



Tariq Durrani,
President IEEE EMS

President's Corner

Tariq S. Durrani, President, IEEE EMS

Dear Colleagues

The Board of Governors (BoG) of the Engineering Management Society met in Orlando in February of this year. In addition to receiving reports from the Vice-Presidents, the Board spent some time discussing strategic issues that would have long-term consequences. It is evident that the Society's activities and offerings are very successful. The Society's publications are flourishing, and plans for IEMC-2006 in Bahia, Brazil are well underway. There is a need however for greater engagement with the members through effective educational programmes, membership development initiatives, and promotion of EMS conferences. It was particularly pleasing to note that the local Chapter is ably supporting IEMC-2007, the Society's flagship conference, which will be held in Austin Texas in June, 2007.

At the meeting, Mary Reidy took up her responsibilities as the Society's Secretary and provided excellent support. We look forward to her continuing service to the Society. The BoG approved the appointment of Leslie Martinich as Vice-President for Publications. Leslie, with her background in industry, brings a wealth of experience, enthusiasm and a fresh perspective to the position. Vice-President for Conferences, Charles Rubenstein reported that volunteer fervour for IEMCs remains unabated, with proposals for organising IEMC 2008 and 2009 being given serious consideration. After discussion, the BoG agreed in principle for IEMC 2008 to be held in Adelaide, Western Australia, with Charles Rubenstein given authority to progress matters.

May I take this opportunity to invite you to attend IEMC-2006 to be

held in Bahia, Brazil, in September of this year. As the closing date for paper submission approaches, Antonio Bastos, the General Chair of IEMC-2006 has reported a rush of submissions being received from all over the world. This clearly signals a strong technical programme for the conference, and holds the promise of a very successful event. For more information please visit: <http://www.iemc2006.org>.

Your BoG also approved the setting up of a Task Force, with Executive Vice-President Gus Gaynor as chair, to address a number of governance issues and to review the Society's constitution and bylaws, the size and composition of BoG, and related election and appointment processes. Governor Margaretha Eriksson was charged with revitalising the Society's Special Interest Groups (SIGs). She has undertaken to review the activity and introduce new measures. EMS members are encouraged to join the SIGs. Please see the accompanying article in this issue of Engineering Management.



Two other items of interest were resolved. The choice of a logo for the Society has been a vexing issue for some time. The question has been discussed over a number of BoG meetings, where several logos, proposed by a variety of individuals and organisations, have been discussed. Your BoG voted to approve a logo which reflects the dynamism of the Society, is tasteful and modern in its outlook, easily recognisable and memorable, distinct and different. You will see a lot of it.

On Saturday 11 February, Mr James Kennedy, the Director of the NASA Kennedy Space Centre, Florida, was invited to be the Chief Guest at

In This Issue ...

James Kennedy Inspires Great Engineering Management.....	2
Join the Special Interest Groups of your EMS.....	3
EMS Membership Update	3
Message from the President of the IEEE.....	4
Book Review	4
Salvador, the Host of the IEMC 2006	5
Call for Papers: IEMC2006	6
Chapter Reports.....	7
IEEE-USA Leadership Workshop Keynote Address	9
Design Squad.....	9
Nanotechnology	10
2007 IEEE President-Elect Candidates	10
Pandemic Avian (Bird) Influenza.....	12
Sustainable Entrepreneurship.....	13
Your Engineering Management Case Study Project.....	14
Book Review	15
Board Of Governors	16

the EMS BoG Dinner, and he gave a spell-binding after-dinner talk on Engineering and Technology Management challenges facing the Space industry, illustrated by an excellent set of slide, covering the activities and future NASA Space missions. The slides are available at the EMS Web-site: <http://www.ewh.ieee.org/soc/ems/>. Please see the accompanying article in this issue of *Engineering Management*.

The other day I was invited to attend a lecture given by a local hotelier, Maurice Taylor, at our Hotel School, who had started from scratch some thirty years ago, and, through persistence, patient hard work and sheer determination, now owns and runs a chain of some 170 hotels throughout the UK. I was impressed by leadership traits that he exhibited and amazed by the sophistication of management tools that he deployed. He was forthright, down to earth, dedicated and extremely adroit in his dealings. He finally listed 20 rules that had led him to his success, and I thought that these are so universal that they are worth sharing them with you. Hence, I am listing these for your interest:

1. Work only half a day; it makes no difference which half – it can be

2. either the first 12 or last 12 hours.
2. Work is the master key that opens the door to all opportunities.
3. Mental attitude plays a far more important role in a person's success or failure than mental capacity.
4. Remember that we all climb the ladder of success one step at a time.
5. There are two ways to get to the top of an oak tree, one way is to sit on an acorn and wait; the other way it to climb it.
6. It is not all about money, a labourer has to be worthy of their hire.
7. The secret of happiness is not in doing what one likes, but in liking what one does.
8. Eliminate from your vocabulary the words, 'I don't think I can' and replace with 'I know I can'.
9. In evaluating a career, put opportunity ahead of security.
10. A person has to take risks to achieve.
11. People, who take pains never to do more than they get paid for, never get paid for anything more than they do.
12. Opportunity comes often. It knocks as often as you have an ear trained to hear it, an eye trained to

- see it, a hand trained to grasp it, and a head trained to use it.
13. You cannot procrastinate – in two days, tomorrow will be yesterday.
14. Live life generously (the most important gift in your life is your time).
15. A successful person realises his personal responsibility for self-motivation. He starts himself because he possesses the key to his own ignition switch.
16. Do not worry. You can't change the past, but you sure can ruin the present by worrying over the future. Remember that half the things we worry about never happen and the other half will happen anyway. So, why worry?
17. It is not how much you have but how much you enjoy that makes happiness.
18. If a job is worth putting your name against it, do it to the very best of your ability
19. Learn from the PAIN of admitting your mistakes – even if only to yourself.
20. No job is too hard as long as you are smart enough to find someone else who can do it for you – recently added top tip!

James Kennedy Inspires Great Engineering Management

by Leslie Martinich
IEEE EMS VP Publications

James W. Kennedy, Director of the John F. Kennedy Space Center, provided the highlight of the Board of Governors' Meeting (Orlando, Florida, 11-12 February 2006) with his presentation on the Space Center and its programs. In his inspiring talk, he described the challenges of running a \$16 billion space program with 15,000 employees – and doing this all in the middle of an ecologically sensitive National Wildlife Refuge in Florida.

The NASA team draws inspiration from events dating back to 1961, the year of Alan Shepard's inaugural flight

and 1962, the year of John F. Kennedy's inspiring speech announcing that we would put a man on the moon within the decade.

They draw inspiration from the knowledge that their colleagues and predecessors have overcome tremendous obstacles in order to accomplish their goals. The Apollo-Soyuz Test Project, the first human space flight mission managed by two nations, provides an example of challenges, collaboration and collegiality. In order to allow for the docking of two spacecraft, the engineers had to overcome technical

obstacles of different measuring systems, different spacecraft and different mating adaptor designs. The docking of the Apollo and Soyuz spaceships in July 1975 was a huge success, and built confidence and trust in international cooperation during the Cold War.

Kennedy leads a team that has had to overcome another kind of challenge, the pain of tragedy with the loss of the Space Shuttles Challenger and Columbia. He described how creative, intelligent people rise to the challenges they meet on the job. When the Space Shuttle Discovery lost some thermal protec-

tion on take off, Commander Eileen Collins manoeuvred the Discovery to roll over as it neared the International Space Station, allowing Space Station crew members to photograph its underside. Other engineers were then able to assess the damage to the heat shield tiles. Photos revealed that there

was some damage to the heat protection tiles and that some filler, in the gaps between tiles, was protruding. Under intense pressure, the engineers and astronauts decided that one of the astronauts, Stephen Robinson, should attempt to pull the filler out with his hands or forceps, during a space walk.

