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THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

<http://www.ieee.org/fwcs>

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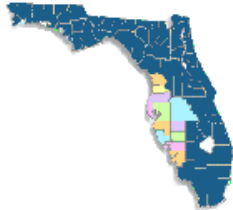
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Florida West Coast Section



Section Meeting: Fiber Optic Cable Technology Fusion Splicing & Testing Methods

Date	Tuesday May 23, 2006	Cost	\$10 Members of IEEE, \$20 Non-Members. Includes Sandwiches and Drinks)
Time	5:30pm – 7:30pm	RSVP	Online at: http://www.ewh.ieee.org/r3/floridawc/ (Select Reservations) Space is limited to 35 attendees
Speakers	Lisa F. Watts, RCDD/NTS, Sales Engineer, Corning Cable Systems; Bob Sinex, Corning Cable Systems	Questions	Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com
Location	TECO Hall, Tampa Electric Company, 702 N. Franklin Street, Tampa.		

Your local IEEE PES/IAS Chapter is offering this section meeting covering the latest information on Fiber Optic cable technology and fusion splicing & testing methods. Corning Cable Systems will present the latest information and demonstrate FO Cable fusion and splicing techniques.

Lisa Watts has worked with Corning Cable Systems for over 16 years recommending fiber optic products for Private Network Customers. Her account list includes Universities, Hospitals, Data Centers, Department of Transportation, Federal Government and Theme Parks in the Central and South Florida areas.

Bob Sinex has worked for Corning Cable Systems since September, 1997 after retiring with thirty years service from BellSouth. He is one of their Technical Field Support Technicians with main responsibilities for assisting field technicians with training, problem resolution, new product introductions and trouble shooting. He also provides the sales force with technical assistance for product demonstrations and seminars.



This Month, Two Distinguished Speakers!

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Professor Larry Bernstein: Trustworthy Software Systems—p. 8

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

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Editor's Column—Student Chapter

April was a big month for the USF Student Chapter. We had the semi-annual picnic on the 15th at Riverfront Park. As before, Jon, Jeremy and their pals cooked up a good selection of grilled meat to complement games and canoeing.

And we had the Senior Banquet on the 28th. (As I am writing this before either event, I am presuming) a good time was had by all! There was a delicious buffet and the tall and entertaining Jim Anderson gave just the right talk for graduating students and the guests. Out DJ played a range of upbeat music that provided both background and danceable cuts.

In addition, I am pleased to welcome Dr. Chris Ferekides as co-advisor to the Student Chapter. Chris is member of the EE faculty and is very welcome as a contact with many more of the junior students than I am able to have. I know Chris and am looking forward to working with him. —PS



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to meet group and individual needs. My engineering background of over 30 years qualifies me to understand engineers and to help them with their financial planning and investment needs. Note, health insurance is not a service of ISI. IEEE member since 1969.

LD20552-01/06



May Chapter Event Computer Society and Aerospace & Electronic Systems Society

Dinner Meeting with

***Distinguished Speaker—Carol Woody, Ph.D.
Improve Software Operational Security
—Plan for Security Risk in Development***

Date/Time: Wednesday May,17, 2006

Social gathering starts at 6:00 PM. Dinner will be served at 6:45.

Presentation starts at 7:00 PM

**Johnny Carino's Italian Restaurant
1102 N. Dale Mabry Highway, Tampa, FL 33607**

Please register online at: <http://time2meet.com/fwcs-meetings/>

Topic: The security of software-intensive systems is linked to the practices and techniques used during design and development of those systems. Many decisions made during development limit the options for security at implementation.

This presentation describes an approach to incorporating security into the software development life cycle. The focus is on appropriately identifying and evaluating security quality requirements based on anticipated operational risk. The use of generalized security goals instead of clearly defined and testable security requirements has been identified as a major stumbling block for secure development. An analysis technique for evaluating operational risk within the development process and approaches for mitigating unacceptable risk in advance of implementation will be introduced. Results from use of this approach by a piloting organization will be shared.

Dinner: A dinner choice of 6 entrees with salad, beverage and desert will be served for a special price of \$10 for members and \$20 for non members. See the meeting web site for details.

