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Sarasota Counties



# THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 63—No. 2 February 2017

# DISCOVER ENGINEERS WEEK



**FEBRUARY 19-25, 2017**

## *Tampa Bay E-Week Banquet*

**Thursday Feb. 23, 2017**

**Reception 4:30-6:30PM**

**Banquet 6:30-9:00PM**

**TPepin's Hospitality Centre**

**4121 N. 50th St.—Tampa, FL 33610**

This Engineers Week, the engineering societies of the Tampa Bay area will be hosting the annual Tampa Bay Engineers Week Banquet. This premier event brings together local leaders and engineering professionals to recognize the outstanding achievements of Engineers, Science Teachers, Math Teachers, and Students in our community.

Additionally, awards will be presented to outstanding engineers in each discipline, as well as local engineering students excelling in their engineering related studies and Young Professionals. The banquet also features the Lignell Awards. These awards, named after a former Chairman for the Institute of Electrical and Electronics Engineers (IEEE), are given to local High School educators who are performing outstanding work in the instruction of the STEM topics (science, technology, engineering and math). The organizers of the event recognize the important role these individuals play in encouraging students to pursue technological degrees in college.

The Keynote speaker, Karen A. Swager, P.E., Vice President, Concentrates – Phosphates for The Mosaic Company, will address the group with her talk: "There's No Crying in Phosphate!".

The banquet is a combination of efforts by all the Engineering Societies of West Central Florida. This event brings together professionals in all fields from all around Tampa and Florida's west coast. The cost is \$65 per person (\$75 per person the day of the event). Menu choices include chicken, fish, or vegetarian, and the dress is cocktail / evening attire. To register, visit the Tampa Bay Engineers Week website at <http://tbewb.org/>.

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### Upcoming Meetings

#### *EXCOM Meeting*

Tuesday, February 7, 2017 5:30PM at TECO Plaza  
Register online at <http://time2meet.com/fwcs-excom/index.html>  
Open to all FWCS Members

#### *Generator Protection Fundamentals*

Friday, February 17, 2017 8:30AM-2:00PM at FRCC Headquarters

**2017 IEEE EXECUTIVE COMMITTEE - FLORIDA WEST COAST SECTION**CHAIR: Claude Pitts [claudie.pitts@ieee.org](mailto:claudie.pitts@ieee.org)VICE CHAIR: Jim Cavanaugh [James.A.Cavanaugh@ieee.org](mailto:James.A.Cavanaugh@ieee.org)SECRETARY: Sean Denny, [venner20@ieee.org](mailto:venner20@ieee.org), 727-678-0183TREASURER: Jim Howard, Lakeland Electric (863)834-6585 [jhoward@ieee.org](mailto:jhoward@ieee.org)SIGNAL EDITORS: Donna Howard, [amberdon3133@gmail.com](mailto:amberdon3133@gmail.com) (813) 924-2024; Serge Beauzile, [serge.beauzile@ieee.org](mailto:serge.beauzile@ieee.org) 863-834-6511; Ralph Fehr, [r.fehr@ieee.org](mailto:r.fehr@ieee.org)AWARDS & BYLAWS: Richard Beatie, PE, [r.beatie@ieee.org](mailto:r.beatie@ieee.org)MEMBERSHIP: Jim Howard, Lakeland Electric (863)834-6585 [jhoward@ieee.org](mailto:jhoward@ieee.org)TEACHER IN-SERVICE: Sean Denny: [Venner20@ieee.org](mailto:Venner20@ieee.org) (727) 678-0183PES/IAS CHAPTER: Serge Beauzile, Lakeland Electric, (863) 834-6511 [serge.beauzile@ieee.org](mailto:serge.beauzile@ieee.org)MTT/AP/ED CHAPTER: Jing Wang [jingw@usf.edu](mailto:jingw@usf.edu)COMP/AESS CHAPTER: Jim Cavanaugh [james.a.cavanaugh@ieee.org](mailto:james.a.cavanaugh@ieee.org)EMBS: Engineering in Medicine & Biology: John West: 727-743-2267, [john.west@ieee.org](mailto:john.west@ieee.org)ROBOTICS and AUTOMATION SOCIETY, Sean Denny, [Venner20@ieee.org](mailto:Venner20@ieee.org)SP/COMM CHAPTER: Chris Lambrecht [chris.lambrecht@ieee.org](mailto:chris.lambrecht@ieee.org)WIE: Women in Engineering: Valerie Tur, (813) 334-2317, [VLT4@cornell.edu](mailto:VLT4@cornell.edu)LIFE MEMBER AFFINITY GROUP: Glen Cock [gcock@tampabay.rr.com](mailto:gcock@tampabay.rr.com), 813-689-4765YOUNG PROFESSIONALS: T.J. Ross [anthonyross@mail.usf.edu](mailto:anthonyross@mail.usf.edu), (505) 620-7734PACE: Jim Anderson (813) 425-2467 [jim.anderson@ieee.org](mailto:jim.anderson@ieee.org)CONSULTANTS NETWORK: Herman Amaya [hamaya@tampabay.rr.com](mailto:hamaya@tampabay.rr.com)

