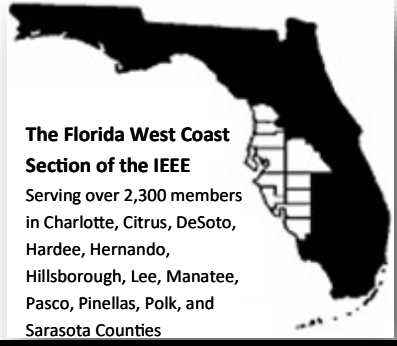
http://www.ieee.org/fwcs



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IEEE

THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 64—No. 8 August 2018

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PE Renewals Due February 2019
18 CEHs required for renewal
Check the FWCS Signal
for opportunities to earn CEHs

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Upcoming Meetings

EXCOM Meeting

Tuesday, August 7, 2018 5:30PM at TECO Plaza
Register online at http://time2meet.com/fwcs-excom/index.html
Open to all FWCS Members

Increasing Motor Life and Process Continuity: Optimizing Motor Bus Transfer

Friday, August 17, 2018 8:30 a.m. — 2:00 p.m.
FRCC Headquarters
Register online at http://time2meet.com/fwcs-pes3/

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.
RSVP: Online at http://time2meet.com/fwcs-pes3/index.html (Select Reservations)
Make checks payable to: IEEE FWCS
Send checks to: Jim Howard, IEEE FWCS Treasurer
3133 W. Paris Street, Tampa, FL 33614-5964
Questions: Jim Howard at 863-834-6585, or j.howard@ieee.org

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.

THE SUNCOAST SIGNAL is published monthly by the Florida West Coast Section (FWCS) of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). THE SUNCOAST SIGNAL is sent each month to members of the IEEE on Florida's West Coast. Annual subscription is included in the IEEE membership dues.

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http://www.ieee.org/benefits	Global Benefits Finder
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PE Corner

Art Nordlinger, PE, Senior Member

(Experience for Licensure Part II)

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

Last month we reviewed what constitutes qualifying experience for a candidate to be accepted to sit for the Principals & Practice of Engineering (PE) Exam. This month we will discuss how to best document that experience. In applying to your state board for licensure, you will have to document your experience and show that it meets the required criteria. This documentation consists of two parts: your own statement of what you have done, and verification by your supervisor of the nature and extent of your experience.

It is not unusual for experience to be disqualified because the experience has not been described in a way that could be evaluated by the board of examiners. Therefore, particularly with regard to describing internship experience, it is important that both you and your supervisor use the terminology and formulations that will be of greatest assistance to the state board.

The following is a list of five common mistakes candidates for engineering licensure make in attempting to document experience:

Job titles aren't enough. No matter how impressive a job title may sound, it should be accompanied by a detailed description of your duties and responsibilities in the position.

Avoid vague generalities and ambiguous phrases. "I was involved in," "I worked on," "I was engaged in," and other similar phrases are uninformative unless they are followed by a specific description of duties. Instead, use specific terms, such as "I designed," "I reviewed," "I recommended," and similar phrases.

Avoid vague formulations regarding the amount of time you have spent performing each type of work. If you spent only a part of your time on a particular duty, indicate the percentage of your time that was devoted to that task. If you worked on a particular task on a full-time but intermittent basis, indicate the number of weeks or months that you spent on that activity.

Try not to hide deficiencies in your experience through the use of vague, general language. It is better to wait until your experience is sufficient to qualify.

The application form is not a place for modesty. Do not assume that the full range of your duties, or the full extent of your responsibility, will be obvious from the job title or the brief summary. Failure to explain fully can lead to the rejection of your application.

In considering your application, the engineering licensure board must come to a decision as to whether your education and experience qualify you for licensure. This means that the evaluation committee must be able to understand, evaluate, and verify the facts as you present them. A specific, detailed summary of your experience, written in clear, forceful language, will greatly increase your chances of qualifying for the Principles & Practice of Engineering exam.

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 six (6) months away demand for our seminars is high. Sign up now!

Leader's Center

Organizational Change—Seven Challenging Situations*

Paul Schnitzler, Ph.D—Life Senior Member

Last month I completed the use of the YES I AM acronym in the service of the anxious manager. As promised, this month I will look at another of the seven Challenging Situations as they address the same production quality problems. Remember, yields are low and the company might fail if production is not improved significantly and soon.

Let's consider the Very Confident Manager. The president is one of the founders of this company, and she has worked at every job. This is not the first time there have been problems, and she is confident that she knows what to do. For this situation they will need some new equipment and some process changes. She is certain that these changes in the production area will correct the problems.

