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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, May 03, 2016 5:30PM at TECO Plaza
Register online at http://time2meet.com/fwcs-excom/index.html
Open to all FWCS Members

USF "Design for X" Lab Tour

Tuesday, May 10th, 2016
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Ship Pod Propulsion Systems

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Reducing Power System Losses Seminar

Wednesday, June 8th, 2016
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Distributed Resources—Operation, Protection, and Control

Friday, July 29th, 2016
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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

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.

All material for THE SUNCOAST SIGNAL is due in electronic form by 1st Sunday after the 1st Tuesday of the month preceding the issue month.

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PE Corner

Art Nordlinger, PE, Senior Member

IEEE and FBPE

In case you missed it, IEEE recently hosted a combined Rules and Laws and Ethics seminar, presented by Mr. William Bracken, PE, chair of the Florida Board of Professional Engineers. We would like to again thank Mr. Bracken for his excellent presentations and also thank the Florida Reliability Coordinating Council for hosting the near-sellout event. If you didn't attend but would like for IEEE to repeat this program at a later date (before the renewal deadline), let one of your officers know. If we have sufficient response we will ask the Board whether Mr. Bracken or another Board member is available for an "encore performance".

IEEE's relationship with the FBPE has evolved over the last year. Prior to this year, IEEE was just one of many professional societies that provided technical PDHs (now called CEHs) to its members. In the spring of 2015, the Board, under the leadership of its new chair Bill Bracken, reached out to all of the professional societies in an effort to enhance communication and relationships between the entities. The Board's letter to IEEE gave several reasons for this effort including (paraphrased from the Board's letter):

- To better serve its licensees by establishing and maintaining relationships with its licensees' engineering associations and societies
- Provide IEEE members with an opportunity to participate in FBPE committees and rule making matters
- Establish an avenue for IEEE to bring industry issues and concerns directly to the attention of the FBPE
- Enhance communication by providing IEEE with regular business meeting notices

This new relationship allowed IEEE to be aware of the opportunity to become a Rules and Laws and Ethics provider and to host a Board member as a speaker at our seminars. We look forward to finding other opportunities where IEEE and the FBPE can cooperatively provide content of interest to IEEE members.

The Board requested that IEEE provide a liaison to participate in FBPE meetings and be a point of contact between the organizations. The IEEE Florida Council appointed me to this liaison position. I regularly attend FBPE meetings and will report back to the council and membership on any issues of interest to IEEE. If you have questions or have suggestions regarding how IEEE and the FBPE can work together, please bring those to my attention.

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 10 months away. Better start earning those CEHs now!

USF UNIVERSITY OF SOUTH FLORIDA

Joint Chapter of IEEE PES/IAS

At the Joint Chapter of IEEE PES/IAS (USF) officers' meeting held on April 7rd, the following officers were elected for the 2016-2017 academic year:

President – Jairo Garcia
Past President – Sayed Abdullah Sadat
Vice-President – Oscar Ayala-Gonzalez
Treasurer and Secretary – Chris Perilla
Graduate Membership Outreach Chair: Abdulhakim Alsaif
Webmaster/Design Chair – Amit Jena
Fundraising Chair – Odinaka Okeke
Graduate Membership Outreach Co-Chair: Mousa Alwazzan
Outreach/Events Planning Chair – Ebbin Daniel
Support Officer – Rabi Kar
Support Officer – Ariana McGuirk

We congratulate the new officers and wish them all the best in their efforts. The University of South Florida Spring semester 2016 will end by the first week of May 2016. The Chapter will have limited activities during summer due to non-presence of many members on the campus. We wish success to our students and joyful summer ahead. "Go Bulls"

Stay connected; join us if you haven't yet by going to our Bullsync 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 development talk or have other learning opportunities including but not limited to internships, co-ops, tours, and training programs, please don't hesitate to contact Sayed Abdullah at sayed_abdullah@ieee.org.

Stay tuned for our fall semester activities, which is going to be announced in our August general body meeting.

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FREE EBOOK

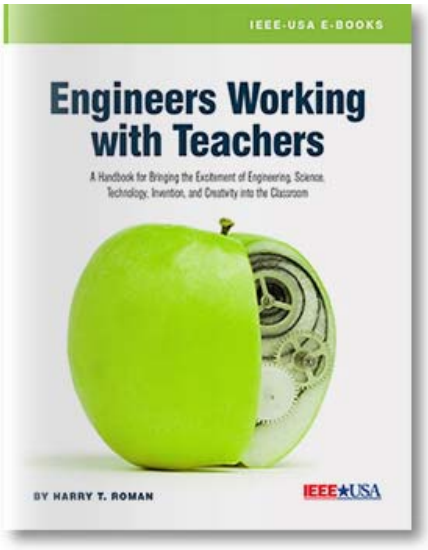
Bring the Excitement of Engineering, Science, Technology, Invention & Creativity into the Classroom!

