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# IEEE

## THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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### Upcoming Meetings

#### *EXCOM Meeting*

Tuesday, April 05, 2016 5:30PM at TECO Plaza

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

Open to all FWCS Members

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#### *Industrial Power Distribution*

Friday, April 15th, 2016

Details on page 4

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#### *USF “Design for X” Lab Tour*

Tuesday, May 10th, 2016

Detail on page 5

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### IEEE Member-Get-a-Member (MGM) Program

No one knows how beneficial IEEE membership is to technical and career development better than IEEE members. Consider sharing your IEEE membership experience and get rewarded for doing so. Through the Member-Get-a-Member (MGM) program, IEEE rewards your efforts in recruiting new members. Your local IEEE Section can also benefit.

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For more information on this membership benefit that pays, please see

[http://www.ieee.org/membership\\_services/membership/join/mgm.html](http://www.ieee.org/membership_services/membership/join/mgm.html)

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## PE Corner

Art Nordlinger, PE, Senior Member

### Ethics

One of the major changes to Florida's continuing education requirements for professional engineers is the addition of one-hour of Engineering Ethics continuing education. This new requirement is very much in line with requirements in other states for engineers, as well as requirements for other licensed professionals.

Since the ethics continuing education requirement is new, new rules have been adopted spelling out the details of managing this new continuing education area. These new rules were finalized recently and can be found online at:

[https://www.flrules.org/gateway/RuleNo.asp?title=LICENSE RENEWAL, CONTINUING EDUCATION&ID=61G15-22.0105](https://www.flrules.org/gateway/RuleNo.asp?title=LICENSE%20RENEWAL,%20CONTINUING%20EDUCATION&ID=61G15-22.0105)

Not surprisingly, the Florida Board of Professional Engineers integrated the new ethics rules into those currently existing for Rules and Laws. However, note that being provider of Rules and Laws Continuing Education Hours (CEH) doesn't automatically allow a provider to offer Engineering Ethics CEHs. The provider must separately apply to the Board to offer Engineering Ethics content.

These new rules address, among other things, the content that the Board expects will be included in a qualifying Engineering Ethics course. This includes:

- Codes of ethics or other guidelines for ethical decision making as applied to the practice of engineering;
- The importance of ethics as a broad professional concern rather than a personal one;
- The engineer's obligations to society, clients, and the profession;
- Ethical dilemmas encountered in engineering practice; or
- The application of professional ethics to decision making through hypothetical or illustrative examples.

IEEE was recently confirmed as a provider of Engineering Ethics CEHs by the Board and our first one-hour course has been approved. The first presentation of this Engineering Ethics seminar is set for March 21, 2016, along with a one-hour Rules and Laws seminar. We are extremely fortunate to have Mr. William Bracken, PE, and chair of the Florida Board of Engineers, present these back-to-back one hour seminars. These will satisfy both the Rules and Laws and Engineering Ethics continuing education requirements for the next renewal period. A separate article with the details of these seminars may be found in this edition of the Signal and on our website.

Whether you are a PE looking to attain required CEHs, or an engineer looking to learn something new or keep current with the latest trend in the profession, IEEE has seminars that will meet your needs. And for the PEs, don't forget that the next renewal is only 11 months away. Better start earning those CEHs now!



## Joint Chapter of IEEE PES/IAS

The PES/IAS student chapter had an exciting month in February. Mr. Hermann Amaya, the Past-Chair of the Alliance of IEEE Consultants' Networks, came to our February Professional Talk and spoke to us about "Developing a Career as a Consultant Engineer." We also had a behind-the-scenes tour at the Yuengling Brewery with Mr. Santo Lazzara, the Plant Engineering Manager, where he walked us through the brewery and power plant.

Our upcoming events for the month of April are:

Election of Officers for 2016-17 academic year

Nominees are required to be an IEEE member and admitted USF student for the academic year 2016-17. Nomination form at: [\[goo.gl/m9UZqs\]](http://goo.gl/m9UZqs). For more information please contact Chapter's Vice President Jairo Garcia at [jairog@mail.usf.edu](mailto:jairog@mail.usf.edu).

The election will be held on 7<sup>th</sup> April, 2016 at 5:00PM in the ENB 261 (Engineering Building II, USF campus).

General Body meeting: Our April Professional Talk will be on 27<sup>th</sup> April 2016 from 5:00 PM to 7:00 PM at the USF Campus. The guest speaker is Ms. Lisa Lohss, project manager for Duke Energy. She will talk about different topics in power and energy field including the ongoing smart grid projects. She will also give tips on making a career in power engineering and the role of women as engineers. All USF engineering students are invited to attend this talk.

