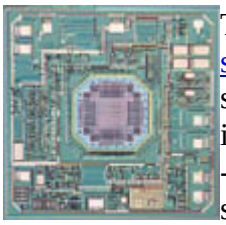
December 2000

Hot off the Press! - New Scholarship Program for Out-of-State Students!

(If you live outside the state of Maine, PLEASE pass the word to any talented high school student you think might be interested.) John Beacon, Dean of Enrollment Management at UMaine has announced a new program making scholarships available to **out-of-state undergraduate students**. They **can receive in-state tuition** for their entire four years as long as they maintain a 3.0 gpa and meet certain criteria. The College of Engineering can give up to 30 scholarships this year. Students must have at least a 1250 SAT and be in the top 15% of their high school class after 7 semesters. Foreign students are also eligible. Contact me (musavi@eece.maine.edu) if you would like additional information

Microelectronics Scholarship Consortium ...



The Microelectronics Scholarship Consortium has announced this year's schedule for awarding merit-based scholarships to outstanding high school seniors and current UM students interested in the semiconductor industry. Two more companies have come into the Consortium this year - Texas Instruments and Analog Devices will also be offering scholarships. Two information meetings are planned for January 20 (Orono) and January 27 (Portland).

Engineering Salaries...

Knud Hermansen has done some digging into professional salaries from the Bureau of Labor Statistics. Of the top twenty or so categories, it's interesting to see how many are occupied by engineering disciplines. Actually, the numbers seem a little low to me, given the average starting salaries of our students. The entire list (in excel format) is also illuminating

Faculty Focus - Professor John Vetelino ...

John F. Vetelino (vet@eece.maine.edu) and his research group which currently consists of a visiting scientist, one post doctoral student, four PhD students, six MS students and ten undergraduates, continue to work on basic and applied research in gas sensors, biosensors, fluid sensors and acoustic wave devices. Each area involves collaboration with physicists, chemists, chemical engineers, civil engineers, environmental engineers, food scientists, microbiologists or medical doctors. The research work is supported by NSF, BIODE Corporation, Sensor Research and Development Corporation, Office of Naval Research, DARPA, EPA, Department of Energy, National Institute of Health, USDA, Los Alamos Laboratory and Sanders Corporation.

Dr. Vetelino has been and continues to be on the organizing committees for the International Chemical Sensor Meeting, the IEEE Ultrasonics Symposium, and the Frequency Control Symposium. Dr. Vetelino is also on the advisory committee for the new IEEE Transactions on Sensors scheduled to appear in 2001.

Three small businesses, BIODE, Sensor Research Development Corporation and Microconversion Technology which were incubated from Dr. Vetelino's sensor research at the University of Maine, have recently been successful in obtaining several small business innovation (SBIR) grants totaling over 10 million dollars from ONR, NSF, USDA, Dept. of Energy, Dept. of Commerce, National Institute of Health, Dept. of the Army and the State of Maine. These companies, which are located in Brunswick, Maine, Orono, Maine and Brookings, South Dakota respectively, employ several former and current UMaine students.

Examples of Dr. Vetelino's ongoing research include a five year NSF grant that supports undergraduate research in the Electrical and Computer Engineering Department. This ten-week summer program involves undergraduates from the University of Maine and other U.S. universities in departmental research activities, some of which are industrially sponsored. At the end of the summer, students write reports describing their research activities and also make presentations. This award represents the eighteenth award Dr. Vetelino has received from NSF to support undergraduate students in research. In addition, Dr. Vetelino also has a USDA grant, 2 grants from Sanders Corporation, a grant from Los Alamos Laboratory, and a Grant from the Office of Naval Research. The USDA grant involves the development of a sensor to detect ethylene gas from ripening fruits and vegetables. The Sanders grant involves basic studies of the acoustic wave properties in metallic glasses for application in microwave signal processing. The Los Alamos grant involves the development of a tritium sensor while the ONR grant involves the development of a chemical and biological sensor suite for warfare agents.

Linux online anyone?

If you're interested in participating in an online experiment, Bruce Littlefield and Andy Sheaff will be offering the Linux System Administration course (offered in the evening 5:30-7:00 TTh, CRN 24424) to a few online students this semester. They will be trying out some internet-based instructional tools, and they don't guarantee things will go smoothly. However, if you're the adventurous type, and you pay strict attention to the drop deadline, you can contact Bruce Littlefield (brucel@eece.maine.edu or tel 581-2238) Classes begin January 23.

And finally ...

Not everyone is cut out to be an electrical engineer. I'm happy to say the student answering questions in the following job interview didn't come from our program.
Interviewer: Why is a thicker conductor necessary to carry an AC current as compared to DC.?
Student: An AC current goes up and down (drawing a sinusoid) and requires more space inside the wire, so the wire has to be thicker.

Interviewer: How will you tell if that wall outlet carries AC or DC?
Student: I will put my finger in. If it is pushed away, it is DC. If it gets stuck, it was AC.

Interviewer: How will you reverse direction of an induction motor?
Student: I will remove the four bolts at the base, turn the motor around, and put back the bolts.

Interviewer: How do you start a synchronous motor?
Student: Vrrrrrrrmmmmmmmmmmmmmmmmmm (in rising pitch)

Interviewer: Stop! Stop!
Student: rrrrrrrmmmmmmmmmmmmmmmmmm (in falling pitch)

Interviewer: How do you limit surge current within an integrated circuit?
Student: By using a miniature circuit breaker.

Interviewer: Why does a capacitor block DC but allow AC
to pass through?

Student: See, a capacitor is like this ---| |--- , OK.
DC Comes straight, like this ----------, and the capacitor
stops it. But AC, goes UP, DOWN, Up DOWN and jumps right
over the capacitor!"

Interviewer: "What is a step-up transformer?"
Student: "A transformer that is put on top of electric poles."
Interviewer: "And then what is a step-down transformer?"
Student (hesitantly): "Uh -- A transformer that is put in the basement
or in a pit?"
Interviewer: "Then what do you call a transformer that is
installed on the ground?"
(Student knows he is caught -- can't answer)
Interviewer: "Well?"
Student (triumphantly): "A stepless transformer, sir!"

Publications, proposals, etc.

UNIVERSITY/COLLEGE/DEPT SERVICE

M. Musavi and H. Ressom hosted Rick Miller, Chief of Earth System Science (NASA), Stennis Space Center, Mississippi, Dec. 13-14.
J. Vetelino is hosting an Italian research scientist, Ibanez Ricco, from Univ of Brescia, Italy for 4 months.
J. Field attended an Academic Council meeting, November 28.
A. Whitney and J. Field attended the TBP initiation. John was a reader, Dec. 6.
J. Patton attended Executive Committee Meeting, Dec. 5.

INDUSTRY/SCHOOL VISITS

M. Musavi, H. Ressom, C. Domnisoru 12/1 Jackson Laboratory
met with Dr. Gary Churchill Bar Harbor

PROFESSIONAL ACTIVITY

F. Irons completed a review of technical paper, for the IEEE Transactions on Instrumentation and Measurement, Dec. 5.