During the mission's third spacewalk, Robinson was able to pull out the filler, and the shuttle landed successfully.

Above all, Jim Kennedy exhibited a quiet leadership, a leadership that dares to do difficult things, works to be truly great and inspires future generations.

Join the Special Interest Groups of your EMS

Margaretha Eriksson
Governor, EMS

We invite all EMS members and other interested professionals to participate in the activities of the EMS Special Interest Groups (SIGs). The EMS Board of Governors established this key program for EMS members 2005 with the goal to facilitate and promote involvement of all members in the activities of the Society.

The SIGs are a new platform with a clear focus on discussion on topics of interest through the exchange of ideas and experiences on specific themes in the EMS Fields of Interest. Two pilot SIGs: "Project and Process Management" and "Managing Technology and Innovation" were launched in January 2005. More SIGs will be added, when there is an interest to discuss a topic. The SIGs are complementary activities to the EMS publications and conferences and offer a continuing interaction between

Society members through a virtual worldwide community. The communication between the SIG members takes place in our Virtual Communities at the EMS Web site www.ieee.org/ems

It is easy to join, and you may nominate yourself, a friend or colleague to join the SIGs. E-mail your nomination with the following information:

- Name,
- Contact Address and e-mail,
- SIG of interest,
- A brief paragraph on the areas of interest and your background.

The objective of SIGs is to bring together groups of members with similar interests, providing an opportunity to participate in a range of functions, including:

- Participation in discussion in the EMS Virtual Community

- Organization focused Workshops or Symposia on engineering management subjects
- Arranging special sessions at EMS Conferences
- Assisting with review of EMS Conference papers, with a view to creating and chairing special sessions
- Contributing articles to the EMS Newsletter or to the EMS Web-site
- Making nominations for Society Awards, and promoting members to higher IEEE grades.

As a Society member you also receive the IEEE Transactions on Engineering Management, the Engineering Management Review and Engineering Management- the Society's Newsletter. Annual IEEE International Engineering Management Conferences also provide an annual event for discussions on the state of the art topics in Engineering Management.

EMS Membership Update

Congratulations to our new EMS senior members.

January 2006

Simon Bell	Sacramento Valley Section
Randall Case	Dallas Section
David Casper	Providence Section
Srisakdi Charmonman	Thailand Section
J. Chenoweth	Dallas Section
Joann Erno	Dayton Section
Charles Franklin	Washington Section
Harold Hoeschen	Philadelphia Section
Claire Jones	Huntsville Section
Kent Jonsson	Sweden Section
Basant Kumar	Gujarat Section
Trung Pham	Galveston Bay Section

Carlos Rueda Artunduaga	Colombia Section
Stephen Zielinski	Twin Cities Section

February 2006

Peter Donnelly	U.K. & Rep Of Ireland Section
Renato Garcia	South Brazil Section
Paul Goodson	Eastern North Carolina Section
Christopher Hoskins	Dallas Section
Rashed Iqbal	Buenaventura Section
Tom Jobe	Oklahoma City Section
T. Sakthidaran	Madras Section
Anthony Vasile	Twin Cities Section

Message from the President of the IEEE

Michael Lightner
President and CEO, IEEE

Dear Colleagues:

I have the distinct pleasure of serving you as the 2006 President of IEEE. Today I am writing to ask for your help and participation in the 2006 drive to help increase our membership.

The foundation and strength of the IEEE is a strong and growing base of members. IEEE does not have a professional sales and marketing force for membership. Rather, we depend on word of mouth to communicate our organization and that means you. To continue to grow and build the IEEE, we need your help. Here's what you can do.

Participate in the Member-Get-A-Member program. This program is available with incentives for finding new members. You will get a \$5.00 credit voucher for every member that you recruit. But the real reward is more than a credit voucher. It's a stronger, better IEEE with enhanced connec-

tions into industry and the community. These connections help to build the IEEE Network that supports our careers and the profession.

There are many tangible benefits associated with membership: career and professional development tools, discounts on products and services (both technical and non-technical), the award-winning Spectrum magazine, reduced conference registration fees, multiple opportunities to network with the leaders of the field, access to top technical information, an ever increasing number of continuing education courses, and much more. The list continues to grow each year. In 2005 we launched a members-only web portal. This portal puts all your membership benefits together in one, easily-accessible place.

In 2006 you will see the launch of IEEE.tv, which, through streaming video, can place conference presen-

tations, technical seminars, and other items of general interest directly on your desktop. We also have plans to launch a new, online member directory to help our members get in touch, and stay in touch with each other.

With all of that, I thank you for maintaining your membership in IEEE this year and hopefully in the future. I also urge you to recommend IEEE to your colleagues and co-workers. Please direct your colleagues to <http://www.ieee.org/join> to become a part of the IEEE Network. Remind them that if they join between now and 15 August 2006, they can join for just one-half the normal dues rate.

This is your organization. Help us to grow it and to keep it as vital and vibrant in the future as it has been in the past. Thank you for your participation in the 2006 Membership Drive.

Book Review

Leading Geeks: How to Manage and Lead People Who Deliver Technology
by Paul Glen

Published by Jossey-Bass, 2003
ISBN 0-7879-6148-5
Reviewed by Sue Dorward

I have a bad habit of skipping to the end. That's what I did with this book, not intending to read the full 250 pages (who has time?) but still wanting to get the bottom line. And here it is: technology people have their own way of doing things, and anyone who hopes to lead them needs to understand them, earn their respect by sharing and evolving the lore of how the organization came to be and the vision for where it's going, and earn their trust over time by consistently walking the talk. But as if

watching over my shoulder, Glen explains that he kept these points for last so that the reader does not put the cart before the horse. He warns that "if you start out to build trust and respect so that you can be an effective leader, you're unlikely to get it... Things can be especially tough for leaders without a technical background, since geeks place high value on technical prowess as a qualification for leadership."

The main audience for this book seems to be the non-technical leader who is having or expects to have a rough time of it. As a techie myself, I was a bit skeptical that further reading

(from the beginning this time!) would make me feel like the technical world I cut my teeth in was inside a fish-bowl, with the reader peering in to look at the odd lifeforms inside. Yet, that's not what happened. I read Glen's chapters on Geeks, Groups of Geeks, and Geekwork, and consistently said to myself, "Yes, that's right, that's how it is. I do that. We did that. Though I guess I never really took a good look at it before." It was an unexpected and valuable exercise in self-awareness, one of the key elements of emotional intelligence, which I can't help but notice some of us geeks could use more of.

Glen explains geek culture, the informal tech hierarchy (and its associated "machismo"-based jockeying for position), the true nature of technical work and why it is necessarily difficult to manage and control, and key competencies for geeks to develop over their careers. With this foundation laid, he then goes deep with a chapter on each of the geek leader's main responsibilities: provide internal facilitation, manage ambiguity, furnish external representation, and nurture motivation.