Our Bullsinc page: <https://orgsync.com/127120/chapter>

Our Facebook Page: <https://www.facebook.com/PES.IAS>

If you are interested in giving a technical or professional talk or working with out student chapter, please contact the Chair at [sayed\\_abdullah@ieee.org](mailto:sayed_abdullah@ieee.org). We believe that supporting students in their learning process is a great service to the community.

Stay tuned for the rest of our upcoming spring semester activities, which are going to be announced at the next general body

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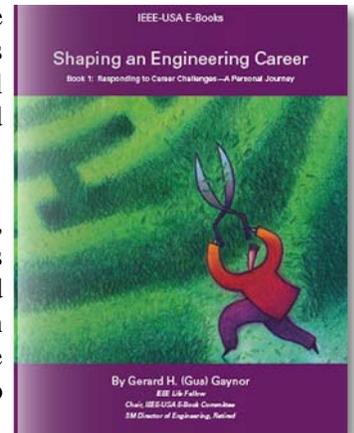
## FREE EBOOK

### Shaping An Engineering Career - Book 1: Responding to Career Challenges

BY GERARD (GUS) GAYNOR

The Shaping an Engineering Career Series of e-books describes the challenges that practitioners, academics and their managers, in the engineering and related disciplines, face in building their careers. This series will document the personal history of selected engineers and describe their journeys in transitioning from entry-level employees to either technology professionals or managers. The purpose of this series is to identify the different circumstances that technology professionals have encountered in building their careers, and it will provide some guidance to others about what is required to build a successful career in technology, or related disciplines.

This month (through 15 April), IEEE members can download this eBook at no charge. To download your free eBook, sign in with your IEEE web account, add the book to your cart and use promo code MARCHFREE at checkout.



See more at: <http://shop.ieeeusa.org/usashop/product/careers/75857#sthash.0PJyuO7b.dpuf>

## Coming up...

### Shaping an Engineering Career - Book 2: Dual Career Ladders by Floyd, R.E.; Spencer, R.H.

At some point in their careers, engineers may discover what is known as the 'dual ladder' in the corporate structure, the choices being to continue in the technical project aspects of their career, or the opportunity of moving into the management side of their careers. In many corporations, once the choice is made, there is no re-direct; it is either technical or management from that point forward. There are, however, those corporations which provide a true dual ladder structure. In those instances, the person involved can move back and forth, from technical to management and back again, depending on the needs of the individual or corporation. While the choice may seem easy, there are a number of aspects of each path that one should consider, prior to making a decision on any given opportunity. The two authors of this e-book chose the Dual Career Ladder path during their long-term careers at IBM.



## *Industrial Power Distribution*

**Date:** Friday, April 15th, 2016

**Time:** 8:00am-8:30am Registration, 8:30am-3:30pm Seminar

**Cost:** \$150 members, \$250 Non-Members, \$100 Students (Includes Breakfast (continental), Lunch, and a copy of Industrial Power Distribution by Ralph Fehr, published by Wiley/IEEE Press - \$135 value!)

*Make checks payable to IEEE FWCS and mail a check in advance to:*

*John Stankowich IEEE PE/IA Chapter Treasurer 2593 Forest Run Court Clearwater, FL 33761-3716*

**Speaker:** **Ralph Fehr, Ph.D., P.E.** – University of South Florida. Ralph is an instructor in the Electrical Engineering department, teaching courses in the Power and Energy option as well as circuits, electromagnetics, and engineering mathematics. He is a senior member of IEEE, and received this year's IEEE FWCS Engineer of the Year award, the IEEE FWCS PES Chapter Outstanding Engineer award in 2014, the Region 3 Joseph M. Biedenbach Outstanding Engineering Educator award in 2011, the Florida Council Outstanding Engineering Educator award in 2009, and the T&D World Instructor of the Month recognition in November 2008.

**PDHs:** 6 Professional Development Hours (CEHs) will be awarded for this seminar. Be sure to enter your name and PE number on the signup website as it appears on your license. IEEE Florida Provider Number is 3849.

**Location:** FRCC Headquarters, 3000 Bayport Dr #600, Tampa, FL 33607

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

**RSVP:** Online at: <http://time2meet.com/fwcs-pes3/index.html> Space limited to the first 65 registrants!!!

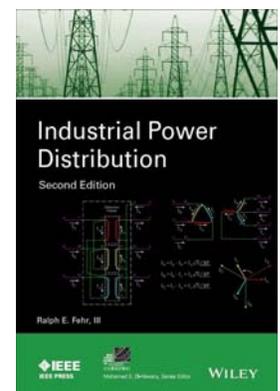
Cancellation must be submitted online 24 Hrs prior to the seminar at: <http://time2meet.com/fwcs-pesX/index.html>

No shows will be invoiced for the total cost of the seminar.

