the Beacon

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Chair's Column

by *John Allen,* Section Chairman

Greetings fellow IEEE members! I am pleased and excited to serve as chair for 2010. Over the years, as a Maine engineer, I have benefited from all that IEEE has offered. That is why I have volunteered to serve on the Executive Committee. But, more importantly, as a 17+ year member, I continue to be surprised by the contributions of IEEE members to the local, state, and regional level.

Each year, IEEE volunteers conduct training for members of the local workforce in various fields of engineering: power system design and distribution, semiconductor fabrication and processing, telecommunications, sensors, wireless systems, circuit design, etc. This technical training gives Maine engineers the ability to compete in the global engineering market.

At the state level, the IEEE Maine Section conducts technical meetings with members of various engineering disciplines, enabling participants to gain a broad spectrum of engineering experience, which contributes to individual and employer growth. Also, the IEEE Maine Section contributes financially to state-level projects, engineering scholarship funds, high school outreach programs, etc. And, the IEEE Maine Section is well-represented at the regional level. This year, we will be participating in a Northeast Regional Industry Day. This event will bring technical personnel from the Boston area up to Northern Maine together in a single event designed to bring all sorts of disciplines together under a common theme: engineering reliability.

And, all of this is accomplished by volunteers! Take a look at the second half of this year alone and the events that will be offered by IEEE Maine volunteers: June – IEEE Maine Section Summer Meeting including a facility tour at Dielectric and tour of Bath Iron Works in late June; August – Fly-by-Wireless Conference, Women in Engineering high school outreach program, and Kibby Wind Farm Project site visit; October – conference on Current Interruption and Breaker Standards; November – Madison Paper site visit; and December – IEEE Maine Section Winter Meeting.

So, I'm pleased to serve as Chair for such a dedicated group of volunteers. Without the participation of the individual members, our section could not flourish. As this year continues, I ask that you consider volunteering. Even if it is only for a single event, your contribution will be greatly appreciated by the engineers working in the state of Maine. Any level of volunteering would be appreciated (just send me and email if you're interested : *John_Allen@UMIT.Maine.edu)*

Before I close, I'd like to thank the members of the Maine Executive Committee for their assistance in helping me continue the efforts of the previous years' chairs. Paul Villeneuve and Ali Abedi have made my transition to chair seamless. And, Stan Koski, George Elliott, Dilip Chakravarty, Ron Brown, Chris Morin, Fatemeh Afghah, Abolfazl Razi, Scott Irving, David Conroy, Lucie Hutchins, Paul Lerley (just to name a few), thanks for your assistance!

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Chair's Column

(*Continued from page 1*)

We have a lot planned for this year. I recommend that you – as a Maine engineer – take advantage of all the benefits that the IEEE Maine section provides. You and your employer will be thankful! And, finally, spread the word! IEEE Maine is always looking for additional members – the more members that participate in the IEEE, the more programs that the IEEE can offer. Thank you and have a great 2010!

SENIOR MEMBER UPGRADE PROGRAM

by *Stan Koski*, Chair, Membership Development

It has probably been noticed recently that the IEEE has been encouraging Senior Member upgrades more aggressively than in years past. Although the motivation for this is multifold, one of the primary reasons is that Senior Members (and Fellows) are much less likely to allow their memberships to lapse than lower grade members, even in tough financial times like the present. For this reason, from a membership development perspective, when a higher percentage of the total IEEE population hold Senior Member grade, overall membership retention is enhanced.

Beyond the loyalty to IEEE that accompanies Senior Member grade status, there are other benefits of Senior Membership which include:

- Recognition
- Engraved Senior Member plaque
- A $25 voucher to join 1 new society (expires 31 Dec 2010)
- Letter of commendation
- Leadership eligibility
- Reference for Senior Member candidates

To qualify for Senior Member grade elevation, the following requirements apply:

- Ten years of professional experience—education plus experience total
- Five years of significant performance—over a period of a least 5 of their years in professional practice

References: Three references are needed which can include any IEEE member with the following grades:

- IEEE Senior Member
- Fellow
- Honorary Member
- Life Senior Member
- Life Fellow

The nominator counts as 1 reference if they are qualified.

One's application for Senior Member upgrade should include the following:

- Professsional experience: A detailed resume with dates (years working and going to school are counted once).
- Significant performance: Provide a bulleted list with dates that clearly define 5 years or more.

