TechTopics

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Michigan Tech's Faculty/Staff Newsletter — Published weekly by University Relations

U.S. engineering degrees at 17-year low

The latest survey by the Engineering Workforce Commission (EWC) of the American Association of Engineering Societies (AAES) on engineering degrees shows that the number of students receiving a BS in engineering in the U.S. has fallen to a seventeen-year low. This at a time when demand for engineering graduates has rarely been higher.

"As our society becomes increasingly dependent on its engineers to maintain our nation's economic, environmental, and national security, our community has a responsibility to improve the nation's 'engineering literacy,' as well as a responsibility to encourage and inspire our nation's youth to consider engineering as an exciting and rewarding career," said Paul Torpey, AAES chair. "As Motorola CEO Gary Tooker said two years ago, 'The nations that lead the world in the decades to come will be those that encourage creative people to become engineers.' "

The contrast between students receiving bachelor's degrees overall and those in engineering is striking. According to the EWC, between 1986 and 1998, the number of students receiving BS degrees in engineering declined by 19.8 percent to 63,262 nationwide, while the number of students receiving BS degrees overall increased by nearly 20 percent over the same period of time.

"If we as a nation fail to reverse the decline in the number of students receiving engineering degrees, then the innovations that have fueled the recent surge in the financial markets may begin to diminish in the not-so-distant future," Torpey said.

The AAES is a multidisciplinary organization of engineering societies and represents over one million engineers in industry, construction, private practice, government, and academia. In 1998, Professor **Martha Sloan** (electrical engineering) was the first woman to chair the AAES and now serves as its past chair.

(Continued on page 3)

I have been much struck by the paralysis of thought induced in pupils by the aimless accumulation of precise knowledge, inert and unutilized.

—A. N. WHITEHEAD, 1929

Senate OKs half-day class dismissal for MLK Day, revisits semester issue

The University Senate voted unanimously January 21 to dismiss afternoon classes on Martin Luther King Day as part of its ongoing construction of a new academic calendar based on semesters.

The senate's previous actions, including holding K-Day on Labor Day, eliminating the Good Friday recess, and instituting 14-week semesters, have been amendments to a draft calendar still under consideration. When senators have a final vote on the entire academic calendar, it will be subject to the approval of the administration and the Board of Control before being implemented.

The action on MLK Day came following persistent prodding by Senator **Betty Chavis** (Educational Opportunity), who said that recognizing the civil rights leader was particularly important for black students and could play a role in retention.

No one argued that the University should not observe the holiday at all, but some questioned whether dismissing classes was the most effective way of raising awareness of King's legacy. **Marcus Gioe,** president of the Undergraduate Student Government, said it was "shortsighted" to characterize MLK Day as primarily for African Americans. "On MLK Day, one of my instructors made a ten-minute presentation at the beginning of class," he said. "That had a big impact. Students paid more attention than they did for the rest of the hour."

"If we want to be effective, the place to do it is in the classroom," said Senator **Larry Sutter** (technology).

Not all faculty are qualified to lecture on King and the civil rights movement, Chavis responded.

Vice Provost for Instruction **Stephen Bowen** suggested having a two-hour dismissal of classes on MLK Day, including a schedule of organized activities. **William Kennedy,** director of the Center for Teaching, Learning, and Faculty Development, said that at other schools, classes are sometimes shortened to make time for special events.

Undergraduate **Kevin Walker,** president of the Black Students Association, said that few students go to another organized activity, President's Convocation, though they are excused from class to attend. A longer dismissal would be necessary for activities that could generate student interest, such as workshops and marches. Chavis said local schools often ask black MTU students to speak on MLK Day, but the students are unable to accept the invitations because they have to attend class. A short dismissal "is not enough to recognize the job King has done," said **Christian Woods,** vice president of the BSA.

Senator **Jim Lutzke** (University Relations) said King deserved to have his holiday recognized by the University, calling King "the Ghandi of America."

Senate President **Bruce Seely** noted that the senate had recently voted to eliminate other half-day holidays, such as K-Day, that are a traditional part of campus life. That action was prompted by chronic problems in scheduling labs during weeks when a single section must be cancelled because of an afternoon dismissal.