Ralph Fehr will present a seminar covering the key concepts of industrial power distribution, as covered in the newly published second edition of his textbook:

- Utility Source
- Instrument Transformers and Metering
- Transformer Connections
- Fault Calculations
- Protective Device Selection and Coordination
- Raceway Design
- Switchgear and Motor Control Centers
- Ladder Logic
- Motor Application
- Lighting Systems
- Power Factor Correction
- Power Quality

These topics are thoroughly covered over the course of two semesters at the university, but in a single day, we will cover the highlights and give you a good feel for what each of these essential topics entails. This seminar is ideal for engineers preparing for the PE (Power) licensing exam, engineers new to the power industry, and veteran power engineers looking to brush up on some old concepts or learn some new ones. Current industry practices and emerging trends will be discussed. As always, Dr. Fehr will emphasize understanding of the basic concepts. Everything else is details, and will fall into place readily once the basic concepts are understood.





## University of South Florida “Design for X” Lab Tour

**Date:** Tuesday May 10, 2016

**Time:** 2:00pm-4:00pm

**Cost:** free

**Speaker:** **Michael Celestin, Ph.D.** – University of South Florida. Dr. Celestin oversees operation of the USF “Design for X” lab, an open-use maker space made possible by grants from Mini-Circuits and the Harvey Kaylie Foundation. Since the lab opened two years ago, students from all engineering disciplines have used the lab to create projects for specific courses or just to learn more about engineering principles and methods. An average of 170 students per day use the lab during the fall and spring semesters. Close to 200 training sessions were conducted last year to teach students to use the major equipment, including 3D printers, a laser cutter, milling machine, PCB mill, and electronics workbench tools. Over 2000 hours of hands-on assistance, training, and safety overwatch are provided by student assistants.

In addition to open use, the lab is also utilized by 7 courses, including the freshman Foundations of Engineering course and the immensely popular Make course ([www.makecourse.com](http://www.makecourse.com)), where all majors on campus can learn the process of invention > design > prototype. So far, countless innovation creations have originated in the DfX lab (and 67 spools of filament have been consumed by the 3D printers!)

**Location:** USF Tampa Campus, ENB 110 (main engineering building)      **Parking:** Information will be forthcoming.

**RSVP:** Online at: <http://time2meet.com/fwcs-pes3/index.html> Space limited to the first 25 registrants!!!

**Questions:** Ralph Fehr at [r.fehr@ieee.org](mailto:r.fehr@ieee.org), or Jim Howard 863-834-6585 or [Jim.Howard@lakelandelectric.com](mailto:Jim.Howard@lakelandelectric.com)



Dr. Michael Celestin is the Senior Research Engineer for the College of Engineering at the University of South Florida. He is a chemical engineer and chemist by trade, but spends much of his day working with rapid prototyping, electronics, and mechanical systems. He has worked as a field engineer for the Florida Department of Environmental Protection, did research towards the improvement of solar panel efficiency, and designed portions of ex vivo cancer detection systems. In his spare time, he is a salt water reefkeeper and is devoted to growth, propagation, and preservation within the coral reef hobby. He currently resides in Tampa, FL and enjoys the broad stream of challenges with which his current position presents him.

## Engineers Week Banquet – Another Great Success!

On Friday, February 26<sup>th</sup>, over 250 engineers from twelve societies throughout the bay area held their 36<sup>th</sup> Annual Engineers Week Banquet. Our guest speaker this year was Mr. John Troeltzsch from Ball Aerospace & Technologies in Boulder Colorado. Mr. Troeltzsch is the Manager of the Kepler Mission, and he provided the attendees with an update on the project. He described the project from the design phase through the building and on into the data analysis.

NASA's Kepler project has discovered over 962 planets and the first Earth size planet orbiting its star in a habitable zone.

In addition to the guest speaker, each engineering organization awarded their respective Engineer of the Year, Young Engineer of the Year, and Student Engineer of the Year awards .

### IEEE FWCS Names Dr. Ralph E. Fehr, PE, as “Engineer of the Year”



**Dr. Ralph E. Fehr, PE** is an Instructor in the Department of Electrical Engineering, College of Engineering University of South Florida. He received his Doctor of Philosophy in Electrical Engineering from University of South Florida in 2005. Dr. Fehr's research interests include power system planning methods and reliability enhancement techniques, as well as infrastructure design improvements, high-power semiconductor applications at medium voltage, and engineering education reform. Dr. Fehr was awarded the IEEE Florida West Coast Section PES Outstanding Engineer Award - 2014, IEEE Region 3 Joseph M. Biedenbach Outstanding Engineering Educator Award - 2011, and IEEE Florida Council Outstanding Engineering Educator Award - 2010. Dr. Fehr has published the textbook *Industrial Power Distribution* (2nd edition, Wiley/IEEE Press, 2016). Dr. Fehr authored several articles in EC&M Magazine as well numerous conference and journal papers.