Join IEEE and your meal is free! Email JLumia@ieee.org for details.

The Speaker: Carol Woody is a senior member of the technical staff at the Software Engineering Institute (SEI) at Carnegie Mellon University. Her research is focused on ways to address software design and development that improve the security of the implemented results

Carol has 25 years of experience covering all aspects of software and systems planning, design, development, and implementation in large complex organizations. She holds a BS in mathematics from The College of William and Mary, an MBA with distinction from Wake Forest University, and a PhD in Information Systems from NOVA Southeastern University where she was elected to Upsilon Phi Epsilon, the international honor society for computing and information disciplines. She is a member of the IEEE Distinguished Visitor Program and serves as Safety and Security Editor for the developing IEEE SE Online Portal.

Don't miss this special event with Dr. Woody. Please register early for this meeting at: <http://www.weiquality.com/fwcs-meetings/>

For more information or special requests, contact Jim Lumia, Computer Society and AESS Chairman, at 813-832-3501 or JLumia@ieee.org



FWCS Member Elevated to IEEE Senior Membership

Florida West Coast Section Member Grant Smith was elevated to senior membership during the February advancement meeting. Hearty Congratulations!! If you or someone

you know has over 10 years experience in engineering and would be interested in applying to IEEE for elevation to senior member, please contact Tom Blair at tom_blair@ieee.org.



IEEE



Special Workshop FPGA Design and Verification with VHDL

This four day class occurs on four Friday Afternoons in
May 2006

This class will impart through lecture and hands-on lab exercises a current methodology, using best practices, for designing and verifying Field Programmable Gate Arrays using VHDL. After completing this class, each student will be able to describe the structure, behavior, and timing of a simple digital circuit using VHDL. Students will be able to synthesize the design, place and route the design into an FPGA, build test benches, and verify the correctness of the design through simulation.

Time/Dates: 1:00 PM to 5:30PM, Fridays: May 5, May 12, May 19, and May 26;

Instructor: Jack Killingsworth, President Siliconexion Inc.

Location: Mid Pinellas County, exact location is to be announced later.

Cost: \$500 IEEE Members, \$650 Non-Members, \$300 Students and Unemployed
Includes class notes and lab workbook. Evaluation Software will be provided free by FPGA vendors.

RSVP: Online at: <http://time2meet.com/fwcs-meetings/>
(Select CS/AESS Chapter Meeting)

Make checks payable to: Siliconexion, Inc
Send checks to:

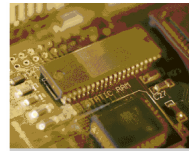
Siliconexion, Inc.
10380 131st Street
Largo, FL 33774

Questions: Contact Jack Killingsworth at 727 596-1990 or
j.killingsworth@ieee.org

Students must have access to a PC with Windows 2000/XP professional, 512M bytes memory and 2G bytes free hard drive space for homework assignments.

Mentors from the Programmable Logic User Group will be on call to help with homework assignments if needed.

Addition Information: Jack Killingsworth is a Life Member of the IEEE, and a Georgia Tech graduate. His professional experience includes FPGA Design since 1988 and with VHDL since 1993. He is a Xilinx Expert and has also completed designs using Altera, Actel, and Lattice FPGAs. His experience includes ASIC design using both VHDL and Verilog.



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Why IEEE?

As an engineer who works in the Information Technology field, what I learned in school oh so many years ago has mostly been made obsolete. The core concepts are, of course still valid; however, in my case, the computers, the software languages, the databases, and the design techniques have all moved on. In order to do my job well and remain a leader in my chosen career field, I need to be constantly learning new information. The technical nature of what I need to know means that there are precious few sources that can give me what I need. Additionally, there is so much new information that I might want to learn, that I need someone to take the time to sort through all of it and help me identify the difference between fads and breakthroughs.

