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THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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June 2008



This Month's Meetings

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Calendar



Distribution System Reliability & Solutions Seminar

Speaker: Charlie Williams, S&C Electric

At the Sheraton Sand Key Beach Resort

Thursday, June 12th

For Directions see <http://www.sheratonsandkey.com/Directions.asp>

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Signal Processing and Communications Society Joint Meeting

Methods of Service Oriented Architecture (SOA) Security Engineering and Certification

Speaker: Jeff Youmans – Concurrent Technologies Corporation

Largo, Florida USA

Date: Wednesday 18 June 2008

Time: 6:00 pm

Location: University of South Florida, Building ENB, Room 109

4202 E. Fowler Ave., Tampa, FL 33620

For driving directions, contact [Hector A. Martinez](mailto:Hector.A.Martinez)

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Renewable Energy, Energy Policy Act of 2005, IEEE Std. 1547 – Interconnection Guidelines and Future of Electric Power

Industry and Applications Problems

Speakers: Dr. P.K. Sen, P.E. and Keith Malmedal, P.E.

Friday, June 27th.

For more information e-mail Serge.Beauzile@pgnmail.com

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This Month... (Editor's Column)

As I sit down to write my Editor's Column for this issue I have to keep in mind that whatever I write will not be read till next month! I wanted to write something about the PACE/GOLD event but it will have already happened when you read this. I hope it was a success. I also have to keep deadlines in mind and how long it will take the reviewers to give it a look and how long the printer needs to complete. that and send it to Jim and Donna Howard for mailing. I am still on the learning curve and I make errors but I am making progress.

I will be talking soon with Rob Wolf who I met while between jobs, at Transitioning Professionals of Tampa Bay. They are a no cost career advice and job search organization that I found to be very helpful in that area. I will ask him to contribute articles of interest to job seekers.

Finally, I invite anyone that wants to contribute an article of interest to our members or wants to send a letter to the Editor to do so. It needs to be in Word Format and a page or less in length for consideration.

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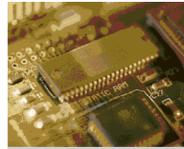
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[IEEE.tv](http://www.ieee.tv)

Careers in Information Technology - This program provides an overview of career possibilities in IT. IT professionals and engineers from large and small companies discuss the nature of their work.

Carl Selinger: Stuff you Don't Learn in Engineering School (Member Access) - In this interview, Carl Selinger discusses his book "Stuff you Don't Learn in Engineering School." This practical book offers young engineers advice on speaking in front of a group, running a meeting effectively, making decisions, setting priorities, working with all sorts of people, learning to negotiate, developing leadership skills, and dealing with stress in the workplace.



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IEEE FOUNDATION AWARDS OVER US\$170,000 IN GRANTS

Nine initiatives were awarded over \$170,000 in grant funds during the March 2008 IEEE Foundation Board meeting. The grants support pre-university activities, preserving history, using technology to address societal needs, exploring alternate sources of energy, participating in robotics competitions, and improving technological literacy

Through the awarding of these and other project grants, the IEEE Foundation supports a cross-section of programs that seek to foster technological innovation and excellence for the benefit of humanity. To learn more about the IEEE Foundation and its grantmaking program, visit <http://www.ieeefoundation.org>.



IEEE POWER ENGINEERING SOCIETY OFFICIALLY CHANGES NAME TO IEEE POWER & ENERGY SOCIETY

After a final vote from the Society membership, the IEEE Power Engineering Society has officially changed its name to the IEEE Power & Energy Society (PES), effective 22 April. In an announcement at the 2008 IEEE PES Transmission and Distribution Conference in Chicago, Ill., 2008 PES President Wanda Reder outlined the benefits of the name change:

- more relevant to current member interests and aligns with global needs
- positions the Society for increased interaction and external collaboration
- improves the Society's external image
- provides framework for embracing emerging technologies
- appeals to "Societal" interests of potential members.

The name change also:

- maintains the strong IEEE PES acronym and identity
- aligns with the POWER AND ENERGY Magazine title and
- better reflects the existing mission, scope, field of interest

The Society's mission will remain "to be the leading provider of scientific and engineering information on electric power and energy for the betterment of society and the preferred professional development source for [our] members."

The IEEE PES is the oldest IEEE Society, and will celebrate its 125TH anniversary in 2009, along with the IEEE itself. For full coverage of the PES Transmission and Distribution conference, read the show's official blog at <http://ieeepes-td.com/>.