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Home Phone: (813)876-1748 E-MAIL: [amberdon3133@gmail.com](mailto:amberdon3133@gmail.com)**The Signal, Copyright © 2017****Useful links:**<http://www.ieee.org/benefits> Global Benefits Finder<http://www.ieee.org/discounts> Discounts Page**PE Corner**Art Nordlinger, PE, Senior Member  
**The Steps to Professional Licensure, Part 3**

Last month I discussed the experience necessary to qualify to take the Principles and Practices of Engineering exam, also called the PE exam. This month I will focus on the final steps, including the PE exam itself.

Unlike the FE exam, which is now computer based and given in a designated testing center, the PE exam is a written, multiple choice exam. The exam is given twice a year, in April and October. To qualify to sit for the exam, an applicant must submit their application (with experience listed and references), along with a \$230 examination fee, to the board no later than posted, specific dates about 6 months before the exam date. The submittal deadlines and test dates for the next several years may be found on the FBPE website: <https://fbpe.org/licensure/application-process/principles-practice-examination/>.

The PE exam is discipline specific, and most disciplines include sub-disciplines. For example, the Electrical and Computer exam includes three sub-disciplines: Computer Engineering, Electrical and Electronics, and Power. The NCEES website includes statistics for the October 2016 exam for each sub-discipline, including the number of people who took it and the pass rate, both for first-time examinees and repeat examinees. This may be found at: <http://ncees.org/engineering/pe/>.

The PE exam format is open book and 8 hours long, given in two 4-hour sessions. Each session has 40 multiple choice questions and you must answer all of them. You can bring in any bound textbooks or notebooks. (It's interesting to see the veritable libraries that people drag into the exam.) No computers of any kind are allowed into the exam room, so there is no option to bring your references electronically. And only certain calculators are allowed, a list of which is on the NCEES website. When studying for the exam, if you don't own one of these calculators, it is suggested that you obtain one early-on and learn all of its functionality well in advance of exam day.

Exam grades are available about 8-10 weeks after the exam is given. Examinees are notified by the Board with their PE number and certificate if they pass, or information on retaking the exam if they don't. The Florida Board allows an examinee three tries to pass the exam. If the examinee fails three time, the board will typically require the examinee to take some classes at the college level in the appropriate subject matter before another attempt.

To learn more about the examination and application process for the FE and PE exams go to the *Application Process* page under the *Licensure* section of FBPE's website at [www.fbpe.org](http://www.fbpe.org). or contact the Board office at (850) 521-0500 and ask to speak to someone in the *Licensure* department.

The most-recent FBPE newsletter notes that license renewal opened Monday, November 7. As with the last renewal cycle, engineers do not have to submit evidence that they have completed the required continuing education. However, they must have that evidence available if requested by the Board. Information on license renewal may be found on the Board's website at <https://fbpe.org/licensure/license-renewal/>.