Senator **Tom Snyder** (biological sciences) moved that MTU dismiss classes for a half-day on Martin Luther King Day. The motion was approved unanimously on a voice vote.

(Continued on page 5)

Faculty Service Reports eliminated

Too many classes to teach? Grants to write? Meetings to sit through? Well, starting this term, the University is taking one small step toward making faculty's lives a little bit easier. Faculty service reports are now a thing of the past.

For years, faculty have been required to turn in quarterly reports on their teaching loads, research, and service. When the practice began, the reports were part of the evaluation process. Now, they have become redundant.

"Over time, they've turned into a validation instrument and really don't gauge performance," said **Debbie Lassila,** director of budget planning and faculty personnel. "Now, faculty are required to report on their activities more than any other employee group on campus," submitting, among other documentation, annual vita updates that track their workload and accomplishments. "By eliminating the faculty service reports, we're eliminating a bureaucratic process that's become obsolete. We hope it will free up some faculty time that would better be spent elsewhere."

Summer microelectronics research for undergrads

The National Science Foundation is sponsoring a research program for undergraduates at MTU this summer.

Up to ten students will be working June 1–August 6 with electrical z, modeling, and simulation of a GaAs-based, high-speed microelectronics project. They will receive a $2,900 stipend, travel allowance, and free University housing or a housing allowance.

Undergraduates who have completed two years of study (at MTU or elsewhere) in electrical engineering, computer science, physics, or a related field and have a minimum 3.0 GPA are invited to apply. Applicants must be citizens or permanent residents of the U.S.

For more information, contact Ashok Goel (487-2868) or Martha Sloan (masloan@mtu.edu, 487-2845).

New staff

Kimberly LaRonge has joined the staff of the Center for Teaching, Learning, and Faculty Development as a secretary (N3). She was previously a claims representative II for Wisconsin Physicians Service and has a BS in Business Administration from the University of Wisconsin–LaCrosse. She is married to Michael LaRonge and lives in Hancock.

Cedric "Ted" Fredrickson has joined the staff of Advancement and the School of Business and Economics as an advancement officer. He was previously employed at Edward Jones Investments as an investment representative and has a bachelor's degree in business administration from Eastern Michigan University. He has two children, Erin and Matthew, and lives in Houghton.

John LeMay has joined the Mail Services staff as a mail services specialist. He was previously employed as the lead mail clerk at Upper Peninsula Power Company. LeMay has a BS in Business Administration from MTU and is married to Gina Le May. He has a son, Alexander, and lives in Chassell. He enjoys outdoor activities, including hunting, fishing, and skiing.

MichiganTech

Bill Curnow, executive director, University Relations
Marcia Goodrich, *Tech Topics* editor
Gail Sweeting, electronic marketing assistant

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Information to be included in *Tech Topics* should be submitted to the *Tech Topics* editor in one of the following ways:

- By e-mail to ttopics@mtu.edu
- By campus mail, send typed copies to *Tech Topics* ,University Relations.

Each week, the deadline for submitting information is **Friday at 5:00 p.m.** *for publication the following Friday.*

United Way round-up

About one-third of Michigan Tech's faculty and staff contributed a record $42,286 to United Way during the 1998 campaign.

Of the 1,205 employees solicited, 443 donated to the campaign, which benefits charitable organizations throughout the Copper Country.

Several United Way Campus Campaign volunteers were honored for their ten or more years of service, including **Jimmy Diehl** (geological engineering and sciences), **Dawn Doyle** (Auxiliary Services), **Louis Fredianelli** (Public Safety), **Debbie Goldstein** (Daniell Heights), **Peggy Gorton** (mining engineering), **Ron Gratz** (biological sciences), **Nancy Heikkila** (Mail Services), **Bev Kunick** (civil and environmental engineering), **Janet Locatelli** (library), **Ted Soldan** (IT), and President **Curt Tompkins.**

Soldan was recognized for soliciting the most participants of any area. Forty-one Information Technology employees donated $2,952. **Chuck VanKarson** collected the largest total amount; twenty-eight ME-EM employees contributed $3,810.

IMP's **Allison Hein,** Student Services' **Kathy Pintar,** and IWR's **Chandra Joshi** each garnered 100 percent participation from their departments. Joshi, **Nancy Seely** (Center for Teaching, Learning, and Faculty Development), and **Willie Melton** (social sciences) were honored as "rookies" collecting $1,000 or more from their departments during their first year as volunteer solicitors. Soldan and **Nancy Johnson** (SBE) were recognized for having the most designated giving in their departments.

