



THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

<http://ewh.ieee.org/r3/floridawc>

Volume 44 - No. 10

October 2001

Power Quality A to Z Seminar

Presented by Your PE/IA Chapter



Date/Time: Friday, October 19, 2001 8:30am- 3:30pm

Location: Energy Technology Resource Center (ETRC)

RSVP: Art Nordlinger at (727) 596-9319 or
Email Nordlinger@hotmail.com

Reservations Required by October 15th! – Seating is Limited!!

PDH
Will Be Awarded

Cost: \$50 Members; \$200 Non-Members; \$10 Student Members
Special: \$30 for Members with a completed IEEE Senior Member Application or for Senior Members with a completed Senior Member Nomination form for someone they know



This will be your opportunity to not only gain an extensive understanding of Power Quality, but obtain six (6) Professional Development Hours (PDH) for your PE renewal, all at an unbelievable low price. We will have three highly-qualified IEEE members presenting at this seminar - they include:

- Charlie Williams, P.E., who will give a general overview, discussing causes, issues and mitigation techniques.
- Mike Kotch, P.E., CPQ, who will be covering monitoring methods and techniques and the how and why of the monitoring results.
- Warren Diehl, CPQ, who will provide multiple examples of actual PQ case studies in which he has been directly involved.

Don't miss this outstanding opportunity and this unbelievable cost!!

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Chair's Comment

By Quang Tang



We can never forget September 11th, 2001 in our life time. We have been attacked by Terrorists. Our historical landmarks, the World Trade Center 110-story Twin Towers in Manhattan, have been obliterated. One hijacked airliner slammed into the Pentagon and another hijacked plane crashed in western Pennsylvania. These acts of mass destruction are unforgivable.

I am sorry to report that John Twitchell, Section Vice Chair, will be leaving us for a better position this month. John has continually supported the local IEEE PES Chapter, as well as the entire Section. He is always willing to lend his support to any and all IEEE functions and activities and has served on multiple conference committees for the local Chapter. John has been involved with the local section, chapter, the Florida Council, and Region 3 for many years and at various levels and has been a continuous inspiration to the members of the various IEEE entities. At our last Executive Committee meeting, John was presented with the PES Outstanding Engineer of the Year Award. Congratulations John. Thank you for all your support and wish you the best of luck.

All of you probably received the annual election ballots by now. Please remember to vote. Only signed ballots that are received in sealed envelopes will be valid and counted in the election.

Students' Corner

By Anthony Webster
IEEE Student Branch President
apwebste@eng.usf.edu



The Student Branch is kicking now! The student branch will be hosting BAGEL DAY for all IEEE student members. We will try to have this every Monday. This will promote a common ground for students, teachers, and faculty to mingle.

We are planning to have bi-weekly cookouts at the Engineering building. This will be used to recruit new members. All new and old student members will eat for free when they present their IEEE Member Card.

We are also planning to have a drawing to win lab kits for all new and old student members! The IEEE T-shirts are in the process of being made! Shriners has been contacted. Waiting for their response. The IEEE Student Branch webpage is constantly being updated. I encourage all to use. It is located at: <http://org.eng.usf.edu/IEEE-EE/>. The student branch is dying slowly. Our computers are very unreliable and unstable. If you are curious as what we're working with its P133Mhz machines! If anyone has anything they would like to donate, please let me know! Thank You.

Shaping the Future Through Philanthropy

Mark your calendar and join us for a conversation about charitable giving in income and estate planning.



- ✓ **Thursday 18 October 2001**
Hyatt Regency Westshore in Tampa, Florida
6:30 p.m. to 8:30 p.m., For more information, please contact
Jim Howard at j.howard@ieee.org or (813) 630-6233
- ✓ **Friday 19 October 2001**
Buddy Freddys Country Buffet, 3074 College Ave, Ruskin, FL
(I-75 Exit 46, West towards Ruskin. Make first right turn after getting
on SR 674, immediate right turn towards Buddy Freddys.)
11:30 a.m. to 2:00 p.m., For more information, please contact
Jules Joslow at jjoslowemi@aol.com or (800) 274-2383

Our dialogue will address the mutual benefits to you, your family and your favorite charitable organizations, as well as a number of questions including:

- *Is it possible to make charitable bequests and still provide for my family?*
- *Can retirement assets be used as charitable gifts?*
- *How can charitable giving help to minimize income and estate taxes?*
- *Can a charitable giving plan help to supplement my family's income needs?*
- *What is the impact of recent tax legislation?*

The session will be an open discussion, so we welcome questions and personal stories about how you have chosen to honor your philanthropic interests. This information session is brought to you by the IEEE Foundation.