Other application facts:

- There is NO additional fee to apply if you currently hold IEEE Member grade
- If affiliate, student or GSM grade, IEEE member dues apply prior to elevation
- Applicants OR a nominator can complete the application form
- Applicant, reference and nominator's membership status must be active
- References need not reside in the applicant's local geographic area
- Life Members are eligible to apply

The easiest way to pursue the Senior Members application process is to visit the IEEE internet site: *www.ieee.org/membership_services/membership/senior/senior_application.html*
The entire upgrade application can be accomplished on -line in his manner.

Anyone having any questions or wishing assistance in pursing the SM application process is invited to con tact: Stan Koski, Membership Development Chair at *Stanley.Koski@gmail.com* or 207.622.4124

New IEEE Senior Members

The Maine Section Congratulates our latest new Senior Members:

Gary Beane

Stanley Koski

MTUG Trade Show and Conference set for June 3rd

The Maine Telecommunications Users Group's (MTUG) annual conference and trade show is Thursday June 3, 2010 at the Holiday Inn by the Bay in Portland. The featured speaker is Mike Werner, Senior Platform Strategy Advisor, Cloud Computing, Microsoft Corporation. There will be 11 other networking, data center, security, and applications workshops and over three dozen vendors represented. For more information or register go to *www.mtug.org* or contact Ron Brown at *ron@ronaldobrownconsulting.com* or 207-655-7685. Early registration, including all sessions and lunch , is only $35 until May 14th.

IEEE Region 1 Board of Governors 2010 Winter Meeting

by *Stan Koski*

On March 20th I was afforded the privilege of representing the Maine Section at the IEEE Region 1 Board of Governors (BoG) Winter Meeting in Newark, N.J. Although much of the meeting dealt with Region-level administrative matters, a number of issues relating to Section operations were raised and are being summarized below:

At a recent Region 1 EXCOM meeting, a policy revision was adopted that specified that each attendee at Region 1 Summer Meetings needed to be the persons holding one of the four designated positions within each Section's EXCOM in order to attend at Region 1 expense. Anyone attending as a substitute for a specified office holder had to be approved by a Region 1 official. By an overwhelming vote, this new policy was rescinded and replaced with the previous policy that permitted each Section Chair to designate who the substitute attendee could be. The 2010 R1 Summer Meeting, which will commence with a full-day Training Workshop for new officers, is scheduled for August 13, 14 and 15 in Binghamton, New York.

It was mentioned that several Sections (unlike Maine) still have no official GOLD Chairperson of record. Each Section was strongly encouraged to promptly fill these vacant positions if at all possible.

It was reminded that from now until August 31st, individuals becoming IEEE members for the first time can do so at a 50% dues discount.

The new chair of the Region 1 Student Activities Committee (RSAC), Ms. Jignasa Ray, expressed her desire and commitment to provide support to each Section's Student Branches in any way possible.

Sections were encouraged to submit articles for inclusion in the Region 1 Newsletter.

Sections having large numbers of Life Members were encouraged to consider forming Life Member Affinity Groups whenever feasible.

A brief report from the Section WIE (Women in Engineering) affinity group

by *Lucie Hutchins*, MWIE Chair

It gives me great pleasure to introduce myself and other officers of the Maine WIE for 2010:

Lucie Hutchins:	Chair
Monika Tomzuk:	Vice Chair
Magalie Leduc:	Secretary
Hamsa Telepaty:	Treasurer
Susan McClatchy:	Outreach coordinator (Hancock County)

Maine WIE is dedicated to facilitating programs and activities that promote STEM (science, technology, engineering, and mathematics) understanding in Maine schools in order to engage and motivate girls to consider engineering and science majors. Maine WIE became an official IEEE group in July 2009. Since then we have organized various meetings and have participated in some state-wide activities.

But we running into the problem of membership/ volunteers. We need more people to join our group. The membership is FREE to IEEE student members and $25 to regular IEEE members.

For Maine WIE to succeed, we need more volunteers to join the team and more activities with others groups.

