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This Month's Meetings

Tuesday, February 5: EXCOM Meeting

Meeting starts at 5:30PM At TECO Plaza

Register online at <http://time2meet.com/fwcs-excom/index.html>

Open to all FWCS Members

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Engineers Turn Dreams Into Reality

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This Could Be Your Last Signal Newsletter!

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Protecting Power Lines

By MICHAEL GESELOWITZ, PH.D., SENIOR DIRECTOR, IEEE HISTORY CENTER

As this column is being written, the mid-Atlantic region of the United States is still recovering from “Superstorm Sandy.” The damage to bridges, tunnels, roads, water treatment plants, the power grid and other infrastructure was unprecedented. The disaster has sparked renewed discussion of how we might harden our infrastructure against natural disasters, even as climate scientists are predicting that storms such as this might become more frequent.


One of the most notable impacts of the storm was the loss of electric power to millions of customers for extended periods of time. Although many substations were inundated, the delay in recovery was in large part due to the incredible number of power lines and poles that were brought down, forcing technicians to rebuild the system almost foot by foot.

As power engineers analyze the situation, the discussion has turned to the question of whether power lines would be better protected if they were below ground. Clearly, underground lines are safer from wind damage, but what about flooding? Well, despite the devastating flooding in lower Manhattan, the Consolidated Edison Company of New York (“Con Ed”) was able to bring its underground-line-fed customers back on-line much more quickly than some other utilities, such as the Long Island Power Authority, were able to restore customers served by strung wires in less-flooded areas. The issue, however, as in much of engineering, comes down to a cost-benefit analysis: it is more expensive to bury the conductors than to string them from poles.

Interestingly, this design consideration goes back exactly 120 years to Con Ed’s eponymous founder. Fresh off his success with the first central station, the [Pearl Street Central Station in downtown New York, which opened on 4 September 1882](#) Thomas Alva Edison sought other customers for his electrical illumination system.
(http://www.ieee.org/wiki/index.php/Milestones:Pearl_Street_Station)

He soon realized that the expense of an underground system would limit it to the largest cities. He therefore designed what he called a “village system,” with wires strung on poles. He used a 330-volt system (Pearl Street had been 100), and he grouped three lamps in parallel, further reducing costs. The trade-off there was that a single lamp could not be turned off and on by itself.


The first installation of this system opened in Roselle, New Jersey, just west of the important port of Elizabeth, on 19 January 1883. This date should be one of celebration for electrical engineers. Ironically, however, Roselle was one of the communities hard hit by Sandy. The debate about infrastructure is, therefore, sure to continue, and [IEEE is sure to play a leading role](#).
(<http://www.todaysengineer.org/2011/Oct/Power.asp>)



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IEEE Student Branch Spring 2013

The IEEE USF Student Branch is back for the spring semester and we have more events planned than ever. With Engineering EXPO just around the corner, the IEEE Student Branch is hard at work building a large pipe “circuit” where different circuit components will be explained using water flow. Come check out our demonstration Saturday, February 23rd.

The IEEE USF Student Branch has lots of events this semester and once they are finalized you can check out what we are doing at <http://sites.ieee.org/sb-usf>. Our Spring 2013 Picnic will be on March 2nd from 10:00 AM – 2:00 PM at the Riverfront Park. Our Spring 2013 Banquet will be held on April 13th.

If you are interested in talking to the IEEE Student Branch please contact me at dtouvell@mail.usf.edu. IEEE USF is always happy to hear a professional talk about what they do for a living and of course if there are any job opportunities!

David Touvell

IEEE USF Chair

dtouvell@mail.usf.edu

(321) 652-7896



IEEE SoutheastCon 2013

April 4 – 7, 2013



Hyatt Regency Jacksonville Riverfront • 225 E. Coastline Drive • Jacksonville, FL

Call for paper

[SoutheastCon 2013 Call for Papers.pdf](#)

Important Due Dates:

Call for papers: **September 4, 2012**

Paper Submission: **January 14, 2013**

Notification to Authors: **February 22, 2013**

Final Papers Due: **March 2, 2013**

Authors registration deadline: **March 8, 2013**

Call for Sponsorship

The annual IEEE Region 3 Student and Technical conference, *SoutheastCon 2013*, will be held at the Hyatt Regency Jacksonville Riverfront, from April 4th to April 7th, 2013. The *SoutheastCon* conferences attract approximately 500 students and 300 IEEE professionals annually. This year’s conference location provides 110,000 square feet of flexible meeting and exhibit space, a 28,000 square foot Grand Ballroom, 30 individual meetings rooms, and an expansive outdoor space overlooking the St. Johns River.