In April, IEEE-USA E-Books is offering "**Engineers Working with Teachers: A Handbook for Bringing the Excitement of Engineering, Science, Technology, Invention, and Creativity into the Classroom**" free to IEEE members.

Author Harry T. Roman describes his e-book as a guide for how engineers can get their problem-solving message across to teachers and students.

"Teachers must integrate their curricula, showing how the subjects relate," Roman writes. "This approach is a fundamental underpinning of what we know today as STEM -- Science, Technology, Engineering and Math.

"And that's an exact match with what engineers do all day on the job."



Working with schools has not only made Roman a good resource for teachers and students, he thinks it has also helped him with his interpersonal skills, sensitized him to the daily trials of the teaching community, and, he admits, "reinforced my conviction that engineers are in a key position to work with the schools."

Through May 15, IEEE members can get their free e-book to download by going to http://shop.ieeeusa.org/usashop/product/careers/74226. Log in with your IEEE Web account, add the book to your cart, and use promo code APRFREE16 at checkout.

Coming up…

"Starting Your Start-Up -- Book 5: The Launch" by Tanya Candia

This publication presents a detailed roadmap to successfully launching your company and product. From setting realistic goals, determining key messages and preparing the sales team -- to briefing the press and analysts, finding the right venue and enlisting the help of early customers -- this book takes you through all the necessary steps to a successful launch.

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), 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, or Jim Howard 863-834-6585 or 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.

Ship Pod Propulsion Systems

Date: Tuesday, May 24, 2016

Time: 6:00 PM

Speaker: Hugo Marrero
Oceanix LLC

Cost: $ 10 Members, $ 20 Non-Members, $5 Students

Location: Masonic Lodge
3325 First Street NE - St. Petersburg, FL 33704

RSVP: Online at http://time2meet.com/fwcs-pes1/index.html
Make checks payable to: IEEE FWCS
Space limited to first 45 registrants!!!

Send checks to: Jim Howard, IEEE FWCS Treasurer
3133 W. Paris Street, Tampa, FL 33614-5964

Seminar Description

This Joint Meeting with the FWCS Consultants Network Affinity Group and Power and Energy Society will explain Ship Pod Propulsion Systems

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These systems feature an electric motor, fitted in a submersible pod and connected directly to the propeller without gears. Electricity is produced by an onboard engine, usually diesel or gas turbine. This technology was invented in 1955 by Friedrich W. Pleuger and Friedrich Busmann (Pleuger Unterwasserpumpen GmbH). ABB Group's Azipod was the first commercially-available product using this technology. The most powerful podded thrusters in use are the four 21.5 MW Rolls-Royce Mermaid units fitted to Queen Mary 2. Primary advantages are electrical efficiency, better use of ship space, and lower maintenance costs. Ships with azimuth thrusters do not need tugboats to dock, though they may still require tugs to maneuver in difficult places.

Speaker Biography

Mr. Marrero is the president of Oceanix LLC of Vero Beach and has been involved with the repair and maintenance of the Ship Pods. Oceanix LLC is a field service engineering contractor specializing in Marine Electrical Propulsion Systems up to 24MW (GE Power Conversion / Converteam, Alstom, Cegelec).

- Authorized factory service contractor for GE Energy Power Conversion, Inc. in the USA and GE Energy Power Conversion SAS in France.
- Responsible for providing Worldwide emergency service for all the GE / Converteam Energy marine propulsion, automation, and power generation control systems.
- Provide contract service engineering during dry-dock to GE clients such as Carnival Cruise Lines, Disney Cruise Lines, Celebrity Cruise Lines, Princess Cruise Lines, Costa Cruise Lines, Royal Caribbean Cruse Lines, and Oceana Cruise Lines.
- Factory trained on SD7000 Marine Propulsion & Supervisory Control System
- Perform hardware and software modifications to the propulsion control system in full adherence to GE / Converteamn engineering procedures.
- Manage propulsion equipment re-building & commissioning.
- Troubleshooting and fault analysis of the propulsion control system using the propulsion system's data logging utility and the

Reducing Power System Losses Seminar

Date: Wednesday, June 8, 2016

Time: Registration Begins 7:30 AM
Seminar: 8:00AM - noon

Location: Sand Pearl Resort
500 Mandalay Avenue Clearwater, Florida 33767
http://www.sandpearl.com/

Speaker: Ralph Fehr, Ph.D., P.E.
University of South Florida

Cost: $ 100 Members, $ 150 Non-Members

CEH Credits: 4 Continuing Education Hours will be awarded. Be sure to provide your name and PE number as it appears on your license. IEEE Florida Provider Number 3849.