The IEEE is my one source for getting access to the best new technical information. The monthly Spectrum magazine provides me with an overview of changes that are going on in a wide variety of parallel engineering fields. My membership in the Computer and Communications societies provides me with the cutting edge information that I need to spot breakthroughs and prepare for them in my job. My IEEE membership is a small price to pay for access to my own personal research staff and job related tutorials. Thanks IEEE! —JA



A to Z Substation Design—FECA Sponsored IEEE Seminar

A meeting with the FECA Engineers Conference

Speaker: Ghaff Khazami, PE Chair. PES/IAS Chapter, FWCS
Date & Time: June 8, 2006, 8:15 AM – 1:45 PM
Location: FECA Engineers Conference
 Sheraton Sand Key Resort, 1160 Gulf Blvd, Clearwater, FL 33767
RSVP: Ray Trusik rtrusik@feca.com 850-877-6166 Ext. 5
Cost : IEEE Members \$100 Non members \$150
PDH: 4 Continuing Education Hours for Engineers will be provided by IEEE EXP00015.

For more information look for the Florida West Coast Section of the IEEE at <http://www.ieee.org/fwcs>

This seminar is intended for power Utility Engineers, Operations & Maintenance Personnel. It will provide a step by step process to complete the design and construction of a Transmission and Distribution Substations.

The speaker will provide a comprehensive presentation based the latest information on the following:

- Design Standards
- Environmental Regulations And Permitting
- Substation Automation And Communication Interfacing
- Bus Configuration Design
- Equipment Selection
- Protection Schemes
- Metering Requirements

Also an update on the latest energy policy related to system documentation, data gathering in the new and existing substations.

A-Z Substation Design—FECA Sponsored IEEE Seminar Registration Form

June 8, 2006 – 8:15 am – 1:45 pm—Sheraton Sand Key Beach Resort—Clearwater, FL

Name of Company _____

of Non-IEEE members attending @ \$150 each: _____

of IEEE members attending @ \$100 each: _____

Persons Attending (please list Name as it appears on the PE License, PE License # and/or IEEE Member #):

NAME(s)	PE License #	IEEE Membership Number
_____	_____	_____
_____	_____	_____
_____	_____	_____

Prepared by: _____ Phone # _____

Please fax registration form and mail a check for registrations payable to FECA. All registration fees must be prepaid in order to attend the conference.

Mail to: Raymond G. Trusik
 Florida Electric Cooperatives Association, Inc.
 2916 Apalachee Parkway
 Tallahassee, Florida 32301 Fax to: (850) 656-5485

Hotel Information
 Sheraton Sand Key Resort, 1160 Gulf Blvd.
 Clearwater, FL 33767
 Telephone: 727-595-1611 Cut off Date: May 7, 2006

For directions see <http://www.sheratonsandkey.com/Directions.asp>

SoutheastCon 2006: Elvis Visits the IEEE

SoutheastCon was held in Memphis, Tennessee over the weekend of April 1st. Five representatives from your Florida West Coast Section attended along with three student members from the IEEE's USF Student Branch. SoutheastCon is an interesting mix of events that all seem to happen at the same time. The 12 IEEE sections that cover Florida (your Florida West Coast Section is one of them, the rest are on display at <http://www.ewh.ieee.org/r3/fc/>) held a planning meeting and the IEEE's Region 3 also held two days of meetings (covers the Southeast United States and Jamaica; more info at <http://www.ewh.ieee.org/reg/3/>).



Jim Howard and Doug McClure

initiatives is called "Embrace Flat World Reality". Any of you who have read the recent best seller "The World Is Flat" by Thomas L. Friedman know that things are changing quite quickly these days. The IEEE has realized this and is in the process of coming up with ways for engineers to adapt and thrive in the midst of all of this change. Stay tuned for more details.

SoutheastCon is also a great conference. Each year one of the highlights is the student's robot competition. Your heart just has to go out for those teams that show up with the robot that they have worked so hard on only to have some mechanical or electrical gremlin steal their moment of glory at the last minute. This year's competition was quite close until the end. I think that we all forget just how hard it is to try to do a complete mechanical / electrical / software system design while also going to school full time!

