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**Florida West Coast Section (FWCS)**  
 Please Check the Website Often for **UPCOMING EVENTS** (Front Page Right Column)  
<https://r3.ieee.org/fwc/>

# The SunCoast Signal

The Institute of Electrical and Electronics Engineers, Inc.

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### PE Corner

#### Art Nordlinger, PE, Life Senior Member The Steps to Professional Licensure, Part 1

So you want to become a PE? Great! In the next couple of months I'll review the process to get your PE license. Though there have been several significant changes to the process in recent years, there are still essentially four steps required to get your PE.

First, get an ABET-accredited four-year engineering degree (or equivalent—see below). Second, take the Fundamentals of Engineering (FE) exam, formerly known as the Engineer Intern or Engineer in Training (EIT) Exam. Once you pass, you are an Engineer Intern (EI). Third, an EI must obtain appropriate experience, typically four years, as defined in the rules. And last, the EI may take the Professional Engineers exam. Passing the exam and having the required experience qualifies the applicant as a Professional Engineer.

Recently, the Florida legislature passed changes to the “equivalent” requirements to take the FE exam related to Engineering Technology Degrees. They also made changes to the experience and timing requirements to take the PE. These will be the subject of a future column.

In Florida, an applicant may apply to take the FE directly with the National Council of Examiners for Engineering and Surveying (NCEES). The process is described on the FBPE website:

<https://fbpe.org/licensure/licensure-process/>

If the applicant obtained their engineering degree from a foreign institution not subject to ABET accreditation, the Board will typically require that additional information be provided to determinate whether the courses taken are substantially equivalent to a program meeting ABET accreditation standards.

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**Next ExCom Meeting**  
**Tuesday, October 3, 2023**  
**Google Meet**  
**Register with vTools**

<https://events.vtools.ieee.org/m/373186>

**IEEE FWCS ExCom**

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**SP/COMM Signal Processing / Communications Joint Chapter:**  
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**PE Corner - Continued from Page 1**

The FE exam has changed in several regards over the years. One thing that has remained consistent, however, is that the exam is administered by NCEES in all fifty states and most US territories. No matter what state you pass the exam in, that passing grade is accepted by every state. Application to take the FE exam, and evidence of educational qualifications, used to be submitted to the Board in the state that the applicant intended to take the exam. Now, application is made directly to NCEES.

In terms of the exam itself, much has changed in recent years. The exam is computer-based and may be taken on any available date at designated testing centers where previously it was only given on two specific dates each year. The exam is one hundred ten questions in length, multiple choice, half in the morning and half in the afternoon with a 6-hour time limit and an optional 25-minute break. Nothing may be brought into the exam room except for pencils and an approved calculator. A list of approved calculators may be found on the NCEES website. An applicant is given a formula reference book provided by NCEES for use during the exam; you can't bring one with you.

Next, the exam used to cover eleven subject areas in the morning, followed by specific areas of the applicant's choosing in the afternoon. This has also changed to where the whole exam is specific to each engineering discipline. This is in line with changes in engineering curricula in that, for example, many electrical engineers no longer are required to take statics and dynamics, and structural engineers may not be required to take circuits.

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## Making Real Time Adjustments to Your Career

**When:** Wednesday, October 25, 2023 @ 6:00 PM

**Where:** Virtual Meeting

**Google Meet:** [meet.google.com/vtm-xquh-xwg](https://meet.google.com/vtm-xquh-xwg)

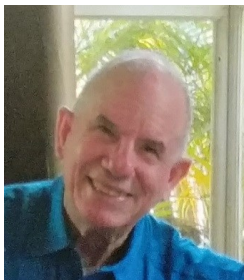
**Speakers:** Mario Guerrero, IEEE Life Senior Member, Retired PE

**Registration:** <https://events.vtools.ieee.org/m/369625>

**Contact:** Sean Denny, STEM Champion, [venner20@aol.com](mailto:venner20@aol.com)

**Abstract:** Discussion on the engineering career on someone who has made a significant impact on our history.

**Mario** was born in Rio Piedras, Puerto Rico in 1942 so he has a long, long, background, as do many of us in this room as well.



At 23 year of age, when he graduated with his BSEE with Honors from the University of Florida, he had already spent 8 years in Puerto Rico, 2 years in the New York City area, 2 years in a boarding school in Tampa at nearby Mary Help of Christians School, 8 years in Hialeah, Florida for his high school and finally 5 year in Gainesville, Florida, where he was President of the Sigma Tau Honorary Engineering Fraternity and he also participated in a Co-Op program with NASA Project Mercury for 3 trimester work periods and lived in Titusville, Merritt Island, and Cocoa Beach, Florida.