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 deadline is less than one month away. Better start earning those CEHs now!

### Florida Professional Engineers

Remember that license renewals – and the required continuing education hours (CEHs) – are due by February 28. If you still need CEHs, see Page 5 for our last CEH-earning seminar of this licensure cycle.

## *SoutheastCon 2017*

*Charlotte, NC—March 30-April 2, 2017*

*“The Internet of Smart Ideas”*

This year’s Region 3 conference promises to be another outstanding event, offering a superb technical program and a demanding student program, all set in the beautiful Embassy Suites Hotel Golf Resort and Spa, in the Charlotte / Concord metroplex.



Registration for the conference is already open, and can be accomplished on the conference’s website:

<http://sites.ieee.org/southeastcon2017/>.

Early registration fees start at \$385 for the technical program and \$125 for students and life members.

Next year’s Region 3 conference will be held right here in the Tampa Bay area, hosted by the Florida West Coast Section. It will be the first SoutheastCon held in our area since 1996. Make plans to attend the 2018 conference, or better yet, get involved with its planning and implementation. If you or your employer are interested in supporting SoutheastCon, either as a volunteer or as a sponsor, please contact a section officer (page 2 of this Signal). We’d love to have you on the team!

### **This is the LAST SIGNAL you will receive**

unless you have renewed your IEEE membership for 2017. If you haven’t already done so, renew now to keep the Signals coming! Visit [www.ieee.org](http://www.ieee.org) to renew.

## *FREE IEEE-USA E-BOOKS Focus on Transitioning from Classroom to Office & Strategic Thinking*

As a special benefit to IEEE members in January, IEEE-USA is offering a free e-book, “Launching Your Career: How to Make the Transition from the Classroom to the Office.”

The second e-book in the “Launching Your Career” series, it explores the difficult decisions recent graduates face in their search to find the perfect job; their fears in transitioning from the classroom to the workforce; and their needs and desires to become leaders, as well as to have enjoyable and rewarding careers.

The book was written by former IEEE-USA Communications Committee Chair Abby Vogel and was the brainchild of 2007 IEEE-USA President John Meredith. Their collaboration prompted a series of GOLD (Graduates of the Last Decade) e-books directed at IEEE members who have attained their first professional degrees in the past 10 years. GOLD is an IEEE program that offers programs and services to graduating students, recent graduates and young engineers.

Other e-books in the GOLD series include: “Launching Your Career -- Book 1: How to Find Your Perfect Job”; “Launching Your Career -- Book 3 -- A Practitioner’s Guide to Leadership”; and “Launching Your Career -- Book 4: Lifelong Learning -- Your Key to an Enjoyable and Rewarding Career.”

“Launching Your Career -- Book 2: How to Make the Transition from the Classroom to the Office” can be downloaded at <http://www.ieeeusa.org/communications/ebooks/files/82ij200sb/GOLD-Transitioning-from-Classroom-to-Office.pdf> for free to IEEE members. The nonmember price is \$5.99.

In February, IEEE-USA E-Books will offer “Strategic Thinking: A High-Tech Strategy Guidebook” by IEEE Senior Member Jim Blakley.

This how-to guide is designed to show the processes and frameworks that enable strategists to create and implement good strategy. It is structured into three sections reflecting the strategic process: analysis, synthesis and action.

To purchase IEEE members-only products and to receive the member discount on eligible products, members must log in with their IEEE Web Account.

## *Computer & Aerospace and Electronics System Societies Wants You!*

Happy New Year from the Computer Society (CS) & Aerospace and Electronic Systems Society (AESS)! My name is Jim Cavanaugh, the chair of the CS/AESS chapter for the Florida West Coast Section. Are you interested in actively participating, organizing, and administering technical discussions for the CS/AESS Chapter? Do you have an idea for a topic or meeting you’d like to discuss with engineers and IEEE members from around the area? There are great opportunities still available for 2017. Contact Jim Cavanaugh at 484-459-9418 or [James.A.Cavanaugh@ieee.org](mailto:James.A.Cavanaugh@ieee.org) for more details.