IEEE PES/IAS November Meeting

Engine Room Tour of “American Victory” Ship

Moored behind Florida Aquarium on Channelside Drive



Date: November 6th, 2001

Time: Supper at 5:30; Presentation 6:00; Tour 6:30

Cost: \$15.00 for Members and Their Guests; \$25.00 for Non-Members

Reservation: Art Nordlinger at (727) 596-9319 or Email Nordlinger@hotmail.com



This will be a special evening tour arranged especially for the IEEE. It will cover only the engine room. The ship is driven by a 6000 horsepower cross-compound steam turbine with dual reduction gears driving a single screw. The electrical system is 600 kW, 120/240 Volt Direct Current. All the auxiliaries are either steam or DC. We will see the twin boilers, the oil burners, turbines, reduction gears, shaft alley, many pumps and blowers. There is also an on board machine shop. Victory class ships were cargo ships built late in World War II. They were manned by the Merchant Marine and defended by the Navy Armed Guard. They were larger and faster than the earlier Liberty class ships. This is a tour of a real operational ship, so don't wear good clothes and be sure to have non-skid shoes. The passageways are narrow and the ladders (stairways) are very steep.

The rest of the ship is open for tours from 10:00AM to 5:00PM Monday to Saturday and noon to 4:00PM Sunday; \$6 for adults and \$3 for children.

US\$44,500 in Grants for IEEE Pre-college Teacher In-service Training Program

Verizon Foundation granted \$21,000 to the IEEE Educational Activities Board (EAB) to expand the Pre-college Teacher In-service Training Program, bringing the total to \$44,500. Previously pledged support of \$12,500 came from the IEEE Life Members, \$10,000 from the IEEE Foundation, and \$1,000 from IEEE-USA. The monies have enabled EAB Pre-college Project Manager Douglas Gorham to set up two training sessions to help IEEE Sections replicate the successful pilot program run this spring by the Florida West Coast Section, USA (FWCS).

Training covers the best way to approach a school district, instructing teachers in methods of conveying engineering, design, and technology to their students, and how to continue to offer the In service program. Both training sessions covered by the grants have been filled. If you are interested in starting a program, contact Doug Gorham at d.g.gorham@ieee.org or at +1 941 753 4758.

FWCS has now done a total of three sessions. They were able to influence 56 teachers and through them will raise the level of technological literacy of an estimated 7,000 students. For the full story about the pilot program see <http://www.institute.ieee.org/INST/may2001/florida.html>.



Southcon[®]/2002

January 16-17, 2002
Orange County Convention Center
Orlando, Florida



***One Forum for Electronics Design, Manufacturing,
Test & Purchasing Professionals***

Register at our NEW web site! www.southcon.org
Email: southcon@ieee.org
Sponsored by Florida Council and Region 3, IEEE
and
Florida Sunshine Chapter of ERA

- ***Exhibits featuring hundreds of new products by leading electronics manufacturers serving the OEM & Systems-Level marketplace***
- ***Plus, an IEEE sponsored Conference Program featuring a series of courses for design, manufacturing, and test engineers***

R&D Consultant Wanted

Small Clearwater electronics manufacturer seeks Electrical Engineers (EE) to help modify existing products and work on new product development.

Analog and digital experience required. Strong hardware skills important - we have an excellent firmware engineer. Experience with **Motorola MC68HC705C8** processor helpful.

Please Call Clayton Burton at (727) 556-2682

Computer Society Membership Survey

If you are interested in the three day seminar on "VHDL, the language, simulation, and synthesis", please return the membership survey to us as soon as possible. The survey can be found on September issue of the Suncoast Signal.

If you would like to join the Programmable Logic User Group, please contact Jack Killingsworth at j.killingsworth@ieee.org.