The content is well-organized and clear, making it a good read and also easy to skim for material that matches your interests and immediate needs. I particularly like Glen's use of a few key lists, which he consolidates as a reference in the back along with an extensive list of his favorite books and articles, grouped by topic. Here is a sampling:

- Technical work is organized by what you don't know.
- Geeks know more (technically, at least) than their managers do, which is problematic for traditional, top-down management.
- As geeks develop their careers, they should strive to move beyond technical competence and team management to developing abilities to play positive politics, make others productive, and manage ambiguity and timelines.
- To motivate geeks, manage the meaning and communicate the significance of their work, create carefully chosen and balanced project teams and then encourage their isolation, control resource availability, and offer free food (intermittently!).
- To demotivate geeks, monitor them excessively, exclude them from decision-making, and give and then

change artificial deadlines. (Any of this sound familiar?)

I've recommended this book to clients and friends. One gave a copy to his boss, who immediately made it required reading for all technology managers. This is one of the few books that provides insightful leadership suggestions specific to the unique characteristics of technology organizations and employees. It left me wondering, though, given that this book helps non-technical managers understand and lead geeks, is there a book that flips that fishbowl inside-out and helps geeks understand and work with non-technical colleagues and managers? Perhaps that's on Glen's to-do list.

Sue Dorward is a tech management coach based in New Jersey. She can be reached at sue@sudocoaching.com.

Salvador, the host of the IEMC 2006

Walking on the streets of the historical district of Salvador is like being taken back to the ancient times of Brazilian history. The tour guides are very well prepared to explain how the colonization of this city happened.

Until 1763, Salvador was the capital of the Portuguese Crown in Americas, besides being the main port of the southern hemisphere until the eighteenth century. With an extensive shoreline and a constant year round temperature (around 25° C/ 77° F), Salvador is an invitation to outdoor leisure activities.

The city's tropical climate is enhanced by steady gentle breeze blowing in from the Atlantic Ocean and the All Saints' Bay. With approximately 50km of beaches and one third of the shores of the All Saints' Bay, Salvador is the ideal location for relaxing seaside vacations and the practice of water sports.

Salvador is considered the cultural capital of Brazil. Its people is formed

by native Americans, Portuguese and Africans and present a unique ethnic and cultural diversity that stands out for its harmonious and democratic coexistence, rarely found in the world today. The particular traits of each ethnic group that forms the city's population create original music, dance and many other artistic and cultural expressions.

Beaches

Bahia became a "fever" and its nature wonders have a special place in many people's imagination and dreams. And when we think about all these, we can't, of course, leave out 1000 km of seashore. From the Coconut Coast, in the north, to the Whale Coast, in the far south, there are more than 40 tourism destinations and 300 beautiful beaches. With calm or agitated sea, deserted or with a super infra-structure, famous or almost unknown, Bahia's beaches have been enchanting an increasing number of visitors, from all over the world. Besides contemplating the exquisite landscapes, the crystal clear

waters, and the preserved Atlantic Forest, the tourists may also enjoy nautical sports of all kinds.

Cuisine

Bahia is a feast of colors and flavors. The ancient indigenous recipes and the spicy African dishes were added to the exquisite Portuguese royal cuisine. The "dendê" that came from Africa gives its special flavor to the oil used to prepare Bahia's typical dishes, such as moquecas, mariscadas, caruru, acarajé and abará. The countryside has different mixtures and flavors. Jerk beef, cakes and a variety of sweets prepared with fruits are some of the delicious dishes served at the bountiful countryside's table.

Come to the IEMC 2006, in September, and know one of the most traditional and beautiful cities in Brazil.

The above information was extracted from www.bahia.com.br. Further information on accommodation, attractions, cuisine and events in Bahia is available on this website.



The IEEE Engineering Management Society's Annual
International Engineering Management Conference
IEMC 2006



Engineering Management: the human - technology inter face

17-20 September 2006
 Mercure Hotel Salvador Rio Vermelho, Bahia, Brazil

Invitation To Participate

Conference Chair:

Antonio C. Bastos (Brazil)
 chair@iemc2006.org

Program Co-Chairs:

Leizer Schnitman (Brazil)
 Anthony Bainbridge (UK)

**Organizing Committee:
 (Brazil)**

Clotilde Pimenta
 Moacyr Doria
 Edson Leal
 Marcelo Carvalho
 Cesar Teixeira
 Carlos R. Carvalho

**IEEE Engineering
 Management Society**

Tariq Durrani
 2006 President
 Charles Rubenstein
 VP, Conferences

IEMC 2006 Co-Sponsors:

IEEE Latin America
 (Region 9)
 IEEE Bahia Section

Technical Co-Sponsor:

IEE Management
 Professional Network



We are very pleased to invite you to participate in The IEEE Engineering Management Society's annual International Engineering Management Conference - IEMC in Salvador, Bahia, Brazil, in September 2006, at the Mercure Hotel Salvador Rio Vermelho <www.accorhotels.com>.

The City of Salvador, the "Land of Happiness" was founded in 1549. Located in Brazil's Northeastern region, it is the capital district of Bahia State and was the first capital district of colonial Brazil. It holds three million inhabitants and is the third largest city in Brazil. Visitors

arrive on direct flights from many countries or by 2-hour connection flights from Rio de Janeiro or Sao Paulo.

The IEMC2006 is a wonderful opportunity to find out about the most recent developments in management and meet engineers and managers from all over the world to exchange knowledge and experiences. The IEMC2006 organizing and program committees invite papers and proposals for special sessions and tutorials which will summarize on-going and future efforts in understanding the underlying processes of management and knowledge changes.

There is persuasive evidence that the difference between success and failure in engineering and technology management will be most significantly influenced and improved by attention to the management of engineers and technologists at all stages of their creative careers. Recognising this, the organisers of IEMC2006 seek submission of papers which address and emphasise the importance of the human element, from the design of graduate programs, the recruitment, development and leadership of technologists, the motivation and leadership of creative teams, and the growth of learning organisations and clusters.

IEMC2006 expects to include but not limit presentations to the following management topics:

Human Side of Globalization	Leadership Development
Risk Assessment	Quality Management
Environmental Management	Engineering Careers
Continuous Innovation and Entrepreneurship	Global Project Management
Knowledge Management	Intellectual Properties
Sustainable Growth	Outsourcing R&D

Important EXTENDED dates:

Full papers submitted for Review: 1 April 2006;
Paper acceptance: 15 May 2006 Author registration: 1 June 2006;
Early registration: 15 June 2006

Interested authors should submit the full papers before April 1st 2006 through the Conference website at:

www.iemc2006.org

Conference hotel information: www.iemc2006.org/hotel

Tourist and city information: www.emtursa.ba.gov.br, www.bahia.com.br

General information can be found on the conference website www.iemc2006.org

or email us at: info@iemc2006.org

Chapter Reports

New York Chapter

Marty Izaak

The January 2006 meeting of the IEEE New York Chapter of the EMS, included a presentation given by Mewburn Humphrey, PE, PhD, on the challenges involved in establishing and maintaining a QA/QC program, on the World Trade Center Restoration. This is a mega project that follows processes undertaken to satisfy the Federal Transit Administration (FTA) requirements. This is a first for the Port Authority of New York and New Jersey. Dr. Humphrey was presented with an award of appreciation from Marty Izaak, Chairman and Vic Simouli, Vice-Chairman, New York Chapter of the IEEE.

Japan Chapter

Hiroshi Suzuki

The Japan Chapter supported various seminars and government related activities relating to technology management. One of these was a symposium titled "Science and Technology Policy in Europe, the United States and Japan" which was held in November 2005 in Toyo University in Tokyo.