Center for Teaching, Learning, and Faculty Development

Teaching Tips

How students learn

By William Kennedy, director

Last week, we glimpsed some of the ideas of Paul Ramsden from his 1992 volume *Learning to Teach in Higher Education.* Ramsden's central assertion is that "learning is fundamentally about changes in the understanding of reality," and that our teaching should help students understand phenomena in the way subject experts do. Recent studies, he notes, indicate that present methods teach students to do two things: (1) perform complex routine skills and apply problem-solving algorithms, and (2) master enormous amounts of detailed disciplinary knowledge which they can reproduce on demand. However, these methods have little effect on our students' conceptual understandings of their subjects. Most disturbingly, Ramsden cites numerous studies and surveys which suggest that a significant proportion of our students retain many fundamental conceptual misunderstandings of their areas of interest, lack an understanding of how experts in their fields solve new problems, are unable to apply their accumulated knowledge in unfamiliar settings, and are poorly prepared to work with others to solve problems. Ramsden concludes "large numbers of students appear to be learning an imitation of at least some of the disciplines they are studying, a counterfeit amalgam of terminology, algorithms, unrelated facts, 'right answers,' and manipulative skills that enable them to survive the process of assessment." *

Ramsden investigated this problem by talking with students about how they learn. These conversations led Ramsden, and many others since, to describe a continuum of approaches to learning with "surface learning" at one end and "deep learning" at the other. Surface learning is characterized by a student's intention to meet task requirements (i.e., pass the test, learn the words, memorize the formulae, and to accumulate facts, theories, and examples indiscriminately). Deep learning is characterized by a student's intention to fully understand the subject (i.e., what is meant v. what is said, desire to relate what is learned with previous knowledge, discover relationships between courses, relate course ideas to everyday experiences, desire to distinguish the quality of new information, and a desire for intellectual coherence). Deep learning is characterized by an internal emphasis through which a student consciously desires to develop a "window through which aspects of reality become visible, and more intelligible." I would argue that this is the sort of compelling desire to truly understand and meaningfully conceptualize our disciplines.

Ramsden points out that numerous research studies demonstrate that outcomes of student learning are associated with the approach to learning (deep v. surface). Not surprisingly, deep approaches are related to higher quality output, better grades, and greater student satisfaction. Instruction that encourages students to use a surface approach to learning often yields student feelings of resentment, depression, and anxiety.

In 1929, A. N. Whitehead observed "I have been much struck by the paralysis of thought induced in pupils by the aimless accumulation of precise knowledge, inert and unutilised. . . . The details of knowledge which are important will be picked up ad hoc in each avocation of life, but the habit of the active utilisation of well-understood principles is the final possession of wisdom." **

Next week, we'll review some of Ramsden's suggestions for encouraging deep learning in our students.

* Paul Ramsden, *Learning to Teach in Higher Education* (Rutledge, NY, 1992)
** Alfred North Whitehead, *The Aims of Education and Other Essays,* Free Press, NY, 1967

Ombudsperson calms the waters at Michigan Tech

In the age of policies and procedures, the MTU ombudsperson is an anomaly: someone who works outside the usual channels. And that's just fine with Professor **Peck Cho** (ME-EM), who took over the post this year from Associate Professor **Larry Julien** (chemistry).

The University ombudsperson's task is to resolve conflicts that don't seem to be resolving any other way, and his services are available to faculty, students, and nonunion staff. He doesn't deal with everything; some issues, such as racial discrimination or sexual harassment, he refers to the Affirmative Action Office. Problems involving union employees are handled by Human Resources.

And he doesn't want to get involved in every campus disagreement. "People who have grievances should try to resolve them on their own," Cho said. "But if their personal resources are exhausted, and they can't see any resolution, then they come to see me. I shouldn't be the first person they see."

Cho then serves as mediator, listening to all sides and trying to resolve differences. "I think the process is really good," he said. "I'm free to make a deal, even if the grievant is going through a formal complaint process. It's a sensible system."