CELEBRATE ENGINEERING 2002 BANQUET



NATIONAL ENGINEERS WEEK*
FEBRUARY 17-23, 2002

Date/Time: Saturday, February 23, 2002
5:30PM Social
7:00PM Dinner
8:00PM Program

Location: Holiday Inn City Centre
111 West Fortune Street
Tampa, FL 33602
(813) 223-1351

Speaker: To Be Determined

Entertainment: To Be Determined

Door Prize: Given through out the evening

Cost: \$20.00 per person

Each February, National Engineers Week unites engineers and the public in a celebration of innovation and technology, National Engineers Week increases public awareness of engineering's contributions to our quality of life.

The Florida West Coast Engineering Societies are pleased to announce the annual Engineers Week Banquet. This year, the banquet will be held on Saturday, February 23, 2002, at the Holiday Inn City Centre in Tampa. This event brings engineers of various disciplines together to share an evening of fellowship, fine dining, entertainment, and recognition of individual achievement. Local engineering societies will bestow [Student Engineer of the Year Awards](#) in their respective disciplines. Each society's [Engineer of the Year Award](#) will be presented. [Teacher of the Year](#) from Pinellas, Hillsborough, and Pasco Counties will also be presented. The Engineers Week Committee is currently working on the speakers and entertainment. Participating Societies are Association for Facility Engineers (AFE), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), and Society of Logistic Engineers (SOLE).

[2001 Banquet Sponsors](#) – Advanced Designs & Equipment, Association for Facilities Engineering, Florida Fluid System Technologies Inc., Honeywell, Malcome Pirnie, McQuay International, Seminole Electric Cooperative Inc., Southern Marketing Associates, Tampa Armature Works, Tampa Electric Company, and York International.

Tickets are \$20.00 per person, and must be purchased in advance. Eight seat tables are available for corporate reservations. Please use the mail-in reservation form below, or call Quang Tang at (813) 739-1222 or email q.tang@ieee.org for more information.

Return this Reservation Form to Quang Tang, P.O. Box 270756, Tampa, FL 33688-0756 CELEBRATE ENGINEERING 2002 Banquet – Saturday, February 23, 2002			
Name		Email	
Address			
City		State	Zip Code
Work Phone ()		Home Phone ()	
No. Tickets @ \$20 each		Total Amount Enclosed \$ (Make check payable to IEEE-FWCS)	
Dinner Choice (Circle one)	Vegetarian Plate	Prime Rib	Grouper Chardonnay



PES/IAS October Meeting

Tour of Tasnet Facility



- Date/Time:** Tuesday, October 23, 2001, 4:00pm (Dinner will be served)
- Location:** Tasnet, Inc. - 5271 102nd Avenue North, Pinellas Park, FL 33782
- Reservations:** Ghaff Khazami, PES/IAS Chapter Vice Chair
Phone (813) 739-1221 or Email GKhazami@seminole-electric.com
- Cost:** \$10 Members, \$5 IEEE Students, \$20 Non-Members
- Program:** 4:00 - 4:30 PM – Registration; 4:30 - 5:15 PM - Plant tour
5:15 - 5:45 PM – Dinner/refreshments; 5:45 - 6:30 PM – Technical Presentation

Facility: Tasnet Data: Tasnet started as a proprietary RTU supplier in '86. As a company, Tasnet soon realized that the future of the industry was in open systems and chose the PLC to be the CPU of their open architecture. This choice provided a robust system and the ability to implement algorithms for automation. Since that time, Tasnet has been producing open architecture automation systems that provide for communication with a large library of Intelligent Electronic Devices (IEDs), one stop shopping for all data retrieved and graphical HMIs that permit local and remote monitoring of substation data.

Directions: From the Tampa Airport - South on I-275 toward St. Petersburg Exit #18 on to Hwy 688, Ulmerton Rd. Continue West approximately 2 miles Left on to US 19, approximately 1-1/2 miles south to 102nd Ave. Turn right onto 102nd avenue and go through a sharp S turn. Go over speed bump and note Tasnet is on the right.

