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SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.



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This Month's Meetings

Tuesday, November 6: 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

IEEE USA In Action

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SMART Power Flow Controller for Smart Grid Applications Seminar

Coming to Tampa On February 8th At the FRCC

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NESC 2012 Update Seminar

Friday, Nov 30, 2012 - FRCC

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Guide to AC Motor Protection

Friday, Dec. 14, 2012 - TAW

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Robotics and Automation Society Update

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SP/COMM November Seminar

Digital Power, MEMs, and Energy Harvesting

PV Design Seminar Coming to Tampa on January 25, 2012

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IEEE USA In Action

At the beginning of his term as IEEE-USA President, Jim Howard, a longer term volunteer here in our own Section, challenged the IEEE-USA Staff to put together a video about all of the great things IEEE-USA is doing in Washington and around the nation for our USA Members.*

The first release of this video was presented at the IEEE-USA Annual meeting in Cincinnati back in May. The final production version is now available for release and can be viewed on the IEEE-USA Website and downloaded for use at upcoming meetings and other functions.

*(Note: Due to the amount of information obtained for this first video, Jim has again challenged the IEEE-USA Staff to produce another video, hopefully by the end of the year).

Below is the News Release sent out of IEEE-USA Staff:

****IEEE-USA IN ACTION**** New Video: 'Putting the I in IEEE-USA'

WASHINGTON (19 October 2012) -- IEEE-USA has been striving for nearly 40 years to support the professional interests of U.S. IEEE members. How we do that is captured in a new video, "Putting the I in IEEE-USA," where you will find the "I" in IEEE-USA is all about you.

The video shows how you can take advantage of IEEE-USA products, services and activities to support and advance your career. It includes things like the IEEE-USA Salary & Benefits Survey, government fellowship opportunities and the IEEE-USA Consultants Database.

You can run the video at your next IEEE section or society meeting to show your fellow members how they can better utilize all IEEE-USA has to offer. It's available for download, along with other valuable resources, at <http://www.ieeeusa.org/about/media>.

The video is also on IEEE-USA's YouTube channel:
<http://www.youtube.com/user/ieeeeusa>.



Free IEEE-USA eBook

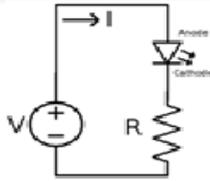
Writing for Success—An Engineer's Guide, Volume 1: Designing for Success can be downloaded for FREE through 31 October 2012. Non-member price is US\$5.99.

In November the IEEE-USA free eBook will be *The Best of Backscatter from Today's Engineer—Volume 1*. Information on how to download this eBook will be available in the November Benefits Bulletin.

IEEE members can purchase three additional books from Tom Moran's writing series, additional volumes in the Best of Backscatter series, and other IEEE-USA eBooks at deeply discounted prices by going to [IEEE-USA eBooks](http://www.ieeeusa.org/ebooks). To purchase IEEE members-only products, and to receive the member discount on eligible products, members must log in with their IEEE Account.

SMART Power Flow Controller for Smart Grid Applications Seminar Coming to Tampa On February 8, 2013 at the FRCC

Kalyan K. Sen, PhD, PE, MBA
IEEE PES Distinguished Lecturer



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HSN Studio Tour

Women in Engineering (WIE) will provide a tour of HSN Studios. Come see a 24/7 National Television Production Facility with State of the Art Control Rooms, Live Stages, Robotic Cameras and other Broadcast Equipment in action.

- Date:** Wednesday, November 14th, 2012
- Time:** 6:00 – 7:45 PM. Tour will begin at 6:30 PM.
- Location:** 1 HSN Drive (2501 118th Ave. N.) St Petersburg
- Speaker:** Michelle Wilkins, VP of Broadcast Engineering and Television Technology
- Cost:** \$10 Members, \$20 Non-Members
- RSVP:** Online at: <http://time2meet.com/fwcs-meetings/>

Make checks payable to IEEE FWCS

Send checks to:

John Stankowich, IEEE Vice Chair (WIE)
2953 Forest Run Court
Clearwater, Fl. 33761-3716

Space is limited to the first 14 registrants.

