UNDERGRADUATE EDUCATION EXCELS
from Cornerstone . . .
to Capstone . . .
to Cap & Gown
What will the engineering profession look like in the next 10 or 15 years, and what should we be doing today to prepare our future engineers?

First off, the numbers of young people—especially domestic students—entering the fields of science, technology, engineering, and mathematics (STEM) are dropping at a disturbing rate. Here in the College of Engineering we have seen a 10 percent drop in the number of incoming students in most majors over the past three years. It is evident that we need to take action now, to get pre-college students excited about engineering, to bring them into the pipeline so we don’t end up with a shortfall of engineers.

Last year, the National Academy of Engineering published a report, “Educating the Engineer of 2020.” Among other things, that report addresses the issues of “enriching and broadening engineering education” and “improving the recruitment and retention of students and making the learning experience more meaningful to them.”

So how do we accomplish these things?

MSU’s College of Engineering has established “freshman engineering” as the cornerstone of the undergraduate curriculum. In this issue of *Currents*, you will read about how each department has geared itself toward providing an interactive experience for our freshmen. We introduce them to “real” engineering their first semester on campus. We get them into research labs. We don’t wait until the senior capstone design course to reveal to them how their coursework all fits together.

Recruitment and retention of a diverse group of high-quality students is a top priority in the college right now. Our goal, by the year 2012, is to increase the number of undergraduates in our program by 30 percent, focusing specifically on four student groups: high-achieving, out-of-state, underrepresented, and women. We have named Drew Kim as director of recruitment and K–12 outreach to head this effort. Read about the strategies and outreach activities that we are implementing to attract young people to explore engineering as an exciting career option—at the high school level and earlier.

In this issue you’ll also find inspiring success stories about the “Engineers of 2006 and 2007”—our recent graduates and our current students.

- A Bosnian native who escaped her war-torn country in December 1994 and earned her bachelor’s degree in electrical and computer engineering in December 2005
- A computer science graduate who joined the engineering team at Boeing as a full-time staff member because they were so impressed with his performance at the company during two summer internships
- A 50-year-old mother of four who has decided it’s time to complete her degree in mechanical engineering—after a 30-year hiatus
- A chemical engineering senior who was one of 46 students from across the country handpicked to complete the grueling, weeklong Gourami Business Challenge, a program hosted by Shell Oil Company to assess and evaluate potential hires

Engineering schools must continue to prepare for the future. We have a mission to prepare the Engineer of 2020. We believe that MSU’s College of Engineering is well on its way. Let us know what you think.
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undergraduate students in MSU’s College of Engineering don’t just “receive” their bachelor’s degrees. They earn them. And they start earning them their freshman year, the moment they become MSU students.

Andrew Baczewski, electrical engineering senior, is proof of that. He had three lab experiences during his freshman year alone. He participated in ROSES (Residential Option for Science and Engineering). During summer 2005 he took part in a study abroad program in Kaiserslautern, Germany; at the same time, he completed an Independent Research Study in Germany. He was a lab assistant for three semesters, has been involved in three student organizations (including Eta Kappa Nu, the electrical and computer engineering honor society), and is now doing an independent study.

The college believes in getting engineering students like Andrew involved right from the outset, during their first semester as freshmen. One way to accomplish this is through freshman engineering courses—or “cornerstone” courses.

“Freshman engineering is the true cornerstone of the program,” says Tom Wolff, associate dean for undergraduate studies and associate professor of civil and environmental engineering. Every department in the college now offers a freshman engineering engagement course.

“I believe that cornerstone classes are mission-critical to engaging potential engineers at the beginning of the curriculum,” says Bradley P. Marks, associate professor of biosystems and agricultural engineering and undergraduate program coordinator for the department.

“Without freshman engineering courses, students tend to see only the rigorous requirements in math and the sciences without seeing the excitement of pulling these things together and applying them,” says Wolff. As a result, the college could lose potentially good engineers before they even get past their freshman year.

The key is to involve them in “real engineering” activities early in the education process.
LIVING/LEARNING EXPERIENCE

For the past ten years, engineering freshmen like Andrew Baczewski have had access to the ROSES program—Residential Option for Science and Engineering—which connects engineering freshmen to the college through a living/learning experience. They live in a common dormitory, take courses together, and have access to tutoring. It builds camaraderie.

“ROSES was an excellent experience,” says Baczewski. “I met great people. I was in many of the same classes as my roommate and my neighbors, which definitely made the transition into engineering less painful. The program was most beneficial to me as a means for building social relationships with other engineering students, many of whom are still in the same classes and student organizations as I am.”

“We’re now looking at past successes in the ROSES program,” says Wolff, “to see how we might be able to develop a more coherent freshman engineering program and to get more of our engineering students in a common living environment that would pervade more than the first year.”

According to Wolff, a task force has been formed and the college is now doing some preliminary planning to see if the freshman residential concept can be expanded.

“What’s somewhat unique here would be the combination of a living/learning program and a freshman engineering program. Many schools have one or the other; few schools have both,” he says.

FRESHMAN ENGINEERING COURSES OFFERED IN EACH DEPARTMENT

BIOSYSTEMS

Each fall semester, Bradley Marks teaches “Engineering Design Fundamentals for Biological Systems” (BE 130), a course that was developed in the year 2000 and is now required for all biosystems engineering majors. About 40 freshmen in the class work in teams to complete two design projects.

“What we’re really doing is putting the design process in front of them, early on—which is what engineering is about—rather than telling them: ‘wait until you take a course in—which you will later find out what engineers do,’” says Wolff.

Through the course, students learn how to use organized methodology to solve analysis and design problems and effectively communicate those solutions to scientists, engineers, or laypersons. They also gain an understanding of the unique aspects of the biosystems engineering profession, its significance to society, its ethical framework, and career opportunities. Yet, they have fun doing it.

For one project, the teams are instructed to design a product to solve a particular problem using all edible materials. And what’s the incentive to follow the instructions? The project has to be “entirely consumed by the team after testing!”

This semester, a second challenge during the course was based on an actual stream restoration project on Carrier Creek, just a few minutes from campus. The students were required to design erosion control strategies and a channel cross-section. At the end of the course, Marks took the students on a field trip to see the actual site.

“These types of classes are likely the only way that students have a chance to experience the essential elements of engineering, particularly utilizing creativity in designing solutions to technical problems,” says Marks. “It is important for the students to have early experiences that reveal these exciting aspects of an engineering career.”

CIVIL & ENVIRONMENTAL ENGINEERING

Wolff, along with Rick Lyles, professor of civil and environmental engineering, co-teaches “Introduction to Civil Engineering” (CE 271), which was offered for the first time as a pilot course in January 2004. The four-credit course is taught in fall and spring and is a prerequisite for many of the 300-level courses. Approximately 80 students take the class each semester.

Amanda Westmoreland, civil engineering sophomore, took CE 271 her first semester on campus, fall semester 2004. As an entering freshman, she was pretty sure what she wanted to major in because, she says, “Planning out roads and bridges interested me a lot more than anything else I had looked into.”

But she says CE 271 “set her decision in stone.”