Take a Virtual Tour of the National Hurricane Center

As hurricane season approaches, readers may be interested in this virtual tour of NOAA's National Hurricane Center, which includes panoramic views of different areas of the facility, accompanied by audio and text descriptions. "This is an especially useful tool for students who are learning about tropical cyclones and weather forecasting," said Bill Reed, director of the National Hurricane Center. "It also shows how the different branches of our facility work together for the best possible forecasts."

For more information, see: <http://www.nhc.noaa.gov/nhctour.shtml>



IEEE-USF Branch Activities

The IEEE USF Student Branch put on many successful events as the school year came to an end. On April 15, the BBQ Fundraiser was very successful and nearly all of the food was sold out. Unlike traditional hot dogs or burgers, we served Greek souvlaki skewers with pita, chips, and a drink. Faculty, staff, and students all enjoyed the food very much and we thank everyone for participating. A special thanks to Stelios Ioannou for making the tzatziki and hummus sauces. On April 25, we had the largest attendance ever at the Spring Senior Banquet in the Marshall Center Ballroom. At the banquet, Dr. James Leffew and Dr. Rudolf Henning were presented with special awards by IEEE & Eta Kappa Nu. Additionally the Dean of the College of Engineering at USF, Dr. John Wiencek, was the special guest and speaker.

On May 4, the student branch held the Graduation Beach BBQ Picnic at Fort Desoto. Over 20 active IEEE members were in attendance including graduating seniors.



Signal Processing and Communications Society Joint Meeting Methods of Service Oriented Architecture (SOA) Security Engineering and Certification

Speaker: Jeff Youmans – Concurrent Technologies Corporation
Largo, Florida USA

Date: Wednesday 18 June 2008

Time: 5:30 PM

Location: Tampa Electric Co., TECO Hall
702 N. Franklin Street, Tampa, FL 33602

For driving directions, contact Hector at hmartinez@hntb.com.

ABSTRACT: In this briefing Mr. Youmans will examine the methods of securing a services-based architecture. The topics will include identification and authentication, access controls, auditing, and testing of SOA services. Comparisons will be made to legacy security doctrinal requirements and secure conceptual solutions will be provided. Topics will then shift to a review of the latest Web Services (WS)-Security Standards. We will examine the various protocols and their relationships to security and related technologies, and then discuss their position in the community as a whole. This briefing is meant to educate Information Systems Security Engineers (ISSEs) and Information Assurance (IA) certifiers on the dynamics of the SOA. We hope to provide a knowledge base that is complete enough to build a sound engineering and/or certification process.

BIOGRAPHY: JEFF YOUMANS has worked nationally in Information Technology for over 18 years and has recently specialized in web services security issues within a multitude of national projects and programs. He was the security engineering lead on one of the first SOA compliant federated access programs and has certified SOA services for the Defense Intelligence Agency. Mr. Youmans also served in the U.S. Army's 7th Special Forces Group in Intelligence Collection. He recently completed the coursework for a Masters of Science degree in Information Assurance (Summa Cum Laude) from Norwich University. There his thesis work was "The Secure SOA." Mr. Youmans is currently architecting and developing services-based cross-domain/enclave solutions and courseware for Information System Security Engineers as an employee of Concurrent Technologies Corporation (CTC).

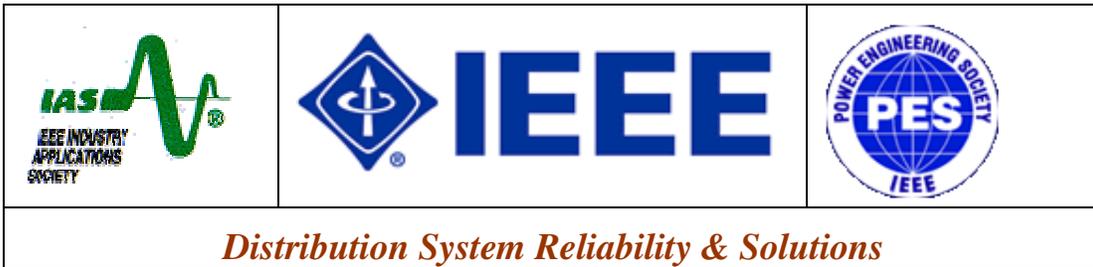


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Date: Thursday, June 12th, 2008

Time: Seminar: 8:15AM – 3:00 PM

Speaker: Charlie Williams, S&C Electric

Location: Sheraton Sand Key Beach Resort, 1160 Gulf Blvd., Clearwater, FL 33767
For directions see <http://www.sheratonsandkey.com/Directions.asp>

Cost: \$100 Members , \$125 Non-Members.