He prefers to act at the lowest possible level, often referring matters to department chairs and deans before getting involved himself or contacting administration. "I don't want to deal with things that other people can handle better," he said. "When a problem arises, it should be solved locally as much as possible. It strengthens the University community if people can solve their own problems. Problems can gain a life of their own, especially after people take a public stance, and it's best to contain them before it gets to that point."

As ombudsperson, Cho acts as an interpreter between opposing sides, trying to enhance understanding and broker agreements. In contrast, he also serves as chair of the Faculty Review Committee. "I have to act as judge," he said. "It's a totally different function."

Temperamentally, Cho prefers the ombudsperson's role as mediator. "Judges should be people who are really wise," he said. "But I'm not afraid to make a judgment when needed."

Students, faculty, and nonunion staff who are having trouble resolving grievances through the usual methods are welcome to contact Cho at peckcho@mtu.edu or 487-2891.

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You can reach us from MTUs home page
by clicking on "Tech Topics."

Number of engineering grads dropping

(Continued from page 1)

Michigan Tech has seen a similar, though not so dramatic, decline in engineering graduates since 1985–86, from 833 to 728 in 1997–98, or 14.4 percent.

The problem starts before students enter college, according to Admissions Director **Nancy Rehling.** "Fewer and fewer high school students are interested in engineering, and it's made our job more challenging," she said. "Plus, of the students who want to study engineering, the most growth is among those whose ACT scores are 21 or lower." And the problem area is usually the math scores.

"There certainly are exceptions, and standardized tests are only one measure of potential success," Rehling said. "But it's doubtful that most of those in this group have the preparation necessary to succeed in an engineering program."

Shirley Rudd, assistant director of the University Career Center, has a similar take on the problem. Students are shying away from engineering because they lack fundamentals. "I think students need to come out of high school better prepared for college-level math and science," she said.

There is certainly no shortage of opportunities for those who successfully navigate an engineering program. "It's just a hot market for engineers, especially in electrical, mechanical, civil, and chemical engineering, and anything to do with computer hardware," she said. "Other disciplines at Michigan Tech are also successful, but students tend to network through their departments so we don't have as much information on their job placement. We have had more companies on campus looking for metallurgical engineers than they can remember during the last several years."

"Companies are also looking for hands-on people," Rudd said, "the people who want to make the equipment work, who want to work on the plant floor, such as engineering technologists."

She adds an FYI for students. "Companies ask us to encourage engineering students to take a couple courses in business, so they will understand how their company works," she said.

The surging U.S. economy is driving demand for engineers as industry sinks capital into product development. But if the GDP begins to fall, so, also, will job offers for engineers. And the number of potential engineering students will become even smaller. That's why MTU plans to devote some extra energy to raise the profiles of degree programs outside the College of Engineering. "We need to continue to promote increased awareness of MTU's other degree programs," Rehling said. Beefed-up enrollment in these areas would cushion the University from the economy-driven fluctuations in engineering employment.

In the meantime, to help keep would-be engineers on track, MTU is implementing a common first-year program for all entering engineering students. The program was approved by engineering faculty last month on a 72–34 vote.

"It should make engineering more attractive to students, and it should improve retention," said Associate Professor **Sheryl Sorby,** director of general engineering. "Now, students get to be juniors before they figure out what engineering is all about. We will be showing them what engineering is through participation in hands-on activities. Then, either they will decide they don't want to be engineers—which is fine, they can transfer to another program. Or they will like it, and be more willing to tough it out through the first couple years of math and science."

News you can use

Don't let your children sleep in adult T-shirts

The U.S. Consumer Product Safety Commission (CPSC) warns people not to put children to sleep in loose-fitting T-shirts or other over-sized clothes made from cotton or cotton blends. These garments can catch fire easily and are associated with 200 to 300 emergency room-treated burn injuries to children annually.

Loose-fitting clothing stands away from the body, making contact with an ignition source more likely. Loose-fitting, non-flame-resistant clothing allows an air space next to the body that helps keep the fire burning, possibly injuring children.