“I feel it’s important to get freshmen involved in the engineering curriculum. If they are heading toward civil engineering as a career path but are unsure about it, they should have some idea what they are getting into so they have more time to change their minds if they decide they don’t want to continue in civil engineering,” she says. “CE 271 helps students make that decision. The sooner you know what you want to do the better.”

The course has been transformed from a basic surveying course and expanded to include an overview of analysis, design, and ethics. Students work in teams of five to do a site selection and feasibility study for a hypothetical facility, such as a new 8,000-student college or a military base. They must estimate water and sewer demand, determine where to get water, evaluate needed roads and layout, and explore other community needs and issues.

CE 271, which is approximately 45 percent surveying and 55 percent an introduction to civil engineering, provides a basic understanding of engineering measurement and helps students make sense of numerical information. “It introduces students to engineering design and team-based projects, while working with open-ended, ill-defined projects,” Wolff says. (This project is similar to the one that students complete in CE 495, the new senior capstone design course. See related article on page 5.)
A luxury hotel getaway sounds so relaxing—unless you have to design and build the entire complex from the ground up. That’s what students in the civil and environmental engineering senior design course (CE 495) do. Working with practicing engineers and instructors from five technical areas, class participants are responsible for developing preliminary conceptual designs for a fictitious hotel complex at the northwest corner of Jolly and Hagadorn Roads. During the process, students must take into account such diverse considerations as environmental regulations, pedestrian and vehicular traffic, pavements, and flooding. Class members are assigned to teams of five or six and each person works on specific aspects of the complex design.

ENVIRONMENTAL ISSUES

Milind Khire, CEE assistant professor, helps students address wetland and soil issues. The groups are required to propose a strategy for removing and containing contaminated soil from the building area by designing an onsite hazardous waste landfill for the “permanent” isolation of the material. Teams do everything from delineating contamination to designing landscaping for the area to make it suitable for residential and commercial development. “The key challenge here for students is to design an on-site disposal facility that is cost-effective and meets all environmental regulations and engineering requirements. There are over 4,000 active engineered landfills and over 10,000 closed dumps in this country. Hence, seniors with the ability to design landfills are in significant demand when it comes to finding a good job,” says Khire.

TRANSPORTATION ISSUES

To enhance the development, students evaluate traffic patterns and develop a strategy for moving Hagadorn Road out of the Herron Creek flood plain. They also plan the intersections, access roads, and parking lot for the hotel complex. Teams need to take into account complex accessibility issues as well as environmental and regulatory concerns. Thomas Maleck, CEE associate professor and a class co-leader, guides the groups in the process, but says that the research and decision making is entirely up to the students. “They can get overwhelmed, but we don’t want to jump in and help them,” says Maleck. “We let them go down a blind alley, so it’s their design and not ours.”

GEOTECHNICAL AND PAVEMENT ISSUES

Gilbert Baladi, CEE professor, oversees the students’ design of the hotel foundation, as well as the pavement cross-sections for the road and the parking lot. Teams need to address everything from road thickness and expected traffic, to regulations, ordinances, and number of parking spaces in the hotel lot. According to Baladi, students are often surprised by the minutiae in the planning. “They are all learning; we are opening their eyes,” he says. “It’s amazing to see how the students grow in the course. It’s joyful to see them get on the right track.”

HYDROLOGY ISSUES

During the design process, teams often find that development results in an excess of water. Roger Wallace, CEE associate professor and another class co-leader, guides students through decision-making processes having to do with water levels, surface water drainage, ground water, erosion, and flooding that result from natural features and man-made structures. As part of the course, students design drainage systems associated with the new road and the hotel site development. “Students’ primary task is to help plan for the movement of water on the ground surface following storms,” says Wallace. “They need to design systems that can accommodate both minor and major storms.”

STRUCTURAL ISSUES

As part of the course, students are required to design a pedestrian bridge for foot traffic over Hagadorn Road. With the help of Rigoberto Burgueño, CEE assistant professor, teams are expected to propose a functional bridge that is safe, aesthetically pleasing, and cost-effective. Burgueño says that the challenge of the pedestrian bridge is to incorporate both creativity and technical knowledge. “Structural engineering is both an art and a science, and we need to promote that way of thinking in our students,” says Burgueño.

The overall feel of the course is that of a guided independent study—students have almost complete control of, and responsibility for, the end product. “They will either converge toward a solution or diverge toward failure,” says Maleck.

Wallace agreed, adding that while the course is often frustrating for students, it helps them apply their classroom knowledge in a real-world situation. “Unlike most classroom experiences, these problems are open-ended, complex, poorly structured, and allow for more than one solution,” he says. “Students need to organize teamwork, make presentations to other professionals, and transition their experience from classroom exercise to practical application.”

Students also appreciate the hands-on, real-world nature of the experience. “I think the capstone course really helped me get the feel for making decisions,” says civil engineering senior Brian Rentch. “This course helps students build confidence in themselves—to make a decision and go with it.”

Class participants also get real-world experience working closely with a team of practicing engineers. The engineers share practical expertise accumulated from years in the field, and help students in a way the faculty cannot. “Faculty members are not practicing engineers in general,” says Wallace. “The practitioners bring in the knowledge and point of view they have from working in that environment on a daily basis.”

—Elizabeth Connelly
“Group work was very important for our class project and it also helped me to gain confidence in speaking up and asking questions if I was confused about something,” Westmoreland says.

The course also reinforces engineering ethics. “They put so much emphasis on good engineering ethics,” Westmoreland continues. “I had never thought of it much before this class. I thought good ethics were plainly good morals but there is a lot more to it.”

CHEMICAL ENGINEERING

Dennis Miller, professor of chemical engineering and materials science, teaches “Molecular Frontiers in Chemical Engineering” (CHE 101), an elective course that has been offered each fall since 2003. Guest speakers are brought in during the semester to supplement Miller’s material. It’s mostly hands-on activities, with lectures kept to a minimum. Thirty to forty students sign up each time.

“We wanted to expose prospective chemical engineering students to our discipline earlier in the degree program,” says Miller. “This will better prepare them for their chemical engineering education, and help in recruitment and retention of students in our program.”

Students learn the history of the profession, explore the influence of chemical engineering on society, discuss chemical engineering principles, develop problem-solving skills and creativity, and look at the future direction of the field.

“Students who complete the course will have a better understanding of how to be an effective student, learn how to get an early start in looking for internships and co-op positions, and explore career options in chemical engineering,” says Miller.

MATERIALS SCIENCE

Freshmen who want to find out more about materials science as a career option may take “Materials and Society” (MSE 101), taught every fall semester by K. N. Subramanian, professor of chemical engineering and materials science. He might have as many as 50 students in a class. The course, which was offered for the first time about four years ago, illustrates the important roles of materials that we take for granted in day-to-day life.

“High school teachers don’t talk much about materials science,” he says. “Students don’t have much exposure to materials science and engineering before they come here.”

Subramanian gleaned his ideas from the daily news, bringing to the classroom discussion about various materials and how they have played important roles in a newsworthy event. For instance, in the fall of 2002, after the collapse of the World Trade Center, he taught a three-week unit on building materials for tall buildings and what caused the pancake-type collapse of the World Trade Center.

He also brings in faculty from other departments to talk about their areas of specialty. “It’s critical to find speakers who will address topics that will motivate the students,” Subramanian says. “The main aim of the course is to motivate the students on the importance of materials science.”