Scope of Technical Program

The annual IEEE SoutheastCon conferences promote all aspects of the theories and applications of the engineering disciplines. Sponsored by the IEEE Region-3, this event will attract researchers, professionals, and students from the Southeast region of the U.S. This year’s SoutheastCon 2013 event will be held in Jacksonville, Florida, at the Hyatt Regency Jacksonville Riverfront. SoutheastCon 2013 will feature tutorial sessions and workshops along with the Technical Program. Questions of a general nature should be directed to the Technical Program Chair

Butch Shadwell at b.shadwell@ieee.org

IMMEDIATE Career Opportunities

Beckwith Electric Co., Inc., located in Largo, Florida, is a leading manufacturer of innovative high quality products, technical services and solutions for the electric utility industry.

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**SMART Power Flow Controller for
Smart Grid Applications Seminar**

- Date:** Friday, February 8, 2013
- Time:** Seminar: Registration 8:30am-9:00am, Speaker 9:00am-3:00pm
- Speakers:** Kalyan K. Sen, PhD, PE, MBA, IEEE PES Distinguished Lecturer
- Location:** FRCC, **NEW LOCATION** - 3000 Bayport Drive, Suite 600, Tampa, FL
(Adjacent to the Grand Hyatt Hotel off Courtney Campbell Causeway)
- Cost:** \$100 Members, \$150 Non-Members, \$50 Students. (Includes Breakfast & Lunch)
- PDH Credits:** 4 professional development hours will be awarded. Be sure to enter your name and PE number on the signup website as it appears on your license. IEEE Florida Provider Number 3849
- RSVP:** Online at: <http://time2meet.com/fwcs-pes1/index.html>
Make checks payable to: IEEE FWCS
Send checks to: John Stankowich, IEEE PES/IAS Treasurer
2593 Forest Run Court
Clearwater, FL 33761-3716
Space limited to the first 45 registrants!!!
No shows will be invoiced for the total cost of the seminar.
- Questions:** Serge Beuzile at 863-834-6511 or serge.beuzile@lakelandelectric.com

Smart Grid is an initiative to modernize the existing electric power system, which is envisioned to be integrating necessary devices for its most efficient operation. One such operation is increasing electric power flow in existing transmission lines with the use of a goal-oriented SMART power flow controller (SPFC). A SPFC controls the flows of active power and reactive power in a transmission line independently. The direct benefit of independent control is to maximize the useful active power flow while minimizing the less desirable reactive power flow, thereby reducing losses due to the reactive power flow in a transmission line. An additional benefit is the ability to increase power flow through the desired transmission paths that have high impedances, low power flow, and low line utilization. The presentation is designed to provide the basic principles of power flow control technology and an overview of most commonly used power flow controllers. Also explained are the steps required to select the right power flow controller for a particular application



Kalyan Sen is the Chief Technology Officer of Sen Engineering Solutions, Inc. (www.sentransformer.com) that specializes in developing SMART power flow controllers. He spent 26 years in academia and industry and became a Westinghouse Fellow Engineer. He was a key member of the Flexible Alternating Current Transmission Systems (FACTS) development team at the Westinghouse Science & Technology Center in Pittsburgh, USA. He contributed in all aspects (conception, simulation, design, and commissioning) of FACTS projects at Westinghouse. He conceived some of the basic concepts in FACTS technology. He has 25 patents and publications in the areas of FACTS and power electronics, including two books. He is the co-inventor of the Sen Transformer. He received BEE, MSEE, and PhD degrees, all in Electrical Engineering, from Jadavpur University, India, Tuskegee University, and Worcester Polytechnic Institute, respectively. He also received an MBA from Robert Morris University. He is a licensed Professional Engineer in the Commonwealth of Pennsylvania. He has been serving as an IEEE Distinguished Lecturer since 2002.



