

I am pleased to inform you that we will continue the ECE News. Many events have happened in the past year. To start with, this one will be brief.

January 2004

New Faculty



I would like to welcome **Professor Rosemary Smith** as a new addition to the ECE faculty. Professor Smith received her Ph.D. in Bioengineering from the University of Utah in 1982. Her research focus is the applications of micro technology to sensors and instruments, especially for biomedical applications. She was a member of the faculty of the University of California, at Davis, from 1988 to 2003, where she established an active research program in bioMEMS. She joined the faculty of the University of Maine in September 2003. Her faculty appointment is split between the Laboratory of Surface Science and Technology and the Department of Electrical and Computer Engineering. She has authored or co-authored over 120 refereed journal articles and conference papers on micro sensors and micro technology.

Current research efforts are directed towards micro-fluidic instruments for bimolecular analysis.

Roger Clapp and Virginia Averill Castle Distinguished Professor



Professor Don Hummels has been appointed as the Roger Clapp and Virginia Averill Castle Distinguished Professor of Electrical Engineering. The professorship was established in 1986 by Roger C. Castle (class of '21) to promote excellence in Electrical Engineering. Professor Hummels succeeds Fred Irons, who served as the first "Castle Professor" from 1990 until his retirement. Hummels has worked closely with Dr. Irons over the years, and looks forward to continuing the Castle Professorship traditions that he established.

Don Hummels: *"The Castle Professorship is important to me, as I've formed close friendships over the years with former Castle Professor Fred Irons and many of the previous Castle Students. I've seen first hand the difference that the Professorship can make to the ECE program, and to the students involved."*

ECE Chair



After Professor Patton left in December of 2002, Professor Hummels assumed the responsibility of the Interim Chair of the Department. However, he decided that he'd have more fun with his research and his new-built guitar www.eece.maine.edu/~hummels. Then, comes this professor back from his sabbatical at Boston University and assumes the responsibilities of the chair position in January 2004. You might have guessed whom. If not, look at the picture. If still not, this means that you have to visit us more often because this picture is about 20 years old when Mohamad Musavi had just graduated from the University of Michigan and started his tenure as an assistant professor at the University of Maine. Except for losing his mustache, he hasn't changed much! Well, now that you know about the new chair, I would like to tell you that I am honored to be at the service of this department. I would like to hear from you on your stories, success, and what we can do to help our department move ahead.

Did you know MOSIS Facility



High quality academic work by UMaine Electrical and Computer Engineering students has been held up as a model by an industrial organization known as MOSIS that serves private companies, government agencies and research and educational institutions around the world. MOSIS manufactures prototype integrated circuits and provides universities with opportunities to have student-designed circuits produced for academic purposes. In exchange, students must produce reports on the design and performance of those circuits. On its web site, www.mosis.org/products/mep/enrollment-confirmation.html#report, MOSIS points to UMaine posters and reports as an example for others to follow. David Kotecki, associate professor of Electrical and Computer Engineering, teaches a series of Microelectronics classes covering circuit design.

IEEE Student Branch New Adventure

The IEEE Student Branch is holding a Faculty Dollar Dare. For \$1 per vote, you may cast a vote for any of the following faculty members in the Electrical & Computer Engineering and Electrical Engineering Technology, as well as the Dean of the College of Engineering to perform the stunt listed next to their name. All proceeds will benefit a newly formed scholarship for UMaine IEEE student members. You may vote for as many people as often as you like. A running tally will be kept on the IEEE website: www.eece.maine.edu/ieee

Dean Mathews: Dress up as a caballero for one day.

Dr. Musavi: Sing karaoke to "Bad to the Bone" dressed in biker jacket & black sunglasses.

Dr. Hummels: Play guitar on a stool in the Memorial Union during lunch with hat, shades, and jacket.

Dr. Field: Walk around campus using an automatic cigarette smoker.

Spider: Eat cow's tongue.

Dr. Dunning: Wear a dress for a day with a sign that says "UNH Hockey Rules."

Dr. Eason: Take a polar bear dip in kiddy pool outside of Barrows Hall.

Jude Pearse: Dress and act like a Spartan cheerleader from SNL for one school day.

Al Whitney: Die his hair blue for one school day.

Steve Adam: Write "UMaine Engineering Rules" on his balding head for one school day.

Dr. Kotecki: Hula hoop for five minutes in Barrows Hall.