RSVP: Ray Trusik, Florida Electrical Cooperatives Association
850-877-6166 Ext. 5 rtrusik@feca.com

Seminar Description

Many electric utilities are embarking on programs to reduce electric losses on their systems, both as a measure of energy conservation and as an alternate to adding system capacity. Because a majority of the losses occur in the distribution system, most of these programs focus on reducing distribution system losses. Significant reduction in distribution losses is possible and economically justifiable.

Analytical and optimization techniques, and a system approach to apply them, have been developed to help attain the loss reduction. This seminar focuses on these loss reduction techniques, as well as methods for improving and coordinating the planning, design, and operation of the distribution system. Methods for economic selection of individual system components, such as conductors and transformers, are also discussed. This seminar also reviews the basic loss calculations and analysis tools.

Outline:

I. Introduction
II. Loss Calculation
III. Economic Analysis
IV. Loss Reduction Techniques
V. Transformers
VI. Implementation Strategies
VII. Summary / Conclusion

Speaker Biography

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 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.

Distributed Resources—Operation, Protection, and Control

Date: Friday, July 29, 2016

Time: Registration & Breakfast: 8:30 AM—9:00 AM
Seminar: 9:00AM — 2:00 PM

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

Speaker: Wayne Hartmann
VP, Protection and Smart Grid Solutions
Beckwith Electric

Cost: $ 100 Members, $ 200 Non-Members, $20 Students
Includes Breakfast and Lunch

Parking: Use Hyatt parking lot (north side only)

CEH Credits: Continuing Education Hours will be awarded. Be sure to provide your name and PE number as it appears on your license. IEEE Florida Provider Number 3849.

RSVP: Online at http://time2meet.com/fwcs-pes1/index.html
Make checks payable to: IEEE FWCS
Space limited to first 45 registrants!!!

Send checks to: Jim Howard, IEEE FWCS Treasurer
3133 W. Paris Street, Tampa, FL 33614-5964

Questions: Serge Beauzile at 863-834-6511, or serge.beauzile@ieee.org

Seminar Description

Distributed Electric Resources (DER) are making larger inroads into our distribution systems. This technical session provides a background into DER operation and associated protection and control considerations for conventional and inverter-based power sources. We will review types of DER/DG and the modes in which they can operate in parallel with the distribution system. Key aspects of IEEE 1547 and a sample DER interconnection screening process are highlighted. Details of on-site standby power system conversion to operate in parallel with the distribution system are shown. Protection methodology at the point-of-common coupling (PCC) and point-of-interconnection (PI) is detailed for all types of DER. A treatment of distribution system protection and control considerations and applications with DER is discussed, including addressing the impact of IEEE 1547A.

Speaker Biography

Wayne Hartmann is VP, Protection and Smart Grid for Beckwith Electric. He provides customer and industry linkage to Beckwith Electric's solutions, contributing expertise for application engineering, training and product development. Before joining Beckwith Electric, Wayne performed in application, sales and marketing management capacities with PowerSecure, General Electric, Siemens Power T&D and Alstom T&D. During the course of Wayne's participation in the industry, his focus has been on the application of protection and control systems for electrical generation, transmission, distribution, and distributed energy resources.

Wayne is very active in the IEEE as a Senior Member and serving as a Main Committee Member of the IEEE Power System Relaying Committee for 25 years. He is presently the Chairing the "Investigation of the Criteria for the Transfer of Motor Buses" Working Group. His IEEE tenure includes having Chaired the Rotating Machinery Protection Subcommittee ('07-'10), contributing to numerous standards, guides, transactions, reports and tutorials, and teaching at the T&D Conference and various local PES and IAS chapters. He has authored and presented numerous technical papers and contributed to McGraw-Hill's "Standard Handbook of Power Plant Engineering, 2nd Ed."

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Power System Analysis: 8 Sessions @ 3 hours per session for 2.4 CEU's [or 24 PDH's]

This course, designed for engineers and technicians, focuses on the use of symmetrical components to analyze unbalanced power systems. It covers the essential topics necessary for power system analysis including:

- Phasors and Complex Number Mathematics
- Three-Phase Power Calculations
- 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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Contact Richard Heinze for additional information:

heinzerichard@yahoo.com
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May 2016 Calendar of Events (For more information see P. 1) *in this Signal…*

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