April/May 2002

Public to vote on Bond issue affecting ECE

UMaine Engineering's Advanced Manufacturing Center (AMC) program will be a part of the upcoming bond initiative at the polls on June 11, 2002. The Economic Development/ Research and Development Bond package includes an allocation of $9 Million for the University of Maine System, of which $5 Million will go to support the AMC program at UMaine in Orono and $4 Million will go to support manufacturing support programs at the University of Southern Maine.

The AMC program will provide access to facilities, resources and expertise that are currently unavailable in Maine. The AMC will actively work to assist companies, state agencies and entrepreneurs in building, expanding and creating new manufacturing opportunities throughout Maine. ECE Prof. Bruce Segee will be in charge of the Center's advanced computing operations.

As with all of the bonds on this ballot, the determining factor in the passage of the Economic Development Bond will most likely be voter turnout. Independents and others who might not normally vote in a primary election should remember that votes can be cast on the bond initiatives alone. **We encourage current students to file absentee ballots before they leave campus for the summer.**

Engineering and Science Building - What and When?

(Click to enlarge)

In August we will start construction on a $15 million addition to Barrows Hall, the home of Electrical and Computer Engineering. It is the single largest construction project in the history of the College of Engineering. Electrical and Computer Engineering will gain about 7,000 net square feet of laboratory space for research in microelectronics design, testing, and characterization, microwave measurements, communications, and intelligent computational systems. Other labs include electrical and optical spectroscopy, thin film synthesis, biosensor development, and a "clean room" for

semiconductor and sensor research. The building will also include a new auditorium, lounge and gathering areas, and new faculty/student offices. The scheduled completion date is May, 2004.

ECE Scholarships and Awards

The ECE Department held its annual Spring Banquet on May 5. The students listed below were recognized, and we congratulate them! We distributed over $109,000 in scholarships and awards!

The Microelectronics Scholarship Consortium announced its upper-class student awards last November. We are also very happy to announce the first scholarships ever awarded by Applied Materials to UMaine students.

New ECE Curricular Plans

We have been working on several Department curricular plans. Although few changes have been made to the ECE graduation requirements, we have worked out recommended study plans we hope may be helpful to students. Note that students may adopt any plan that ultimately satisfies the graduation requirements. These plans are designed to meet the graduation requirements in an efficient way, given the student's objectives.

Four Year Plan	ELE	CEN
FiveYear Plan	ELE	CEN
Five Year Plan with Double Coop	ELE	CEN
Five Year Microelectronics Plan with Double Coop	ELE	

We are now gathering feedback on these plans, and still working on the CEN plans. If you have comments please send them to us.

The changes in the graduation requirements, starting with next year's entering class, include:

- Two electronics courses, modified versions of ECE342 and ECE343, will now be required for both Electrical Engineering and Computer Engineering students.
- Students will be required to take CBE360, instead of MAT332. (Note this course has been variously known as BRE360 and BLE360).
- We will not require a separate Basic Science Course if a Human Values and Social Context (HV&SC) course satisfies the Basic Science Requirement. Currently, BIO222 and GES102 satisfy both the Basic Science Requirement and an HV&SC requirement. However, if a student elects to use an HV&SC course to satisfy the Basic Science requirement in this manner, the course substituted for the Basic Science Course must qualify as an ECE tech elective.
- ECE471 (fall) or ECE477 (spring) is now required for Computer Engineering students.

In general, we recommend that upper-class students adopt these curricular changes as well, but we are flexible with respect to conflicts that arise because of the change in graduation requirements. In general, if the graduation requirement change is advantageous to upper class students, we let them adopt the change immediately. Usually, any deviation requires a case-by-case examination.

Tidbits ...

- New Student Orientation is June 17 or June 22. Fall schedules will be distributed at this time.
- Next fall, we will have in place a **new wireless network**. Students will be able to access our network from laptops running the IEEE 802.11b wireless networking standard.
- In the fall, the Electronics and Circuits Labs will look quite different. We will be **installing new lab furniture** this summer, including new tables, chairs, and rolling instrument lab stations. This arrangment will give us much greater instructional flexibility.
- We will have several **new high-end Macs**, including advanced video editing and other multimedia software in the Robotics Lab next fall. This equipment is the result of NSF funding for our K-12 outreach effort in Lego Robotics. As a result of the Maine State Laptop initiative, Apple is making new inroads in the K-12 system, and we're increasingly intrigued by their new Unix-based OS.