In the past, topics have included bio-materials (like metals, ceramics, and polymers) and biological implants; electronic waste; lead-free electronic solders; materials for electronic applications; fire retardant materials; and biodegradable or biobased plastics or polymeric materials. Next year, Subramanian plans to include a lecture on materials used for alternate energy.

Students learn technical report writing skills by writing three or four critiques on the course content presented throughout the semester.

The materials science and engineering program has seen a 50 percent increase in enrollment over the past three years, and Subramanian feels that it may be due to the success of this course.

COMPUTER SCIENCE & ENGINEERING

Freshmen interested in computer science and engineering are encouraged to take the Freshman Seminar (CSE 291), a course that has been offered each fall since 2001.

It has a two-pronged purpose: to educate and to excite. It also builds camaraderie among the 80 students who typically take the course each year.

The course exposes students to the wide variety of career options. Guest speakers, oftentimes alumni, are brought in to share their experiences with the students and get them excited about what they can do with a degree in the field.

“We want students to explore the diverse career possibilities within the field of computer science,” says Teresa VanderSloot, academic adviser and co-instructor of the course. “The freshman year is a good time for students to start thinking about what it is they may want to do with their degree.”

The course also helps students with high-school-to-college transitional issues like adjusting to college life and utilizing career resources. Assignments are also given to encourage self-discovery and personal development. Students write a one-page paper that helps them to examine their values; they write a paper describing their “dream job”; and they attend a resume writing workshop. They are also encouraged to fill out a plan of study.

While the course is intended to help students narrow down what they want to do in the field, it’s just as useful if a student hears a guest speaker and says “I would never want to do that!”

“By the time they’re seniors, it’s too late to say, ‘you know, maybe consulting isn’t for me,’” says Wayne Dyksen, professor of computer science and engineering. (For a story about CSE 498, the senior capstone design course, see article on page 7.)

MECHANICAL ENGINEERING

In the Department of Mechanical Engineering, a two-course pilot is now under development. Previously, two courses—engineering graphic communications and technical computing—were required at some point in the curriculum but were not prerequisites for other classes. They were also open to all majors. That may be changing.

The revamped courses may become ME 101 and ME 102 and will be offered beginning fall semester 2007. Students will be required to complete these two courses during freshman year. About 200 students are expected to enroll each semester.

“We are taking these two courses and tailoring them to be an introduction to mechanical engineering, a freshman experience,” says Timothy Hinds, an academic specialist in the Department of Mechanical Engineering and instructor of the computing course.

The goal is to have the two courses more tightly integrated. “By integrating these two courses—giving students a full-year exposure—they will in fact use the tools more,” says Bob Chalou, academic specialist and instructor of the graphic communications course. The graphic communications class introduces students to NX®, a computer-
Undergraduates in computer science and engineering are helping Boeing envision the future of flight—literally. Since fall 2002, students in the CSE capstone design course (cse 498) have worked with the aerospace giant to develop and perfect a flight visualization program for the F/A-18 E/F Super Hornet. The program takes the raw data from the aircraft flight recorder and translates it into an on-screen image of the plane’s flight, allowing pilots, flight instructors, and ground personnel to view and critique aircraft performance.

According to Don Akers, a Boeing associate technical fellow and systems software architect, applications like this one can be used in pilot training and incident/accident reconstruction. “We tried to offer students a project that could be useful to Boeing—one that has real-world impact, involving real-world data,” says Akers. “This project has always proven to be a favorite.”

The original requirements of the assignment have changed very little since the inception of the capstone class, but each new group of students has added to and refined the features and performance of the visualization program. Previous classes developed the graphic interface, allowed for three-dimensional, 360-degree views of the aircraft, and added a heads-up display (HUD) for pilots. The fall 2005 team—including CSE seniors Brian Hasselbeck, Robert Rutherford, Chul Park, and Jayson Vincent—programmed visualization and movement of flight terrain, landing gear, wing flaps, tail flaps, and takeoff and landing maneuvers.

“Students add a new twist each semester and the sophistication of the product has always advanced,” says Akers.

Project sophistication is something that Wayne Dyksen, CSE professor and capstone course instructor, appreciates about the Boeing assignment. “This is intended to be a real-world project for the students,” says Dyksen. “They have almost total responsibility for the outcome. They are given purposely vague information and are required to deliver a finished product, manuals and all, by the end of the semester.”

The class may be difficult for students, but the realistic nature of the course gives them priceless experience solving problems that practicing engineers face in the field. “It’s the most valuable class I’ve taken at MSU,” says Rutherford. “This is as real-life as you can get in a classroom setting. The assignment has helped me learn how to work effectively in a team on a large-scale project.”

Delivering a product is one thing, but delivering a quality product is quite another, as Akers found out when Boeing worked with other universities on similar projects. “We have seen some great products at other schools, but we’ve also experienced difficulties,” he says. “However, MSU has consistently been on top of what needed to be done, and is always able to handle the tasks associated with the project in a proficient manner. If they didn’t know what to do or how to do it, they asked the right questions and did the required research to find the answers.”

Dyksen agrees with Akers’s assessment of the talent at MSU. “In general these kids are just incredible,” says Dyksen. “You look at the products they deliver and wonder ‘Could I do that?’ Their skill continually amazes me.”

In some cases, Boeing continues to reap the benefits of that skill after graduation. A few students from previous semesters, including Jayson Vincent (see article on page 25), have gone to work full-time at Boeing after their experience in the capstone course. According to Akers, “The ability to perform on this project, along with an excellent education, has given these students a head start in beginning a career with Boeing.”

—Elizabeth Connelly
The programming portion includes Excel® and MATLAB®. “It will remain that way,” explains Hinds. “But we’ve incorporated an introduction to mechanical engineering and the various subdisciplines, with applications of those tools to mechanical engineering problems.” In addition, a three-week unit on mechatronics will be taught in this course. “The key here is to develop a fundamental set of tools that the students can use in the mechanical engineering curriculum and all the way through their careers,” says Hinds. “And when they get up to their higher-level courses,” says Chalou, “maybe they will actually use these tools, instead of waiting to be told to use them.”

**ELECTRICAL & COMPUTER ENGINEERING**

Now in its third year, ECE Special Topics, a two-credit elective, is offered every fall and spring to freshman and sophomore electrical engineering students. Taught by Pete Semig, an instructor in the Department of Electrical and Computer Engineering, the course averages 25 students each time.

When students learn that they will be working in a lab, doing some hands-on work, and programming their own robot with a team member for a robotics competition at the end of the semester, they quickly sign up. Course enrollment has jumped from 15 to 30. “The goal of the course,” says Semig, “is to get students excited about electrical and computer engineering, and to get them to feel that they are part of the department at a much earlier stage.”

Baczewski, now a senior, took the course in fall 2003. He heard that the class would cover technical aspects of electrical engineering and included a lab component. “The combination seemed right up my alley so I enrolled as soon as it was available,” he says. “I was excited to participate,” he recalls. “It seemed like a great way to become acquainted with all of the opportunities available to ECE students at MSU.”