Science and technology is a critical element of national competitiveness these days. Every country invests in the research and development of scientific and technological areas. However, the return on investment in research and development is ambiguous. There are two reasons for this ambiguity. The first is that there is a time lag between the investment and the outcome. Even in the area of information and communications where people believe that development is fast, the Internet was commercialized almost 30 years after the invention of packet communication. The second is that there are complicated relationships among technologies. In addition, scientists and engineers are the only people who know these relationships. The relationships are the origin of the difficulty of evaluating direct return on investment in a

specific research and development topic by ordinary people including politicians.

We observe echoing phenomena elsewhere. The phenomenon is that Country A invests in a research area because Country B also invests in the area, and Country A's investment then triggers Country B's increase in investment. The origin of the phenomenon is the ambiguity. The Symposium was intended to exchange views on science and technology policies in three regions, namely Europe, US and Japan. Is there an echoing phenomenon? What are the current issues in these regions? Individual presentations provided information useful for understanding and comparing science and technology policies in these regions.

The papers presented at the symposium were published in a book titled Science and Technology Policy in Europe, the United States and Japan from NTT Publishing in Japan. Another activity is the promotion of Management of Technology in Japan. The Chair and some members of our Society are acting as Government advisors.

Southeastern Michigan Chapter

Mark Ciechanowski

The article titled "Change or Die" appeared in the Third Quarter 2005 edition of the IEEE Engineering Management Review). It asks: "Change or Die. What if you were given that choice? For real. Could you change when change really mattered?" This was the topic of our discussion at our February meeting. Marty Biancalana, Chapter Vice-Chair and Manager at General Dynamics in Ann Arbor, Michigan was our presenter and discussion facilitator. Changing business process performance depends on changing the behavior of people. The author argues that change is best accomplished in a single, radical, all-at-once program rather than by a series of small incremental changes. The evi-

dence of this comes from results of heart attack and by-pass patient recovery. We discussed the article and what the author recommends for effective management of business change. Marty described how this style is similar to the military boot camp process of changing a recruit into a productive graduate. They run the program of "slob in _ marine out".

Steven W. Baker Presents Agile Methods

Our next meeting will be at the Spring Section Conference and Dinner. Steven W. Baker; from DTE Energy in Detroit will present "A Principle-Based Approach to Agile Solution Delivery". Steven Baker is a software methodologist at DTE Energy.

Agile methodologies have emerged to become a prevailing discipline in Software Engineering (SE). Many strive to "go agile" by selecting a few agile techniques and piloting them on a project. This "a la carte" approach often leads to measurable benefits. Yet without a context within which to select and apply agile techniques, we often miss the forest for the trees. A top-down or "principle-based" approach to embracing these techniques provides a foundation for meaningful, sustainable agile solution delivery. In this session we first review the value of Software Engineering in a corporate setting, and highlight key similarities and differences between two popular SE frameworks - Waterfall and Agile. We then explore five essences of Agile methods that serve as a foundation for core Agile principles. As an illustration we highlight how DTE Energy embodies these essences and principles in its approach to delivering software-based solutions. Finally we discuss the impacts and implications of "going agile" in corporate America.

Dr. John Miller Presents Keynote on Hybrid Vehicles Energy

The keynote speaker for the evening will be John Miller, Ph.D., P.E. IEEE Fellow and Distinguished Lecturer of the IEEE Power Electronics Society. He will present "Evolution of Hybrid Vehicles, Architectures, and Energy

Storage Systems". Dr. Miller is Vice-President advanced transportation applications at Maxwell Technologies.

Hybrid electric vehicles were first developed in 1894 but disappeared from the automotive scene as the power capability of the internal combustion engine improved. A century later the hybrid re-emerged and was again offered to the motoring public by visionary companies that saw hybrids as the bridge to a future hydrogen economy in the face of a looming oil gap. Relative toddlers to the industry, hybrid electric vehicles have appeared in various mechanical and electrical architectures, having a broad span of performance and economy, while relying primarily on advanced chemistry battery energy storage. This talk looks at the present state of hybrids in their micro power to battery heavy implementations, their close cousin the plug-in hybrid, and why all of these will benefit from ultracapacitor plus battery combinations.

New Jersey Coast Section

Dru Reynolds

Detection Of DNS Traffic Anomalies was presented by Anestis Karasaris, PhD, CISSP on April 18, 2006 in Middletown, NJ. The Domain Name System (DNS) is an essential network infrastructure component since it supports the operation of the Web, Email, Voice-over-IP (VoIP) and other business-critical applications running over the network. Events that compromise the security of DNS can have a significant impact on the Internet since they can affect its availability and its intended operation. In this talk we will describe algorithms used to monitor and detect certain types of attacks to the DNS infrastructure using flow data. Our methodology is based on algorithms that do not rely on known signature attack vectors. The effectiveness of our solution is illustrated with real and simulated traffic examples. In one example, we were able to detect a tunneling attack well before the appearance of public reports of it.

Avoiding Moving Operations Overseas was presented by Mark Hehl Today more businesses are seriously considering moving some or all of their

operations to China or other low cost areas. This presentation explores this current movement and is intended to help those organizations facing this decision to make the correct choice.

There are proven methods that one can employ to keep their operations at home!

- Factors forcing offshore manufacturing movement - It is not just labor costs!
- The current state of Manufacturing in China and other low cost areas
- Disadvantages of offshore manufacturing
- Advantages of offshore manufacturing
- Hidden costs that many organizations never consider and measure
- The Future of China/Asia - Risks
- The Future of Latin America - Risks
- Avenues to Keep Manufacturing at home
 - o The danger of cost cutting
 - o Tools that will improve operations and automatically reduce costs
- The Final Decision
 - o Financial analysis
 - o Capturing all the hidden costs

Dallas Chapter

Bob Bishop

Friday, April 14 Mr. Morris Westerhold, will speak to the chapter on "Engineering Management Lessons from the Telecom Boom and Bust." This should be relevant to various members of your EMS regardless of whether or not they work in telecom. Mr. Westerhold is the founder of TPC Consulting, previously at Ameritech, AT&T, and Bell Laboratories.

Friday, May 12, 2006 Mr. Laurence Briggs, Chapter President, Keiretsu Forum, will speak on funding for new ventures, processes already in place, reasons why you may, or may not, want to pursue new funding. Laurence is an engaging speaker, as shown by recent presentations in the Dallas area.

Future speakers include Dr. Hans Stork, Chief Technology Officer, Texas Instruments.

EMS Colombia

Eng. Carlos Rueda Artunduaga

Chairman - IEEE EMS Colombia

Some news from South America. Our new chapter is young, but we are working hard. We in IEEE EMS Colombia Section (South America) want to share with you some of our first activities:

- Chapter approved in November, 2005
- First personal meeting of the EMS Colombia Executive Committee in Bogota City.
- Chapter Bylaws approved starting 2006
- Meeting with the members of the Computer Society Chapter, to plan joint activities.
- Meeting with the chairwoman of the EMB Chapter, to plan joint activities.
- Two meetings with student branches, to promote EMS membership within student and GSM members.
- One meeting with the EMS leaders of the Universidad Distrital Francisco Jose de Caldas Student Branch, to create the first EMS Student Chapter in Colombia Section.
- Several meetings to organize a main activity with The Nikkoryukai Association, about Technical Management in Rural Environments.

These are a few activities, but we are running our plans to get our main goals this year. IEEE EMS Colombia Chapter Executive Committee includes Eng. Carlos Manuel Lara – Secretary; Eng. Carlos Rueda Artunduaga – Chairman; Eng. Marcela Gonzalez – Treasurer; Eng. Julio Quintero – Vice-chairman. Warmest regards!