And finally ...

Professors often say they learn much from their students. How can this be? Professors are supposed to be the "experts". Here are some examples that show what we can learn if we try to see things from a different perspective. The answers are refreshingly honest.

A first grade teacher collected well known proverbs. He gave each kid in the class the first half of the proverb, and asked them to come up with the rest. Here is what the kids came up with:

- *People in glass houses shouldn't . . . run around naked.*
- *Better to be safe than . . . punch a 5th grader.*
- *Strike while the . . . bug is close.*
- *It's always darkest before . . . daylight savings time.*
- *Never underestimate the power of . . . termites.*
- *You can lead a horse to water but . . . how?*
- *Don't bite the hand that . . . looks dirty.*
- *No news is . . . impossible.*
- *A miss is as good as a . . . Mr.*
- *You can't teach an old dog . . . math.*
- *If you lie down with dogs, you . . . will stink in the morning.*
- *Love all, trust . . . me.*
- *The pen is mightier than . . . the pigs.*
- *An idle mind is . . . the best way to relax.*
- *Where there is smoke, there is . . . pollution.*
- *Happy is the bride who . . . gets all the presents.*
- *A penny saved is . . . not much.*
- *Two is company, three is . . . The Musketeers.*
- *None are so blind as . . . Helen Keller.*
- *Children should be seen and not . . . spanked or grounded.*
- *If at first you don't succeed . . . get new batteries.*
- *You get out of something what you . . . see pictured on the box.*
- *When the blind lead the blind . . . get out of the way.*

Publications, proposals, etc.

UNIVERSITY/COLLEGE/DEPARTMENT SERVICE

- R. Eason, D. Kotecki, J. Patton, A. Whitney attended teaching workshop, March 11.
- J. Patton attended Executive Committee meeting, March 20.J. Field attended Engineering Physics Program Advisory Committee Meeting, April 1.
- R. Eason, D. Hummels, D. Kotecki, H. Ressom attended the DEAC (Distance Education Advisory Committee) Faculty Forum. R. Eason did a panel session, B. Segee and J. Patton also attended, April 2.
- J. Patton attended Executive Committee meeting, April 3.
- R. Eason attended a lunch meeting with members of the National Visiting Committee for the Maine Mathematics and Science Teaching Excellence Collaborative, April 5.
- R. Eason and A. Sheaff conducted a LEGO workshop in Rockland for students in the Big Brothers Big Sisters program, April 5.
- R. Eason and A. Sheaff gave tours to high school students and attended the awards ceremony for the MMSETS (Maine Mathematics Science and Engineering Talent Search) Honors Day celebration, April 8.
- R. Eason and A. Shaff returned to Rockland for a follow on session of April 5th Workshop, April 11.
- R. Eason with A. Sheaff (and others) gave lab tours for open house, April 15.
- R. Eason gave lab tours for high school students from Wabanaki Center, April 16.
- R. Eason, D. Kotecki, J. Patton, B. Segee, A. Sheaff and A. Whitney attended Tau Beta Pi initiation, April 18.
- R. Eason and A. Sheaff returned to Rockland for 3rd Workshop on LEGO robots, April 25,

INDUSTRY VISITS: DATE INDUSTRY SCHOOL

D. Hummels, M. DaCunha, R. Bryant	3/22/02	The Jackson Laboratory Bar Harbor
D. Kotecki	3/26/02	Fairchild, S. Portland
D. Kotecki	3/26/02	National Semiconductor, S. Portland
D. Kotecki, J. Patton, A. Whitney	4/8/02	National Semiconductor, S. Portland
M. DaCunha and T. Christensen	4/9/02	Gabriel Electronics, Inc. Scarborough

GRANTS RECEIVED

- M. Pereira DaCunha, "Temperature Compensated Cuts on GaP04 for Extreme Temperature Applications," Linear Measurements, Inc. (DIC project), $30,000, March 12.
- J. Patton, "Computer Engineering Course for K-12 Teachers Developed by First Year ECE Undergrads," NSF, $124,031, March 21.
- J. Vetelino, "Undergraduate Research Participation in Electrical Engineering", NSF Supplement, $10,000, March 26.
- Eason, Kotecki, Hummels and Ressom received grant of $1,000 each from Distance Education Advisory Committee, March 31.