PDH Credits: 4 professional development hours will be awarded. Florida exempt provider #00015.

RSVP: Raymond G. Trusik
Florida Electric Cooperatives Association, Inc.
2916 Apalachee Parkway
Tallahassee, Florida 32301
Fax Form Below to: (850) 656-5485

Distribution Reliability has become a much discussed topic over the last several years. This applies to both inside large industrial plants and for local electric utilities. This course will offer the attendee a chance to understand the basic reliability measurements used (SAIDI, CAIDI, SAIFI, etc.) as well as the tools to improve the reliability of an electric system.

Additionally, you will be given an in-class assignment to complete for improving the reliability of a given electric line with certain designed reliability concerns.

The course content this class will cover includes:

1. Fault prevention and fault mitigation techniques
2. Targeted Reliability Improvements
3. Optimization of an Integrated reliability program
4. Predictive Reliability Analysis of Feeders
5. Distribution Automation reliability benefits
6. Fuse save vs. Fuse blow protection schemes
7. How Faults Really Work

Name of Company _____

of IEEE members attending @ \$100 each: _____

of Non - IEEE members attending @ \$125 each: _____

Persons Attending (please list Name as it appears on the PE License, PE License # and/or IEEE Member #):

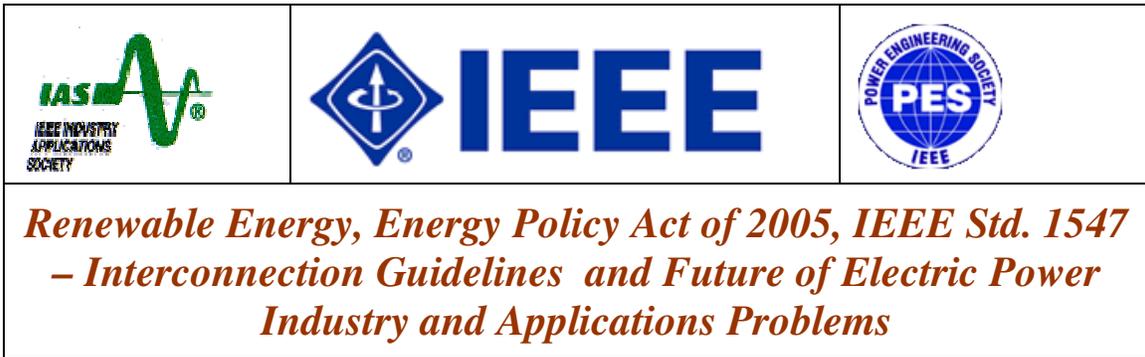
NAME(s) _____

PE License # _____

IEEE Membership Number _____

Prepared by: _____ Phone # _____

Please fax registration form and mail a check for registrations payable to FECA.
All registration fees must be prepaid in order to attend the conference.



Date: Friday, June 27, 2008
Time: **Seminar: Registration 08:30am-9:00am, Speaker 9:00am-2:00pm**
Speaker: **Dr. P.K. Sen, P.E., Professor of Engineering Site Director, Power Systems Eng. Research Center Colorado School of Mines.**
 Keith Malmedal, P.E President NEI Electric Power Engineering, Inc. Arvada, CO
Location: Seminole Electric (16313 N. Dale Mabry Highway)
Cost: \$75 Members, \$125 Non-Members. (Includes Lunch)
PDH Credits 5 Professional Development Hours will be awarded. Florida exempt provider #00015
RSVP: Online at: <http://time2meet.com/fwcs-pes2/index.html>
 Make checks payable to: IEEE FWCS
 Send checks to: Ralph Painter, IEEE FWCS Treasurer
 648 Timber Pond Drive
 Brandon, FL 33510-2937
 Space limited to the first 50 registrants!