Winnipeg Chapter

Dave Kemp

"Better" Is the Enemy of "Good Enough": A product development perspective was presented by Frank Franczyk, P.Eng. of Persen Technologies Inc. on May 2, 2006. During product development, decisions are made that influence a product's specifications and

end-user benefits. Such decisions are based on company decision-making criteria that are often technology focused, so “better” can become the enemy of “good-enough” when continued product development consumes company resources and the company falls short of introducing its product to the market.

Persentech developed Otto-Driving Companion (myottomate.com) with due consideration to technology and

design tradeoffs, materials selection, and development time, and applied three consistent criteria along the way to control the development process according to market needs: the implementation had to be simple, easy-to-use, and affordable. Establishing these criteria early on helped Persentech to introduce a new product to the market in a timely fashion that met the requirements with an implementation that was good enough. Product enhancements contin-

ue through an iterative process, responding to market feedback and end-user experiences, allowing Persentech to improve the end-user benefits of owning an Otto-Driving Companion.

This presentation provided the audience with an overview of the product development journey and the kinds of decision-making alternatives faced to balance a “better” implementation with one that is “good enough.”

IEEE-USA Leadership Workshop Keynote Address

Chris McManes, Senior Public Relations Coordinator, IEEE-USA

WASHINGTON (9 March 2006) Talent, Techniques, Advanced Tools Key to Future Engineering Success, Says IEEE Fellow and Former NSF Official.

“In anticipating the future, we must recognize that civilization is on the brink of a new industrial world order” IEEE Fellow Dr. Joseph Bordogna said during his keynote address at the IEEE-USA Leadership Workshop in St. Louis on 4 March.

“Success will not be garnered by those who simply make commodities faster and cheaper than the competition. They will be those who develop talent, techniques and tools so advanced that competitive capability can be continually robust.”

Bordogna is a former deputy director

(1999-2005) and chief operating officer of the National Science Foundation, and served as IEEE president in 1998. His address, Round, Flat or Spiky, the World Turns on an Axis, provided his vision on how engineers can contribute to future innovation in a world undergoing swift and constant technological transformation.

“Engineers will have to be effective collaborators, innovators, risk takers, and communicators, working across shifting boundaries, and embracing diversity,” Bordogna said. “They will need to know the human and social dimensions of technology. Our social and economic progress depends upon it. All of you carry the excitement and the responsibility to make it happen.”

Bordogna, now the Alfred Fitler Moore

Professor of Engineering at the University of Pennsylvania, added that “creative transformation” – the process of converting energy to momentum -- is the flip side of “creative destruction.”

“That process -- energy to momentum -- which engineers certainly embrace, speaks directly to the excitement and inspiration of integrative 21st century science and engineering innovation at the frontier. Propelled by advances in genomics, materials, computer-communications, and advances in cognition, mathematics and social science, our profession is on the verge of new, exhilarating frontiers.”

To read the entire Bordogna address, go to: <http://www.ieeeusa.org/calendar/conferences/2006workshop/Presentations/Bordogna-keynote.pdf>

Design Squad

Thea Sahr

WGBH is producing a new engineering reality competition show for kids called Design Squad. In the show, teams of teenagers compete by designing solutions to engineering problems, like building an automatic egg scrambling machine. The first season of thirteen episodes is being produced this summer and will air nationwide starting February 2007.

As part of the series, WGBH is produc-

ing 60-second video profiles of real engineers and engineering projects. The purpose of these mini-docs is to make real world connections for viewers, improve the public image of engineering, and inspire kids to believe that engineering is accessible to them. These videos may be broadcast in a few ways: on the television show via podcasting, or streamed on the WGBH website.

WGBH is currently seeking subjects for these mini-docs. They are looking

for young engineers who represent diversity in gender, race, and engineering field, and who will appeal to the show's target audience, kids ages 9-12. Examples include a mechanical engineer who designs and builds snowboards, or an environmental engineer who works with Engineers without Borders.

Please email submissions and suggestions to auditions@wgbh.org. Thank you!

Nanotechnology

Mary E. Reidy

IEEE EMS 2006 Secretary

IEEE Syracuse Section 2006 Chair Industrial Applications Society/Power Engineering Section

IEEE Region 1 2006 Educational Activities Chair Mary Reidy

Dear EMS Members and Friends:

I have been reading a book on Nanotechnology by Ted Sargent (The Dance of Molecules, How Nanotechnology is Changing Our Lives, 2006 Thunder's Mouth Press) and have been struck at the similarities to the development of nanotechnology and the current transitioning economy. Sargent's premise is that nanostructures, that is particles of matter at their most elemental forms may be assembled in unique and very specific ways in order to solve very specific problems. That is, rather than applying chemotherapy to an entire area, killing both healthy and cancerous cells, the nanotechnology approach may be to ask how cancer cells differ from healthy cells and then develop treatment that are only attractive to the cancer cell.

How does this apply to engineering management? Nanotechnology's approach to find specific solutions to complex problems are very similar to the current business development process. Business seeks to answer customer needs. The current climate invites identification of specific customer needs and providing unique solutions to those needs. Determining which customer need to respond to can only be answered once a business understands its unique specialty. I often here comments such as "But, the customer is always changing the requirements?" Exactly, customer needs constantly change or are redefined. Excellent businesses help the customer to articulate their needs and work with them to provide a solution that meets their specific problem.

What happens to last year's model? Does it

need to be destroyed? The answer is it depends. Thinking of past year's success and investigating why that model was so successful may assist in developing future solutions. The components of last year's model may provide the knowledge base that leads to future adaptations. Yes, customer needs change. Businesses evolve as well.

Managing the development of the product or service may be thought of by understanding how much specificity is needed in order to meet the needs of the customer. What unique element of this product or service does your business provide? When is the design complete? When it meets the needs of the customer. This approach applies whether the business is producing mangleable manufacturing products or devices or intellectual services.

2007 IEEE President-Elect Candidates

IEEE Board of Directors selected Lew Terman and John Vig to be the two candidates for 2007 IEEE President-Elect.

Lewis M. Terman

Lewis Terman received a Ph.D. in EE from Stanford in 1961. He recently retired from IBM following a 45 year career in semiconductor devices and technology, digital and analog circuits, and processor and memory design. He received 9 major IBM technical awards including three Corporate Awards, and was involved with a number of product programs. He did two tours of duty on the Research Division Technical Planning Staff. He was elected to the IBM Academy of Technology in 1991 and served as its president 2001-2003. He is an IEEE Fellow, received the IEEE Solid-State Circuits Technical Field Award, and is a member of the US National Academy of Engineering.

He was a member of the IEEE Board of Directors for three years as TABVP (2001) and Division 1 Director (2004-2005). He has been on TAB almost continuously 1990-2005 as Tab VP, Division 1 Director, president of the IEEE Electron Devices Society and the IEEE Solid-State Circuits Society, Chair of the Technical Meetings Committee, and two terms as TAB Treasurer; he was off TAB in 2003 serving as PSPB Treasurer. He was editor-in-chief of the IEEE Journal of Solid-State Circuits, and has been chair of numerous conferences, including the ISSCC.