### IEEE FWCS Names Robert DeMelo as “Young Engineer of the Year”



**Robert DeMelo**, is the Supervisor of Transmission Planning at Seminole Electric Cooperative, Inc., a generation and transmission electric power cooperative in Tampa, Florida. He received his Bachelor of Science degree in Electrical Engineering from the University of South Florida in 2007. He is pursuing his Masters of Business Administration degree from Florida State University. Robert directs Seminole's transmission planning and transmission compliance engineers. Robert is responsible for the long-term transmission strategy development and serving future Seminole Member consumers. He is Seminole's lead representative at the Florida Reliability Coordinating Council's (FRCC) Planning Committee, Order 1000 Steering Task Force, and Solar Task Force. He previously served on the FRCC's Transmission Working Group and the Stability Working Group. He oversees the small and large generator interconnections for Florida electric power cooperatives in 42 Florida counties. Robert leads the transmission system risk assessment and technical evaluations for facility acquisitions. Robert has been an active member of IEEE since 2007.

### IEEE FWCS Names Sayed Abdullah Sadat as “Student Engineer of the Year”



**Sayed Abdullah Sadat** is currently pursuing a Master of Science degree in Electrical Engineering specializing in Power and Energy Systems at the University of South Florida – Tampa. Sayed has already earned his Bachelor of Engineering degree in Electrical Engineering from Osmania University in Hyderabad India and an MBA from the Indian School of Business Management and Administration in Thane India. He also has several years of utility engineering experience in his native country of Afghanistan.

Mr. Sadat not only excels academically, maintaining a 4.0 GPA in his MS degree, but also demonstrates a degree of leadership which is truly inspirational. Because of his initiative and ability to involve and direct others, the USF IEEE Power and Energy Society / Industry Applications Society joint student chapter, formed in the 1980s but inactive for over two decades, was brought back to life and now thrives as a student organization with over 30 enthusiastic and engaged members.

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The PTS will maintain these Project Trackers until the project is either awarded or lost.

The PTS will follow-up within a certain time period on ACTIONS required of the RSMs or Representatives involved in the Project Tracker.

Pursue to completion all customer requests for action or information relating to BSE Projects submitted by the RSMs and REPs in addition to priority calls for action or information from the chain of command (CEO, President, and VP of Customer Excellence).

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- Per-Unit System
- Delta-Wye Transformer Analysis
- Symmetrical Component Theory
- Sequence Network Development
- Short-Circuit Fault Calculations
- Open-Circuit Fault Calculations

### **Fault Current Calculations:**

#### **4 Sessions @ 3 hours per session for 1.2 CEU's [or 12 PDH's]**

This course is intended for engineers and technicians familiar with basic three-phase system analysis methods seeking a more thorough understanding of symmetrical components and sequence networks. A thorough development of symmetrical components, necessary for a thorough understanding of fault calculations, is presented. Then, a failsafe method of creating sequence networks is covered, followed by short- and open-circuit fault calculation methods.

### **Transformer Application: 4 Sessions @ 3 hours per session for 1.2 CEU's [or 12 PDH's]**

This course begins with a review of basic transformer theory, then progresses to the analysis of a single-phase transformer using a detailed circuit model. Next, the basic three-phase transformer connections (delta and wye) are studied, followed by an overview of special transformer connections including high-phase order applications, grounding transformers, phase shifting transformers, and autotransformers.

### **AC Motor Application: 4 Sessions @ 3 hours per session for 1.2 CEU's [or 12 PDH's]**

This course covers the essentials of induction motor application, including a review of basic motor theory, motor nameplate interpretation, speed-torque curves, and starting time calculations. NEMA frame sizes and NEMA starters will be addressed, along with motor and motor circuit protection practices as stipulated by the National Electrical Code. Motor control and special starting methods will also be covered. In addition, use of variable frequency drives (VFDs) will be discussed, along with concerns involving VFDs that need to be understood when working with power electronic technology.

### **Other Electrical Power Topics**

Power System Planning Strategies and Techniques

Asset Management and Maintenance Strategies

Power System Modernization Methods

Power Engineering for Non-Power Engineers — *this course is ideal for engineers new to the power field who did not have a strong power background at the university. It is also helpful for technicians new to the power engineering field.*

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**April 2016 Calendar of Events (For more information see P. 1) in this Signal...**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 <i>EXCOM Meeting 5:30PM TECO Plaza</i>	6	7	8	9
10	11	12	13	14	15 Industrial Power Distribution FRCC Details page 4	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30