PROPOSALS SUBMITTED

- .J. F. Vetelino (40%), P. Millard (20%), M. P. DaCunha (20%), and J. Peckenham (20%), "Development of an Acoustic Wave Sensor for E. coli Bacteria in Drinking Water," $314,762, March 15.
- M. Musavi and C. Domnisoru, "Research Experience for Teachers in Computational Biology," NSF supplement, $25,500, April 10.
- M. Musavi, "Improving Quality for DNA Sequencing Data: An Accurate and Efficient DNA Base Caller," Burroughs Wellcome Fund, $500,000, April 23.
- M. DaCunha, D. Hummels and D. Kotecki, "Advanced Wireless Sensing for Murine Physiology," NIH, $1,831,230, April 24.

PUBLICATIONS

- J.L. Cousins and D.E. Kotecki, "Simulation of the Variability in Microelectronic Capacitors Having Polycrystalline Dielectrics," IEEE, Electron Device Letter, vol. 23, No. 5, p. 267, May 2002
- R. Schmitt, D. McCann, B. Marquis, and D.E. Kotecki, "Dielectric Relaxation of WO3 Thick Films from 10Hz to 1.8GHz," Journal of Applied Physics, Vol. 91, No. 10, May 2002.

PATENTS

- S.D. Halle, P.C. Jamison, D.E. Kotecki and R.S. Wise, "Retrograde Openings in Thin Films," U.S. Patent 6,355,567, March 12, 2002.
- H. Akatsu, D.E. Kotecki, J.J. Lian, and H. Shen,"Hydrogen peroxide and acid etchant for a wet etch process," U.S. Patent 6,379,577 April 30, 2002.
- H. Shen, D.E. Kotecki, S. Athavale, J. Lian, L. Economikos, F.F. Jamin, G. Kunkel, and N. Chandhary,"Semiconductor structure and manufacturing method", U.S. Patent 6,356,328 April 2, 2002.

PRESENTATIONS

Seven poster presentations at the 2002 Graduate School Expo, April 22:

- "Double Self-Organizing Maps to Cluster Gene Expression Data", D. Wang, H. Ressom, M. Musavi, C. Domnisoru.
- "Design and Testing of a Frequency Selective MASH IQ Sigma Delta Modulator," S. Saucier and R. Bryant.
- "Intelligent Ocean Color Remote Sensing - Neural Network Modeling of Chlorophyll-a Concentration from Remote Sensing Data, " W. Slade, Jr. (2nd Place in Engineering - over 30 contestants).
- "A Novel Dispersive Delay Line Device for Wireless Sensors," L. French.
- "5MHz Pipeline Analog to Digital Converter, " K. Sockalingham and R. Thibodeau.
- "Class-D Audio Amplifier Front End Circuit," S. Turner and W. Slade, Jr.
- "VLSI Design and Test of Digital Phase-Locked Loops," F. Yang.

PROFESSIONAL ACTIVITY

- .J. Patton attended 18th Annual Electrical & Computer Engineering Dept. Heads Association Annual Meeting in Stuart, Florida, March 14-19.
- R. Eason attended the 3rd Maine Higher Education Computing Conference, March 15.
- D.E. Kotecki attended the IEEE Excom meeting in Augusta on March 19.
- D.E. Kotecki attended the IEEE CS/EDS meeting in S. Portland on March 26.
- J. Patton attended American Society of Engineering Educators conference, West Point, NY, April 4-7.
- F. Irons reviewed a paper for the IEEE Transactions on Instrumentation & Measurement, April 12.
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UPDATES

- H. Ressom is attending the 10th European Symposium on Artificial Neural Networks, Belgium, April 23-29.