To all the IEEE members:
1. Log into your account: *www.ieee.org/web/membership/myieee.html?WT.mc id=tu myieee*
2. Access your "Technical Interest Profile" (My Account -> Technical Interest Profile)
3. Click on "Add Memberships/Subscriptions"
4. Select "Join IEEE Women in Engineering" under "Membership" section, then follow the instructions

IEEE Maine Section trip to Bath Iron Works

Friday, June 25, 2010

IEEE Maine section is organizing a trip to Bath Iron Works (BIW), Bath Facility on Friday, June 25th. Bath Iron Works (BIW) is a major American shipyard located on the Kennebec River in Bath, Maine. Since it's founding in 1884 (as Bath Iron Works, Limited), BIW has built private, commercial and military vessels, most of which have been ordered by the United States Navy. The shipyard has built and sometimes designed battleships, frigates, cruisers, and destroyers including the *Arleigh Burke* class, which are among the world's most advanced surface warships. It is currently poised to build the next generation of destroyers for the US Navy, the *Zumwalt.* The shipyard has some of the finest state of the art shipbuilding facilities in the USA and maybe in the world. Since 1995, Bath Iron Works has been a subsidiary of General Dynamics, one of the largest defense contractors in the world. During World War II, ships built at BIW were considered to be of superior toughness, giving rise to the phrase *"Bath-built is best-built."*

The tour is planned to start in the morning, Friday, June 25, at 8:30 am. There will be an introductory session of 1 hour, followed by a tour of the shipyard for about two hours, then a reassembly and concluding program of another one hour. Members are required to assemble at the 'Taste of Maine" restaurant before the trip. BIW will provide transportation to and from "Taste of Maine". Lunch will be at the "Taste of Maine" after the tour.

Those IEEE members who are interested in the trip please e-mail Dilip Chakravarty at: dchakravarty@ieee.org. Those members who are non-US citizens may also provide their citizenship information in the e-mail. More information will be provided to the interested members in due course.

Electrical and Computer Engineering: Many Exciting Paths, Even More Exciting Challenges

by Dr. Ronald O. Brown
Ronald O. Brown Consulting &
Chair, IEEE Maine Communications and Computer Society Chapter

Editor's note: The following article was published, with slight revisions, in the 2010 Engineer's Week supplement to the Maine Sunday Telegram. The article could prove to be very useful for any Section member trying to interest young people in a career in Electrical Engineering

Electrical and Computer, ECE, engineers touch everybody's life every day. Look around as you read this article. Electricity powers the light above you – and will soon be delivered by a more efficient smart grid. You sit in a warm house where instruments and tiny computers monitor and control the temperature, and an intelligent computer system initiates your automatic fuel delivery. Earlier today, you wirelessly surfed the Internet in a neighborhood coffee shop. Before that, you watched television and later today, you will visit a friend in the hospital where new sensors and instrumentation saves lives. All this and more is the realm of electrical and computer engineers.

In reality, these areas are interdependent, which makes the practice of electrical and computer engineering fun and challenging. How so? For example, the smart grid that will deliver electricity requires sensors to monitor demand; computers with complex software to control generation, delivery, and use; and a reliable telecommunication network to deliver the information to the generators, transmission lines, and devices in your home. A complex, challenging, but fun problem to work on. Let's look more closely at what you might do working in some key ECE areas:

Biomedical. Be part of a team that develops a new artificial organ, new low-cost less invasive sensors to monitor critical functions, or an intelligent system for medical data analysis.

Computers and software. Develop a new computer architecture, improve an existing one, build a supercomputer, or develop new software to control tomorrow's smart grid that is managed by these new computers.

Control and sensors. Develop the algorithms to control tomorrow's smart grid and guide the software engineer who writes the code, or develop sensors for a new inflatable space station.

Electronics/microelectronics. Design tomorrow's chips or develop new semiconductor fabrication techniques. Remember, we have a vibrant semiconductor industry here in South Portland.

Power. More than generate and transmit power or design motors, now you develop new processes to monitor and control the generation, distribution, and use of electrical energy for a greener world.

Telecommunications and Signal Processing. Develop the next smart phone or be the one who recognizes the utility of a ground breaking new device like the smart phone, develop new wireless broadband access technology to economically reach rural areas in Maine or elsewhere, or develop a new algorithm to better detect low power signals – whether WiFi or signals coming from outer space.

5-Year MBA. Or combine one of these fields with an MBA for two degrees in 5 years, opening the door to a career in engineering management.

There are many more areas of electrical and computer engineering, all reasons why ECE has more students than any other engineering field and our professional society, the IEEE, is the largest professional society in the world.

The good news is these fields of undergraduate study are available here at the University of Maine and USM. Comprehensive master's and doctoral graduate study in every one of these areas is available at the University of Maine and USM offers a master's in Computer Science. In addition, research in these areas is being done here too. Thus, you can begin your career near to home.

Due to the work of earlier Maine engineers, your Maine education will be well recognized. Two prominent examples: Max Sinnett (Maine '24) and John Wentworth (Maine '48), are the Fathers of black & white and color television respectively.