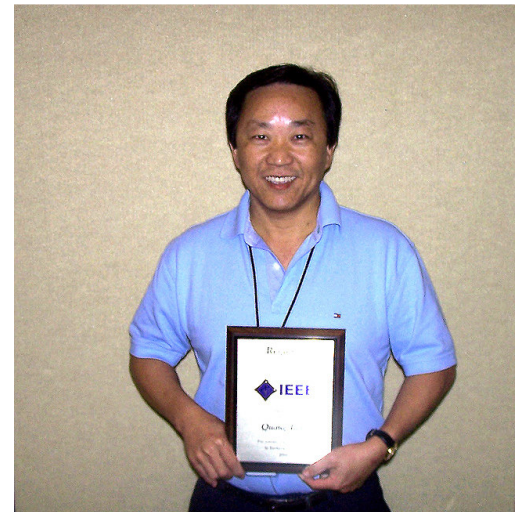
Closer to home, Region 3 recognized three Directors for the outstanding work organizing and running the 2005 Sections Congress that was held right here in Tampa. Here are the pictures from SEC06 of Jim Howard, Dave Green, and Quang Tang receiving the Directors Awards from George McClure, Region 3 members for their work on the Congress.



Dave Green and Doug McClure

Any trip to Memphis would not be complete without an Elvis sighting. There was the obligatory Elvis impersonator contest and six students entered: rhinestones and polyester included. It was quite scary but good fun was had by all. The conference wrapped up with a trip to Graceland. Speaking as one who was born just a bit too late to experience Elvis in his prime, I was simply amazed at just how much he was able to accomplish during his all too short life. The gold & platinum records just seemed to be everywhere.

Next year's SoutheastCon will be held in Richmond, Virginia. Richmond will be celebrating the 400th anniversary of the founding of Jamestown and so it should be quite a party. Don't miss the excitement! —JA



Quang Tang



Build Your Network Purposefully

(Before You Need a Job)

By Debra Feldman

The concept of a geometric progression is fascinating because it appeals to one's sense of an ever-evolving world, conjuring images of a pebble hitting a pond and its resultant waves spreading out in concentric circles from the point of impact.

What does throwing rocks into water have to do with finding a job, you ask? It's simple. Just as the water keeps rippling and spreading out, your networking connections need to grow to continually impact leads to new opportunities. If you tell everyone — and I mean everyone you know — that you are in the job market, that still won't broadcast far enough. You have to stretch beyond that first level of contacts and those in your immediate circle of friends, neighbors, acquaintances, service providers and colleagues, to spread your proposition to new circles.

For your job search to progress, you have to get in touch with people that you don't already know. Your goal should be to meet and talk about new career opportunities with individuals outside your existing network by seeking out new contacts, making connections and sharing information and ideas. By connecting purposefully with highly qualified individuals and developing genuine relationships, you can put yourself on their radar for when an appropriate lead "with your name on it" comes up.

Remember the "six degrees of separation"? In his book, *The Tipping Point*, Malcolm Gladwell explains the phenomenon: how large groups of individuals become connected through just a few exceptionally well-connected individuals. Gladwell describes certain individuals who act as centers of communication (hubs) because of their pivotal positions in multiple networks of connected individuals.

To Network Purposefully™, try to identify and meet or network with especially well-connected individuals who have the means to facilitate critical introductions, referrals and connections. Those "hubs" can introduce you to more of the people you need to know than randomly selected contacts. In other words, network purposefully by choosing the "right" individuals — those who are connected to others in your targeted network and explain your interests compellingly enough for them to want to assist you. Networking with hubs will pay far greater dividends than just knowing a lot of people a little bit.

IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc. created in 1973 to support the career and public policy interests of IEEE's U.S. members. IEEE-USA's mission as outlined in the IEEE Bylaws is to recommend policies and implement programs specifically intended to serve and benefit the members, the profession, and the public in the United States in appropriate professional areas of economic, ethical, legislative, social and technology policy concern. The vision is to serve the IEEE United States member by being the technical professional's best resource for achieving life long career vitality and by providing an effective voice on policies that promote U.S. prosperity.

It's important to build your networking foundation with strategically selected contacts before you launch a job hunt. Decide in advance where you might need connections and purposefully begin the chain of introductions to get to know people at companies that might offer future employment opportunities. For each person you meet initially, shoot for referrals to at least two more individuals.

