

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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EXCOM Meeting

Tuesday, July 3, 2018 5:30PM at TECO Plaza Register online at http://time2meet.com/fwcs-excom/index.html

Open to all FWCS Members

Should You Be a Senior IEEE Member?

The Florida West Coast Section is looking to assist Members in elevating their grade to Senior Membership. If you know of someone who you feel is qualified then please encourage them to contact Claude Pitts (claude.pitts@ieee.org) or Herman Amaya (hamaya@tampabay.rr.com). If you have desired to become a Senior Member but not sure what to do or need references, then please know your Section can help you in making the next steps towards Senior Membership.

To be eligible for application or nomination, candidates must:

- * be engineers, scientists, educators, or technical executives;
- * have experience reflecting professional maturity;
- * have been in professional practice for at least ten years;
- * show significant performance for at least five years.

Senior member is the highest grade for which IEEE members can apply. IEEE members can self-nominate, or be nominated, for Senior member grade. Have you been in engineering for over 10 years? If so, you may qualify for Senior Level membership in IEEE. There is no additional fee to apply for senior member grade.

IEEE-USA has a New and Exciting Crossword Puzzle for you to try!

Try your hand at the weekly engineering- and technology-themed crossword puzzles. Every Wednesday, IEEE-USA will post a new puzzle — authored by renowned crossword puzzle writer Myles Mellor — to test your skill and knowledge.

Here's the link for the June 20th puzzle.

https://insight.ieeeusa.org/articles/crossword-20-june-2018/



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PE Corner

Art Nordlinger, PE, Senior Member

Experience for Licensure Part I

(Parts of this article are excerpted from an article in the FBPE Newsletter, with permission)

One of the least understood areas of the engineering licensure process relates to the question of what constitutes acceptable qualifying engineering experience for the purposes of licensure. Members of the Florida Board of Professional Engineers are, among other things, responsible for reviewing and considering applications for licensure. A key component of this review is determining, based on the information provided by the candidate, whether the candidate has obtained the requisite engineering experience to not only sit for the Principals & Practice of Engineering (PE) exam but to then offer engineering services to the

The usual requirement is four years of qualifying engineering experience accumulated after graduation. If the candidate has worked as a full-time employee while attending school, and if the work fits the criteria for qualifying experience, the candidate may qualify to take the exam less than four years following graduation. Additionally, for successful completion of a master's or doctorate degree in engineering may usually count toward engineering experience, with one year typically credited for a master's degree and two years for a doctorate degree.

The experience must meet a number of criteria to constitute qualifying experience. First, the experience should be from a major branch of engineering in which the candidate claims proficiency. Second, the experience must be supervised. That is, it must take place under the responsible charge of one or more qualified, licensed engineers, though experience supervised by a qualified unlicensed engineer in industry situations where there is no offering of engineering services to the public may be acceptable. Third, the experience must be of a high quality, requiring the candidate to develop technical skill and initiative in the application of engineering principles and sound judgment. Fourth, the experience must be broad enough in scope to provide the candidate with a reasonably well-rounded exposure to many facets of professional engineering. Finally, the experience must progress from relatively simple tasks with less responsibility to work of greater complexity involving higher levels of responsibility.

In assessing whether the candidate is sufficiently competent and responsible to be entrusted with or independently engage in engineering work or to supervise engineering work, the Board looks for evidence of independent decision-making and assumption of personal accountability in design and application.

Most of the functions that mark the engineer's work as professional revolve around various decisions that must be made in the course of a project. Examples include the comparison of and selection among alternatives for engineering work; the determination of design standards or methods; the selection or development of methods or materials to be used; the selection or development of testing techniques; the evaluation of test results; and the development and control of maintenance and operating procedures.

Next Month: Documenting Your Experience

Whether you are a PE looking to attain required CEHs, or an engineer looking to learn something new or keep current with the latest trends in the profession, IEEE has seminars that will meet your needs. With renewal only 7 months away demand for our seminars is high. Sign up now!