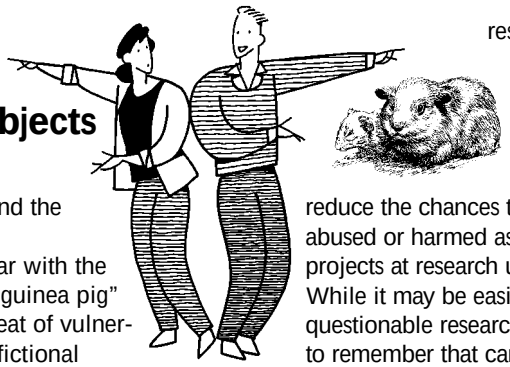
It is safer to put your children in flame-resistant or snug-fitting sleepwear, not over-sized, loose-fitting cotton or cotton-blend garments.

CPSC sets national safety standards for children's sleepwear flammability. Under federal safety rules, garments sold as children's sleepwear for sizes larger than nine months and up to size 14 must be either flame-resistant or snug-fitting.

Most manufacturers are using tags on their snug-fitting sleepwear to tell consumers that the product meets federal safety standards.

TECH TEA: The human guinea pig—scientific research with human subjects

Submitted by University Cultural Enrichment



Student John S. sees an interesting advertisement in the campus newspaper. It's an invitation to participate in a psychology study. There's a small honorarium, and he is tempted to apply. But should he? Would he be required to disclose things about his personal life that he would rather keep private? Would he be subjected to any physical or psychological danger? What are the rights of human subjects involved in scientific research, and what are the responsibilities of the scientist?

At Tech Tea Time on Wednesday, January 27, **Sung Lee,** vice provost for research and dean of the graduate school, will introduce Associate Professor **Willie Melton** (social sciences), chair of the MTU Institutional Review Board, Human Subjects Committee, and other representatives from the committee who will present a brief consumer's guide to human participation in scientific research. The presentation will provide information to researchers who use human subjects and to persons who may be curious about participating in human research projects. Tea Time is at 4:00 p.m. in the Memorial Union Alumni Lounge. Admission is free, and the event is open to all.

We are all familiar with the phrase "the human guinea pig" and the implied threat of vulnerability therein. The fictional images of brilliant-but-mad-or-naive scientists driven to extremes to test favorite theories, solve complex problems, or create some wondrous breakthrough in human knowledge and capability, are also universally known. Who can forget Frankenstein's monster, Dr. Jekyll and Mr. Hyde, or the terrifying metamorphosis of the character played by Jeff Goldblum in the movie *The Fly?* While these are the products of fiction, they have helped perpetuate the myth that men and women in lab coats are a potential threat to the health and well-being of the humans in their research labs, and to the larger community as well.

Scientific research is viewed by some as a two-edged sword. For the past four centuries, the institution of scientific practices in all manner of human affairs has enormously benefitted humankind. However, scientific research has on occasion been criticized for being, among other things, unethical, threatening, abusive, or wasteful. What is being done to reduce the chances that individuals will be abused or harmed as participants in scientific projects at research universities like MTU? While it may be easier to attack than to defend questionable research practices, it is important to remember that carrying out research is a form of freedom of expression and thought. As a right of expression, a case can be made that scientific research is a constitutionally protected activity. However, there are other basic rights that need to be considered and should not be subverted. What are the basic rights of the research subject? How might they be protected? Does the public have a right to be fully informed about all scientific research activities conducted in tax-supported agencies? At Tech Tea Time, Melton and his panel will provide some guidelines to follow when research involves the participation and use of humans as subjects in scientific research projects.

Tech Tea Time is coordinated and funded by the University Cultural Enrichment Department. For further information or to propose a topic for future Tech Tea Time sessions, call 487-2844.

A comedy on stage for Winter Carnival

Submitted by the Department of Fine Arts

Lettice and Lovage, a comedy by British playwright Peter Shaffer, takes the stage in Walker Theatre as this year's Winter Carnival production by the fine arts department. "This is a warm, witty play that virtually everyone enjoys," says director **Debra Bruch.** The enthusiastic cast of students, faculty, and community members features **Barbara Lide** (humanities) in the title role. Tickets are available from the Memorial Union (487-3200) or SDC Central Ticket Office (487-2073) for seven performances—Thursday–Sunday, January 28–30 and February 4–6 at 8:00 p.m., plus a 3:00 p.m. matinee on Sunday, February 7. Tickets are $7 general admission, $5 senior citizens, and $3 students ($1 more at the door).