Purposeful networking principles can improve your job search results. First, recognize that the people you tell you are looking for a job are as important as what you tell them. Effective networking has two main components: clearly communicating your message to a hiring manager in simple but incontrovertible terms about what makes you unique, and communicating with those who will supply additional connections. Focus your efforts on those who will produce additional referrals and introductions to broaden your network. You want to be on the inside track, to be privy to restructurings and other events impacting organizations that generate the need for new resources (like yourself). Remember that to receive great leads, you need to establish a framework for collecting leads, and you also need to be willing to return the favor by sharing good leads or other information when it comes along.

If you strategically, purposefully and proactively focus your networking efforts on individuals who can offer you a job, or who are connected to people who can make you a job offer, then your job search is bound to progress toward a successful landing. Avoid wasting time haphazardly meeting, schmoozing and passing the time commiserating with people who can't further extend your network. Superior networkers don't connect randomly with a hit or miss attitude. They spend their time on networking activities where key contacts can be developed.

Focus your networking efforts geographically or by specialization to further improve your chances for establishing multiple and intersecting connections. A critical mass of individuals who know you and want to help will yield faster, better campaign results.

For the rest of this article go to:

<http://www.todaysengineer.org/2006/Apr/network.asp>



June Chapter Event Computer Society and Aerospace & Electronic Systems Society

Dinner Meeting with

Distinguished Speaker - Professor Larry Bernstein
Trustworthy Software Systems

Date/Time: Tuesday June,6, 2006

Social gathering starts at 6:00 PM. Dinner will be served at 6:45.

Presentation starts at 7:00 PM

Johnny Carino's Italian Restaurant
1102 N. Dale Mabry Highway, Tampa, FL 33607

Please register online at: <http://time2meet.com/fwcs-meetings/>

Topic: Much software engineering focuses on cost and schedule, especially schedule. A shift is needed. The software engineer must make judgments or tradeoffs among the features the software provides, the time it will take to produce the software, the cost of producing the software, how easy it is to use and how reliable it is. Too often performance and functional technical requirements become an issue once the software is deployed. Rarely is trustworthiness considered. Not only must software designers consider how the software will perform they must account for consequences of failures. System requirements must encompass trustworthiness.

Trustworthy software is stable software. It is sufficiently fault-tolerant, not crashing at minor flaws, and will shut down in an orderly way in the face of major trauma. The National Institute of Standards and Technology defines trustworthiness as "software that can and must be trusted to work dependably in some critical function." Failure to do so may have catastrophic results, such as serious injury, lost of life or property, business failure or breach of security. Some examples include software used in safety systems of nuclear power plants, transportation systems, medical devices, electronic banking, automatic manufacturing, and military systems.

This talk presents principles of requirements for trustworthy software for intensive systems of systems. The theme is a process for obtaining a quantitative and feasible set of software feature requirements. The approach is to deduce a Measurable Operational Value from a customer prospectus, establish feature sets, set priorities using a

simplified quality function deployment approach, validate the feature packages with prototypes, and extend the prototypes to models.

The Speaker: Larry Bernstein is the Industry Research Professor of Software Engineering at Stevens Institute of Technology, Hoboken, NJ. He is Director of the Quantitative Software Engineering Program and teaches Quantitative Software Engineering.

His recent book is Trustworthy Systems Through Quantitative Software Engineering. He was a 35-year distinguished executive at Bell Laboratories managing large software projects and his systems are used worldwide. He now heads his own consulting firm and is an IEEE Fellow and an ACM Fellow. Larry is also a board member of the Center for National Software Studies and a director of the NJ Center for Software Engineering

Dinner: A dinner choice of 6 entrees with salad, beverage and desert will be served for a special price of \$10 for members and \$20 for non members. See the meeting web site for details.

Join IEEE and your meal is free! Email JLumia@ieee.org for details.

