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THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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

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December 2000

MTT/AP/ED December Meeting

"Advanced Integrated Circuit Concepts to Address Modern Analog Design Challenges"



WHEN: Tuesday, December 5, 2000 6:00 pm

SPEAKER: Michael Wyatt, Xetron Corporation, Palm Harbor, FL

ABSTRACT:

Everyone is familiar with the present day push in the "digital world" to integrate more functionality into a single chip. However, it may not be obvious that the "analog world" is following the same path, particularly in the high speed and wireless arenas. To meet the new analog integration challenges, advanced circuit concepts are emerging that can take advantage of modern high speed, small feature size IC processes now available. This lecture will address some of these design concepts and how they apply to the new analog challenges. A facility tour will commence subsequent to the lecture.

BIOGRAPHY:

Mr. Michael Wyatt is a consulting engineer for Xetron Corporation where he directs the design of analog and radio frequency integrated circuits since August of 1999. Previously he held the position of Principle Engineering Fellow at Honeywell Space Systems, Clearwater FL (20 years) where he served as one of the technical leads for the "Special Projects Group". Mr. Wyatt is a graduate of the University of South Florida and continues to support various programs within the Department of Electrical Engineering. He has been granted 11 Patents, two pending and is the author of several articles and publications. His awards include: Honeywell's highest two awards, the Honeywell H. W. Sweatt Engineer-Scientist Award and the Honeywell Technical Award (2 occasions). He also received the EDN Magazine's Design Idea of the Year (1989).

LOCATION: Xetron Corporation, 2570 Coral Landings Blvd., Suite 301, Palm Harbor, FL.

PLEASE RSVP: Leave name & country of citizenship with Ed Grimes at (727) 784-3998 x158.
E-mail: edg@xetron.com *Bring a guest; non-members welcome!*

DIRECTIONS:

From Tampa: Take Hillsborough Ave. West to US19 turn right (North) and proceed approximately 3 blocks to Coral Landings Blvd. Xetron is on the 3rd floor of the Baird Building directly behind the Palm Harbor Ale House and Suntrust Bank.

From St. Petersburg: Take US19 North to Tampa Road proceed approximately 3 blocks to Coral Landings Blvd. Xetron is on the 3rd floor of the Baird/ Building directly behind the Palm Harbor Ale House and Suntrust Bank.

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Chair's Comment

by Al Rosenheck

With this issue of the *Signal*, I will have served as your Chairman for the past two years. My term is now ending and it is time for me to step down and turn the leadership gavel over to our new Chairman, Quang Tang. I have immensely enjoyed working with the Chapter and Section officers who have helped make my term as Chair so rewarding and successful. I would also like to extend my thanks to members of our executive committee who continue to make our Section stand out for its excellence, by consistently arranging interesting and informative meetings on a variety of professional and technical subjects.

Our Section is always looking for help to organize meetings, judge science fairs, participate in pre-college education programs, etc. If you would like to learn more about these activities, come to an executive committee meeting and introduce yourself and express your interest. You will always be welcome. I can personally testify that volunteering to support your professional society can be very satisfying, as well as helpful to furthering your career goals.

Once again thanks to the great team of volunteers who continue to keep the Section running and offer the membership a wide variety of professional and technical programs. All the best to all of you as 2000 comes to a close, and 2001 begins.

IEEE-FWCS Officers For 2001

The Nominating Committee of the Florida West Coast Section presented a recommended slate for Section officers for the 2001 program year to the membership at the November 15, 2000 Section meeting. The membership unanimously agreed with the Nominating Committee, and the following members will serve us as officers next year.

Chair - Quang Tang

Secretary - Jules Joslow

Vice Chair - John Twitchell

Treasurer - John Conrad

Congratulations to the new officers, who will step into their duties in January, and please offer them your continued support!

Students' Corner

by Brian Zilka

Another busy month has come to a close and with it is another semester. We would like to thank Chris Blake from Motorola and all the other who have taken the time to visit one of our meetings this last semester. Your participation enlivens our meetings and ignites interest in our field of study. Your contributions are greatly appreciated.

We would also like to wish everyone a happy and safe holiday season. We hope to see all the students rested after their break and ready to get back to business in 2001.

Power Engineering Courses at USF

Beginning in January, two power engineering courses are being offered by the University of South Florida and will be available via FEEDS (Florida Engineering Education Delivery System, an interactive television broadcast system).

The first course, **Industrial Power Distribution**, provides an excellent overview to the utilization of electricity at the industrial level. Topics include utility source configuration, fault analysis, switchgear and motor control centers, ladder logic, motor control, and shunt capacitors. This class will meet Tuesday evenings from 6:00pm to 8:50pm.

The second course, **Power System Protection**, concentrates on protective device selection and coordination as applied to generation, transmission, and distribution systems. This class will meet Tuesdays and Thursdays from 11:00am - 12:15pm.

Both courses can be taken on-campus (ENB-110 - Tampa Campus) or via FEEDS by undergraduate students for application toward a bachelor degree, or by engineering graduates either for application toward a masters degree or under non-degree seeking status. Requirements to take either course are senior-level standing for undergraduates, or completion of a four-year engineering degree. The only pre-requisite for Industrial Power Distribution is basic power system and circuit analysis familiarity. A course on Power System Analysis is required prior to taking Power System Protection.

For more information, please contact Ralph Fehr (r.fehr@ieee.org or 813-228-4448), the USF Electrical Engineering department at (813) 974-2659, or visit the USF Power site on the Internet at home.tampabay.rr.com/usfpower.