## *Do You Have Information to be Published in the Signal?*

The Suncoast Signal has a printed circulation of over 2000 copies plus online access at <http://sites.ieee.org/fwcs>.

The Signal is a great way to communicate with engineering professionals throughout central Florida and beyond. Meeting notices and items of general interest are published at no cost, and advertising rates for business promotion are listed on Page 9.

The publication cutoff for the Signal is the Friday following the section ExCom meeting (which is the first Tuesday of the month). Please send information to be published in the Signal to the editor, Ralph Fehr ([r.fehr@ieee.org](mailto:r.fehr@ieee.org)), by the publication cutoff. Putting the word "Signal" somewhere in the subject line will help assure that your email does not get buried in the dozens of less-important emails received daily.

## *FE/PE Exam Review Sessions*

The FWCS is frequently asked if they provide review sessions for the Fundamentals of Engineering (FE) and Professional Engineer (PE) examinations. Well, the answer is no as of now, but that could be changing—if you want it to.

An FE review has been run twice a year for quite a few years by the Upsilon Gamma chapter of the Theta Tau engineering fraternity at the University of South Florida. FWCS members support this effort by instructing portions of the review. Information on the FE review can be obtained by contacting Jahlil Milis at [fe.review.sessions.usf@gmail.com](mailto:fe.review.sessions.usf@gmail.com) or visiting <http://www.usfthetatau.com/fe>.



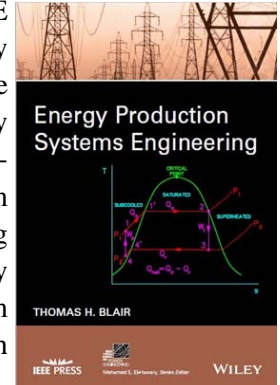
The PE-Electrical exam was replaced in April 2009 by three separate exams: Computer Engineering, Electrical and Electronics, and Power. Engineers-in-training with an EE background now opt for one of those three exams.

A 10-week, 30 contact hour review seminar for the Power exam was developed in 2009 by two FWCS members. Although it has not been taught "live" for several years, it can be accessed via archived webcasts. Bringing back the "live" presentation twice a year will be considered by the FWCS PES/IAS chapter, if sufficient member interest exists. Please contact the review seminar developers, Ralph Fehr ([r.fehr@ieee.org](mailto:r.fehr@ieee.org)) or Tom Blair ([thblair@tecoenergy.com](mailto:thblair@tecoenergy.com)), for information or comments regarding the Power review.

Although local review sessions for the Computer and Electronics exams have never been offered, chapters within the FWCS will consider offering review sessions if sufficient member interest exists. Please contact the section chair Claude Pitts ([claud.pitts@ieee.org](mailto:claud.pitts@ieee.org)) if you are interested in these review seminars.

## *Energy Production Systems Engineering Seminar a Success*

On Friday January 20, over 35 engineers and engineering students attended a seminar conducted by Tom Blair based on his recently-published book *Energy Production Systems Engineering* (Wiley/IEEE Press). The book takes a truly unique approach to describing the process of generating electricity by exploring the traditional technologies (fossil-fuel & nuclear steam and hydro) as well as the emerging technologies (wind and solar) by analyzing the technologies system by system, introducing just enough theory to understand the processes, but assuming no previous knowledge of thermodynamics or fluid mechanics. This approach is ideal for today's



electrical engineering students who typically have little exposure to general engineering subjects such as statics, dynamics, thermo, and fluids.

Over the course of the six hour seminar, the author was able to cover many of the major highlights from most of his book's 28 chapters. Additionally, Tom brought along working demonstrations to reinforce some of the theoretical concepts he covered such as thermodynamic cycles (a Stirling engine) and electromagnetic induction (a generator / oscilloscope setup).



Stay tuned to the Signal for announcements of future seminars on a variety of technical topics, many of which carry Continuing Education Hours (CEHs) applicable to license renewal.