Before courses like this were developed, the typical undergrad student didn’t set foot in the Engineering Building until late sophomore or early junior year. This class brings them into the building and exposes them to
research labs their first semester on campus. (See sidebar at right for a related story about undergraduate research.) “Courses like this one are designed to bring them closer to the department, to the building, to the major, and to the people—the faculty and other students,” Semig says.

The class also requires students to look at their long-term goals. Industry people are invited in to talk to the students about the fields of electrical and computer engineering. Faculty come in and talk about their research and the classes they teach, which gives the students an idea of the coursework ahead of them. Jim Novak, a career specialist in the College of Engineering, teaches a unit on interviewing and resume writing. Garth Motschenbacher, academic specialist, lectures about advising, co-ops and internships, and resources available to the students.

One class session is a visit to the Career Services and Placement office in the Student Services Building to acquaint students with the resource library and other services available to them for job searches or graduate school information. Students also go through the DISCOVER® program, an interest inventory exercise. “For instance, if DISCOVER says ‘be a farmer,’ but the student is interested in electrical engineering, we need to explore what’s going on here,” says Motschenbacher.

“Students may not think they’re ready for all that at this time, but to be exposed to this, and to be knowledgeable and aware that those things are out there, that’s the key,” Motschenbacher says.

“The class was very informative,” says Baczewski. “It boosted my confidence in my choice of major and helped me figure out what I could do with a degree in ECE. It would be in students’ best interest to take this class early in their academic career. It really helps expose you to what the discipline has to offer. Some students may find some field of study within ECE that immediately interests them, whereas others may end up determining that ECE just isn’t for them.”

“It’s like a traditional science experiment,” says Semig. “You have a hypothesis (I am interested in electrical and computer engineering); you test the hypothesis (take the course); if you don’t like it, you’ve still learned something. And you’ve spent only two credits to find out.”

“The coolest part of the class is the lab
DEPARTMENT CONTACTS

To become involved with the college’s freshman engineering programs, please contact the appropriate department.

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assignments,” says Motschenbacher. “Here, as a freshman or a sophomore, they are getting into a lab, they are learning some basic actions and outcomes in a lab; then they put those skills to the test in a design competition at the end of the semester. They will become familiar with a lab and basic lab procedures that they will be using throughout their careers here and beyond.”

Baczewski agrees. “This course introduces some basic lab skills, such as programming and circuit building, which are the bread and butter of the 300-level lab courses.”

Students who have completed this course have gone on to be lab assistants and tutors and are stepping up as leaders in student organizations.

Baczewski was a project consultant for the ECE Special Topics course for three semesters beginning in fall 2004, the semester after he had taken the course himself. He helped create projects for the ECE Design Day competition and assisted the students. “The Design Day project is typically fairly challenging and involves programming a robot to perform some task,” Baczewski explains. Past projects have included wheeled robots that navigated a maze autonomously, a quadrupedal robot that negotiated obstacles, and a robotic arm that would build a small structure using wood blocks. “It is really rewarding to see the students work their way through the labs, culminating in the design experience. I find it amazing to watch how much they progress in the space of a semester,” he says.

“This Special Topics course is all about making contacts within the department, making students feel comfortable, building relationships with some study buddies,” says Motschenbacher. “All of these things are as much a key to success in engineering as knowing what specialty area to pursue and hooking up with an employer. If we can get them tied in with some of their resources and some of their support networks early on, they have a much better chance of succeeding within the college and within the major.”

The department also offers a new Experimental Education Option, which was launched summer semester 2005.

“Out-of-classroom experiences are very important to a student’s ‘evolvement’ in the profession. So much so, that if he or she has three separate, registered experiences, we will waive one of their major elective classes,” says Motschenbacher. Out-of-classroom experiences include co-op, internship, study abroad, and independent study with a faculty member.

To qualify, students are responsible for obtaining and filling out the appropriate authorization forms. Once assigned a faculty mentor, it is up to each student to contact his or her mentor to plan the experience and set some learning objectives. The faculty mentor is there to help guide the student. “Bringing the faculty mentor to the work site, into the study abroad, helps facilitate and broaden the student’s view of the experience,” says Motschenbacher.

Initially, seven faculty served as mentors. Now there are nearly a dozen. Currently, about 50 percent of students have at least one out-of-classroom experience. The goal is to have about 35 percent of the students complete three such experiences.

“There is a lot of magic that can happen in this,” Motschenbacher says. He describes it as a “boutique” type of opportunity. He tells students: “We will recognize where you want
In recognition of the value of their partnership, Michigan-based Auto-Owners Insurance presented Wayne Dyksen, computer science and engineering professor, with a gift of $2,000 to support CSE 498, the senior capstone design course. Bob Buchanan, senior vice president of application development for Auto-Owners Insurance, presented a letter and check to Dyksen at the start of class on February 6.

In the CSE 498 Collaborative Design course, teams of students pair up with industry clients to develop a comprehensive software and/or hardware solution to a problem presented by the client. Auto-Owners, one of the largest property and casualty insurance companies in Michigan, has been involved with the course for three semesters.

“One of the major reasons we are doing this is the excellent candidates that we have been able to interview and hire,” Buchanan says. Auto-Owners has hired 17 of the department’s graduating seniors since spring 2005, and the Fortune 500 company hopes to attract more candidates through its partnership with the capstone course.

Dyksen explains that Auto-Owners was not successful in recruiting MSU computer science graduates prior to becoming a capstone course client.

CSE 498 is one aspect of the department’s dedication to providing students with high-quality instruction and hands-on learning while strengthening ties to the community. “The Department of Computer Science and Engineering is committed to workforce development in IT both regionally and statewide,” says Dyksen. “During the past two academic years, I have aggressively recruited Michigan-based companies including Auto-Owners Insurance, Channel Vantage, DaimlerChrysler, Ford, Image Space, TechSmith, TWO MEN AND A TRUCK®, and Universal Map.”

Department Chairperson Laura Dillon noted that the Collaborative Design class is a mutually beneficial experience for both students and clients. “Capstone course projects provide outstanding corporate experiences for our students while at the same time providing significant visibility at MSU for our corporate clients.”

Laura Luptowski Seeley
Recruiting and retaining high-achieving students has become a top priority in the college.

Just two years ago, national statistics showed that the number of college students entering the field of engineering had been dropping. While that number now seems to have stabilized across the nation, MSU’s College of Engineering has continued to see a 10 percent drop in the number of incoming freshmen—especially domestic students—in most majors over the past three years.

In response, the college is stepping up its recruitment efforts. “We need to do more to increase the number of domestic students studying engineering,” says Drew Kim, director of recruitment and K–12 outreach. Part of that strategy will include reaching outside of Michigan to pull in out-of-state students.

One explanation for the college’s dropping enrollments is that the numbers of students graduating from high school and entering college are simply declining, and that trend is expected to continue over the next four years. In order to channel a larger percentage of these students into engineering careers, exposing them to engineering at an early age is critical. By senior year in high school, it may be too late.

“K–12 outreach is important because it gets young people into the pipeline,” says Kim. “If we don’t put efforts into preparing students early on in science, math, and engineering, the U.S. will not continue to be a powerhouse in engineering.”

Numerous outreach programs are available through the College of Engineering, including: the High School Engineering Institute (HSEI), Detroit Area Pre-College Engineering Program (DAPCEP), Wireless Integrated Microsystems (WIMS) for Teens, and Women in Engineering (WIE); visit www.egr.msu.edu/egr/programs/precollege/ for more information.