Questions: Serge Beauzile at 727-344-4123 or Serge.Beauzile@pgnmail.com
 The Energy Policy Act of 2005, oil price well over \$100/barrel, questions on energy sustainability, carbon tax and global warming will make a big impact on the applications, energy usage, the “big energy picture,” R & D efforts for every type of renewable energy. A part of the EPACT 2005 has the stated purpose of achieving energy self-sufficiency by the year 2025 within the United States, Canada, and Mexico. This bill also has provisions for anyone wishing to connect to the existing power grid at the distribution level and sell power to a utility or other entity including incentives for generation of electricity from certain types of sources. The proposed tutorial and workshop will provide a comprehensive review of the state-of-the-art status of all renewable energy sources, discuss the EPACT 2005 and describe the impact of renewable will make and provide application guidelines for the Electric Power Industry. The proposed tutorial will also address the effects of renewables and the government regulations, effect on the electricity market, national electrical grid, smart metering, and perhaps the future of how electricity will be delivered in the U.S.

Dr. P.K. Sen, P.E. has over 42 years of combined teaching, research, and consulting engineering experience. He received his Ph.D. degree at the Technical University of Nova Scotia (Dalhousie University), Halifax, Nova Scotia, Canada in 1974. Prior to joining Colorado School of Mines, Dr. Sen taught for 21 years at the University of Colorado. His industrial experience includes power plants and substation engineering design, system & feasibility studies, protection and relaying and various aspects of power systems engineering applications. He is a Registered Professional Engineer in Colorado. Dr. Sen is a Professor and the Site Director for the Power Systems Engineering Research Center at Colorado School of Mines, Golden, Colorado. His current research interests include application problems in power systems engineering, electrical safety, renewable energy and distributed generation, energy policy and economics, power system engineering and engineering education. He has published over 130 technical papers and has supervised over 120 graduate students.

Keith Malmedal, P.E. received his MSEE (Electric Power) and MSCE degree (Structures), 1998 and 2002, respectively. He has a combined fifteen years of experience in power systems and structural engineering design, testing and commissioning that includes 500kV switching station, EHV large substations, 350 MW combined cycle unit, 500kV transmission line and industrial power systems. He is presently the President of NEI Electric Power Eng., Arvada, Colorado, specializing in all aspects of power system design. Mr. Malmedal is a Registered Professional Engineer (multiple states in both EE and CE) in 14 states. He is a very active member of the Denver section of IEEE PES/IAS Chapter. Keith has co-authored a number of papers presented and published in IEEE sponsored conferences, archival journals and magazines. Keith finished his PhD degree at Colorado School of Mines (May 2008) under the direction of Dr. Sen

Teacher in Service

This month has been a busy month in Engineering and Education. I had the pleasure of volunteering to judge the 53rd Annual State Science and Engineering Fair of Florida at the Lakeland Center on April 17th. I was among four judges to interview 16 junior Computer Science students. They were already finalists from the regional level. Some of the topics include "Signal strength of Wi-Fi", "Neural Networks", "Audio Encoding Formats", "Basic Computer Programming to Middle school students", and "Heuristic for Emotion Analysis and Recognition." Pinellas Science Supervisor Blythe Lodermeier has the following proposition:

"I would like to invite you to do two 45 minute training presentation to our teachers in the afternoon of August 15th. This will be our District Wide Training/Science Mini-Conference. Last year you did a fun activity if I remember correctly about making a candy bag. And it was a hit!!! This year we are moving to Clearwater High, as I need their auditorium for my big morning presentations and therefore all of the break out sessions are in the afternoon. Hope you will be able to join us. In looking at the available lessons – and they are great. Could you present for teacher training on August 15th, 2 – 45 minute sessions of Rotational Equilibrium: A Question of Balance? I could have copies of the Lesson Plan printed up that you could hand out to the teachers. A lot of teachers have students make mobiles but they could take that mobile building to a whole new level by including the information in this lesson. Let me know what you think."

Please see me if you can help with the Pinellas In Service Day on August 15th and the Hillsborough Session on August 13th.

Bruce Furino invited me to the third annual Florida Engineering Education Conference on May 2 at the University of Central Florida in Orlando. Instead of speaking on the panel, I had the opportunity to give my presentation on Teacher In Service with a hands-on workshop. On the way to UCF, I picked up scraps of cardboard from a blind janitor at a rest stop in Polk County. At the conference, I had the opportunity to meet teachers from all over the state who were interested in integrating Engineering into Education. I led seven teachers in the "Build a Robot Arm" project. The collected workshop surveys were all positive. I gained several new contacts after the conference including: Joel T Decker Joel.decker@polk.fl.net of Haines City High School, Brian Grip brian.grip@polk-fl.net who is Teacher Resource Specialist for Polk County Public Schools, Joan McGhee Joan_mcghee@scps.k12.fl.us Science Teacher of Milwee Middle School, Richard Norman NormanT@stlucie.k12.fl.us Science Teacher in Port St. Lucie, Denzil Thomas thomasde@osceola.k12.fl.us Science Teacher in Kissimmee, Dean Haddox dean.haddox@browardschools.com and JJ Teyssandier jj.teyssandier@comcast.net Science Teachers of Struhen High School. Welcome packets have been sent to these teachers.