Mario then moved to New Jersey, where he then received his Master's from the Polytechnic Institute of Brooklyn while working with Bell Telephone Laboratories in a Graduate Study Program in Holmdel, NJ. He also worked for Burroughs Corporation and a minicomputer company designing Magnetic Core and Solid state memory before moving back to Florida in 1977, where he had a mixed career as well.

While in South Florida, he spent 15 years designing solid state memory interfaces for Gould Computer systems and Modcomp, Inc. In a career change, he then became Novell and Microsoft Certified, President of 2 computer groups, obtained his Professional Engineering certification in 1994 after 29 years out of college while working for an Environmental Engineering Company, was Director of Engineering for a startup at Doral, Florida for 4 years directing a data center doing Internet Access to 3 South American Companies. and finally a 9 years network support and counseling career of 4 non-profits in the South Florida area.

### PE Corner - Continued from Page 2

Next month I'll discuss the experience required for an Engineer Intern.

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.



### *Florida Laws & Rules and Ethics for Professional Engineers*

**Date:** Thursday, October 26th, 2023

**Time:** 10:00 am-noon

**Cost:** \$30 IEEE Members / \$60 Non-Members / \$10 IEEE Student Members

**Speakers:** Mr. Art Nordlinger, PE,

IEEE Representative to the Florida Board of Professional Engineers

**Presentations:** The Rules and Laws That Govern the Practice of Engineering in Florida

Ethics and the Practice of Engineering in Florida

**CEHs:** One (1) Rules & Laws CEH will be awarded; and

One (1) Ethics CEH will be awarded, which will meet the current requirements for PE Renewals.

Be sure to enter your name and PE number on the signup website as it appears on your license.

IEEE Florida Provider Number is 0003849.

**Location:** This seminar will be presented virtually

**Registration:** Register at <https://events.vtools.ieee.org/m/359432>

**Questions:** Art Nordlinger: [a.nordlinger@ieee.org](mailto:a.nordlinger@ieee.org) or Robert DeMelo: [Robert.demelo@ieee.org](mailto:Robert.demelo@ieee.org)

**Abstract:** The Rules and Laws That Govern the Practice of Engineering in Florida. This course is at a basic to intermediate level.

- ◆ Florida Statute 471 – Engineering
- ◆ FBPE and FEMC
- ◆ Florida Administrative Code
- ◆ Updates from NCEES and FBPE

Ethics and the Practice of Engineering in Florida. This course is at a basic to intermediate level

- ◆ Basic Engineering Ethics Precepts
- ◆ Florida Administrative Code 61G15
- ◆ Recent Cases and Examples

**Art Nordlinger, PE**, who recently retired after a rewarding career in the electric utility industry, was most recently the Manager of Transmission Tariff and Contracts at Tampa Electric Company. Art earned a Bachelor of Science degree in Electrical Engineering from Northwestern University in 1979 and his Master of Engineering degree in Electric Power Engineering in 1988 from Rensselaer Polytechnic Institute. Art is a Life Senior Member of IEEE, Past Chair of the Florida Engineers Management Corporation (FEMC), and a registered PE in the State of Florida.



## Lunch & Learn – Back from the Future: Defining and Reaching the Vision of Tomorrow's Grid

**Date:** Friday, November 3, 2023  
**Time (EDT):** 12:00 PM to 1:00 PM  
**Speaker:** Ron Ambrosio, IEEE Senior Member & Chair Emeritus,  
 GridWise Architecture Council  
**Location:** Webinar (virtual)  
**Cost:** No admission charge  
**CEH Credits:** No CEH's provided for this event.  
**RSVP:** Online via vTools: <https://events.vtools.ieee.org/m/371085>  
**Questions:** Ron Ambrosio - [ron.ambrosio@ieee.org](mailto:ron.ambrosio@ieee.org)

In the past decade, multiple stakeholder organizations have published documents forecasting and making recommendations about the electric industry's future. The GridWise® Architecture Council (GWAC), a group convened by the U.S. Dept. of Energy, chartered a project to assess the electric industry vision and future state assessment documents and determine how aligned these views of the future are.

The project objectives were to identify:

- ◆ Stakeholders' vision and future states for the electric industry and grid,
- ◆ Their similarities, differences, divergences, and stakeholder impacts, and
- ◆ Architectural challenge-gap categories for potential multi-stakeholder organization coordination and collaboration opportunities.

