

IEEE-USA K-12 STEM Literacy Committee

**IEEE Region 3 Meeting
17 March 2012
Orlando, FL
Ralph W. Russell, II**

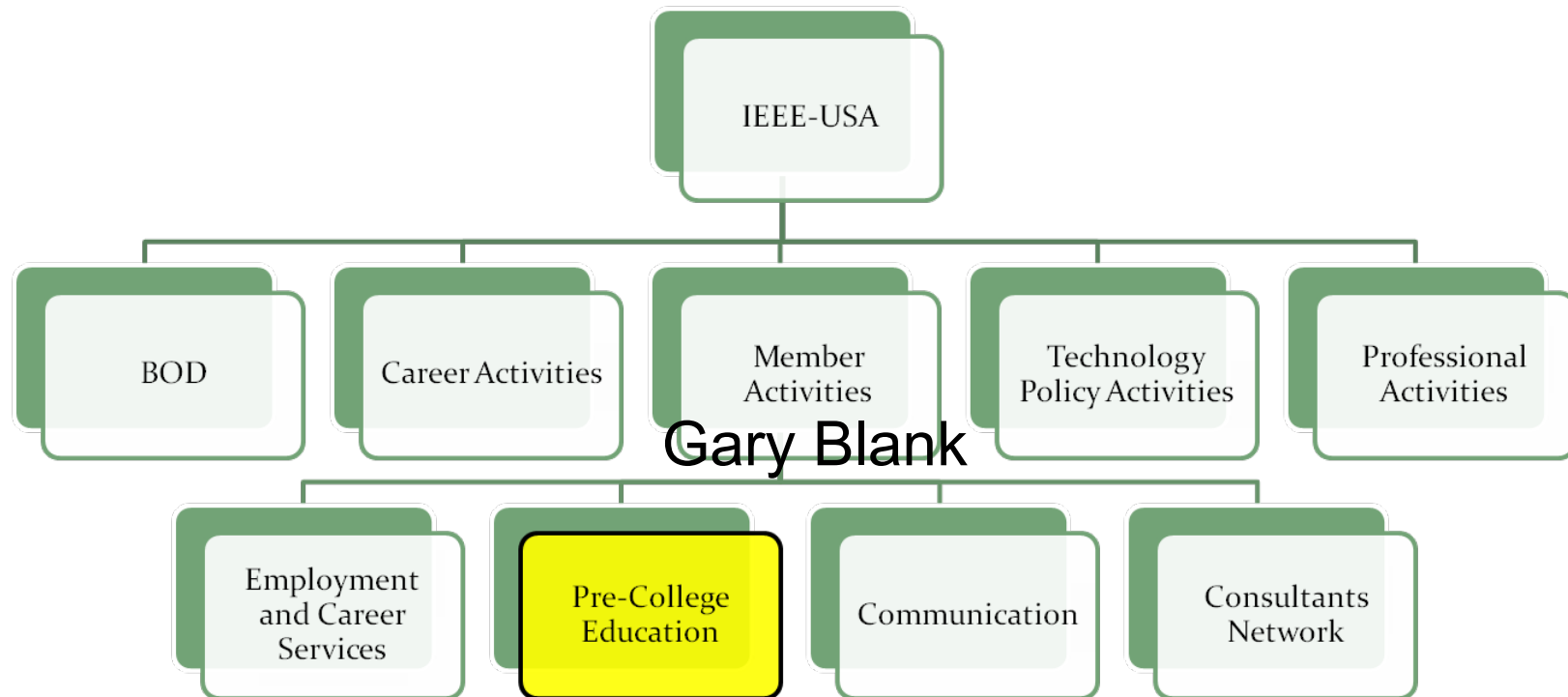
Mission Statement

- Help improve the quality of precollege education and to raise the level of functional and technological literacy of United States students by placing emphasis on **Science, Technology, Engineering and Mathematics (STEM)**.
- Keep alive the **innate curiosity** of young children about science as they move into middle school and high school, so that they will continue to study mathematics, science, and technology.