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Leader's Center

Organizational Change—Seven Challenging Situations (Part 2)*

Last month I recommended that the anxious manager ask for some ideas from his employees using the YES part of my acronym. That will help them feel better about the change and be more willing to help it succeed.

This session will complete the YES I AM acronym. This is the second part, I AM:

Include Everyone;

Ask for Help;

Manage Your Concerns

Remember that the "front-line" employees know a lot about what's going on. They often know more than the manager. By asking for, and using, the ideas from his employees, he is telling them that he values them. Everyone wants to feel important, feel valued, being needed! Don't you?

Now to the acronym, I AM.

Include Everyone. Often managers keep information to themselves. They ask, do the employees *need* to know? They may believe that information must be protected, it must be kept secret. I suggest another question: is there *any* good reason *not* to tell the employee? Sometimes there will be—but rarely in my experience.

Ask for Help. Explicitly offer your employees the chance to lead parts of the process. Give them the authority to take a part of the plan and make it their own! However, once you give such authority, don't take it back. You may be worried, anxious, fearful but don't take away their authority. If you do that, you will lose their trust.

As I said last month, what I just gave you may still further increase your anxiety! Which brings us to the last element of the acronym:

Manage Your Concerns. This may be the most important and also the most difficult. You must find ways to recognize your fears, accept them and discover ways to relieve them. What specific events may be worrying you?

My personal concern has been that things will get so bad that I will be unable to recover. Here is what I do to stay sane. When I agree to allow someone to take authority for a project, I ask for two things. First, she must agree to meet on a regular basis, say every two weeks. Second, she must agree to inform me of any unexpected events immediately. In both cases, I promise that I will not take over the project; rather, together, we will find a solution to the problem and she will continue to run the task. With these agreements, I manage my concerns and sleep nights.

Next month I will consider some of the other six Challenging Situations.

* * *

Don't want to wait? Then go to http://leadchangewithoutfear.com/ and check the tab "Successful Real Change." Also check out the meetings for the Young Professionals and the Consultants' Network described elsewhere in this Signal.

* Excerpted from *Lead Change without Fear* by Paul Schnitzler



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Young Professionals August Meeting— The Non-Technical Side of Success

Date/Time: Monday, Aug. 13, 2018 — 6:30PM

Place: John F. German Library Auditorium, 900 N Ashley Dr, Tampa, FL 33602

Description: Do you want to succeed? Silly question, right? Success in anything is getting the needed or desired benefits. Sadly, these benefits are achieved only about a third of the time! You want to be in that third, don't you? You will be when others want to help make the project a success. Show those around you they are valued and they will want to do exceptional things.

In this presentation, you will learn three methods to achieve this:

Listen to peers and subordinates; show that you understand them

Offer them the chance to execute their ideas

Identify and change how you may react to 1 and 2. (Not as simple as it sounds.)

These seem simple but are often poorly executed. Done right, those around you will **want** to make important contributions to your project. These methods will be described and demonstrated. You will see these work and actually practice some of the tools.

Anyone can use these tools. Come to this meeting and learn how you can use them successfully.

Speaker: Paul Schnitzler, PhD (E.E.), is on the faculty of the College of Engineering at the University of South Florida (USF), where he teaches courses in change, motivation, and creativity. Dr. Schnitzler is also a change management speaker, author, and consultant. He has presented many seminars on change and entrepreneurship in China and Saudi Arabia, and has presented at TEDx in Tampa Bay, Florida. Dr. Schnitzler is the author *of Lead Change without Fear—Using the YES I AM Solution* and has received many awards for his work.

For more information contact T. J. Ross (a.j.ross@ieee.org)

IEEE FWCS Robotics & Automation Society

On June 19, 2018, Mr. Mike Okneski gave a presentation to the IEEE FWCS RAS members and guests on using the Raspberry Pi to collect sensing data from an IoT device and upload it to the cloud.

The IEEE RAS Chapter plans to execute on the Vision of the Chapter's Founder, George Schott to "Learn, Do, Teach."