For more information or to cast your votes, please go to www.eece.maine.edu/ieee. The voting period begins at 8:00 AM on February 2 and ends at 4:30 PM on February 18th. Person(s) (in the case of a tie) will have to complete the task on February 26th at 7pm or for the school day on February 27th. Pictures of the stunt (and possibly a streaming video) will be available on the IEEE website. Please mail checks made out to "IEEE UMaine Student Branch" and send to:

IEEE Dollar Dare
University of Maine
Department of Electrical and Computer Engineering
5708 Barrows Hall Rm. 113
Orono, Maine 04469

If you donate over \$100, you will receive a receipt for tax purposes. Please forward this message to anyone who you think would be interested! Thanks to everyone for supporting UMaine students! Questions? Contact Roxie Paine via e-mail at: roxie.paine@umit.maine.edu

ECE Highlights

- The Department enrolled a total of 198 undergraduate students and 24 graduate students in September 2003. Female students comprise about 7-10% of our undergraduate enrolment, a level which has held fairly constant in recent years
- Construction of the Engineering and Science addition to Barrows Hall is going through its final phase. The facility will be open by April 2004. The addition will dramatically improve our microelectronics research facilities, and will bring ECE faculty into close proximity with researchers in complementary disciplines within LASST
- ECE faculty published fourteen journal articles, thirteen conference proceedings articles, and one book. They delivered ten technical presentations, and four patents were issued. The department recorded over 75 professional activities, including proposal evaluations, conference/workshop participation, and national/local professional society service.
- Dr. DaCunha was elected as a senior member of the IEEE in November 2002, and received the Dean's Excellence Award December 2002.
- Dr Vetelino has incubated a small business called Mainely Sensors, which recently received an NSF Small Business Innovation Grant and two Maine technology institute grants. This business involves both graduate and undergraduate electrical engineering students.
- Michael Meissner from the University of Magdeburg, Germany, joined Dr. Vetelino's group as a visiting scholar working on the area of acoustic wave sensors.

- ECE received \$41,268 in donations. THANK YOU!
- The Department offered informational meetings for Microelectronics Scholarships in Orono and Portland, drawing about 80 interested students and parents.
- John Vetelino's NSF GK-12 Sensors! award has placed ECE graduate and undergraduate students in Maine high schools to integrate the study of sensors into the high school curriculum. The program also brings Maine high school teachers on campus for training in the sensors area, giving these math and science teachers exposure to important ECE research areas.
- ECE introduced a new course ECE-105 geared toward non-engineers (and particularly toward teachers and education oriented students). The course introduces students to relationships between computers, sensors, and mechanical systems through building and programming robots to perform desired tasks.
- By far, our greatest challenges will be budgetary. The ECE department budget has already been cut for the current year and we expect to receive further cuts for next year.
- The department must recruit and hire a new faculty member to replace Jim Patton.
- To strengthen graduate enrollments, the department will investigate the establishment of a five-year combined BS/MS degree option for exceptional undergraduate students

Finally, in Research

The Department submitted 27 proposals through Sponsored Programs. The total ECE portion of Sponsored programs and DIC funding received during the period of July 2002 to February 2004 is about \$2.5M.

Research Project	Investigator	Sponsor	Funds Rec'd
Undergraduate Research Participation (YR5)	Vetelino	NSF	79,938
GK-12 Sensors! (YR 2)	Vetelino, Godsoe, Holden	NSF	559,007
GK-12 Sensors! Supplement	Vetelino	NSF	17,280
SENSORS: A Novel Lateral Field Excited Wave Sensor for Chemical and Biological Agents	Vetelino Tripp, Millard, Franksl	NSF	409,230
Marine Mammal Passive Acoustic Detection	Hummels	NUWC	23,866
Detection of Bioterrorism	DaCunha, Millard	NSF	99,228
Testing New Acoustic Wave Materials	DaCunha	Maine Space Grant Consort	15,049
Testing New Acoustic Wave Materials	DaCunha	Linear Measurements	27,480

Acoustic Filters (supplement)	DaCunha	NSF	12,000
SENSORS: Detecting Microbial Pathogens with Novel Surface Acoustic Wave Devices in Liquid Environments	Decunha Millard	NSF	636,410
Computer Engineering Course K-12 Teachers	Patton	NSF	62,001
Dev of Neural Network-Based Models...	Ressom	Maine Space Grant Consort	40,337
Characterization of the LGX	DaCunha, Vetelino, Lad	US Army	1,066,000
Electrical Characterization and Testing...	Kotecki	NSF	100,000
Acoustic Filters for Wireless Applications	DaCunha	NSF	7,989
Neural Network Modelling	Ressom	NASA	24,000
Supercluster Distributed Memory	Segee, Dwyer, Markowsky	US Army	622,144
Supercluster Distributed Memory	Caccese, Vel, Segee, Peterson, Lopez-Anido	Naval Research	2,247,634