Three of the most popular programs, however, are the outreach programs that use the LEGO MINDSTORM Robotics Invention System—a kit that consists of bricks, motors, sensors, gears, and software. “It’s a good tool to get students interested at a young age, but it is also versatile enough to be used by all levels of students. Everyone has experience with LEGOs,” says Kim. “Using these materials, there are a number of ways to teach elementary to high school students about engineering concepts, to raise interest in going into engineering studies.”

The largest such program is the FIRST LEGO League (FLL), which is aimed at students aged 9 to 14. (To learn more about the FIRST LEGO League, visit the Web at www.firstlegoleague.org/) The College of Engineering had sponsored two teams from area schools in the past; that number will now increase to ten, thanks to a generous $33,000 grant from Shell Oil Company. (See related story on page 14.)

“This Shell grant is very timely,” says Kim. “It’s a great way for us to reach out to the community and collaborate with students, teachers, and parents in area schools in order to produce well prepared ‘future engineers.’”

Getting high school students into MSU’s research labs is another way to attract them into the field of engineering, Kim says. He and Xiaobo Tan, assistant professor of electrical and computer engineering, have formed an undergraduate research team consisting of high school students and first-year MSU students majoring in electrical engineering, mechanical engineering, computer engineering, and computer science. The students work together to develop a wireless remote-controlled fish using an electroactive polymer, also known as “artificial muscle.” The project exposes students to research in the areas of Microelectromechanical Systems (MEMS), Wireless Integrated Microsystems (WIMS), and smart materials. It also helps students realize the real-world applications of their research. This brand-new polymer material, for instance, can be manipulated to duplicate human muscle, showing promising applications in the field of medicine. It could also have applications in oceanography and defense.

“Statistics show that a high percentage of the pre-college students who attend engineering programs like these at MSU end up

Drew Kim, director of recruitment and K–12 outreach, shows the tools he uses to get future engineers excited about careers in the field.
enrolling as students at MSU,” Kim says. “If we can get them involved early, there’s a good chance they are going to return here as college students.”

Specific recruitment objectives include:

1. developing consistent correspondence with prospective students and parents that is personal and timely in order to keep MSU Engineering on their “radar” screen;
2. refining and centralizing records of prospect inquiries and campus visits within the college;
3. working closely with the college’s Diversity Programs Office to continue to recruit strong minority prospects;
4. centralizing communication with high schools and community colleges in specific markets to promote MSU and the College of Engineering (guidance counselors, along with math and science teachers, will be targeted);
5. collaborating with the Undergraduate Studies Office to track prospects and obtain the most recent survey data to modify the recruiting strategy accordingly;
6. refining the College of Engineering Web site to make it more attractive to prospective students; and
7. working with Engineering Development to identify engineering alumni who may support the recruitment initiatives and specify ways they can assist in recruiting students from their “home” communities.

The college is counting on alumni and faculty to help with the recruitment process, to be good resources, and to help bring in a diverse set of high-quality students. “They play a major role. It’s no longer just ‘the director of recruitment’s job,’” says Kim. There are several ways for alumni to get involved. He says, “Give us suggestions or volunteer to help strengthen our pre-college programs. Do recruitment presentations in your city or join us as alumni representatives at MSU Engineering information sessions. If you know students who are interested in an engineering career, send them our way.”

For more information, or to assist the College of Engineering in its recruitment and outreach efforts, contact Drew Kim, director of recruitment and K–12 outreach, at (517) 353-7282 or kima@egr.msu.edu. —Laura Luptowski Seeley

Evangelyn C. Alocilja, associate professor of biosystems and agricultural engineering, may have just mentored a future Nobel Prize winner or a future member of the National Academy of Engineering.

John Zhou, a senior at Detroit Country Day School in Beverly Hills, Michigan, and a participant in the High School Honors Science Program (HSHSP), a non-credit residential program for high school sophomores and juniors, spent seven weeks last summer in Alocilja’s lab working on a project to develop electromagnetic biomaterials that can be used as molecular transducers in biosensor design. He then submitted his project to the prestigious Intel Science Talent Search (Intel STS), America’s oldest, most highly regarded pre-college science competition, often considered the “junior Nobel Prize.”

In January, Zhou found out he was one of 40 finalists selected from a field of 300 semifinalists. He presented his research at the 65th Annual Science Talent Institute in Washington, D.C., March 9–14. Winners were announced at a black tie gala on March 14; the top prize was a $100,000 college scholarship.

Zhou plans to attend Harvard University in the fall.

A second student who worked in Alocilja’s lab, Wendy Ying, a junior at Detroit Country Day School, was a semifinalist in the competition. Alumni of this competition have gone on to win some of the world’s most coveted science and math honors, including the Nobel Prize and membership in the National Academy of Sciences and the National Academy of Engineering. The program has been sponsored by Intel since 1998.

Benton Bishop (left) and James Jackson, Team TechnoSpartans robot handlers, during the robot performance portion of the FIRST LEGO League competition at the 2005 Saginaw Regional Tournament.

High School Senior’s Work in MSU Lab Leads to Competition for “Junior Nobel Prize”
The Shell SITES (Students Interested in Technology, Engineering and Science) Program was recently established at Michigan State University with a generous $67,000 contribution from Shell Oil Company. The purpose of the initiative is to attract and recruit the finest students across the K–12 educational spectrum to the study of science and engineering. “This program aligns well with our workforce development initiative, aimed at cultivating prospective engineers and geoscientists to ensure our industry has the skilled workforce required for the future,” says William Fitzpatrick, executive vice president, human resources and administration for Shell Trading.

The College of Engineering received $33,000 from the Shell SITES Program to expand the presence of FIRST LEGO League (FLL) at MSU. FLL is the result of an alliance between FIRST (For Inspiration and Recognition of Science and Technology)—which is a multinational nonprofit organization—and the LEGO Company. This international program challenges nine- through fourteen-year-olds to build, program, and test fully autonomous robots made exclusively from LEGO blocks. Shell’s support will significantly increase the number of MSU-sponsored teams from elementary and middle schools in the Greater Lansing area—from two to a total of ten. Further, this gift has made it possible for MSU to become the site for one of the upcoming regional tournaments held each fall. A portion of these funds will be available as travel stipends for the winning teams to attend the statewide FLL competition held annually in Novi.

In addition, the College of Natural Science received $34,000 from the Shell SITES Program to establish Shell Scholars Day as part of the annual Michigan Science Olympiad. This program will encourage classroom activities, research, training workshops, and participation in science tournaments.

For more information about the Shell SITES Program, the FIRST LEGO League, or to learn how you can make a charitable contribution to programs such as these, please contact the Office of Engineering Development at (517) 355-8339, or egrdevel@egr.msu.edu.

—Bobbi Burns
From Motivated Student to Dedicated Alum

Anyone who knows Jeff Schmitz would agree that he bleeds green. A 1997 mechanical engineering graduate, he was a dynamic student. Nine years later, Jeff is an energetic and successful alumnus who recognizes the importance of giving back—both as a volunteer and a donor—to his alma mater.