Job Opportunity

Design Engineer

Responsible for the design and development of instrument transformers and related power equipment. Oversees product design process, from concept to manufacture. Working from customer-generated specifications, uses engineering skills to design products that meet technical requirements. Work with colleagues in manufacturing, marketing and other functions to design products and resolve issues. Responsible for designing products that meet technical requirements, cost targets and launch dates. Bachelors degree in electrical engineering or equivalent combination of education and experience. Strong analytical, multi-tasking and project management skills. Power engineering experience. For more information, please contact:

Instrument Transformers, Inc
Kent Jones
Phone (727) 442-0414; Fax (727) 441-8066
Email kent.jones@indsys.ge.com

Job Opportunity

Electrical - Marketing Engineer

Local growing company is seeking an Electrical – Marketing Engineer with BSEE degree. Account management or tech support experience desired with excellent verbal & written skills. Knowledge of electronics or electrical power systems helpful. Will support multiple sales forces and handle special projects. Salaried position, bonus program, 401k, plus benefits. Mid Pinellas, excellent opportunity in a growing company. Send resume to:

Advanced Protection Technologies
Louis Farquhar
Fax (727) 524-6178 or
Email lfarquhar@apttvss.com.

Brain Teaser Challenge Column

By Butch Shadwell

September BTC Solution

Last month's problem really had nothing to do with Chinese archeology, but many radio transmitters and receivers use RF oscillators that derive their accuracy from a lower frequency oscillator, such as the oscillator for a microcontroller time base. This process involves phase locked loop technology. The question asked last week was about the four basic components of such a phase locked loop. Since it is much easier to build a stable crystal oscillator at lower frequencies, say less than 20 MHz, it nice to be able to use one of these to guarantee the accuracy of an RF output in the hundreds of megahertz.

The first component is the phase detector. This is typically a two input exclusive OR gate. When the squarewaves at each input are the same frequency and 90 degrees out of phase, the output of the gate has a 50% duty cycle. As the phase difference varies in either direction the duty cycle of the output waveform will increase or decrease. In this application, one of the two inputs is tied to the crystal reference oscillator.

The next component is the integrator. This converts the output from the OR gate into a DC voltage that is proportional to the duty cycle times the supply voltage of the gate. When the phase difference is exactly 90 degrees this voltage is $V_{cc}/2$. As the phase varies this voltage will rise or fall.

Next we have a voltage controlled oscillator, or VCO. The control voltage comes from the output of the integrator. Usually this VCO is designed to oscillate at the frequency of interest when the control voltage is $V_{cc}/2$. The entire operating range of the VCO should not exceed the desired radio frequency plus and minus one half octave.

Finally there is the frequency divider that is used to divide the desired RF down to the same frequency as the local crystal oscillator that is acting as the frequency reference. The divisor (N) times the reference oscillator frequency will equal the radio frequency output when the system is "locked". It is this divided RF that is the second input to the phase detector mentioned at the beginning.

Phase locked loops have many valuable characteristics. They are also very powerful tools for recovering a signal of known frequency mixed with a lot of white noise.

October BTC

I'm sure that all of my readers have been intently watching the semiconductor industry, to see if Moore's Law (number of transistors per chip doubles every 18 months) is going to continue to hold true. And I'm you all know that as line dimensions get down to less than 100nm, we are reaching the limits that are possible with etched silicon. So the question on everyone's mind is "Will Moore's Law fail in the near future. Well, salvation is on the horizon. As we develop the technology to manipulate individual atoms, building logic gates on a molecular or even sub-molecular level is getting very close to commercialization. One method being attempted is to use Fullerenes, or carbon nano-tubes. These very strong structures already demonstrate some semiconductor properties, and by attaching other atoms and or molecules, electrical valves can be synthesized. If you look at a period table of the elements you will notice an interesting electrical similarity between silicon and carbon. What is it?

Questions or comments to the Brain Teaser Challenge, please contact Butch Shadwell at 904-223-4465 (v), 904-223-4510 (fax), b.shadwell@ieee.org (email), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. <http://www.se.mediaone.net/~butchs/>

October 2001 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 <i>EXCOM Mtg TECO Center At 5:30 PM Guests Are Always Welcome!</i>	3	4	5	6
7	8	9	10	11	12 <i>Material Due For Next Month's Suncoast Signal Newsletter</i>	13
14	15	16	17	18 <i>Section Meeting – 6:30 @ Hyatt Regency Westshore</i>	19 <i>Life Member Meeting at Buddy Freddys Country Buffet. PE/IA Seminar</i>	20
21	22	23 <i>PES/IAS Meeting – Tour Of Tasnet Facility at 4:00</i>	24	25	26	27
28	29	30	31			

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