Lettice and Lovage is an odd-couple comedy about two strong, colorful women who meet and clash on the job. Lettice, imaginative and theatrical, works as a tour guide in an out-of-the-way national historic site, inventing interesting "facts" to charm her audiences because she refuses to allow life to be ordinary. Lotte, the scholarly and businesslike boss, fires Lettice, but that's just the beginning of the story. The action unfolds with unexpected and hilarious twists as the two worlds collide, then join forces to battle whatever seems mediocre, dreary, or routine.

"This is a family-oriented show which is caring, compassionate, funny, and terrifically entertaining," says director Bruch, who plays Lotte. "Barbara Lide fell in love with the play several years ago and asked me whether we could perform it together. Working with this wonderful actor is a highlight of my career. "

Michigan Tech's production features set design by Bruch, lights by technical director **Paul Aneshansel,** and costumes by **M. C. Friedrich.** MTU senior **Theron Rutyna** is associate director. The cast includes Anne Baldridge, Andrew S. Liebau, Nicholas Bateman, Shanna Helminen, Kari Rintamaki, Claudia Stadius, Richard Goldstein, Francis Ricca, and Katherine Flynn.

Critics called *Lettice and Lovage* "hilarious," "enchanting," and "sharp, witty, delightful" when it was first produced in London and New York starring Dame Maggie Smith. Shaffer's other hit plays include *Amadeus, Equus,* and *Royal Hunt of the Sun.* For more information, call 487-2067.

On the road

Lecturer **William Chapel** (SBE) presented two papers, "Advising Graduate Students for Successful International Internships" and "Cognitive Exercises for Teaching Intercultural Communication in the Classroom," at the 63rd Annual Convention of the Association for Business Communication, held November 11–14 in San Antonio, Texas.

Workshops for parents of ADD students

A series of five workshops for the parents of middle-school-age children with attention deficit disorder begins February 10. MTU employees and families may attend at no charge.

Middle school marks a particularly difficult transition for children with ADD. This workshop series focuses on a variety of issues parents and young teens with ADD may face. Parents and their 12- or 13-year-olds are welcome to attend. Children must be accompanied by their parent or guardian.

Sessions are held on Wednesdays from 6:30 to 8:30 p.m., February 10 through March 10, at The Institute, 900 West Sharon Avenue, Houghton.

To register, call 482-4880 by January 29.

Green Bay Packer's motivational speaker here Jan. 23

Jesse Richardson, a motivational speaker for the Green Bay Packers, will give a talk on Saturday, Jan. 23, at 1:00 p.m., in Dow 641.

Richardson will discuss his experiences as a gang member and drug user, and how he changed his life for the better.

Autographs will be available following the presentation.

If you have any questions, contact Joe Eppert at 487-3773 or jjeppert@mtu.edu

Senate (Continued from page 1)

The senate revisited its January 13 action that would set the length of semesters at fourteen weeks. The entire Department of Computer Science sent an open letter to the senate opposing the move, which would decrease the days of instruction approximately 8–10 days from the current average of 145. The action violates a boundary condition promised to students, that the number of instructional days would not be cut when MTU switches from quarters to semesters. The draft calendar presented by the Calendar Issues Clarification Committee honored the boundary conditions, including providing for a roughly equal number of instructional days.

Calling the senate's action "a matter of considerable concern," the letter said, "The 14-week calendar seems inconsistent with many departments' oft-stated priority of providing as much instructional time as possible in students' major areas." And, noting that faculty voted for semesters to avoid the quarter calendar's "frenetic pace," it said, "The [14-week] calendar will only compound that frenzy because an even greater pace of instruction must be maintained to cover 30 weeks of instruction in 28.

"It is the unanimous opinion of the Department of Computer Science that the arguments offered so far in support of the 14-week calendar are not nearly sufficient to override the arguments against."

Senators supporting the 14-week calendar had said it would be a significant benefit for students. By allowing for a 14-week summer term or the equivalent, students who failed classes during the previous year could make up work and stay on track academically. Senators had also said a 14-week semester would allow for a better match between MTU and other universities, enhancing cooperation between institutions.