Now engineering isn't just for guys. That stereotype has been banished. More and more women who enjoy math and science study electrical and computer engineering and are rewarded with exciting, challenging, and high paying careers. Supporting them in school and their careers is the Society of Women Engineers with an active Maine section.

Electrical and computer engineers have a myriad of opportunities, affecting every aspect of life. They are the problem solvers in the midst of most of the solutions facing society today. If you're thinking of a career, if you want to part of the solution, think electrical and computer engineering. It's a great ride!

IEEE Maine Section
Annual Summer Outing

Migis Lodge, South Casco, ME

Wednesday, June 9, 2010

This year's IEEE Maine Section summer outing will take place in Migis Lodge, South Casco, in Sebago Lake area. An exciting and rewarding program for Section members and their families has been planned. The program starts with lunch and followed by two technical presentations at Migis Lodge. Tom Perkins, IEEE Region 1Northeast Area Chair will give a talk about FR/ Microwave Engineering and IEEE activities. Kerry Cozad, Senior Vice President of Broadcast Engineering from Dielectric Communications will discuss Technical Innovation and Business Evolution of communications. There will be a boat cruise on Sebago lake followed by a tour of TV Station and Dielectric Communications.

Activity Schedule

12am– 1pm	Lunch
1 pm– 2:30pm	Two Technical Presentations

Session 1:	**RF/Microwave Engineering and IEEE - Looking Back and Forward**
Presented by:	*Tom Perkins*, IEEE Region 1 Area Northeast Chair

Session 2:	**Technical Innovation and Business Evolution**
Presented by:	*Kerry W. Cozad***,** Senior Vice President, Broadcast Engineering**,** Dielectric Communications.

2:30pm-3:30pm	Sebago Lake Cruise Tour
3:30pm-4 pm	Travel to Dielectric Communications, 20 minute drive
4 pm-5 pm	TV Station and Dielectric Communications Tour

Registration and Cost

Both Lunch & Lake Cruise: $20 for IEEE members, $30 for non-members.
Either lunch or Lake Cruise only: $10 for IEEE members, $20 for non– members.

For more information and registration please visit: http://www.ieee.org/maine or contact Fatemeh Afghah at fatemeh.afghah@maine.edu. Please register before June 1, 2010. You need to mail your registration fees with checks payable to IEEE Maine Section to the following address:

Dilip Chkravarty, IEEE Maine Section Treasurer
25 Arrowhead Dr, Brunswick, ME 04011

Information

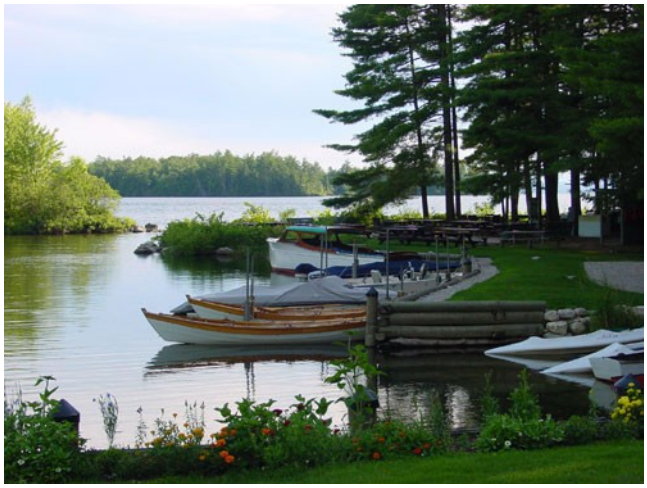
Dielectric Communications:

Dielectric Communications, Inc. manufactures broadcast equipment, pressurization products, and custom radio frequency components for commercial, military, and industrial applications in the United States and internationally. The company offers digital television products, UHF antennas, VHF antennas, radio products, broadcast components, and RF custom products.

Lunch Menu:

Please check the following link:
http://migis.com/lunch.html

Driving Distance/Directions to Migis Lodge



From the South:

Take the Maine Turnpike (I-95) to Exit 48 (formerly Exit 8); take a right at the end of the ramp. Go straight through two sets of stop lights. At the third set of lights, turn left onto Route 302 (West). Follow Route 302 for 19.4 miles until you see Migis sign on the left (immediately after the Cry of the Loon Gift Shop).