I have just received an invitation for a Robotics Seminar on May 17, 2008. Please download the Invitation Folder. Robotics Workshop DATE: May 17, 2008; CONTACT: Rose Mack or Stan Kowski Cell (727) 432-2545 or (727) 864-2982; Youth Robotics Workshop; **WHAT:** Robotics Workshop; **WHERE:** Catalina Marketing, 200 Carillon Parkway, St. Petersburg, FL 33716, **WHEN:** Saturday, May 17, 2008, 10:00 a.m. to Noon.

Sean Denney



Front Row (seated)(left to right): David Figueroa, Ben Ying, Billy Adkins, Paul Stevenson, Middle Row (standing): P. J. Crespo, Sean Denny, Awilda Lopez-Cepero, Tony Febbraro Bob Andrew, Al Kurzenhauser, Back Row: Richard Beatie, Jim Anderson, Cliff Powell



Lignell Awardees with their Science Supervisors:

Nancy Marsh, Eric Shelton, Rose Mack, Andrea Carvill, Blythe Lodermeier, Luigi Galati, Laura Hill, Jim Anderson, and Billy Adkins

Brain Teaser Challenge Solution - March 2008

by Butch Shadwell

Last month I was trying to make sense of the trade-offs that are accepted by those folks that choose to put these huge boom sound systems in their cars. In my hypothetical case "...we start with a Scion sedan that weighs 1800 pounds (*with driver). ... And we will say the little engine produces 90 horsepower. For this calculation we will assume that there is a linear relationship between the mass of the vehicle and its miles per gallon of fuel, and the rate of acceleration at a given engine available horsepower. So if this car normally can get from 0 to 60 mph in 9 seconds and gets 35 mpg, what would the stats be if we added a 350 pound sound system that pulls 10,000 watts?"

To calculate the loss of acceleration you need to first figure out the available horsepower. With 10,000 watts (13.4 HP) wasted on the sound system, there is only 76.6 HP remaining to accelerate the car. Using a simple ratio-metric calculation, if the mass of the car was unchanged the new 0 to 60 time would be 10.57 seconds. However since the mass is increased by 19.4% the time is also that much longer, or 12.63 seconds. In reality predicting the miles per gallon is much more complicated. While doing an acceleration test run the engine is pretty much running at full power all of the time. However, a cruising vehicle uses only a fraction of that power. In general the average MPG is dependent on the mass of the car and the change is inversely proportional to the increase in mass. $MPG1/MPG2 = Mass2/Mass1$, so $MPG2 = (MPG1 * Mass1) / Mass2$. $MPG2 = 29.3$ is the new mileage with the added weight of the sound system and the stereo off. Depending on the kind of driving, turning on the stereo in the car could lower gas mileage to less than half of that experienced normally. To make up for this loss in performance, they better be some very good tunes. But I bet you already knew that.



Brain Teaser Challenge – April 2008

I was asked to give a talk this evening at the local community college for an advanced astronomy class. My lecture today was about radio astronomy and some of the physics and technology that is applied to that field. I spoke about the electromagnetic spectrum in general and some of the key features of light and radio wave propagation.

We were discussing the ubiquitous parabolic dish that is used in radio telescopes. If our dish is 9 feet wide and is one foot deep from the edge to the belly along the center axis, can you calculate the focal length? Placing our receiver at this point will focus all rays parallel to the center axis on the antenna feed horn. Maybe we will pick up TV from space.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (<http://www.shadtechserv.com>) The names of correct respondents may be mentioned in the solution column.



June 2008 Calendar of Events (For more information see P. 1) *inside this Signal...*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 <i>EXCOM Meeting @ TECO Hall</i>	4	5	6	7
8	9	10	11	12 <i>Distribution Systems Reliability Meeting p. 6</i>	13	14
15	16	17	18 <i>Signal Processing Meeting p. 5</i>	19	20	21
22	23	24	25	26	27 <i>Renewable Energy IEEE Std. 1547 Seminar p 7</i>	28
29	30	1	2	3	4	5

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