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Increasing Motor Life and Process Continuity: Optimizing Motor Bus Transfer

Date: Friday, August 17, 2018

Time: Registration & Light Breakfast: 8:30AM - 9:00AM

Seminar: 9:00AM - 2:00PM

Speaker: Wayne Hartmann, Senior Vice President, Smart Grid and Protection, Beckwith Electric, Largo, FL

Location: FRCC 3000 Bayport Drive., #600, Tampa, FL 33607

Parking: Use parking lot for Hyatt (North side only).

Cost: \$100 Members, \$200 Non-Members, \$20 Students. Includes Light Breakfast, Lunch.

CEH Credits: 4 Continuing Educations Hours will be awarded. Be sure to enter your name and PE

number on the signup website as it appears on your license.

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Motors in power generation and critical process industrial plants are subject to electrical power source disruptions. These motors provide the mechanical energy for fans, pumps, compressors and other driven equipment that support plant operation. Origin of a power interruption may be from the utility supplying the plant or from the in-plant electrical distribution infrastructure.

When challenged with power interruption, the ability to rapidly and safely transfer motors to another power source is paramount to maintain operational continuity. This transfer of motors is known as motor bus transfer (MBT). This seminar will explore challenges of MBT and illustrate methods for optimization.

Wayne Hartmann, IEEE Senior Member, is Senior Vice President of Smart Grid and Protection for Beckwith Electric. Before joining Beckwith Electric, he performed in Application, Sales and Marketing Management capacities at PowerSecure, General Electric, Siemens Power T&D and Alstom T&D. With over 30 years of Industry participation, his focus has been on the application of protection and control systems for electrical generation, transmission, distribution, distributed resources and power utilization. He serves on the IEEE Power System Relaying and Control Committee as a Main Committee Member, is Chair Emeritus of the Rotating Machinery Subcommittee ('07-'10), and presently Chairs the "Investigation of the Criteria for the Transfer of Motor Buses" Working Group.



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Cyber Security Fundamentals & Case Studies

Date: Friday, September 7, 2018

Time: Registration & Light Breakfast: 8:30AM - 9:00AM

Seminar: 9:00AM - 2:00PM

Speaker: John McDonald, PE - Director, Technical Strategy and Policy Development

GE Digital Energy

Location: FRCC 3000 Bayport Drive., #600, Tampa, FL 33607

Parking: Use parking lot for Hyatt (North side only).

Cost: \$100 Members, \$200 Non-Members, \$20 Students. Includes Light Breakfast, Lunch.

CEH Credits: 4 Continuing Educations Hours will be awarded. Be sure to enter your name and PE

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Grid Modernization: Technological Advancements Beyond Smart Grid

The seminar will begin with familiarizing participants with a vision for Grid Modernization, focusing on technological advancements beyond Smart Grid. The technological advancements include discussions of key industry/societal trends, Smart Grid concepts, holistic solutions, integration of microgrids and distributed generation, and Advanced Distribution Management System (ADMS) software applications. The seminar will also cover feeder automation business models, managing different types of data, big data, analytics, enterprise data management, Smart Grid standards and interoperability, and Smart Grid deployments and lessons learned.

Cyber Security and Privacy of Information – Principles and Case Studies

Once the foundation is laid, the seminar will discuss the NERC CIP security standards, including the current standards and looking into the future. An introduction to cyber security will include understanding the threats, consequences and risks, and factors of authentication. The first case study will review hacking of a GE industrial Ethernet switch – lessons learned and the flowchart for the secure development lifecycle of developing a product. The second case study details the anatomy of the Ukraine power outage, including the actions the hackers took to gather information, prepare for the attack, and conduct the attack. The seminar will focus on the lessons learned. Privacy of information will then be discussed, and the seven foundational principals of the Privacy by Design model will be reviewed. The Privacy by Design model was incorporated into GE's Smart Grid technology deployed at Hydro One for their Advanced Distribution System project. The seminar will conclude with how GE operationalized Privacy by Design with the Ontario Smart Grid case study.