Regions 1 - 6



IEEE-USA Structure



Committee Members

- Chair
- Past Chair
- Regional Representatives (6)
- EAB PECC Chair
- GOLD Representative
- Staff Member
- IEEE-USA VP of Member Activities

Current Members

- **Chair** Suresh Vadhva vadhva@csus.edu
- **Region 1** Stephen Frempong sfrempong@ieee.org
- **Region 2** Joe Burns jfburns54@ieee.org
- **Region 3** Ralph W. Russell r.w.russell@ieee.org
- **Region 4** William R. Kassebaum will.kassebaum@ieee.org
- **Region 5** Neeraj Bhatia nbhatia@bechtel.com
- **Region 6** Coral Jean Cotterell coraljean.cotterell@ieee.org
- **GOLD Rep.** Jeffry Handal jhandal@ieee.org
- **Past Chair & Diversity Liaison** Dusty Fisher dlfisher@ieee.org
- **Ex Officio** Gary Blank g.i.blank@ieee.org
- **EAB PECC Chair** Elizabeth Burd liz.burd@durham.ac.uk
- **Staff** Sandra Kim sandra.kim@ieee

Educator-Engineer Partnership Award



Butch Shadwell



Marion Zeiner

- Recognizes collaborative activities between K-12 educators and technical professionals who are IEEE members.
- www.ieeeusa.org/volunteers/awards/award11.html.
- Submit nomination form by 31 July 2012

K-12 STEM Activity Fund

IEEE-USA's K-12 Literacy Committee's [K-12 STEM Activity Fund](#) helps teachers to sponsor innovation and creativity in or outside of the classroom. These funds provide small amounts of money, typically up to \$500, for novel ideas that introduce engineering to students.

K-12 STEM Activity Fund Requirements:

- The program/project must be a new and/or unique idea
- The program/project must take place in 2012†
- The teacher must work with an IEEE member (the IEEE member can be a partner, mentor, or a resource member)

Preference will be for:

- Innovation
- Creativity
- Widespread classroom applicability
- Engineering collaboration
- Shared results, outcomes
- Science, Technology, Engineering, Mathematics (STEM) content, application

Calendar

- 28 – 29 April 2012 – Science & Engineering Festival – Washington, DC
- 31 July 2012 – Deadline to submit 2012 Educator-Engineer Partnership Award Nomination

How to Get Involved in STEM Activities at the Local Level

- Volunteer STEM activities may require volunteer time, funding and organization skills.
- Find existing project such as FIRST, emeritbadges.org or GirlsGoEngineering.org and volunteer.
- Organize new event such as TISP.
- Ask individual IEEE members and non-members to participate.
- Seek funding from IEEE and non-IEEE sources such as corporations, foundations and individuals. Consider looking for donations of material and volunteer time.
- Be creative and think out of the box. Start small and dream BIG.
- Don't try to do everything yourself.
- Be Prepared.

STEM Activities



- FIRST
- Project Lead the Way
- Future City
- Science Fairs
- College & Career Nights
- TISP
- Merit Badges

Region 3 STEM Goals

- Recruit STEM coordinator in each Area
- Present updates at Region 3 Meetings
- Catalog Region 3 STEM activities
- Execute TISP program in each Area

Alabama Section



- BEST Robotics
- MathCounts
- Engineering Academy
- Student Night
- Contact – Michael Cannady,
m.cannady@ieee.org, 205.992.6730
- Funding:
 - \$500 – Student Night
 - \$3,000 – BEST Robotics
 - Source – Alabama Section

Central Savannah River



- DOE/SRNS College School Night – 14 Sept. 2010
 - www.srs.gov/general/outreach/edoutreach/coll_night.htm
- Future City competition that is held at the Univ. of So Carolina - Aiken campus

Daytona Section



- Small Radio Telescope Program (SRT)
- Grant from IEEE Life Member Committee
- Museum of Arts & Science in Daytona Beach
- Used in teaching middle school, high school and university students. Also used with homeschool activities
- www.daytonaSRT.org

Eastern North Carolina Section



NCSAS

North Carolina Student Academy of Science

- Meetings with NCSAS Board Members to support annual competition
- Meetings with Professional Engineers of NC and WIE on a joint activity for Engineering week. GirlsGoEngineering patch suggested.
- Contact: Mary Ellen Randall, mer1@ascottechnologies.com, 919.388.1776

Jacksonville Section



- Local and Regional Science Fairs
- Contact: Butch Shadwell,
b.shadwell@ieee.org,
904.410.9750 (W)
- Funding:
 - \$250 Local Science Fair Trophies
 - Funding – Jacksonville Section