The GWAC identified six major architectural challenges or gap areas during assessing and characterizing ten vision and future state reports from nine organizations:

- ◆ Developing new industry structures
- ◆ Transitioning from centralized to distributed
- ◆ Transitioning from silos to platforms
- ◆ Developing effective data communications enabling control and coordination in distributed structures
- ◆ Standardizing Interfaces and structures
- ◆ Accommodating large quantities of DER with new structures

These must be addressed to achieve the vision of the future grid described in the ten reports, so how do we get there? In addition to traditional forward analysis, the importance of using a structured "future back" approach will be discussed.

Finally, Grid Architecture will be defined and its importance as a tool in this process will be discussed, along with a description of the GWAC's Interoperability Framework and its continued relevance.

## The Background and Advice of a Systems Engineer to Engineering Students

### *Interview with Patrick Harris by Nick Wasselle*

Patrick Harris did not take a straight path to the position he finds himself in today. Originally an electrical engineering major at the University of Maryland, he later switched to nuclear engineering due to the overly demanding GPA requirements for his previous major and his desire to continue to work in a mentally stimulating field after the switch. Patrick graduated in 1990, with only six other students sharing his major.

Upon graduating, he immediately began work as a licensing engineer at Bechtel. In his time at the company, Patrick wrote summaries of Nuclear Regulatory Commission meetings and resolutions as well as performed entry level work relevant to nuclear engineering. After working for Bechtel for two years, he took a new job at ManTech as an environmental test engineer. In his time at the company, among other things, He was responsible for electromagnetic compatibility (EMC) testing on spacecraft and spacecraft subsystems, including those aboard the Space Shuttle.

Additional work with spaceflight included magnetic testing of spacecraft flight equipment. This involved the use of a special room, calibrated to neutralize the natural magnetic field of the earth inside the room in order to create a magnetically neutral space to test high performance spaceflight equipment.

After the career transfer from EMC test engineer to program management at the Defense Contract Management Agency (DCMA), Patrick worked for the DCMA for nine years as a systems engineer and earned value management (EVM) specialist. While at the DCMA, Patrick worked on various famous weapons platforms, including the U.S Air Force F-15 and U.S Navy F/A-18, and performed EVM for the Apache Block III. After the DCMA, Patrick moved to the Department of Defense (DOD), where he continues to work as a systems engineer.

When asked about the role of IEEE in his professional career, Patrick asserts that his involvement in the Baltimore chapter has afforded him many networking opportunities and instructional lectures relevant to EMC topics. Additionally, Patrick believes that the requirements engineering experience gained through the chapter was indispensable to his work as an engineer and the career of new engineers entering the workplace. Sharing an anecdote from his work with NASA on servicing missions for the Hubble space telescope, one of the main reasons servicing was required was that the specifications given by the Goddard Spaceflight center were insufficient to ensure mission success.

Patrick urges new engineers to gain proficiency in working with technical specifications. U.S. military technical specifications are known as mil-specs and are on the defense logistics agency (DLA) ASSIST database. In the civilian world, technical standards are on the International Organization for Standardization (ISO) website.

Additionally, Patrick encourages all young engineers to pursue a professional engineering (P.E.) license. As acquiring, the certification only takes four years of relevant engineering experience and two tests, it is easy for a young engineer to acquire a P.E. license. Patrick also encourages young engineers not only to get good at their chosen careers but to broaden their horizons as well. Since employment is not always a given, a fallback plan is essential for any engineer.



## Lakeland Electric Substation Tour

- Date:** Friday, November 3, 2023
- Time:** 9:00AM – 11:30AM (EST/EDT)
- Speaker:** Ariana McGuirk - Lakeland Electric Substation Engineer
- Location:** Lakeland Electric Administration Building  
501 E Lemon St Lakeland, Florida 33801
- Cost:** \$20 Members/\$30 Non-Members/\$10 Students
- CEH Credits:** No CEH's provided for this event.
- RSVP:** Online at: [Substation Tour at Lakeland Electric:](#)  
[vTools Events \(ieee.org\)](#)
- Questions:** Diana Aristizabal, [dianaaristizabal@ieee.org](mailto:dianaaristizabal@ieee.org)  
Ariana McGuirk, [mcguirk@ieee.org](mailto:mcguirk@ieee.org)

### What is a Substation?

Electrical substations are an integral part of our electric grid that allows the efficient transmission of electricity from power plants to customer locations. Ever wonder what is inside an electrical substation? The IEEE Florida West Coast Section Women in Engineering (WIE) affinity group and Power & Energy Society (PES), in collaboration with Lakeland Electric (LE), are excited to offer this tour of a distribution substation. This tour event will include a 1-hour in-classroom presentation to go over the basic functions of the different types of equipment in a distribution substation, as well as their role in protecting the system during faults or failures.