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Speaker Bio

John D. McDonald, P.E., is Smart Grid Business Development Leader for GE Power's Grid Solutions business. John has 44 years of experience in the electric utility industry. John joined GE on December 3, 2007 as General Manager, Marketing for GE Energy's Transmission and Distribution business. In 2010 John accepted the new role of Director, Technical Strategy and Policy Development for GE Digital Energy. In January 2016 John assumed his present role with the integration of Alstom Grid and GE Digital Energy to form GE Grid Solutions.

He is a sought-after industry leader, technical expert, educator, and speaker. John was elected to the Board of Governors of the IEEE-SA (Standards Association), focusing on long term IEEE Smart Grid standards strategy. John was the Chair of the Smart Grid Interoperability Panel (SGIP) Governing Board for 2010-2015 (end of 1Q) coordinating Smart Grid standards development in the US and global harmonization of the standards. John is a member of the NIST Smart Grid Advisory Committee.

John is Past President of the IEEE Power & Energy Society (PES), Past Chair of the Smart Energy Consumer Collaborative (SECC) Board, the VP for Technical Activities for the US National Committee (USNC) of CIGRE, and the Past Chair of the IEEE PES Substations Committee. He was on the IEEE Board of Directors as the IEEE Division VII Director. John is a member of the Advisory Committee for the annual DistribuTECH Conference, on the Board of Directors of the GridWise Alliance and Chair of its Technical Committee, Vice Chair of the Texas A&M University Smart Grid Center Advisory Board, and member of the Purdue University Strategic Research Advisory Council. John received the 2009 Outstanding Electrical and Computer Engineer Award from Purdue University.

John teaches a Smart Grid course at the Georgia Institute of Technology, a Smart Grid course for GE, and substation automation, distribution SCADA and communications courses for various IEEE PES local chapters as an IEEE PES Distinguished Lecturer. John has published 80 papers and articles in the areas of SCADA, SCADA/EMS, SCADA/DMS and communications, and is a registered Professional Engineer (Electrical) in California, Pennsylvania and Georgia.

John received his B.S.E.E. and M.S.E.E. (Power Engineering) degrees from Purdue University, and an M.B.A. (Finance) degree from the University of California-Berkeley. John is a member of Eta Kappa Nu (Electrical Engineering Honorary) and Tau Beta Pi (Engineering Honorary), a Life Fellow of IEEE (member for 47 years), and was awarded the IEEE Millennium Medal in 2000, the IEEE PES Excellence in Power Distribution Engineering Award in 2002, the IEEE PES Substations Committee Distinguished Service Award in 2003, the IEEE PES Meritorious Service Award in 2015, the 2015 CIGRE Distinguished Member Award and the 2015 CIGRE USNC Attwood Associate Award.

John has co-authored five books: Automating a Distribution Cooperative from A to Z: A Primer on Employing Technology (National Rural Electric Cooperative Association – 1999); Electric Power Substations Engineering (Third Edition) (CRC Press – 2012); Power System SCADA and Smart Grids (CRC Press – 2015); Big Data Application in Power Systems (Elsevier - 2017); and Smart Grids: Advanced Technologies and Solutions (Second Edition) (CRC Press – 2018).

John has one US Patent (9,853,448) on Systems and Methods for Coordinating Electrical Network Optimization (December 26, 2017).



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FWCS PES UTILITY USERS GROUP MEETING

GENERATOR PROTECTION AND NERC

MAINTENANCE & TESTING REQUIREMENTS

Date: FRIDAY, October 19,2018

Time: Registration & Light Breakfast: 8:30AM - 9:00AM

Seminar: 9:00AM - 3:00PM

Speaker: Dr. Murty V. V. S. Yalla, President, Beckwith Electric Company, Ltd. IEEE Fellow

Location: FRCC 3000 Bayport Drive., #600, Tampa, FL 33607

Parking: Use parking lot for Hyatt (North side only).

Cost: \$100 Members, \$200 Non-Members, \$20 Students. Includes Light Breakfast, Lunch.