 IEEE INDUSTRY APPLICATIONS SOCIETY		 Power & Energy Society™
<b>Generator Protection Fundamentals</b>		

Date: Friday, February 17, 2017

Time: Registration & Breakfast  
Seminar

8:30am—9:00am  
9:00am—2:00pm

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

Parking: Use parking lot for Hyatt (North side only) Cost: \$100 Members, \$200 Non-Members, and \$20 Students

4 Continuing Education Hours (CEHs) will be awarded

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

RSVP: Online at: <http://time2meet.com/fwcs-pes2/index.html>

Make checks payable to: IEEE FWCS

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Questions: Serge Beazile at 863-834-6511, or [serge.beazile@ieee.com](mailto:serge.beazile@ieee.com)

Generators are subject to internal faults, external faults, and abnormal operating conditions caused by turbine and excitation system issues, as well as power system events over which the generator has no control, but must cope with. False (nuisance) trips are costly as the generator output is lost. Inability to trip due to lack of sensitivity, lack of certain protections, or deficiencies in protection application may cause severe damage to generators, resulting in prolonged outage and revenue loss, plus increased system instability risk. Achieving the ideal balance of secure and dependable protection involves use of an array of elements that protect the generator for all operating modes: off-line, start up, synchronizing, various levels of power output and when challenged by system faults and anomalies.

Who should attend this course: power plant protection engineers and technicians, as well as power plant operators and protection generalists who desire a deeper background on the subject.

- |  |   |   |
|--|---|---|
| Generator construction and operation                         | - | Grounding and connections                       |
| IEEE standards for generator protection                      | - | Generator and power system interaction          |
| Generator protection element review                          | - | Internal faults (in the generator zone)         |
| Abnormal operating conditions                                | - | External faults                                 |
| Protection Application Exploration                           | - | Tripping considerations and sequential tripping |
| Discuss tactics to improve reliability                       | - | Redundancy concepts                             |
| Generator protection upgrade considerations                  | - | Lessons learned from NE Blackout (2003)         |
| Explore Setting, Commissioning and Event Investigation Tools |   |   |

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.



## **Hurricane Matthew Panel Session**

### **Tampa Electric Co. (TECO), Duke Energy Florida (DEF), and Seminole Electric**

Date: Friday, March 17, 2017

Time: Registration 10:30am—11:00am  
Meeting 11:00am—2:00pm

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

Parking: Use parking lot for Hyatt  
(North side only)

Cost: \$10 Members, \$20 Non-Members, and \$10 Students  
**Lunch Included**

3 Continuing Education Hours (CEHs) will be awarded

Speakers: **Robert Lee Collins, III** — TECO  
**Jimmy Guzman** — DEF  
**John Price** — Seminole Electric

RSVP: Online at: <http://time2meet.com/fwcs-pes3/index.html>

Make checks payable to: IEEE FWCS

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

**Space limited to the first 50 registrants!!!**

Questions: Jim Howard at 863-834-6585, or [jim.howard@lakelandelectric.com](mailto:jim.howard@lakelandelectric.com)

TECO will be reviewing the details of what was required to get facilities restored at Grand Bahama Power Company, their Emera sister company. TECO shipped men, materials, trucks, generators, etc. down to Grand Bahama, where 90% of their system was destroyed by Hurricane Matthew. They will be sharing the many, many challenges they experienced in working to get this system restored.

DEF plans to cover their response to both Hurricanes Hermine and Matthew, and share with the group lessons learned from these experiences.

Seminole Electric will be sharing with the group the details of getting their system, along with their member's systems, restored following these devastating storms.