From the North:

Take the Maine Turnpike to Exit 63 (formerly Exit 11). Turn left at end of the exit ramp onto Route 115. Follow Route 115 until it intersects with route 302 in Windham. Turn right onto Route 302 and travel 7.5 miles until you see the sign for Migis Lodge on the left.

Interested in Renewable Energy?

Want a brief introduction to renewable energy technologies and how they might meet our future energy demands?

Consider EET 498: Renewable Energy and Electricity Production

Introduction:

A new course is being offered in the Fall of 2010 to present renewable energy topics. This course will introduce the different types of renewable energy technologies and geographical considerations when evaluating renewable energy resources. This unique approach allows students to be able to not only understand the technologies but be able to assess the viability of a particular site.

Beyond the renewable energy and resource presentation, the course will cover power plant economics and fuel concerns. The course will compare costs between renewable energy technologies and conventional fossil fuel plants. The course will also look at the scale and location of electric power producing plants.

This course will be taught by licensed professional engineers who have worked in the field of renewable energy. Dr. David Dvorak is an expert on fuel cell systems and has been developing a graduate program in renewable energy in Iceland. Mr. Paul Villeneuve has worked extensively in the power generation, supply, and delivery arena and was heavily involved with the first commercial scale wind farm in the state of Maine. These two instructors will surely provide you a new way of thinking about renewable energy.

Who Should Register:

This course will cover more than just the science of renewable energy technologies. As a result, those who are interested in policy regarding renewable energy are also encouraged to enroll. Further, those interested in economic evaluations of proposed power plants will also find the course to be of value. Finally, if you are interested in the future of energy supply in the world, you should register for this class. Prerequisites for this course include physics and introductory calculus.

Method of Delivery:

This course is a three credit hour course that will meet on Tuesday and Thursday from 11AM to 12:15PM. The course will also be offered via the web so flexible scheduling is available.

Contact:

Dr. David Dvorak: david.dvorak@umit.maine.edu
Mr. Paul Villeneuve: paul.villeneuve@umit.maine.edu

Registration:

On-Site: The course will meet Tuesdays and Thursdays in room 207 Shibles Hall from 11:00AM to 12:15AM. People interested in attending the live lectures and participating in classroom discussion should enroll in **Section 0983 (CRN 15008)**.

Off-Site: All course materials, including recorded lectures, will be available over the web. People interested in taking the course from a remote location should enroll in **Section 0993 (CRN 15010)**.

Continuing Education:

Registered students who complete this course with an average of C or better are eligible to receive 45 Professional Development Hours (PDHs). Go to http://dll.umaine.edu/cd/ for further details.

About the Instructors:

Dr. David Dvorak, P.E.

Dr. S. David Dvorak is a Professor of Mechanical Engineering Technology at the University of Maine, and Coordinator of the Fuel Cell Systems and Hydrogen Specialization at RES, the School for Renewable Energy Sciences in Akureyri, Iceland. A Fulbright Scholar, Dr. Dvorak has worked with fuel cell projects in Europe and the USA. He received Bachelor's and Master's Degrees in Mechanical Engineering from the University of Illinois at Urbana-Champaign in 1981 and 1982 respectively, and a Ph.D. in Physics from the University of Maine in 1998. From 2000 to 2007 he served as Director of the UMaine School of Engineering Technology. Dr. Dvorak is a Licensed Professional Engineer, and began working on alternative energy applications over 20 years ago, investigating the use biomass-derived fuels for industrial gas turbines at GE Aircraft Engines in Cincinnati Ohio. He is also a Certified Energy Manager through the Association of Energy Engineers, and has extensive experience helping Maine companies reduce energy costs. Dr. Dvorak's current interests include fuel cell applications using liquid renewable fuels, control of fuel cell power systems, and innovative polymer electrolyte fuel cell membranes.

Mr. Paul L. Villeneuve, P.E.

Mr. Villeneuve has over six years experience at the University of Maine. He developed, completely revised, and taught 9 courses. He developed advanced power systems courses that cover grid operation. He works closely with industry in the power systems field to provide advanced analysis. Mr. Villeneuve consulted on numerous alternative energy projects including Mars Hill Wind Farm, Stetson Mountain Wind Farm, and Record Hill Wind Farm to name a few. He provided engineering advice and counsel on numerous projects at the University of Maine. Paul was invited to write a chapter in the Encyclopedia of Energy Engineering. He has published and presented numerous publications at national conferences, and was the General Conference Chair of the 2010 American Society of Engineering Educators' Conference of Industry and Education Collaboration