CEH Credits: 5 Continuing Educations Hours will be awarded. Be sure to enter your name and PE

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

Your IEEE PES Florida West Coast Chapter Utility Users Group is meeting in October and we are honored to have Dr. Murty V.V.S. Yalla, President of Beckwith Electric Company as our guest speaker. Dr. Yalla will cover generator protection systems as described in IEEE C37.102, IEEE Guide for AC Generator Protection. Additionally, Dr. Yalla will cover the mandatory requirements of the North American Electric Reliability Corporation (NERC), specifically addressing the maintenance & testing requirements of;

NERC Standard PRC-005-6— Protection System Maintenance

NERC Standard PRC-024-2 — Generator Frequency and Voltage Protective Relay Settings

NERC Standard PRC-019-2 — Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection

Dr. Murty V.V.S. Yalla has been with Beckwith Electric since 1989 and presently holds the position of President & is an IEEE Fellow. He was a member (subject matter expert) of the <u>North American Electric Reliability Corporation (NERC)</u> System Protection and Control Subcommittee (SPCS). Dr. Yalla was also the chairman of the working group which developed <u>IEEE Standard C37.102-2006</u> "Guide for AC Generator Protection." Dr. Yalla's is uniquely qualified to instruct this course on IEEE C37.102 and NERC maintenance & testing requirements and your local IEEE PES/IAS chapter is honored to have him as speaker.

Who Should attend this course? Power plant and substation protection engineers and protection generalists who desire a deeper background about generator protection and NERC required maintenance and testing.



SOLUTION PROFILE





800.434.0415 or email info@CEPower.net



Motor Starting MV Circuit Breaker Retrofill

Metal-Clad switchgear with air-magnetic medium voltage circuit breakers was typically used in the past for motor starting applications for station service equipment. Frequent operation of these circuit breakers led to excessive wear of the breaker contacts and operating mechanism, and premature failure of the air-magnetic circuit breakers. Over the years these breakers required extensive reconditioning and overhaul, using OEM and after-market parts and components. Increasing cost of maintenance and obsolesence by OEM's requires a new approach.

CE Power has developed a solution to extend the life of existing metalclad switchgear. By performing a MV fused vacuum contactor retrofill, the most vulnerable components are replaced while the integrity of the switchgear is maintained. This significantly reduces maintenance costs and increases reliability of the system.

Overview

- Vacuum contactors designed and tested for switchgear applications, up to 2,500,00 operation cycles
- Primary contacts sealed inside a vacuum bottle
- Operating mechanism consists of few moving parts and components
- Primary fuses sized to protect the motor and cable from short circuit condition
- Non-load break isolation switch provides a visible disconnect of the primary circuit
- Proper interlocking and controls design
- New microprocessor motor control relay provides improved protection, remote monitoring and communication
- Tested in accordance with IEEE C37.59









DSP-ADM

The new DSP-ADM provides total system protection from ground faults and arc flash. As a base model it is designed to detect the event of a single ground fault, signal an alarm, and provide pulsing capability so that maintenance personnel can locate the faulted circuit without interrupting the process. Maintenance can be immediately alerted to the problem and an operator dispatched to located the fault to isolate it promptly.

The DSP SYSTEM can assist in locating the fault with a pulsing fault location circuit. In the event of a second ground fault, the DSP acts quickly to prevent loss of two feeders by selectively tripping the lower priority feeder only.





TECHNICAL SPECIFICATIONS

Power Requirements	100-240V, 50/60 Hz or DC, 25 VA					
Dielectric	Relay contacts to chassis1500 V rms for 1 minute alarm level Control terminals to chassis 1500 V rms for 1 minute alarm level IEC-60255-5					
Trip Level Inhibit	25% of systems ground current					
Contact Ratings	DSP-DFM: Trip Contacts- Form "C" SPDT 10 Amp., 240 V AC resistive DSP-DPS: Alarm Contacts- Form "C" SPDT 8 Amp., 240 V AC resistive IEC-60950					
Performance	DSP-DFM: Pickup Accuracy: ±10% of system let-through current DSP-DSM: Alarm Level Accuracy: ±10% of I _G					
Temperature Range	0 _o C to 50 _o C					



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July 2018 Calendar of Events (For more information see P. 1) in this Signal...

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10 EXCOM Meeting 5:30 TECO Plaza	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				