		
<h2 style="color: red; margin: 0;">Nuclear Power: A Relic or the Sustainable Path Forward?</h2>		

Date: Friday, April 7, 2017

Time: Registration 9:30am—10:00am  
Meeting 10:00am—2:30pm

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

Parking: Use parking lot for Hyatt  
(North side only)

Cost: \$50 Members, \$100 Non-Members, and \$10 Students  
**Lunch Included**

4 Continuing Education Hours (CEHs) will be awarded

Speaker: **Matthew Lovitt**

Chemistry and Environmental Manager  
Sequoyah Nuclear Plant  
Tennessee Valley Authority

RSVP: Online at: <http://time2meet.com/fwcs-pes4/index.html>

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**Space limited to the first 50 registrants!!!**

Questions: Ralph Fehr at [r.fehr@ieee.org](mailto:r.fehr@ieee.org)

Energy ranks as one of the most important geopolitical issues we face. As the world requires substantially more energy due to increased energy usage in developing countries, the ability to produce this energy while minimizing impact to the environment poses a major engineering problem. Is nuclear power part of the solution?

Mr. Matthew Lovitt from Tennessee Valley Authority, one of the nation's largest nuclear operators, will make a presentation including a brief history of nuclear power, a technical description of how nuclear reactors work, challenges to the nuclear industry, as well as an overview of career opportunities in the nuclear field.

Matt is the Chemistry Manager at Sequoyah Nuclear Plant in Soddy Daisy, Tennessee. He previously held multiple roles in the Operations Department, including onshift Senior Reactor Operator, Shift Technical Advisor, and Shift Manager.

Prior to Sequoyah and TVA, Matt served in the U.S. Navy as a Nuclear Surface Warfare Officer, performing tours onboard USS Roosevelt (DDG 80) and USS George Washington (CVN 73). He was also a Navy ROTC Instructor at the University of South Florida, where he taught naval engineering and navigation courses.

Matt's education includes a Bachelor of Science in Systems Engineering from the U.S. Naval Academy and a Master of Science in Electrical Engineering from the University of South Florida.

Matt and his wife Amy reside in Hixson, TN with their 3 children Carson, Stella, and Ellie.





The Florida Regional Competition to be held @ Nielsen in Oldsmar Saturday March 11th, **6 Game Judges needed.**

The World Championship Competition to be held @ the St. Pete Beach Community Center Saturday June 3rd, **12 Game Judges needed.**

Game Judges work in pairs.

# Robofest 2017

## Needs Volunteer Game Judges

Robofest 2017 Game RoboHit - Base first Perfect.



Robofest competitions challenge Elementary, Junior High & High School students to design, build and program robots to autonomously complete a set of specified tasks in 2 minutes.



Robofest RoboHit Game Video Link: <https://www.youtube.com/watch?v=DZdny0rVX3c>

Email Chief Game Judge Bill Collins ([wcollins@tampabay.rr.com](mailto:wcollins@tampabay.rr.com)) to volunteer for the March 11th and June 3rd competitions.

© Robofest 2017

## Wharton High School Holds STEM Fair

IEEE FWCS RAS sponsored a Leto High School Robotics team, which participated in a *STEM Fair* at Wharton High School on January 14<sup>th</sup>, 2017. Former RAS Chair Ken Fiallos was one of their mentors. Sean Denny of the FWCS RAS also attended and assisted. The autonomous robots had to drive up a ramp, pick up a magnetized cylinder, and then drive back down. When the autonomous mode failed to work, the students converted to driving mode. Leto High School defeated Plant High School in the contest. Then outdoors in the south parking lot, the Electrathon teams raced their electric vehicles.



Working with high school students on projects involving robotics is a great way to engage the youth and encourage them to pursue an engineering education. It's also a good way to have some fun yourself! If you're interested in learning more, contact Sean Denny of the FWCS Robotics and Automation Society at [venner20@aol.com](mailto:venner20@aol.com).





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**February 2017 Calendar of Events (For more information see P. 1) in this Signal...**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7 <i>EXCOM Meeting 5:30 TECO Plaza</i>	8	9	10	11
12	13	14	15	16	17 <i>Generator Protection Fundamentals Details P. 5</i>	18
19	20	21	22	23 <i>E-Week Banquet TPepin's Hospitality Centre Details P. 1</i>	24	25
26	27	28				