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Tampa Bay's Engineers Week Banquet

Engineers Turn Dreams Into Reality

| | | | |
|---|---|--|---|
| February 22, 2013 TAMPA BAY'S ENGINEERS WEEK BANQUET |  |  |  |
| A La Carte Event Pavilion 4050 Dana Shores Dr. Tampa | ENGINEERS TURN DREAMS INTO REALITY 7 BILLION PEOPLE IN 2012 — 9 BILLION PEOPLE IN 2045 | | |

We are pleased to announce that the 2013 Tampa Bay Engineers Week Banquet will be held on Friday, February 22nd at the A La Carte Event Pavilion. Please join us at this elegant gathering to celebrate the **63rd National Engineers Week** and recognize the many contributions made to society by those in the engineering profession. Additional information and ticket requests can be found at <http://www.tbewb.org/>.

The evening will feature fine dining, an excellent guest speaker, and an exhibition room for vendors and attendee networking. We are expecting four hundred or more attendees including 250-300 engineers of all disciplines, allowing plenty of opportunities to meet with friends and colleagues.

In keeping with the spirit of the event, awards will be given to accomplished engineers in each engineering discipline, to outstanding young engineers in each discipline, and to local university students who excel in engineering related studies. We'll also be honoring select local high school educators with the Lignell Award for their outstanding instruction in the areas of Science, Technology, Engineering, and Mathematics (STEM).

We hope that you will help make this special event one of the most successful of the year by becoming a sponsor. There are several levels of sponsorship available, each offering its own rewards. By becoming a sponsor of this event you will be demonstrating your confidence in the strength of the Tampa Bay area engineering community and establishing your position among the leaders within the Tampa Bay sector. Depending on the level of sponsorship you select, you may also have an opportunity to gain visibility for your organization by having your company logo prominently displayed at their event venue, included in the event brochure, and/or listed on the event website.

We sincerely hope you will consider being part of this outstanding event to recognize those in the Tampa Bay area who are doing so much to promote engineering.

Keynote Speaker:
John M Wiencek, Ph.D.

Dean of the College of Engineering, USF will talk in-depth about the future of engineering and sustaining the ever growing population of our planet.

John Wiencek is a Professor of Chemical Engineering and Dean of the College of Engineering at the University of South Florida, since 2007.

Come join the Tampa Bay Engineers Week Banquet Committee for the presentation of our annual awards banquet and celebration of our profession.



ATTENTION: This May Be Your Last FWCS Signal !

IEEE Headquarter has run their monthly update for our membership data base and those members who have not renewed are now shown as in arrears and have been removed from the active listing where we download our labels for the FWCS Signal. This also impacts any information we send out via email.

Additionally, members in arrears will be removed from benefits like our email aliases and any other IEEE Programs they participate in. Be sure your membership has been updated for 2013!!



IEEE Member Discounts

IEEE Members can access more savings in more places for home and office -- including group discounts on insurance, travel, home/office and technology needs. While you focus on your career, we'll take care of saving you money. Watch for new deals and more locations in 2013. See vendor details for terms, conditions and availability. www.ieee.org/discounts



2013-2014 IEEE-USA Government Fellowships

[IEEE-USA's Government Fellowships](#) link engineers with government, providing a mechanism for IEEE-USA members to learn firsthand about the public policy process through personal involvement. Application kits for 2013-2014 Fellowships are now available, and the **postmark deadline is 8 February 2013.**



Registration Now Open for Congressional Visits Day (CVD)

Registration is now open for the [2013 Congressional Visits Day \(CVD\)](#), to be held 12-13 March in Washington, D.C. CVD is an annual two-day event that brings scientists, engineers, researchers, educators, and technology executives to Washington to raise visibility and support for science, engineering and technology. The deadline for registration is 1 March



RAS Update

Arduino "Learning Your ABCs" Workshop held January 12, 2013

At Hillsborough County Public School's Aparicio- Levy Technical , Tampa Bay RAS Members Jim Melton, Tom Hayden and Ken Fiallos put on their 3rd Arduino Microcontroller Work Shop entitled "Learning Your ABCs" for (32) College and High Students and Teachers. The seminar was an introduction to the basics of Breadboard Prototyping using Arduino Microcontroller. Students learned how a digital multimeter to make Voltage, Resistance and Current and constructed a Pulse Width Modulated Motor Speed Controller with optical speed sensing using the Arduino.