Provost **Fred Dobney** challenged the validity of their position. "The calendar committee studied these issues for a year, and last week sixteen senators voted to upend it because of arguments that are not true," Dobney said. "Less than 7 percent of students retake courses during the summer." Most students who attend summer school have different motives, such as lightening their overall academic load or finishing their degree program more quickly. And, while a 14-week semester puts Michigan Tech in line with other public universities in the state, that is not a fair comparison, Dobney said. MTU's benchmark institutions, including other engineering schools, have academic years in the range of 150 days. Fourteen-week semesters would sink MTU's instructional days significantly lower than their peers'.

Seely said that a 15-week semester calendar would still allow for a summer term if the four-week intensive period following spring semester in the committee's draft is scrapped. And he said it was not necessary to match up exactly with other specific university schedules, noting that Michigan's universities operate on three fundamentally different calendars.

In addition, Board of Control Vice Chair **Ken Rowe** has said the University should adhere to the boundary conditions promised to students, Seely said. And the action could affect the morale of students at a time when they are already under stress due to the calendar change. Students believe that fewer days of instruction means that faculty will have more time to earn additional revenue outside the classroom, while students are getting less instructional time for their tuition dollar. That is a false assumption, he said, but it gives the appearance that faculty are profiting from the shortened academic year.

Dobney said that a shortened academic year amounts to a 5.5 percent increase in faculty's per hour pay rate, which would drive up the hourly rate charged in grants and summer term salaries.

Whether the University has a 14- or 15-week calendar, it will still have to start before Labor Day, Seely said, to allow time for exams and grading before the holiday break. "I voted for the 14-week calendar because it starts after Labor Day," said Senator **Jim Gale** (SBE). "But now I see it will have to start in August anyway." Because the 15-week semester is a priority for students, Gale said he had changed his opinion on the matter.

Senator **Bruce Barna** (chemical engineering), who supports a 14-week calendar, said that "convenience issues in the fall are the major driver."

"Some schools move finals into January," he said, to avoid the pre-Christmas crunch, and he suggested that MTU consider doing the same.

The senate will be continuing debate on the calendar at its February 3 meeting.

In other business, the senate

- approved a revision of the Scientific Misconduct Procedures specifying that students could be removed from degree programs for scientific misconduct only if applicable University policies and procedures are followed.
- approved the creation of a Faculty Service Award program. The award would be given annually by a committee including representatives from the faculty, University Senate, and the provost, and would honor "superior and exceptional service activities."

January

22 Friday
9:00 a.m.—Board of Control meeting—Dearborn Inn

23 Saturday
1:00 p.m.—Talk by Jesse Richardson—Dow 641

27 Wednesday
4:00 p.m.—Tech Tea: Willie Melton on scientific research with human subjects—Memorial Union Alumni Lounge

28 Thursday
8:00 p.m.—University Theater: *Lettice and Lovage*—Walker Theatre

29 Friday
8:00 p.m.—University Theater: *Lettice and Lovage*—Walker Theatre

30 Saturday
8:00 p.m.—University Theater: *Lettice and Lovage*—Walker Theatre

February

BLACK HISTORY MONTH

4 Thursday
8:00 p.m.—University Theater: *Lettice and Lovage*—Walker Theatre

5 Friday
8:00 p.m.—University Theater: *Lettice and Lovage*—Walker Theatre

POSITIONS AVAILABLE AT MTU

Job descriptions are available from Human Resources starting at 1:00 p.m. on Friday. You can e-mail us at JOBS@MTU.EDU and we will e-mail you the job description you request.

The following positions will be posted Friday, January 22, 1999, at 1:00 p.m. through noon, Friday, January 29, 1999, in the Human Resources Office.

Director—Extended University Programs
Lecturer—Computer Science
Assistant Professor—Computer Science
Custodian—Facilities Management
(Regular, full-time position, third shift; AFSCME internal posting only)

University employees are reminded to apply in writing prior to noon, Friday, January 29, 1999, to be considered as internal candidates for bargaining unit positions only. Applicants from the recall pool will be given first consideration for non-bargaining-unit positions only. Vacancy announcements are normally posted every Friday at 1:00 p.m. in the Human Resources Office. Complete job descriptions are available in the Human Resources Office or by calling 487-2280. More information regarding employment opportunities is available by calling the Job Line at 487-2895. Michigan Technological University is an equal opportunity educational institution/equal opportunity employer.