As a student, Jeff immersed himself in various activities and organizations on campus. Among his many accomplishments, he served as project manager for the 1997 MSU Formula SAE Team. Under his leadership, the MSU team received the Outstanding Sportsmanship Award, the Spirit of Excellence Award, and placed tenth overall at the international Formula SAE competition.

As an alumnus, Jeff continues to stay closely connected to the College of Engineering. He has been a mentor and steward for the MSU Formula SAE Team since 1998. In this role, he fosters relationships with current and past team members through career development, recruitment, mentoring, and financial and personal time contributions. During his tenure as a vehicle development engineer at DaimlerChrysler, Jeff was the team leader for the DaimlerChrysler College Relations Team, where he coordinated recruiting and diversity activities, and rallied support for the DaimlerChrysler In-House Campaign. In the latter role, he encouraged his colleagues to take advantage of DaimlerChrysler’s 2:1 matching gift program, which triples the size of their gift. Jeff has also been an invaluable volunteer advisor to the college. He served two terms on the College of Engineering’s Alumni Board and is a member of the Board of Visitors for the Department of Mechanical Engineering. Most recently he was on campus during ME Design Day as a judge for the prestigious inaugural Edison award for excellence in the senior capstone project.

Besides being an active volunteer, Jeff is a long-time donor who has given annually since he graduated in 1997. Jeff and his wife, Karen, are members of the Beaumont Tower Society, an MSU donor society that recognizes lifetime giving between $25,000 and $49,999. Jeff and Karen have directed most of their support to the College of Engineering, particularly the MSU Formula SAE Team. In fact, they were among a group of young alumni and friends who recently established the Gary L. Cloud MSU Formula Racing Team Endowment, an endowed fund that offers a permanent, flexible stream of support to the MSU Formula SAE Team.

“I owe my success to the education and opportunities I experienced at MSU,” says Jeff. “I’m happy to be in a position to give back, and I hope other alumni will do the same. Together, our support will ensure that future generations of engineering students have the opportunities and resources to succeed. I can’t think of a better way to invest.”

—Bobbi Burns
A highly esteemed and beloved member of the computer science and engineering faculty, Dr. Richard Dubes was internationally renowned for his research in pattern recognition and revered across the MSU campus for excellence in the classroom. Twelve years after his death, former students, colleagues, and friends continue to feel the impact he made on their lives.

As a way of perpetuating Dubes’s commitment to his students and passion for his research, Anil Jain, University Distinguished Professor of computer science, recently initiated the creation of the Richard C. Dubes Endowed Scholarship/Fellowship Fund. This endowed fund is intended to support deserving undergraduate and graduate students who are pursuing a degree in computer science and engineering, with preference given to students who are affiliated with the Pattern Recognition and Image Processing (PRIP) Laboratory and/or who have an interest in the areas of pattern recognition, image processing, and computer vision.

This endowment went from concept to reality in a short period of time. After pledging $5,000 of his own in August 2005, Jain sent an e-mail to several of Dubes’s and his own former students and colleagues, as well as friends of the Department of Computer Science and Engineering, encouraging each to make a contribution in memory of Dubes. Over a two-week period, $200,000 was pledged by 87 donors, most of whom made their gifts online. Once fully funded, this endowment will be the largest endowment for student support in the Department of Computer Science and Engineering.

Dubes devoted his entire professional life—nearly four decades—to teaching, research, and public service at Michigan State University. He was also an alumnus of the College of Engineering, earning his master’s degree in 1958, followed by his doctoral degree in electrical engineering in 1962. Shortly thereafter, he was hired as an assistant professor of electrical engineering. When the Department of Computer Science was established in the late 1960s, Dubes was eager for the opportunity to advance the emerging field. In 1977 Dubes, along with Anil Jain, founded the PRIP Laboratory, which is now internationally visible and one of the most active research labs in the Department of Computer Science and Engineering. He remained a member of the faculty until his death in 1993.

“I do not know of another person with higher standards of professional integrity, or with a stronger sense of fairness and care for others,” says Jain of his friend, mentor, and colleague. “He provided a helping hand to anyone who approached him. This endowment provides an excellent opportunity for people to give back in honor of someone who helped them.”

The College of Engineering invites alumni and friends to support endowments such as this. For information on how to contribute to the Dubes endowment, to request a list of other endowments for which you may provide support, or to explore the possibility of creating an endowment of your own with a cash or planned gift, please contact the development office at (517) 355-8339, or egrdevel@egr.msu.edu.

—Bobbi Burns
When John F. Foss, PhD, and his wife of more than 45 years, Jacqueline K. Foss, were deciding how to direct their charitable contributions, they agreed to establish an endowed fund to be known as the John F. & Jacqueline K. Foss Endowment for Experimental Fluid Dynamics. The fund may be used to support any number of initiatives within the program, including but not limited to graduate fellowships, professional travel stipends, conference fees, seminars, research and/or salary support, journal and book purchases, academic initiatives, and student programs.

Foss is a professor in the Department of Mechanical Engineering. His area of specialty is fluid mechanics. He is a long-standing faculty member, respected by colleagues and former students. Foss is engaged in studies of basic properties of turbulent shear flows, as well as automotive research focused on air flow patterns in HVAC systems, cooling fan flows for under-hood applications, and mass air flow sensors.

“The opportunities provided to me and my family have made our lives secure and most enjoyable,” John says. “We donate to other causes—such as church, United Way, and Red Cross—for our appreciation of what they do for others. This donation to MSU is in great appreciation for what MSU has done for us.”

They showed their appreciation by documenting a future gift utilizing qualified retirement plan assets to make the Foss Fund an endowed discretionary fund within the Department of Mechanical Engineering. The fact that the fund will be endowed means that the principal of the gift will be invested while the interest earned will fund the intended purposes. The gift, therefore, remains in place and in support of experimental fluid dynamics forever.

In addition, John and Jacqueline expect to establish the fund via cash support in the next few years so that they might see the benefit of the fund during their lifetimes. The fact that the Fosses have indicated their gift is for unrestricted uses within this particular field of research is helpful as well.

“Flexible, unencumbered funds are a rarity in the university setting. With this endowment, experimental fluid mechanics faculty who are nurturing the future students and post docs will have resources to expend as they see fit,” John explains. “The deliberative process regarding how the annual funds will be spent—or retained for a larger expenditure—will be good to cause the kind of creative thinking that will help to sustain the vibrancy of this field.”

John and Jacqueline, who received her master’s degree from the MSU College of Education in 1979, met while both were students at Purdue University. Despite the Purdue connection, they clearly have indicated that their loyalty is with MSU. While the university shows appreciation for their generosity by recognizing them as members of MSU’s prestigious Abbot Society, the Fosses feel the process of documenting their planned gift and establishing the endowed Foss Fund actually increased their fondness for MSU.

“We have always felt close to the mechanical engineering department,” John says. “But the interaction with the University Development staff and other university officials has made us feel closer to MSU itself.”

If you would like more information about planning a gift from your estate and/or establishing a fund to benefit the College of Engineering, please contact Engineering Development at (517) 355-8339 or via e-mail at egrdevel@egr.msu.edu.

This article was written by Rick Seguin for Developments, a newsletter produced by University Development, highlighting recent gifts to MSU.
PLANNED GIVING

Did you know . . . ?