John Vig

John Vig was born in Hungary. He immigrated to the USA in 1957, and received the B.S. degree from the City College of New York and the Ph.D. from Rutgers - The State University, in 1964 and 1969, respectively. He has spent his professional career performing and leading R&D in government research labo-

ratories - developing high stability quartz crystal resonators, oscillators, and sensors. He has been awarded 55 patents and is the author of more than 100 publications, including nine book chapters. Since 1997, he has been a technical advisor to program managers at the US Defense Advanced Research Projects Agency for programs ranging from micro- and nanoresonators to chip-scale atomic clocks. He is an IEEE Fellow, and is the recipient of the IEEE Cady Award and the IEEE Sawyer Award. He has been the Distinguished Lecturer of the IEEE Ultrasonics, Ferroelectrics, and Frequency Control (UFFC) Society, and he has served as the president of this Society. He founded the IEEE Sensors Council - which now has a successful journal, the IEEE Sensors Journal, and a successful conference. He has served on the IEEE Board of Directors for three years. In 2005, he was IEEE Vice-President for Technical Activities.

Pandemic Avian (Bird) Influenza

Terrance Malkinson

Governor, Engineering Management Society

What is a Pandemic?

A global flu pandemic occurs when a new influenza virus emerges for which the world's population has little or no immunity. A severe influenza pandemic could lead to high levels of illness, death, social disruption, and economic loss. Disruption will occur because of the potential for a large number of people in many places become seriously ill at the same time. Impacts could range from school and business closings to the interruption of services such as public transportation and food delivery. Travel restrictions may delay, but cannot stop the virus from spreading. In the event of a pandemic, public health measures may be imposed to help contain or limit the spread of infection.

It is difficult to predict when the next influenza pandemic will occur or how severe it will be. The concern currently is avian (bird) Influenza of the H5N1 subtype. There are many uncertainties. Avian influenza is a disease of birds not humans. Many scientists agree that this avian flu virus will have a difficult time changing into a form that is transmissible to humans and among humans. In some cases hysteria has emerged.

There are many other infectious diseases that are causing large numbers of human deaths. For example 800,000 people will die this year from measles, and 600,000 children will die from rotavirus. As of April 27, 2006 only 205 confirmed cases of Avian flu in humans have been reported and 113 deaths since 2003. Regardless; as an Engineering Manager it is prudent to become informed. Should a pandemic occur there will be a considerable impact on the workplace. Many organizations are developing contingency plans.

The 20th century has seen three influenza pandemics:

- 1918 influenza pandemic caused about 500,000 U.S. deaths and up to 40 million deaths worldwide.
- 1957 influenza pandemic caused

about 70,000 U.S. deaths and 1-2 million deaths worldwide.

- 1968 influenza pandemic caused about 34,000 U.S. deaths and 700,000 deaths worldwide.

Based on this historical pattern the possibility of a fourth pandemic is likely. Past pandemics have spread globally in two and sometimes three waves.

Death rates are determined by the number of people who become infected, the virulence of the virus, the characteristics and vulnerability of affected populations and the availability and effectiveness of preventive measures. Education is important for preparing for a pandemic, helping us to make informed individual and societal decisions. We depend on our scientists to provide sound public health information. Governments and scientists throughout the world have been working diligently to strengthen systems to detect outbreaks of influenza that might cause a pandemic. Planning and preparation information and checklists are being prepared for various sectors of society, including information for business, individuals, and caregivers.

How Does Seasonal Flu Differ From Pandemic Flu?

Pandemic influenza is different from seasonal flu which for most people is an unpleasant illness but runs a self-limiting non life-endangering course.

Seasonal Flu

Outbreaks follow predictable seasonal patterns; often in winter. Immunity is often built up from previous exposure. Healthy adults are usually not at risk for serious complications. The very young, the elderly and those with underlying health conditions are at increased risk for complications. Health systems can usually meet needs. Vaccine developed based on known flu strains and available, as are supplies of antivirals. Symptoms include fever, cough, runny nose, muscle pain. Generally

causes a modest impact on society that is manageable.

Pandemic Flu

Occurs rarely. No previous exposure; little or no immunity. Healthy people may be at increased risk for serious complications. Health systems may be overwhelmed. Vaccine would not be available in the early stages of a pandemic. Effective antivirals may be in limited supply. Number of deaths could be quite high. Symptoms are more severe and complications frequent. May cause a major impact on society with the potential for a severe impact on domestic and world economies.

The Virus

New influenza viruses emerge as a result of a process called antigenic shift, which causes a sudden and major change in the virus. Proteins on the virus surface combine in new ways as a result of mutation or exchange of genetic material with other influenza viruses. These changes result in a new influenza virus subtype, resulting in an influenza pandemic.

Avian (bird) flu is caused by influenza A viruses that occur naturally among birds. There are different subtypes of these viruses because of changes in certain proteins on the surface of the influenza A virus and the way the proteins combine. Each combination represents a different subtype. All known subtypes of influenza A viruses can be found in birds. The avian flu currently of concern is H5N1. The issue is that H5N1 will evolve into a virus capable of human-to-human transmission. Scientists cannot predict for certain whether an avian influenza (H5N1) virus will cause a pandemic.

The H5N1 avian virus is raising concerns about a potential human pandemic because:

- It is very virulent
- It can be spread by migratory birds
- It is transmitted from birds to

- mammals and perhaps to humans
- It continues to evolve
 - Wild birds have been infected becoming carriers showing no symptoms.

Wild birds worldwide carry avian influenza viruses in their intestines, but usually do not get sick. Infected birds shed influenza virus in their saliva, nasal secretions, and feces. Domesticated birds may become infected with avian influenza virus through direct contact with infected poultry, or through contact with surfaces or materials that have been contaminated with the virus.

Although H5N1 probably poses the greatest current pandemic threat, other avian influenza subtypes also have infected people in recent years. These viruses also have the potential to give rise to the next pandemic.

Human Infection with Avian Influenza Viruses

Human influenza virus refers to those subtypes that spread widely among humans. Influenza A viruses are constantly changing, and other strains might adapt over time to infect and spread among humans. The risk from avian influenza is generally low for most people, because these viruses do not usually infect humans. H5N1 is one of the few avian influenza viruses to have crossed the species barrier to infect humans, and it is the most deadly of those that have crossed the barrier.

The spread of H5N1 virus from person to person has been limited and has not continued beyond one person. In Asia, Europe, and Africa, more than half of those infected with the H5N1 virus have died. Most cases have occurred in previously healthy children and young adults. Because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus may in the future be able to infect humans and spread quickly among people.

Vaccination and Treatment for H5N1 Virus in Humans

There is no available vaccine available to protect humans against the H5N1

virus that is being seen in Asia, Europe, and Africa. The U.S. Department of Health and Human Services is addressing the problem in a number of ways. These include the development of pre-pandemic vaccines based on current lethal strains of H5N1, collaboration with industry to increase vaccine production capacity, and developing ways to expand or extend the existing supply. Research on many fronts is continuing.

Influenza vaccines are designed to protect against a specific virus, so a pandemic vaccine cannot be produced until a new pandemic influenza virus emerges and is identified. It would take at least six months to develop, test and produce vaccine. The influenza vaccine production process is complex and is complicated by the fact that influenza virus strains continually evolve. Research is underway to make vaccines more quickly.

Government will need to work with manufacturers and distributors. Fairness in vaccine distribution and use during a pandemic is important. Protecting people at high risk and protecting essential day-to-day services are also important considerations.

Antivirals are drugs that may be given to help prevent viral infections or to treat people who have been infected by a virus. When given to treat people who have been infected, antiviral medications may help limit the impact of some symptoms and reduce the potential for serious complications. Antivirals may help prevent infection in people at risk and lessen the impact of symptoms in those infected with influenza. It is unlikely that they would substantially modify the course or effectively contain the spread of an influenza pandemic. There are efforts to find new drugs and to increase the supply of antivirals. The H5N1 virus that has caused human illness and death in Asia is resistant to amantadine and rimantadine, two antiviral medications commonly used for influenza.