After the presentation, and a discussion of safety precautions, the event will proceed with an outdoor walk-through of one of Lakeland Electric's 230/69/12kV substation facilities where attendees can learn to identify the different types of equipment, view inside the control house, and ask any questions they may have. This event will be perfect for those with little to no knowledge of substations or students interested in the power industry.

### PLEASE NOTE

**PERSONAL PROTECTIVE EQUIPMENT (PPE):** To attend and enter the substation, you must have the required personal protective equipment (PPE). The PPE requirements are a hard hat, safety glasses, and EH rated shoes (or dielectric overshoes). Attendees are asked to bring their own PPE if they have. Lakeland Electric can provide a hard hat, safety glasses, and dielectric overshoes, however they

have a limited supply and will need to be notified beforehand if you need to be provided with any PPE.

Please email Ariana McGuirk at [amcguirk@ieee.org](mailto:amcguirk@ieee.org) if you will need a hard hat, safety glasses, or dielectric overshoes (please state shoe size in email request).

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**TRANSPORTATION:** The in-class pre-portion of this event will be held at Lakeland Electric administration building in downtown Lakeland, FL. The outdoor substation facility is a 10-15 min drive from the administration building. Attendees must have their own transportation between the in-class portion to the outdoor substation. Parking is available at or near both locations. A map and directions to these locations will be provided to those that register.

**FACILITIES REFRESHMENTS:** Please check in with the front desk security guard when entering the administration building. Light snacks, bottled water, and restrooms will be available during the in-class portion. No bathroom facilities at substation location.



Ariana McGuirk is a substation engineer at Lakeland Electric, a municipal utility in central Florida, where she handles the planning and design of various projects needed to support the electric power facilities. In her six years in the substation department, she has prepared engineering plans, specifications, protection and control schematics, relay settings, and cost estimates for additions, modifications, or upgrades to substation facilities. She recently completed her role as project manager for the construction of Lakeland Electric's newest distribution substation. However, her professional interests have been in power system protection and relay event analysis.

Ariana earned a Bachelor of Science in electrical engineering from the University of South Florida. She was actively involved in IEEE throughout college and is currently secretary of the IEEE Women in Engineering (WIE) affinity group of the Florida West Coast section.



**Florida West Coast Section**

**Inviting ALL Active Members and Guests to Participate in the  
YEAR END GALA AND BANQUET AWARDS**

**Saturday, October 28, 2023**

**St. Petersburg Yacht Club**

**Registration:** <https://events.vtools.ieee.org/m/373087>

**1700 - 1800 - Social mixer**

**1800 - 1900 - Dinner and Keynote Speaker**

**1900 - 2030 - Awards and Recognitions, Michael Mayor, Chair FWCS**

**2030 - 2100 - Closing Remarks: Andy Seely, Vice Chair FWCS**

**IEEE FWCS PES/IAS ExCom**

**Thursday, October 26, 6:30 am – 7:30 am**

**Virtual**

<https://events.vtools.ieee.org/m/333491>

**Contact/Questions: Robert DeMelo, [robert.demelo@ieee.org](mailto:robert.demelo@ieee.org)**

**Senior Member Roundup**

**Saturday, November 4, 12:00 pm - 4:00pm**

**Registration Link will be provided**

**Check the Website Calendar (right hand column): <https://r3.ieee.org/fwc/>**

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**SunCoast Signal Advertising Rates**

Size	1 Month		6 Months		12 Months	
	Member	Non-Member	Member	Non-Member	Member	Non-Member
<b>Business Cards</b>	\$25	\$35	\$120	\$150	\$210	\$252
<b>1/4 Page</b>	\$40	\$52	\$190	\$380	\$335	\$402
<b>1/2 Page</b>	\$75	\$98	\$360	\$450	\$630	\$756
<b>3/4 Page</b>	\$110	\$143	\$530	\$663	\$925	\$1,110
<b>Full Page</b>	\$140	\$182	\$670	\$838	\$1,175	\$1,410
<b>Insert / Sheet</b>	\$200	\$260	\$800	\$1,000	\$2,000	\$2,400

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<b>October 2023 - Calendar of Events</b> <i>(For more information see "Inside the SunCoast Signal" → Page 1)</i>						
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	*Signal Inputs Due					
15	16	17	18	19	20	21
22	23	24	25	26	27	28
			*Making Real Time Adjustments →Page 3	*Florida Laws... →Page 4 *PES/IAS ExCom →Page 8		*Year End Gala →Page 9
29	30	31				