. . . that you can make a significant contribution that may not have been possible during your lifetime by remembering the College of Engineering in your estate plans?

. . . that you can create a charitable gift plan that will benefit you and your loved ones financially and, at the same time, impact the programs and people of the College of Engineering for generations to come?

. . . that you can avoid or reduce estate and income taxes with your planned gift to the College of Engineering?

At right are three strategies you can use to remember and support the College of Engineering in your estate plans.

Our gift planning professionals are available to help you explore the ways in which you can include the College of Engineering in your estate plans. For more information about planned giving or to schedule an appointment, contact Engineering Development at (517) 355-8339, or via e-mail at egrdevel@egr.msu.edu.

THREE SIMPLE STRATEGIES

1. **Charitable Bequests** are future gifts to the College of Engineering through one’s personal will or trust. Charitable bequests include cash, marketable securities such as stocks or bonds, real estate, or other tangible property. Charitable bequests may be stated as a percentage, or a specific dollar amount, and on an unrestricted, designated, contingent, or residual basis.

2. **Retirement Plan Assets** are perhaps the most advantageous asset to consider when making a planned gift. Qualified retirement plan assets, if passed to anyone other than a spouse or charitable organization, will be subject to income tax and, depending on the size of the estate, may be subject to estate tax. By removing retirement plan assets from your estate and naming the College of Engineering as the sole or as a percentage beneficiary, you can avoid this taxation and be assured that the amount of support you direct to the college will not be reduced by taxes.

3. **Charitable Life Income Plans**, such as (1) charitable remainder trusts and (2) charitable gift annuities, allow you and/or your loved ones to receive income from the plan’s assets for life. Upon death, the remaining assets become a generous gift to the College of Engineering. With an irrevocable charitable life income plan, other benefits include an immediate charitable deduction, possible increased income from low-yielding assets, and avoidance of the capital gains tax on gifts of long-term appreciated property.

Doughnut Day

On the evening of Wednesday, December 7, the enticing aroma of more than 500 Krispy Kreme doughnuts filled the lobby of the College of Engineering, much to the delight of students. Engineering students took a study break to enjoy doughnuts, which were offered by the Office of Engineering Development. As the semester was coming to a close, Engineering Development wanted to let students know that the college’s many alumni, donors, and friends were thinking about them. This opportunity allowed students to become familiar with Engineering Development and how fundraising positively impacts their education, all while enjoying a much-needed study break.

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Construction is underway on the Energy & Automotive Research Laboratories (E.A.R.L)—a $10 million facility that will focus on research to improve automobile engine efficiency, reduce vehicle emissions, and seek alternative energy sources.

And the timing could not be better for the construction of this 29,000-square-foot research facility.

“Energy is one of the single most important issues of our time,” says Eann Patterson, chairperson of the Department of Mechanical Engineering. “The United States—with only about 4.6 percent of the world population—is responsible for about 25 percent of world oil usage. We need to seek ways to reduce our fuel consumption and we need to find new, cheaper, and cleaner sources of energy.”

In the new laboratories, researchers will identify ways to realize greater fuel efficiency, determine how to collect waste heat and convert it to electricity, and work to develop new biobased fuels.

Distinctive features of the new research facility include two engine test cells, a cold start room for subzero testing, and an existing powertrain research laboratory that will be relocated from MSU’s Hulett Road research facility.

“Once completed, E.A.R.L will be one of only a handful of these types of research facilities in the nation,” says Patterson.

E.A.R.L will house a world-class center for synergistic research and development, bringing together in one facility the researchers and students who are working to address today’s and tomorrow’s energy concerns.

“For instance, test cells will allow for further development of hybrid technologies, the creation of more efficient combustion engines, and the pursuit of biobased fuels,” Patterson says.

“Activities within the new energy labs will also complement research programs in electric drives and power electronics that are taking place elsewhere in the college,” says Satish Udpa, acting dean of the College of Engineering.

“This first-class research facility will allow us to enhance our research partnerships and put us in a much better position to respond to the needs of the energy and automotive industries,” Udpa says.

According to Patterson, “Of the 83,000 research and development jobs in the U.S. auto industry, nearly 60,000 are in Michigan. This new facility will help to keep it that way.”

In addition to the new labs, the facility will include control rooms, fuel rooms, and research preparation rooms. It will also house faculty and graduate student offices, along with a conference room for lectures, seminars, and industry meetings. Construction of the new facility—which will be connected via a walkway to an existing research complex—will more than double the current automotive and energy research space.

Nearly half of the financial support for E.A.R.L was provided by individual and corporate donors including Ford Motor Company Fund, General Motors Corporation, Consumers Energy, Richard H. Brown, Roy H. and Dawn I. Link, and Richard Brown (individual donors); Vance Zanardelli, Ford Motor Company; Eann Patterson, chairperson, Department of Mechanical Engineering; Satish Udpa, acting dean, College of Engineering; MSU President Lou Anna K. Simon; MSU Trustee Dolores Cook; Jei Ojeda, General Motors Corporation; and MSU Provost Kim Wilcox.

Groundbreaking ceremonies were held November 18, 2005, for the Energy & Automotive Research Laboratories (E.A.R.L). From left to right: Roy H. and Dawn I. Link, and Richard Brown (individual donors); Vance Zanardelli, Ford Motor Company; Eann Patterson, chairperson, Department of Mechanical Engineering; Satish Udpa, acting dean, College of Engineering; MSU President Lou Anna K. Simon; MSU Trustee Dolores Cook; Jei Ojeda, General Motors Corporation; and MSU Provost Kim Wilcox.
Four engineering alumni were recognized at the MSU Alumni Association (MSUAA) Grand Awards Ceremony Thursday evening, October 20, in the Big Ten Rooms of the Kellogg Hotel and Conference Center. Gerald Elson and Ben Maibach received Distinguished Alumni awards; Molly Brennan and Michael McDonald received Alumni Service awards. This ceremony is part of MSU’s yearly homecoming celebration. A total of 30 awards were presented, of which 20 were Distinguished Alumni awards.

Distinguished Alumni Awards

The Distinguished Alumni award, the highest award bestowed by the MSUAA, is presented to MSU graduates who have demonstrated outstanding volunteer service and have achieved the highest level of professional accomplishment, including special honors or recognition, and who demonstrate personal integrity and character.

Gerald Elson (BS ’64 Mech Egr and Honors College, MS ’65 Mech Egr) of Holmes Beach, Fla. (formerly of Rochester, Mich.) retired in 2004 as vice president of General Motors Corporation and general manager of General Motors Vehicle Operations. He was responsible for the launching of all new GM vehicles in North America and for manufacturing engineering, material supply operations, and construction for GM facilities worldwide. Since 2001 Elson has been on the board of directors for the National Council for Advanced Manufacturing, which provides feedback to the U.S. Secretary of Commerce as he advises the president regarding manufacturing technology, workforce quality, and productivity growth. He is a member of the board of visitors for the business school at Oakland University, serves as chairperson for the GM/Warren Community Relations Committee, and is a member of the MIT Leaders for Manufacturing Board of Governors.