RAS Meeting at MOSI held January 15, 2013

Twenty Students and IEEE Members were introduced to the basics of using an Open Source Drawing Package called "Inkscape" by RAS Member Tom Hayden. Inkscape was used to generate the necessary cutting files to cut a robotic gear assembly on the MOSI Idea Zone's LASER Cutter. Tom 's presentation and the results of his efforts on the LASER Cutter generated a lot of interest from the students and teachers in attendance who will be participating in the Robofest Robotics Competition to be held on March 16 at the Nielson Media Corporate Headquarters.

(Continued on Page 9)

Tom's presentation will be turned into a video to help K12 students and Teachers become better acquainted with modern manufacturing equipment from design to the realization of a part. Other planned presentations will involve the use of CNC machine at HCC Brandon Campus.



Picture from our January 12, 2013 Workshop at Aparicio- Levy Technical Center

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| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Size</th> <th colspan="2">One Month</th> <th colspan="2">6 Months</th> <th colspan="2">12 Months</th> </tr> <tr> <th>Member</th> <th>Non-Member</th> <th>Member</th> <th>Non-Member</th> <th>Member</th> <th>Non-Member</th> </tr> </thead> <tbody> <tr> <td>Business Card</td> <td>\$25</td> <td>\$33</td> <td>\$120</td> <td>\$150</td> <td>\$210</td> <td>\$252</td> </tr> <tr> <td>¼ Page</td> <td>\$40</td> <td>\$52</td> <td>\$190</td> <td>\$238</td> <td>\$335</td> <td>\$402</td> </tr> <tr> <td>½ Page</td> <td>\$75</td> <td>\$98</td> <td>\$360</td> <td>\$450</td> <td>\$630</td> <td>\$756</td> </tr> <tr> <td>¾ Page</td> <td>\$110</td> <td>\$143</td> <td>\$530</td> <td>\$663</td> <td>\$925</td> <td>\$1,110</td> </tr> <tr> <td>Full Page</td> <td>\$140</td> <td>\$182</td> <td>\$670</td> <td>\$838</td> <td>\$1,175</td> <td>\$1,410</td> </tr> <tr> <td>Insert / Sheet</td> <td>\$200</td> <td>\$260</td> <td>\$800</td> <td>\$1,000</td> <td>\$2,000</td> <td>\$2,400</td> </tr> </tbody> </table> | | | Size | One Month | | 6 Months | | 12 Months | | Member | Non-Member | Member | Non-Member | Member | Non-Member | Business Card | \$25 | \$33 | \$120 | \$150 | \$210 | \$252 | ¼ Page | \$40 | \$52 | \$190 | \$238 | \$335 | \$402 | ½ Page | \$75 | \$98 | \$360 | \$450 | \$630 | \$756 | ¾ Page | \$110 | \$143 | \$530 | \$663 | \$925 | \$1,110 | Full Page | \$140 | \$182 | \$670 | \$838 | \$1,175 | \$1,410 | Insert / Sheet | \$200 | \$260 | \$800 | \$1,000 | \$2,000 | \$2,400 |
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Or fax your address changes to (732) 562-5445

February 2013 Calendar of Events (For more information see P. 1) *inside this Signal...*

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|--|-----------|--|--|----------|
| 27 | 28 | 29 | 30 | 31 | 1 | 2 |
| 3 | 4 | 5 IEEE EXCOM TECO Plaza 5:30pm | 6 | 7 | 8 Smart Power Flow Controller For Smart Grid Application FRCC 8:30 am | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 Engineer Week Banquet at the <i>A La Carte Pavilion</i> | 23 |
| 24 | 25 | 26 | 27 | 28 PES EXCOM Meeting at 6AM | 1 | 2 |