Attendee Registration closes on November 11th for security registration at HSN

Registered Attendees please go to main security guard gate from 6:00 to 6:20 PM for instructions to meeting room. Driver's License will be requested.

Questions: Valerie Tur – 813-334-2317 or

VLT4@cornell.edu

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.



IEEE C37.96 (2012)- Guide for AC Motor Protection

IEEE Std C37.96-2012
Revision of IEEE Std C37.96-2008
May 2012

Draft Guide for AC Motor Protection
Sponsor
Power System Relaying Committee
of the IEEE Power Engineering Society

Approved by
IEEE-SA Standards Board

Abstract: Consists accepted methods of protection for ac motors as provided. This guide identifies and summarizes the functions necessary for adequate protection of motors based on type, size, and application. This guide does not purport to send the primary responsibility of all motor in every situation.

Keywords: ac motor protection, adjustable speed drive motor protection, ac motor protection, induction motor protection, synchronous motor protection, wound rotor motor protection

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IEEE Standards Activities Department
445 East 17th Street
Piscataway, NJ 08854, USA

Date: Friday, Dec 14, 2012

Time: Registration: 8:00am to 8:30am
Seminar: 8:30am to 1pm
Optional Shop Tour: 1pm to 2pm

Speaker: Thomas Blair, P.E., Senior Consulting Engineer,
Tampa Electric

Location: Tampa Armature Works,
6312 South 78th Street Riverview, FL 33578

Cost: \$100 Members, \$200 Non-Members

PDH Credits: 4 professional development hours will be awarded. Be sure to enter you name and PE number on the sign up website as it appears on your license. IEEE Florida Provider Number 3849.

RSVP: Online at: <http://time2meet.com/fwcs-pes3/index.html>
(Maximum number of attendees 24)

Make checks payable to: IEEE FWCS

Questions: Tom Blair at 813-228-1111, ext. 48179 or tom_blair@ieee.org

Your Florida West Coast IEEE PES/IAS Chapter invites you to the opportunity to discover the latest motor protection methods and recommendations by attending a seminar covering the 2012 update to IEEE C37.96 – IEEE Guide for AC Motor Protection on Friday, Dec 14, 2012. This standard is being revised and has completed the ballot process this year and is on schedule to be released with these important changes very soon. There have been many updates to this standard since the previous revision in 2000 and this will be one of the first opportunities to learn of the updates to this important guide to motor protection. This seminar will be held at the **Tampa Armature Works** facility in Riverview. Following the seminar, a tour of the TAW motor repair facility in Tampa will be made available for those interested in attending.

IEEE C37.96 is an application guide that presents generally accepted methods of protection for AC motors. It identifies and summarizes the functions necessary for adequate protection of motors based on type, size, and application. Design of protective relays for the protection of squirrel-cage, wound- rotor induction motors, and synchronous motors is described in this guide. This guide also provides information for the selection of the necessary equipment, to obtain adequate motor protection. This guide is concerned primarily with the protection of three-phase, integral horsepower motors and adjustable speed drives.

The 2012 version of the standard is not yet commercially available and a copy of the standard is not included in the seminar. For more information on the development of the revision of this standard, the website is <http://standards.ieee.org/develop/project/C37.96.html>.



Robotics and Automation Society Update

10/6/12 Arduino ABCs Workshop

At the Phyllis Marshall Student Center on the Campus of USF, Tampa Bay RAS in partnership with the IEEE Student Chapter at USF and HCC Engineering Society put on its 2nd Arduino Microcontroller Work Shop “*Learning Your ABCs*” for (32) College and High Students and Teachers. The seminar was a huge success and will be repeated in an updated format at Aparico- Levy Technical Center on 1/12/13.

October 16th RAS Meeting at MOSI:

Tampa Bay RAS Member Jim Melton as a follow-up to the excellent article in the September issue of the RAS Magazine on “Robots Take Flight” gave an overview of microcontroller based hobbyist Quad-Rotor Helicopter Technology, the Software and some of his amazing hacks. His presentation culminated in just about everyone in audience flying one or more of his Quad-Rotor Copters. It was so much fun that Jim and several of the attendees were seen in the parking lot flying literally in the dark, Jim’s fantastic STEM “Toys”. Needless to say their enthusiasm got them locked in parking lot (LOL).