What would be the Impact of a Pandemic?

A large percentage of the global population would require some form of medical care. Health care facilities may be overwhelmed, creating a shortage of hospital staff, beds, and other supplies. Capacity at non-traditional sites such as schools will need to be increased to cope with demand. The need for vaccine is likely to outstrip supply and the supply of antiviral drugs is also likely to be inadequate early in a pandemic. Difficult decisions will need to be made regarding who gets antiviral drugs and vaccines.

Travel bans, closings of schools and businesses and cancellations of events could have major impact on communities and citizens. If an influenza pandemic occurs, many people could become sick at the same time and would be unable to go to work. Many would stay at home to care for sick family members. Schools and businesses might close to try to prevent disease spread. Large group gatherings might be cancelled. Public transportation might be scarce.

What is the Government doing now to prepare for a pandemic flu outbreak? Many agencies are making plans to prepare for, respond to, and contain an outbreak of pandemic flu. These activities include:

- Supporting local health agencies' efforts to prepare for and respond to a pandemic flu outbreak
- Working with the World Health Organization and other nations to help detect and contain outbreaks
- Developing a stockpile of antiviral drugs to help treat and control the spread of disease;
- Supporting the manufacture and testing of possible vaccines, including finding more reliable and quicker ways to make large quantities of vaccines
- Working with other agencies to prepare and to encourage communities, businesses, and organizations to plan for a pandemic influenza outbreak.

Why is this information important to you?

Why is this information important for you as an Engineering Manager? It is

important for business leaders and workers to be knowledgeable about the risks associated with an influenza pandemic and, to prepare adequately for an event that would have significant social and economic costs. The following excerpt is taken from a letter sent (December 6, 2005) to business leaders. (<http://www.pandemicflu.gov/plan/planbusletter.html>)

“In order to ensure maximum preparedness, your business should develop specific plans for the ways that you would protect your employees and maintain operations during a pandemic. Companies that provide critical infrastructure services, such as power and telecommunications, also have a special responsibility to plan for continued operation in a crisis and should plan accordingly. As with any catastrophe, having a contingency plan is essential.”

—Michael Chertoff, Secretary of Homeland Security; Michael O. Leavitt, Secretary of Health and Human Services; Carlos M. Gutierrez, Secretary of Commerce.

The Department of Health and Human Services and the Centers for Disease Control and Prevention have developed a checklist that identifies important, specific activities large businesses can do now to prepare (<http://www.pandemicflu.gov/plan/businesschecklist.html>) categorized as:

- Planning for the impact of a pandemic on your business
- Planning for the impact of a pandemic on your employees and customers
- Establishing policies to be implemented during a pandemic
- Allocating resources to protect your employees and customers during a pandemic
- Communicate to and educate your employees
- Coordinating with external organizations and help your community

A website managed by the United States Department of Health and Human Services (www.pandemicFlu.gov) provides a one-stop point of access to current and historical information on avian and

pandemic flu information. Another is the World Health Organization (<http://www.who.int/en/>). The Occupational Health Disaster Expert Network Pandemic Influenza Information Site for Workplace and Workforce Planning provides information on worker and public health issues. (<http://ohden.sph.unc.edu:9002/pandemic/index.htm>). Many local government and health agencies also have information available for you on bird flu.

Terrance Malkinson is a proposal manager/documentation specialist; an elected Senator of the University of Calgary; a Governor of the Engineering Management Society; international correspondent for IEEE-USA Today's Engineer Online; editor-in-chief of IEEE-USA Today's Engineer Digest; editor of IEEE Engineering Management; and associate editor of IEEE Canadian Review. The author is grateful to the Haskayne School of Business Library at the University of Calgary. He can be reached at malkinst@telus.net

Sustainable Entrepreneurship

*Terrance Malkinson
Governor, Engineering Management Society*

The principles of sustainability will guide us to a better and more secure future. Engineering Management has a role in applying these principles. Sustainability is a complex concept and subject to a multitude of interpretations. One definition of sustainability is found in Paul Hawkin's book, *The Ecology of Commerce*. HarperCollins, 1994:

“Sustainability is an economic state where the demands placed upon the environment by people and commerce can be met without reducing the capacity of the environment to provide for future generations. It can also be expressed in the simple terms of an economic golden rule for the restorative economy: leave the world better

than you found it, take no more than you need, try not to harm life of the environment, make amends if you do.”

Interest in sustainability is being driven by a number of factors, including:

- Evidence that some types of technological and economic development are unsustainable.
- Every management decision has social, economic and environmental implications that must be recognized and balanced in ways that reflect a complex mixture of interests and values.
- Sustainability offers managers and their organizations the opportunity to broaden the range, value, and depth of services offered.
- Sustainability is becoming an indus-

try of itself, creating business opportunities for those with the skills to spot and exploit them.

- Those who are well aware of sustainability and its many dimensions will be well placed to anticipate and act on emerging trends and market changes.
- Sustainability encourages us to rethink our approaches to common problems, starting from first principles in developing innovative ways of doing things.
- The pursuit of sustainability increases an engineering managers range of skills and the flexibility with which tasks are approached; facilitates skill transferability and employability.
- By advocating the use of appropriate public processes, engineering man-

agers nurture goodwill and avoiding conflict in our communities.

What do these principles mean in practice? What knowledge, skills, and actions are required to move sustainability theory to practical application? What are the current initiatives and best practices locally and globally?

These issues are addressed in two books recently published —

Making Entrepreneurs: Developing Sustainable Entrepreneurship. Edited by Michael Schaper. Ashgate Publishing, 2005. ISBN 0 7546 4491 0

This book is one of six published in the corporate social responsibility series. Twenty-four authors contribute to 17 chapters categorized into three sections of Concepts, Contexts and Conditions, and Cases. Information provided complemented by the case studies provide insights on the nature and challenges of sustainable entrepreneurship in both emerging and developed countries. The term “ecopreneur” refers to those environmental entrepreneurs who uti-

lize green (sustainable) issues as a competitive advantage. How ecopreneur’s work and how they differ from other entrepreneurs is discussed. Issues such as types of ecopreneur’s, green market opportunity identification, consumer education, venture capital, and ecotourism are discussed. The case studies highlight environmental entrepreneurship in action.

Business Ethics and the Natural Environment.

Lisa H. Newton. Blackwell Publishing, 2005 ISBN 1 4051 1663 3, 2005.

This book is one of seven published in the Foundations of Business Ethics Series and uses a case approach to exemplify eight topics of current interest examining the present status of relations between corporate enterprise and the natural environment. The book provides an excellent background in ethics, environmental legal issues, environmental philosophy, as well as a discussion of problems associated with globalization and activities of nongovernmental organiza-

tions. The authors’ thesis is that “the search for ‘green’ innovations will yield dividends beyond expectation, and that the competitive firm in this century will be the firm whose practices protect and enhance the natural environment.”

As Managers of Engineering we should be incorporating best practices of sustainability into our professional activities

Terrance Malkinson is a proposal manager/documentation specialist; an elected Senator of the University of Calgary; a Governor of the Engineering Management Society; international correspondent for IEEE-USA Today’s Engineer Online; editor-in-chief of IEEE-USA Today’s Engineer Digest; editor of IEEE Engineering Management; and associate editor of IEEE Canadian Review. The author is grateful to the Haskayne School of Business Library at the University of Calgary. He can be reached at malkinst@telus.net

Your Engineering Management Case Study Project

Terrance Malkinson, Lois Peters, Mary Reidy, and Gus Gaynor

We have been very pleased by the interest expressed by many EMS members to participate in this exciting new initiative of your EMS. We believe that the final product will be of considerable benefit to you in your daily practice of engineering management. Articles on how you can participate in this project have appeared in earlier issues of this newsletter [55(4): 8-9, 2005]. A summary follows:

Writing the Case?