2001 Review Seminars For PE Electrical and EIT/FE April 20 & 21 Examinations

Review seminars for the PE (Electrical) and Engineer In Training / Fundamentals of Engineering (EIT/FE) exams will begin:

**Monday, Jan. 22 for the EIT/FE Exam
&
Thursday, Jan. 25 for the EE Exam**

Seminars are conducted from 7-10 P.M. (Monday or Thursday) for ten weeks. The registration fee is \$250 and includes text. The seminars will be held on the main USF campus in Tampa with several viewing sites available via FEEDS. Videos of all classes will also be available to registered students.

To register, contact: Alan M. Keith, P.E., PO Box 14042, (EC51), St Pete, FL 33733 or by email

Alan.M.Keith@fpc.com

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Brain Teaser Challenge Column

by Butch Shadwell

November BTC Solution

Last month's BTC about little Billy and the emergency stop, generated more responses than I have received in quite some time. Though only half had 100% correct answers, it was clear that all of them understood how to solve this problem. Generally the mistakes were due to the fact that these kinds of calculations are not part of our regular routine. That is a large part of why I write these columns. They are an effort to remind all of us of some of the technical skills we may not use that frequently.

To begin with, since Bill Sr. brings the car to a complete stop in 4.58 seconds at a constant rate of deceleration, the equation for the deceleration rate is simple. $v + at = 0$ v equals 50 mph or 73.3 ft/sec., and t is given as 4.58 seconds. $a = -v/t$ or -16 ft/sec^2 . You may recognize this number as $g/2$ (g is the acceleration due to gravity). Therefore, since Billy's mass times g equals 50 pounds, the force his dad feels is 25 pounds.

For part two, we know that $x = vt + 1/2 at^2$. If we substitute the values we know for $v, t,$ and a , then $x = (73.3 \cdot 4.58) + (-8 \cdot 21)$, which equals 168 feet. ... a piece of cake, right. Or is it, easy as pi.


December BTC

Recently I was researching some heretofore, unknown records about my family genealogy, and was surprised to find out that I had an ancestor who mutinied with Fletcher Christian on the Bounty. He may not have been the sharpest tack in the box, being known as Fredrick "The Dolt" Shadwell. I'm sure that dolt must have had some special salty meaning in 18th century sailing parlance. The way this document described events, Fredrick may have made his decision to join the mutineers under somewhat hazy circumstances. It seems he'd been napping in the lazarette again and missed most of the commotion, during the mutiny. When he finally came around, he stumbled on deck and when he discovered what had happened he reported in a loud voice that he had made the aft storage locker free from the Crown.

When they finally arrived at Pitcairn Island, Fredrick seeing this as his big chance to become a financial success, opened a small craft shop featuring all sorts of clever things made from seashells. Maybe he miscalculated the tourist trade, but sales at his store were not too good. While day dreaming, between the frequent catnaps, Fred would think about electrolyzing water and turning it into oxygen and hydrogen. I didn't say he understood the content of his dreams. If the oxygen and hydrogen were collected in separate expandable containers, and the gas was at the same temperature and pressure in both containers, which one would have the larger volume of gas?

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/>

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Career Opportunities

Beckwith Electric Co., Inc., located in Largo, Florida, is a leading manufacturer of innovative high quality products, technical services and solutions for the electric utility industry. We are seeking qualified candidates for the following positions.

Software Engineers

Researches, designs, and develops computer software systems. Must have experience in the areas of embedded controllers, Assembly, DSP, and C software development. Exposure to hardware development and experience with communications protocols desirable. Four-year degree required (BSEE or CS preferred) and 2-5 years related experience.

Hardware Engineers

Designs analog/digital hardware including microcontroller-based designs. Hardware design experience to meet RFI, SWC, hypot and other standards are desirable. Mechanical hardware package design experience a plus. BA/BS required.

Communications Engineers

Responsible for implementing and maintaining protocol interfaces and updates for company products to new and existing systems. Must have experience with RTU's and communications protocols such as DNP, UCA and MODBUS. BSEE or BSCS required.

Regional Sales Manager

Responsible for insuring full sales support and customer knowledge for all company products and services while attaining sales goals and objectives within his/her assigned territory. BS/BA required, preferably in Electrical Engineering. Prior experience in field sales, product application and/or product engineering in the generation, transmission and distribution of electric power required.

Inside Sales Engineer

Generate sales leads, respond to customer requests, follow-up on progress of prospective sales and maintain a lead-tracking system. Provide support for application engineers and sales representatives. Must possess a technical degree or skills in electronics, excellent communications and presentation skills and computer skills.

Applications Engineer

Responsible for the proper application of the Company's products to meet the needs and expectations of its customers and the achievement of established marketing goals and objectives. BSEE required, along with prior experience in field sales, product application and/or product engineering in the generation, transmission and distribution of electric power.

Systems Engineer

Responsible for the design, testing, installation checkout and commissioning of customized products and systems. Assists in achieving company sales objectives through industry involvement, customer presentations and preparations of proposals. BSEE required, along with a background in protective relaying for generator, transformer, transmission and distribution application.

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December 2000 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 <i>EXCOM Meeting TECO Data Center 6:00 PM; MTT/AP/ED Meeting "IC Concept" at Xetron Corp, 6PM</i>	6	7	8 <i>Material Due For Next Month's SIGNAL</i>	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
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