Lexington Section



- IEEE Robotics Camp for entering 5th graders
- Fayette County, KY Schools
- Based on Lego NXT Robotics Kits & Software
- Contact: Jerry Goerz, jerry.goerz@ekpc.coop, 859.745.9705 (W)
- Funding:
 - \$3,600 (\$300/kit x 12 kits)
 - Funding – Lexington Section

Miami Section



- Future City Competition Sponsor 12 years
- Volunteer with “Gear-Up” program through Dept. of Educ. Grant to local university.
- Contact – Dr. Osama Mohammed, mohammed@fie.edu, 305.348.3040
- Funding:
 - \$1,000 – Future City
 - \$1,000 – Community based programs
 - Source – Miami Section

Mississippi State University Student Branch



- Taught over 125 Boy Scouts electricity and electronics merit badges - There are a lot of photos of this event on facebook page (IEEE Mississippi State University)

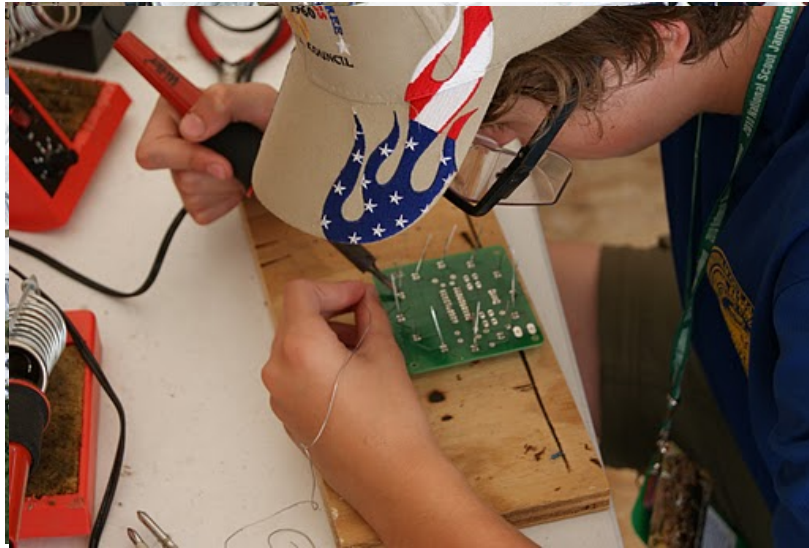
Richmond Section



IEEE Milestone – Richmond
Union Passenger Railway,
1888

- Powhatan Engineering Camp
- IEEE emeritbadges.org
- IEEE GirlsGoEngineering.org
- “Careers in Engineering Day” Science Museum of Virginia – Engineers Week annually

IEEE emeritbadges.org Project



- Hands-on electricity & electronics instructional material based on the Boy Scouts' merit badge requirements.
- Contact – Ralph W. Russell, II,
emeritbadges@ieee.org,
804.291.87667
- www.emeritbadges.org

IEEE emeritbadges.org Project

Mission – To provide a global non-discriminatory pre-university technology program for boys and girls

<http://www.youtube.com/watch?v=EDIAy64CNEI>



IEEE emeritbadges.org Project



Demonstrations

- Energy Efficiency lighting
- US Naval Academy robots
- K6BSA amateur radio
 - APRS
 - Echolink
- Segway
- US Navy Infrared

IEEE emeritbadges.org Project



- Over 90 volunteers from around the USA
- \$140K budget
- Globalization
- Instructional material & kit
- Website
www.emeritbadges.org

IEEE GirlsGoEngineering.org

- IEEE GirlsGoEngineering.org will:
 - Develop in girls an appreciation for engineering principles.
 - Enable girls to learn to enjoy engineering practices.
 - Energize girls toward careers in engineering, mathematics, and the physical sciences.
- Contact – Ralph W. Russell, II,
GirlsGoEngineering@ieee.org,
804.291.7667



THANKS!!

For more IEEE Region 3 IEEE-USA K-12
STEM Literacy Committee information,
Contact:

Ralph W. Russell, II

P. O. Box 29254

Henrico, VA 23242

r.w.russell@ieee.org

+1 804 291 7667