Select an experience that provided you with some insights related to managing and describe what you learned from the experience. Write it as though you were reporting the situation as it occurred. We will provide a professional case-study writer to help you develop your case.

Management Fundamentals	Business Fundamentals
Dealing with people	Technology strategy
Goal Setting	Technology policy
Team building	Innovation
Scope creep	Entrepreneurship
Financial analysis	New market creation
Reaching agreement	Decision making
Ethical conduct	Emerging technologies
Leadership	Product development
Diversity	Estimating project costs
Appraising performance	Communication
Setting objectives	Systems thinking
.....or YOUR CHOICEor YOUR CHOICE

Guide to Writing Case Studies

There are no mysteries in developing the basic narrative from which a case study can be developed. Just think

about that past experience as a professional or as a manager and tell the story.

1. Think of a situation which you observed or were a part of where an

- incident occurred that had an impact on the organizational unit or team goals and / or had a negative or positive impact on your performance and / or the group
2. What were the conditions that led to the situation? Who were the people involved (do not use organizational or names of participants)? What caused them to respond as they did? Did any one take a leadership role and try to resolve the issue?

- How did the participants communicate? What did science/technology or engineering considerations have to do with the situation?
3. What did you learn from being involved in or having witnessed this situation? Identify both the positive and negative learning that will be of value to other managers of discipline professionals.
 4. Consider what might have been done differently? What path did this

- group take to resolve the issue?
5. How would you have responded at the time this situation occurred if you had more experience as a manager?

Your Case Study Leadership Team welcomes any questions that you might have and invite you to participate as a provider of a case. We are here to help you in any way that you might need. Please forward expressions of interest to Terrance Malkinson malkinst@telus.net

Book Review

Intercultural Communication in the Global Workplace

Iris Varner and Linda Beamer

3rd edition. McGraw-Hill, 2005. ISBN 0-07-282922-2

Reviewed by Terrance Malkinson

It is no secret that all citizens of all countries are increasingly in communication with citizens of other countries, either through business, vacation, or through migration as people seek to live and work in other countries. The workplace is increasingly diverse as individuals from various cultural backgrounds work together as an effective team. This well-written book provides you with a solid foundation, real life examples, and applications of constructs in effective intercultural business communication. Although the focus is on business communication; information provided is also of value to everyday communication encounters with other cultures.

This twelve-chapter 409 page book zeroes in on the important information. Chapter titles include: culture and communication; the role of language; getting to know another culture; individuals and groups in business cultures; organizing messages to other cultures; nonverbal language; cultural rules; information, decisions and solutions; intercultural negotiation; legal and governmental considerations, the influence of business structure; and intercultural dynamics in the international company.

The authors are both well known researchers in intercultural business communication and have an extensive

background of work experience in many different cultures.

Terrance Malkinson is a proposal manager/documentation specialist; an elected Senator of the University of Calgary; a Governor of the Engineering Management Society; international correspondent for IEEE-USA Today's Engineer Online; editor-in-chief of IEEE-USA Today's Engineer Digest; editor of IEEE Engineering Management; and associate editor of IEEE Canadian Review. The author is grateful to the Haskayne School of Business Library at the University of Calgary. He can be reached at malkinst@telus.net

Board of Governors

Your Board serves the interests of the Society and promotes Excellence in Engineering Management. The EMS Board needs your input to help determine if the Society meets your needs. Please contact any Board member for additional information, for expressing opinions, or raising issues that need to be addressed by the Society.

Tariq S. Durrani, President
t.durrani@ieee.org

Irving Engelson, Past President
i.engelson@ieee.org

Gerard H. (Gus) Gaynor, Executive VP
g.gaynor@ieee.org

Charles Rubenstein, VP Conferences
c.rubenstein@ieee.org

Mark Werwath, VP Education
markwerwath2000@yahoo.com

Celia Desmond, VP Member Relations
c.desmond@ieee.org

Leslie Martinich, VP Publications
lmartinich@ieee.org

Joel Snyder, VP Recognition & External Relations
j.snyder@ieee.org

Mary Reidy, Secretary
mary.reidy@us.ngrid.com

Louis A. Luceri, Treasurer
l.a.luceri@ieee.org

BOARD OF GOVERNORS ELECTED:

2004-2006

Gerard A. Alphonse
g.alphonse@ieee.org

Celia Desmond
c.desmond@ieee.org

John Grefford
grefford@ieee.org

Terrance J. Malkinson
t.malkinson@ieee.org

Lois S. Peters
peterl@rpi.edu

Mark Werwath
markwerwath2000@yahoo.com

Howard Wolfman
howard.wolfman@sylvania.com

2005-2007

Robert B. Bishop, Jr.
r.bishop@ieee.org

Peter A. Eckstein
p.a.eckstein@ieee.org

Margaretha A. K. Eriksson
margaretha.eriksson@ieee.org

Gerard H. (Gus) Gaynor
g.gaynor@ieee.org

Thomas H. Grim
t.grim@ieee.org

Mary Reidy
mary.reidy@us.ngrid.com

2006 - 2008

Tariq S. Durrani
t.durrani@ieee.org

Bradley Fox
brad.fox@duke.edu

Louis A. Luceri
l.a.luceri@ieee.org

Leslie Martinich
lmartinich@ieee.org

Charles P. Rubenstein
c.rubenstein@ieee.org

Joel Snyder
j.snyder@ieee.org

BOARD OF GOVERNORS

Ex-officio:

Dennis Bodson, Senior Past President
d.bodson@ieee.org

Merrill W. Buckley, Jr.
m.buckley@ieee.org

Vivian A. Carr
v.a.carr@ieee.org

George Farris, Transactions Editor
ieeetem@business.rutgers.edu

Wade Shaw, Review Editor
w.shaw@ieee.org

Terrance J. Malkinson, newsletter editor
malkinst@telus.net

Visit the
Engineering
Management
Society web site
[http://www.
ieee.org/ems](http://www.ieee.org/ems)

IEEE Engineering Management Society Newsletter (ISSN 1066-212X) is published quarterly by the Engineering Management Society of the IEEE, Inc. Headquarters address: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. The cost is \$1.00 per member per year (included in Society fee) for each member of the Society. IEEE Customer Service: 1-800-678-IEEE (USA and Canada), 732-981-1393 (outside USA and Canada), FAX 732-981-0027.

© 2006 IEEE. Information contained in this newsletter may be copied with permission provided that copies are not made or distributed for direct commercial advantage, the title of the publication and its date appear on each copy, and 2 copies of your publication are sent to the Editor for reference purposes.

Printed in the U.S.A.

Newsletter Deadlines

Issue	Deadlines
First Quarter	15 January
Second Quarter	1 April
Third Quarter	1 July
Fourth Quarter	1 October
Terrance J. Malkinson, Editor <malkinst@telus.net>	
Paul Doto, IEEE Newsletter Coordinator <p.doto@ieee.org>	

Periodicals postage paid at New York, NY and at additional mailing offices.

Postmaster:

Send address changes to IEEE Engineering Management Society Newsletter, IEEE, 445 Hoes Lane, Piscataway, NJ 08855.

