

# **IEEE-USA K-12 STEM Literacy Committee**

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

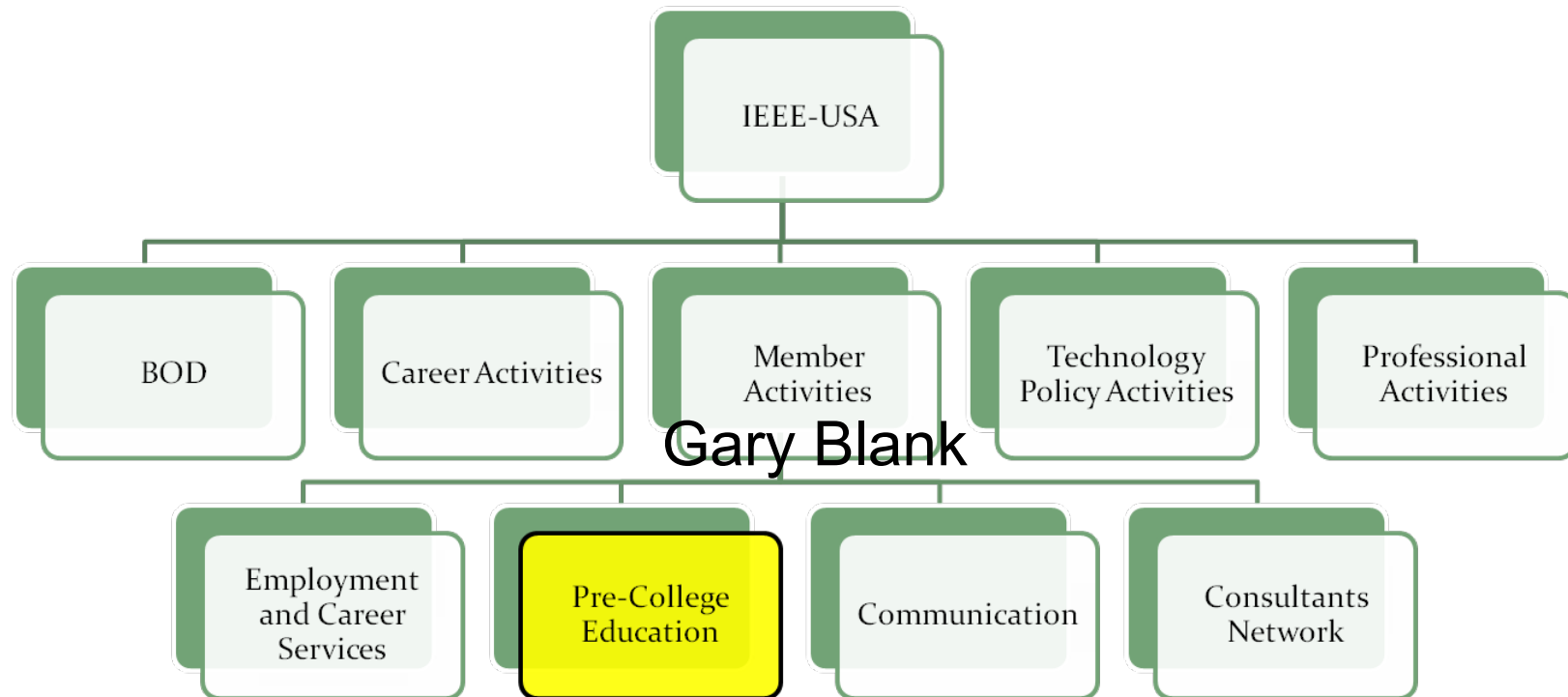
# Mission Statement

- 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](mailto:vadhva@csus.edu)
- **Region 1** Stephen Frempong [sfrempong@ieee.org](mailto:sfrempong@ieee.org)
- **Region 2** Joe Burns [jfburns54@ieee.org](mailto:jfburns54@ieee.org)
- **Region 3** Ralph W. Russell [r.w.russell@ieee.org](mailto:r.w.russell@ieee.org)
- **Region 4** William R. Kassebaum [will.kassebaum@ieee.org](mailto:will.kassebaum@ieee.org)
- **Region 5** Neeraj Bhatia [nbhatia@bechtel.com](mailto:nbhatia@bechtel.com)
- **Region 6** Coral Jean Cotterell [coraljean.cotterell@ieee.org](mailto:coraljean.cotterell@ieee.org)
- **GOLD Rep.** Jeffry Handal [jhandal@ieee.org](mailto:jhandal@ieee.org)
- **Past Chair & Diversity Liaison** Dusty Fisher [dlfisher@ieee.org](mailto:dlfisher@ieee.org)
- **Ex Officio** Gary Blank [g.i.blank@ieee.org](mailto:g.i.blank@ieee.org)
- **EAB PECC Chair** Elizabeth Burd [liz.burd@durham.ac.uk](mailto:liz.burd@durham.ac.uk)
- **Staff** Sandra Kim [sandra.kim@ieee](mailto: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](http://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](http://emeritbadges.org) or [GirlsGoEngineering.org](http://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](mailto: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](http://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](http://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](mailto:mer1@ascottechnologies.com), 919.388.1776



# Jacksonville Section



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

# Lexington Section



- IEEE Robotics Camp for entering 5<sup>th</sup> graders
- Fayette County, KY Schools
- Based on Lego NXT Robotics Kits & Software
- Contact: Jerry Goerz, [jerry.goerz@ekpc.coop](mailto: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](mailto: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)

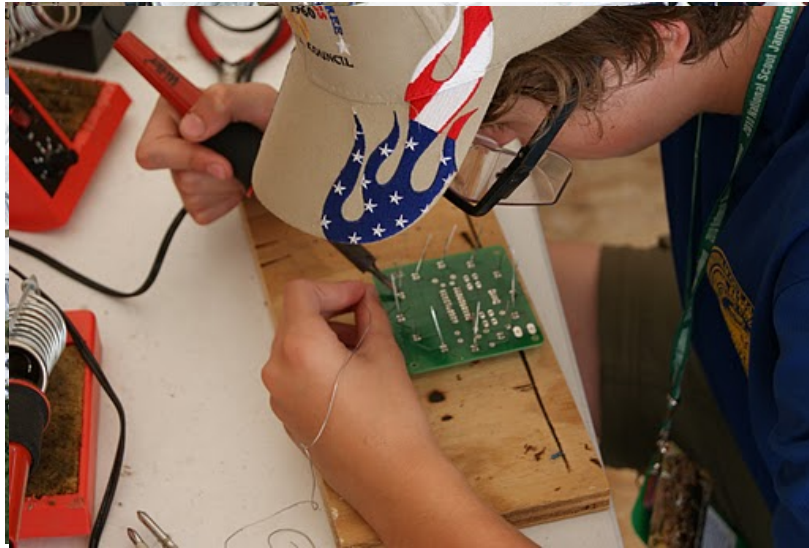
# Richmond Section



IEEE Milestone – Richmond  
Union Passenger Railway,  
1888

- Powhatan Engineering Camp
- IEEE [emeritbadges.org](http://emeritbadges.org)
- IEEE  
[GirlsGoEngineering.org](http://GirlsGoEngineering.org)
- “Careers in Engineering Day” Science Museum of Virginia – Engineers Week annually

# IEEE [emeritbadges.org](http://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](mailto:emeritbadges@ieee.org),  
804.291.87667
- [www.emeritbadges.org](http://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](http://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](mailto:GirlsGoEngineering@ieee.org),  
804.291.7667



# THANKS!!

For more IEEE Region 3 IEEE-USA K-12  
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