Don't miss this special event with Professor Bernstein. Please register early for this meeting at: <http://www.weiquality.com/fwcs-meetings/>

For more information or special menu requests, contact

Jim Lumia, Computer Society and AESS Chairman, at 813-832-3501 or JLumia@ieee.org



Update on NFPA 70E-2004 Electrical Safety in the Workplace

Date: Tuesday, May 16, 2006
Time: Registration & Breakfast: 8:00AM – 8:45AM
 Seminar: 9:00AM – 2:00PM
Speaker: John Leedy, P.E., President, LEEDY ELECTRIC CORP. Member, IEEE
Location: Lakeland Electric, 501 East Lemon Street, Lakeland, FL 33801
Cost: \$150 Members, \$225 Non-Members (Non-Members interested will receive a membership in IEEE), \$100 Students. Includes Breakfast, Lunch, & seminar text, “NFPA 70E – Standard for Electrical Safety in the Workplace” (a \$41 value)

PDH Credits: 4 professional development hours will be awarded. Be sure to enter your name and PE number on the signup website as it appears on your license. Florida exempt provider #00015.
RSVP: Select Reservations Online at: <http://www.ewh.ieee.org/r3/floridawc/>
 Make checks payable to: IEEE FWCS
Send checks to: Ralph Painter, IEEE FWCS Treasurer
 648 Timber Pond Drive
 Brandon, FL 33510-2937
 Space limited to the first 50 registrants!!!
Questions: Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com

Seminar Text



A \$41 Value

Your local IEEE PES/IAS Chapter is offering this 4 hour seminar on Electrical Safety in the Workplace by John Leedy, president of Leedy Electric Corporation.

This training session will be devoted to the subject of Electrical Safety in the workplace. Topics such as “how does electrical safety and the NFPA-70E apply to the workplace” and “what is required to be compliant with the standards” will be covered. A copy of the standard, NFPA-70E-2004 Standard for Electrical Safety in the Workplace is included in the training costs.

John Leedy graduated from University of Florida in 1982 with a Bachelor of Science in Electrical Engineering with an emphasis in Power Delivery. John worked for Dillard Smith Construction as a protective relay technician. He joined General Electric as a Field Engineer, specializing in Power Substations and DC Electronic Drive Systems in Paper Mills as well as Project Management of Paper Machine Drive System retrofits and substation construction. John left GE to join the family business, Leedy Electric Corp, in 1987. He earned his Professional Registered Electrical Engineering certification for the State of Florida in 1992 and his Masters in Engineering Management from the University of South Florida in 2002

Along with several other career related certifications earned since being with Leedy Electric Corp., he earned his Certified Power Quality Professional certification and has been working with NFPA 70E regulation since 2002, performing site Arc Flash Hazard Analysis and training management and employees on the standard. Leedy Electric Corp is located in Mulberry Florida, and has been in business since 1975, specializing in Engineering and Electrical Service for the residential, commercial and industrial industries.



Why IEEE?

Join an IEEE Society for Half the Price

With the year almost half gone, dues on society memberships and publications have been cut in half. The 39 IEEE societies focus on a broad range of subjects, and together produce 122 publications. Individual memberships and subscriptions become active when paid for and continue through the remainder of 2006. To add societies or publications to existing memberships, visit:

<http://www.ieee.org/addservices>

Great magazines at all levels:

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For tutorial-like material in focused areas: IEEE Proceedings.

For in-depth, cutting edge material in your field, the Society Transactions.

How can you not read these?



The 41st Annual Meeting of the IEEE Industry Applications Society

Date: October 8-12, 2006

Location: Tampa Marriott Waterside Hotel

Expanded Tutorial Offering

Joseph Sottile, organizer of tutorials for the Industry Applications Society, IAS, has just announced the line up of tutorials for its 41st annual meeting in Tampa.

This year will see a schedule of ten tutorials. Seven of which are for engineers and researchers and will be presented on Sunday October 8. The other three, which are aimed for application oriented local engineers will be on held on October 9-11. All of the tutorials will offer CEU's For other details and complete summaries please see the conference web site www.ieee.org/ias2006 The Titles, organizers and short summaries follow:

Sunday Tutorials, October 8

Tutorial 1: Application-Driven Design and Control of Brushless Permanent Magnet Motors

Organizer: Mehdi Abolhassani, Black & Decker Corp.

Short Summary

The increasing rate of depletion of fossil energy resources on one hand and growing energy cost and demand on the other hand has initiated considerable research activities worldwide to explore means for tapping into high efficiency motor/drive technologies. (Length: Half Day)

Tutorial 2: State of the Art Motor Manufacturing Practices: Impact on Design and Analysis.