10/19/12 Tampa Bay RAS Trip to the Emerald Coast BEST Competition:

Experienced STEM Roboticists Tom Hayden, Emma Alaba and RAS Chair, Ken Fiallos journeyed to the University of West Florida to observe a BEST Competition. What was so abundantly clear from our observations was that the BEST Robotics Program is a comprehensive matrix of competitions squarely aimed at Work Force Development. (18) BEST Robotics Teams participated in (4) competitions:

1. *Business Marketing Competition*
2. *Company Trade Show Exhibit Competition*
3. *Robotics Competition*
4. *Spirit and Sportsmanship Competition*

At our November 20th MOSI Meeting we will be providing a *Comprehensive Review of the BEST Robotic Program* with actual Video footage from the Pensacola BEST Competition, a discussion of the formation of our *BEST Steering Committee* and our *Business Plan*.

What we saw was remarkable and could BEST be captured by the one participating Team’s T-shirt “If the Sky is the Limit how come there are Footsteps on the Moon?”

Upcoming Events:

Nov. 20th 2012 RAS Meeting at MOSI Signup at:

https://meetings.vtools.ieee.org/meeting_view/list_meeting/14987

Nov. 30th, Dec 1st and 2nd BEST Hub Training Workshop at Auburn University Signup at:

https://meetings.vtools.ieee.org/meeting_view/list_meeting/14989



Trends in Solar Energy Development

With all the focus on developing renewable energy resources, what is *really* happening in the world of solar energy? What *tangible* developments are out there, how can you use solar energy to your advantage *today*, and what are the *realistic expectations* for the technology over the short-, mid-, and long-term? How should solar technology be developed and integrated into the country’s energy portfolio? These and other intriguing questions will be explored on December 11th, 6:00 p.m. at the FRCC Office located at 1408 N. Westshore Blvd., Suite 1002, Tampa, Florida.



SP/COMM November Seminar

Topic: Digital Power, MEMs, and Energy Harvesting - Provocative, Accepted, and Product Defining

Date: November 28th, e-mail to follow for place and location

Abstract:

Integration is literally the first part of ICs (INTEGRATED circuits) and have been the driving force of innovation since their inception. The current challenge of premier IC manufacturers is to not just fill the needs of design engineers, but rather anticipate and in some rare / special cases redefine them. We will be discussing three such technologies: Digital Power, MEMs, and Energy Harvesting. These innovative product groups are among that special class that have often influenced product designs and their derivatives.

- **Digital Power:** Digitally control output voltage, overvoltage/current limits, and power up characteristics while monitoring voltage, current, and faults.

- **Micro Electro-Mechanical Systems (MEMs)** – Initially just accelerometers this mechanical class of products now includes gyros, pressure sensors, magnetometers, and microphones.

- **Energy Harvesting** – Devices that harness and store power basically from change (temperature, capacitance, movement, etc.) and are allowing self-sustaining designs (i.e. no battery or power input).

For this lecture a technical overview of these unique technologies will be supplemented by both real world examples of their impact and peeks forward to “what is next”.

Speaker’s Biography:

Keith D. Rowe received his B.S. (honors) and M.S. (honors) degrees in electrical engineering from the University of Central Florida , Orlando in 1994 and University of South Florida , Tampa in 2000, respectively. He started his pre-engineering career at Martin Marietta (now Lockheed Martin). He then spent the next 11 years doing detail design work in the Tampa Bay area for Raytheon, ThruComm, and Smith’s Aerospace (now GE Aviation). Now located on the Space Coast , Keith has spent the last 6 years working for Nu Horizons Electronics as an FAE covering the state of Florida . In this current role he has enjoyed over 1100 hrs of direct manufacturer training mostly in Silicon Valley and has supported approximately 300 different customers throughout the state, each with their own unique products. Keith’s unique experience has exposed him to numerous technology trends in devices, implementations, and solutions that he looks forward to sharing, particular to the above topics