She announces the changes to be introduced and posts an assignment list of what each person is to do. Each task has a specified result and due date.

The president goes home that night and sleeps like a baby; she knows that everything will be just fine.

The employees read the posting and start to talk about it.

"That's a lousy task she gave me."
"How will I do that? I don't know where to start."
"Does this mean there will be layoffs?"

As the new equipment starts to arrive, the employees begin setting it up and learning how to run the new processes. The typical expected problems occur but they seem to take longer than usual to correct. The flu seems to be hitting more employees; there are more absences. A few key people have resigned.

Coffee breaks last longer as the employees talk about what is happening or what will be happening or what may happen…

The production changes seems to be getting done but not as fast as the president desires. Dates are not being met. Improvements are smaller than projected. Production is simply not improving. In fact, productivity may actually be down!

Let's look at the acronym.

You are passionate—we'll give her that.
Everyone benefits—do her employees believe that? I don't see it.
Seek ideas—didn't happen. She knew all that she needed to know so why ask?
Include everyone—not at all.
Ask for help—nope. She *told* them what to do.
Manage concerns—she didn't need to. She felt fine—at least at the beginning.

What did she lose? The support of her group. No one felt valued. All felt worried. She did not get "buy-in."

She not only didn't get what she wanted, she lost the possibility to get even more!

Now it's your turn: How might she have acted that would have been more effective? What could she have done with each of the unused acronym points? Can you think of other things she could do which might have helped?

So much for the Very Confident Manager. Next month I will continue to look at some of the other five Challenging Situations.

* * *

Don't want to wait? Then go to http://leadchangewithoutfear.com/ and check the tab "Successful Real Change." Also look for the Young Professionals meeting described elsewhere in this Signal, on Page 8.

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

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IEEE-USA's July Free E-Book for Members Provides Basic Techniques to Reward Employees in Tight Salary Times; July New E-Book Can Help Lower Stress, Improve Focus; Check Out IEEE-USA's Free Audio Books

It's not always about the money. And in the business world, it's not always possible to reward your key and special employees with monetary gains in the conventional sense. But it is possible to reward them in other ways. Author Harry T. Roman offers up some insight on how to reward deserving employees in non-monetary ways, in IEEE-USA's July free e-book for members: ***Rewarding Your Employees in Tight Salary Times, Vol. 1—Some Basic Techniques*.**

The title says it all--managers may not always have the budget to show genuine appreciation to deserving employees with raises or promotions. And almost all managers can relate to this ongoing problem. But Roman believes by planning, and using a little creativity, managers can reward top employees "even when the budget won't allow it, or they've topped out in their positions."

From 1 July to August 15, IEEE members can get their free July E-Book by going to: https://ieeeusa.org/shop/careers/ebook-rewarding-your-employees-in-tight-salary-times-vol-1-some-basic-techniques/. Log in with your IEEE Web Account, add the book to your cart, and use promo code JULFREE18 at checkout.

TIS	IEEE	RAS

Teacher in Service

On August 3, 2018 we will have our High School Science Professional Study Day at Spoto High School, 8538 Eagle Palm Drive in Riverview. There are some opportunities to have presentations and to sponsor these events. Please let Dan McFarland, Supervisor of Secondary Science, of your interest. He can be reached at Daniel.McFarland@sdhc.k12.fl.us or at 813.242.4405. They will have additional Professional Study Days throughout the year.

This will be a day of opportunity for you, our partners to present to all of our high school science teachers in concurrent sessions. There will be a "vendor hall' opportunity from approximately 11:30 a.m.—12:30 p.m. Dan would like to include as many display tables as possible. Give aways and door prizes are always appreciated by teachers. Generally, we are wide open on the topic. Folding Matters and Sketching Circuits both seem like fun lessons.

IEEE FWCS Robotics and Automation (RAS)

The IEEE FWCS RAS Chapter invites you to John F Germany Library in Downtown Tampa and Hive Makerspace. The address is 2nd Floor East, 900 Ashley Street, Tampa, FL 33602

On August 21, Jim Stosic, Genium, Inc. will discuss Uber - Life and Death - the Autonomous Vehicle Engineer

This briefing will debunk early claims by the media that the Uber autonomous vehicle accident that killed a pedestrian in Tempe AZ earlier this year was unavoidable. The briefing will include a review of the preliminary NTSB findings and other data and opinions offered by experts. The briefing will include a top-level technical discussion of the probability of false positive detection and how its selection trades passenger comfort against public safety. The role of simulation will be presented along with an autonomous vehicle simulation based on Udacity's open-source self-driving-car simulator.

