  - 44% U.S., 3% Canada
  - 28% in Region 8 (Europe, Middle East, & Africa)
  - 10% in Region 9 (Latin America)
  - 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

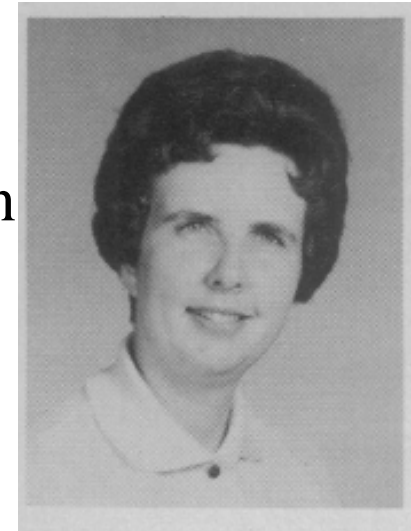
- ▶ Region 8: 25 chapters (32 countries)



# 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*

# EdSoc 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

*News & Notes*

- ▶ **IEEE Multidisciplinary Engineering Education Magazine (MEEM) [2006]**
  - Online student-only professional journal
  - Published Quarterly



# EdSoc **Conferences:** FIE



- ▶ 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: 25<sup>th</sup> anniversary, Georgia Tech hosts, IEEE Computer Society becomes cosponsor  
Proceedings on CD!



# Conferences



FRONTIERS *in* EDUCATION  
Imagining and Engineering Future CSET Education

October 18–21, 2009

Hilton Palacio del Rio • San Antonio, Texas

- ▶ *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:



International Conference  
2010 · Madrid · Spain  
■ The Future of Global Engineering Education

EDUCON

- ▶ 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
- ▶ <http://www.educon-conference.org/>

# EdSoc 2009 Strategic Planning

## **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](mailto:slord@sandiego.edu)