Organizer: Peter Wung, Emerson Motor Company

Short Summary

This tutorial is intended for practicing engineers, researchers, and academics working in electric machine design. (Length: Half Day)

Tutorial 3: Advanced Modeling, Control and Optimization Techniques for Industrial Automation

Organizer: Ganesh K. Venayagamoorthy, University of Missouri-Rolla

Short Summary

This tutorial will present background information on the state of art control in industry using proportional integral control (PID) and draw the need for better controls. (Length: Half Day)

Tutorial 4: Design and Control of Interior Permanent Magnet Motor Drives

Organizer: M. F. Rahman, University of New South Wales, Australia

Short Summary

Interior Permanent Magnet (IPM) motors are now being used in a very wide variety of applications ranging in capacity from a few hundred watts to multi-megawatts. (Length: Half Day)

Tutorial 5: Power Converters for Utility Applications

Organizer: Subhashish Bhattacharya, North Carolina State University

Short Summary

This tutorial is focused on addressing both existing and cutting edge developments in high power converters suited for various utility applications. (Length whole day)

Tutorial 6: The Impact of the European CE Marking Requirements on Design and Performance of Power Converters and Electrical Drives

Organizer: Ralph M. Kennel, Wuppertal University

Short Summary

The goal of this tutorial is to provide some background to the goals and design procedures of these directives and to avoid disadvantageous decisions and solutions even before any CE expert is involved in launching a product to the European market. (Length: Half Day)

Tutorial 7: Matching Drive Solutions to Industrial Control Applications

Organizer: Brian Boulter, ApICS LLC

Short Summary

This tutorial will concentrate on identifying an appropriate drive solution for a given control loop in the most commonly encountered applications in industrial systems. (Length whole day)

Weekday Tutorials, October 9-11

Tutorial 1: UL Standards

Organizer: Donald E. Snyder, Manager - US Standards, Underwriters Laboratories

Short Summary

An overview of UL structure and scope of operations will introduce the audience to Underwriters Laboratories and set the stage for the role of Standards. (Length: Half Day)

Tutorial 2: Protection of Power Transformers

Organizer: Charles (Chuck) Mozina, Consultant

Short Summary

The tutorial will cover the basics of protecting power transformers at both utility and industrial facilities as discussed in IEEE/ANSI standard C37.91 (Guide for Protective Relay Applications for Power Transformers) and the IAS Buff Book (IEEE Standard 242-2001). (Length: Whole Day)

Tutorial 3: Design and Operation of Motor Bus Transfer Schemes at Power Plants and Medium Voltage Industrial Facilities

Organizer: Charles (Chuck) Mozina, Consultant

Short Summary

This tutorial discusses the design and operation of automatic schemes to transfer loads from an interrupted bus section to the alternate bus within industrial facilities or power plants without damaging the motors being transferred. (Length: Whole Day)

Brain Teaser Challenge Column

—By Butch Shadwell

April BTC I hope it's clear now that I am not a Trekkie. The phaser we discussed last month used "...a laser diode that puts out a thin beam at 640 nm wavelength, and (is) shined ... through a single slit between two razor blades producing a nice pattern on a wall that was 33 feet away from the slit device. There was a very bright spot in the center and then dark and light patches extending to each side. The distance on the wall from the brightest point in the center to the darkest point in the first dark patch to the right was 5". It seemed that there were several more dark areas at the same distance from each other, in both directions. Can you tell me what the gap diameter was between the razor blades, based on the observations above? Can you say Fraunhofer single slit diffraction?"

Optical interferometry is such a fascinating science. For this type of geometry the equation for the distance from the center to the first dark spot in the diffraction pattern is $y = (L \cdot D) / a$, where L is the wavelength, D is the distance to the projected pattern, and a is the diameter of the slit. From the observations above $y=5"$, $L = 640\text{nm}$, and $D = 33'$. When you solve for a, you get $a = 50.7 \mu\text{m}$. But I bet you already knew that.