Speaker background: Mr. Stosic's background in is RF and satellite communications, radar, and wireless networking. He has a BSEE from the University of Cincinnati, and an MS from Ohio State University. He was a Researcher a the Ohio State University ElectroScience Lab. Harris Corporation, Raytheon (E-Systems), Global Technical Systems. Mr. Stosic is currently employed by Genium, Inc., his engineering firm.

The IEEE FWCS RAS will be looking for a High School Team to demonstrate their Robotics. Please contact Sean Denny, RAS Chair if you are interested. He can be reached at venner20@ieee.org.

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

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).

PACE IEEE USF STUDENTS And YOUNG PROFESSIONALS

A New Techology is Going to Rock Your World—Are you Ready?

By now we've all heard about that Bitcoin thing that the kids are playing around with. It's a so-called "crypto currency" that only lives on the internet – no bills, no coins. The darndest thing is that people seem to be using this stuff and I even saw that someone was willing to sell their house for bitcoins. Who knows, in a few years when we go to buy something maybe the question will be cash, credit, or bitcoin?

What's interesting about bitcoin is that it is built on a technology called "blockchain". It turns out that this blockchain thing, although used by bitcoin, is a whole lot bigger. Blockchain is a technology that allows two people who do not trust each other to complete a deal. This may have huge ramifications for all of us.

When you buy that coffee that is supposed to be supporting poor farmers, how can you tell that it really came from there? When you pick up a prescription, how do you know that you are really getting the right medicine? When you go to log into a computer, how does the computer know that it's really you? All of these are tough questions to answer, but it turns out that blockchain technology provides us with a way to answer each one of them.

Blockchain is going to affect your life. You need to know about blockchain. Good news – your Florida West Coast IEEE Section's PACE and Computer Society Chapters are going to be putting an a presentation in which all of the information that you need to know about blockchain will be provided.

So when will this presentation be? Nope, not this month. You're going to have to wait. We'll be putting this show on in the month of September. Consider yourself warned…!

Join us for

IEEE USF & YP
Students ⇌ Professionals
Picnic

IEEE's USF Division is hosting a picnic **September 29th, 2018** at USF's very own **Riverfront Park**. This picnic will last from **1:00pm to 5:00pm** and offer an opportunity for students and professionals (young and old!) to engage in conversation and activities alike. *You can expect great experiences like…*

Team-building activities
Student-professional networking
Food & a fun day at the park

Learn about more IEEE activities

More details to follow in the next issue, but *make sure* to mark your calendar for this event!

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

Date/Time: **Monday, Aug. 13, 2018 6:30pm** **Register:** **http://time2meet.com/fwcs-section/index.html**

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:

1. Listen to peers and subordinates; show that you understand them
2. Offer them the chance to execute their ideas
3. 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.

Get the Most from your IEEE Membership

JOIN A SOCIETY

The Florida West Coast Section has 6 active technical societies:

- Computer / Aerospace & Electronic Systems (**COMP/AESS**) Joint Chapter
- Engineering in Medicine & Biology (**EMBS**) Chapter
- Microwave Theory & Techniques/Antennas & Propagation/ Electron Devices (**MTT/AP/ED**) Joint Chapter
- Power & Energy / Industry Applications (**PES/IAS**) Joint Chapter
- Robotics & Automation (**RAS**) Chapter
- Signal Processing / Communications (**SP/COMM**) Joint Chapter

Three student society chapters are active at the University of South Florida:

- USF Computer Society Chapter
- USF Microwave Theory & Techniques Chapter
- USF Power & Energy/Industry Applications Chapter

If one of these technical societies interests you, get involved by contacting a chapter representative, listed on Page 2 of this Signal.

Advertising Section

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800.434.0415

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 obsolescence by OEM's requires a new approach.

CE Power has developed a solution to extend the life of existing metal-clad 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 2,500,000 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

Advertising Section

GARD

Unparalleled Protection

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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.

- Ground faults cause havoc on plant production processes, shutting down power and equipment and critical loads.
- Ground faults disrupt the flow of products through manufacturing processes and cause data loss in computer centers leading to hours or even days of lost productivity.
- Ground faults pose health and safety risks to personnel, creating hazards such as equipment malfunctions, fire and electric shock.

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
	DSP-DFM: Pickup Accuracy: ±10% of system let-through current
Temperature Range	0¤C to 50¤C

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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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August 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** IEEE FWCS Excom Meeting 5:30, TECO Plaza	**8**	**9**	**10**	**11**
12	**13**	**14**	**15**	**16**	**17** Increasing Motor Life and Process Continuity—Pg.1	**18**
19	**20**	**21**	**22**	**23**	**24**	**25**
26	**27**	**28**	**29**	**30**	**31**	