PV Design Seminar Coming to Tampa January 25, 2012 at Seminole Electric

Dave Click State Licensed Solar Contractor / NABCEP Certified PV Installer / PV Instructor

Dave first got involved in solar energy through the Department of Energy’s first Solar Decathlon. When searching for an undergraduate research project, he found a DOE flyer announcing the 2002 competition and was hooked from the start. He served as project manager for the engineering team behind the University of Virginia’s entry. After receiving his BS and MS degrees in electrical engineering from UVA, he joined Solar Design Associates in Massachusetts from 2004-2007, managing and designing PV projects from 3-600kWdc. Since 2007, Dave’s been working at the Florida Solar Energy Center in Cocoa, with projects including training prospective PV installers, leading local efforts in DOE market transformation programs, and educating code officials on proper PV design and installation. An IEEE member, Dave and family live in Orlando under their 5.4kW PV system.



Successful Seminar on IEEE Std. 1547 – Interconnection Guidelines and Future of Electric Power Industry and Applications Problems and Tour Lakeland SunEdison Solar Plant



Dr. P.K. Sen



Seminar Attendees



Dr. Keith Malmedal & Serge Beauzile

Did you Miss This Outstanding Tour and Presentation?

On Friday, October 12th the FWCS IA/PE Chapter held another of the Chapter's outstanding meetings and tours.

The attendees were able to hear two great presentations by Dr. P.K. Sen and Dr. Keith Malmedal. The presentation covered the overall use of Power as provided by the various sources. It included what changes might occur in the future and how technology might impact those changes.

The tour of Lakeland Electric's PV Farm was another opportunity to see this renewable source with its large inverter stations and PV tracking system in operation.

The attendees rated the overall meeting very highly and provided good comments about the presentations and tour, as well as suggestions for future meetings.

Make your plans now to attend our next IA/PE Seminar coming this November 30th.



Audience Cashes In On PACE "Engineering Your Finances" Seminar

Over 20 IEEE members attended the PACE group's presentation of "Engineering Your Finances: Secrets They Never Taught You" On Wednesday, October 24 at TECO hall. This once-in-a-lifetime event consisted of three separate presentations that provided layer after layer of critical financial information that engineers need to know.

Dr. Jim Anderson started the evening off with a quick presentation based on financial literacy tests that many adults fail. Dr. Anderson went over each question and then there was a discussion about what the correct answer was -- and why. This was followed by a presentation by Andy Hirsch from Robert W. Baird & Co. Andy told the audience what they needed to do in order to be ready for life's big expenses. Finally, Paul Weinberger from Gilman Ciocia helped the audience to understand just exactly what they needed to be doing today to prepare for retirement tomorrow. All in all, the meeting was a big success. As the seminar wrapped up, the audience members stayed behind to talk about what they had learned amongst themselves and with Andy and Paul. We may not have found the secret to unlimited wealth, but we sure found out how to do a better job of hanging on to what we already have!

IEEE-USA Webinar



On 15 November 2012, Elizabeth Lions will return for another exciting presentation on *Getting Your Resume out of Cyberspace and onto the Manager's Desk!* Ms. Lions will provide some sure-fire quick tips to help you create a resume that will engage readers immediately and call them to action. You can sign up for both webinars at the [IEEE-USA webinar page](#).

USF IEEE Fall 2012 Picnic

On October 14th, the IEEE student branch hosted their fall picnic. It was a fun day where students, IEEE FWCS members, and their friends and families got together to socialize. We had awesome turnout of over 40 people throughout the day. We were able to enjoy hotdogs, burgers, and Filipino spring rolls. Everyone had a great time chatting, playing volleyball, soccer, and canoeing.

Disha Saha

IEEE USF Vice Chair



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November 2012 Calendar of Events (For more information see P. 1) *inside this Signal...*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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4	5	6 EXCOM Meeting at TECO Plaza	7	8	9	10
11	12		14 HSN Studio Tour	15 Great American Teach In	16	17
18	19	20	21	22 Happy Thanksgiving 	23	24
25	26	27	28 SP/Comm Seminar	29 PES EXCOM Meeting at 6AM	30 NESC 2012 Update at the FRCC see page 4	1