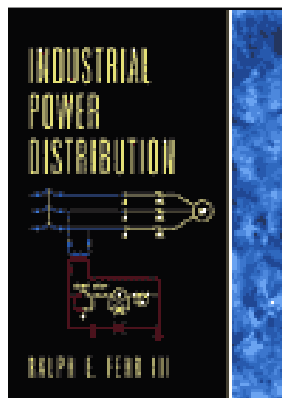
May BTC Doodling can be a great pastime. In the process of otherwise wasting time, one can exercise one's creative urges with nothing more than a piece of paper and a pencil or pen. But there could be a dark side. When you let your imagination run wild, your doodles can sometimes reveal the inner most parts of who we are ... that dark place at the core of our being, where we dare not look too closely. I have heard that some religious orders forbid doodling because they believe it may allow demons to take control while your guard is down. There are testimonials from people who claim that in a doodle induced trance, they would produce sketches of exaggerated figures of the opposite sex. Alarmed spouses have had to procure exorcisms for their doodle damaged mates.

Just such a victim was Orville Greenbush. He had heard the stories as a child, but he found it hard to believe the sinister nature of the doodle syndrome. Perhaps rebellion was in his nature. In Orville's case his doodles took the form of electronic circuit configurations, one of the symptoms of the final stages of doodle dementia. During a particularly bad spell, Orville found himself involuntarily drawing an inverting Schmidt Trigger built around a linear comparator. His design used three resistors and the three terminal comparator. The input impedance was equal to the open terminal input of the comparator. The design changed state at 1/3 and 2/3 of Vdd. Describe the circuit configuration and calculate the resistor

— **Brain Teaser Challenge** Cont. next column

Seminar on Fault Calculations at Seminole Electric by Dr. Ralph Fehr Well Attended.

On Wednesday, March 22, Seminole Electric hosted IEEE for a seminar on fault calculations and selection of protective equipment. The class was taught by Dr. Ralph Fehr, who made a very technical topic interesting, did a great job explaining the



meaning behind the formulas, and demonstrated methods for determining fault current values. The seminar included a fascinating demonstration of software to visualize phasors and their symmetrical components. In addition to the PDH certificate for the seminar, each attendee received a copy of Dr. Fehr's book. Dr. Fehr is currently a professor at the

University of South Florida, College of Engineering, Power Systems Program. For more information on the power program at USF, or to contact Dr. Fehr, please visit their website at <http://web.tampabay.rr.com/usfpower/>.

We are very grateful for all the effort put forth by Seminole Electric and Dr. Fehr to put on this seminar for the local IEEE section. Many thanks to Dr. Fehr, Quang Tang, and the members of the local PES/IAS Chapter for their efforts in arranging this training. Watch your signal newsletter for more seminars, meetings, and conferences coming up this year.

If you have an idea for a seminar or a tour for the local engineering community, please contact Tom Blair (tom_blair@ieee.org) or Ghaff Khazami (gkhazami@megaway.com)



Brain Teaser Challenge—Cont.

values. Let's limit the feedback current to 1 mA, and Vdd is 5 vdc. Remember, don't think that doodling in the dark is safe just because no one can see you. If you must doodle, be sure to use an erasable ink.

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(<http://www.shadtechserv.com>).

May 2006 Calendar of Events (For more information see P. 1 *Inside this Signal...*)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 5:30 pm: <i>IEEE FWCS ExCom Meeting, TECO Hall, Tampa</i>	3	4	5 1:00 pm: <i>FPGA Design & Verification Pinellas p 4</i>	6
7	8	9	10	11	12 1:00 pm: <i>FPGA Design & Verification Pinellas p 4</i>	13
14	15	16 8:00 am: <i>Electrical Safety in the Workplace Lakeland p 9</i>	17, 6:00 pm: <i>Carol Woody, Ph.D., Johnny Carino's Tampa p 3</i>	18	19 1:00 pm: <i>FPGA Design & Verification Pinellas p 4</i>	20
21	22	23 5:30 pm: <i>Fiber Optic Cable Splicing, TECO Hall, Tampa p 1</i>	24	25	26 1:00 pm: <i>FPGA Design & Verification Pinellas p p</i>	27
28	29	30	31	1	2	3

Institute of Electrical and
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IEEE/IAS Annual Meeting Oct. 2006 Tampa!

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