As co-chairperson of PACE (Partnership for the Advancement of CAD/CAM/CAE Education), Elson called on MSU to be the lead school for an innovative AUTO-CAD/CAM education partnership between businesses and universities, which in 1999 brought the MSU College of Engineering a gift-in-kind of software and training valued at more than $55 million. As the General Motors Key Executive to MSU from 2000 to 2004, Elson brought generous support to the College of Engineering from General Motors, providing funds for research projects, computers, software, and scholarships, and offering internships to our students. Through Elson, GM recently donated a new, fully loaded Chevy Silverado GM tow vehicle to the college, built to our specifications, so that student teams can continue to participate at regional and national levels in steel bridge and concrete canoe competitions, as well as in competitions for three types of racecars. GM also pledged $100,000 over three years to support the Mechanical Engineering Design/Manufacturing Learning Center at MSU. Elson and his wife, Jeannette, are themselves Presidents Club members, having supported the Clara Bell Smith Student Athlete Academic Center, the Honors College, and the College of Engineering.

Ben Maibach III (BS Civ Egr 68) is the chairperson of the board, president, and chief executive officer of the Barton Malow Company in Southfield, Mich. When Maibach became Barton Malow president in 1981, the company increased its annual sales from $125 million to more than $1 billion. The company is the world’s 21st largest general contractor and the largest in Michigan. In 1990 Maibach was inducted into the College of Fellows by the Engineering Society of Detroit. The company has received numerous awards, including the 2003 and 2004 Build America Awards, the 2003 Construction and Design Award, and...
the 2002 Excellence Award by the Design-Build Institute of America. A community leader, Maibach has held key positions with groups such as the American Red Cross, Beaumont Hospital, Detroit Regional Chamber of Commerce, United Way, and YMCA of Metropolitan Detroit. He has won numerous individual honors, including the 2002 Humanitarian of the Year Award from WJR News Talk Radio and the 1998 Good Scout Award by the Boy Scouts of America. He recently received the MSU Department of Civil and Environmental Engineering Distinguished Alumni Award.

Alumni Service Awards

Alumni Service awards are granted to alumni who have demonstrated continuing outstanding volunteer service to MSU and/or meritorious public service on a local, state, national, or international level. Recipients possess the highest standards of integrity and character, positively impacting and enhancing society and the prestige of the university.

Molly Brennan (BS Comp Sci and Honors College ’82) of Farmington Hills, Mich., is the former engineering group manager for the Truck and Bus Division of General Motors Corp. After a brilliant career at MSU, during which she was a two-time All-American in track and MSU Sportswoman of the Year in 1982, as well as one of the top two students academically, Brennan won a Rhodes Scholarship to Oxford University, England. While at General Motors, she was an engineer and driver for the Sunraycer team that won the first World Solar Challenge. She set four solar and electric land speed records and was in the Guinness Book of World Records. She became Tau Beta Pi’s first National Laureate recipient and has served in a wide range of community positions.

Brennan has been involved in both MSU athletic and academic activities. She has been a member of the MSUA National Alumni Board and the College of Engineering Alumni Board. She was a keynote speaker at MSU’s 1990 fall commencement ceremonies and was inducted into the MSU Athletics Hall of Fame in 1993. She served on MSU’s Capital Campaign 2000. She is currently the president of the Honors College alumni board and serves as a consultant to both the Honors College and the College of Engineering for The Campaign for MSU. She and her husband, William Devlin, have made many donations to MSU and endowed a joint Honors College/College of Engineering student scholarship. She served as a member of the national commit-

tee for the MSU Student-Athlete Academic Center campaign. She has won numerous awards, including the 1996 Nell Jackson Outstanding Alumna Award.

Michael McDonald (BS Chem Egr ’87) of Midland, Mich., is the supply chain leader for New Business Development with Dow Chemical Company in Midland. He led the recruiting and university relations team for MSU at Dow for several years and is currently the chairperson of the Dow/MSU alumni in-house campaign, with more than 400 participating alumni at Dow. He has served on MSU’s Chemical Engineering and Materials Science advisory board and was a member and past chairperson of the College of Engineering Alumni Board. He is a consultant to the College of Engineering for The Campaign for MSU, serves on the Career and Placement Services Employer Partnership Advisory Board, and is a member of the MSU Presidents Club.

McDonald has also been active in community affairs, serving as fundraiser in the MS150 Bicycle Tours. He participates on the Dow/Tri-City Cyclists Team, the top fundraising team in the state for three straight years. Mike has been a top-100 individual fundraiser for seven straight years.

College of Engineering Prepares to Send Students to Taiwan

During a September 20, 2005, meeting with representatives from the Chicago-based Taiwanese Ministry of Education Taipei Economic and Cultural Office, the College of Engineering put the finishing touches on the plans for a student exchange program with National Taiwan University. Beginning in the summer of 2007, electrical engineering students at MSU will have the opportunity to participate in a semester-long, research-based study abroad program in Taipei, Taiwan’s largest city and cultural center.

Juniors and seniors are eligible to participate in the program and the study abroad office is looking into having graduate students involved as well. Participants can expect to engage in engineering research, cultural activities, field trips, and sightseeing during their visit. Though the college has hosted Taiwanese students for more than five years, this is the first time U.S. students will have the opportunity to travel to Taiwan. The island nation is located 150 miles off the southeast coast of mainland China, and borders the East China Sea, Philippine Sea, South China Sea, and Taiwan Strait.
With this feature, we invite you to come alongside three engineering students as they learn and grow at MSU. In each issue, for the next several issues, we will give you updates on each of these students as they progress through their programs. Six students were first featured in Currents Magazine, Volume 2, Number 2, Winter 2003. This is the seventh installment. (Back issues are available upon request; or view previous installments online at www.egr.msu.edu/egr/publications/archive.php.)

Jacob Kirshman
Senior (Linden, Michigan)
Mechanical Engineering

► What were your highlights/challenges during the fall semester?

The fall semester was both challenging and interesting. I was able to take ME 471 (Mechanical Design 2). This was a very good opportunity to apply what I have learned throughout my college career. The design, build, and test project allowed us to apply all aspects of engineering. This year the project was to design and build a “sip-and-puff” fishing rod for a quadriplegic. The device had to be able to cast and reel a lure in at different distances. In addition, it had to be able to reel in a three-pound fish.

The highlight of my fall semester was during Christmas break. I was able to go to Germany to visit my brother. This was the first time I had been to Europe. My family and I flew to Berlin and stayed there for three days. We saw many historical sites such as the Reichstag, Brandenburg Gate, Checkpoint Charlie, Holocaust Memorial, Fernsehturm, and many more. We then went to Cologne and saw the cathedral, to Heidelberg to see the castle, and to Lutherstadt Wittenberg to see the church where Martin Luther posted his “95 Theses.” (The “95 theses,” or the Disputation of Doctor Martin Luther on the Power and Efficacy of Indulgences, challenged the teachings of the Roman Catholic Church on the nature of penance, the authority of the pope, and the usefulness of indulgences.) We returned to Berlin before heading home. It was a great opportunity to see many historical sites and realize the tragedy of war.

► Did you do any skydiving, or run any marathons . . . or perhaps climb any mountains this year?!

During the summer and fall semesters I was not fortunate enough to be able to run any marathons or do any skydiving. However, I was able to go rock climbing for the first time. My girlfriend and I learned the basics of rock climbing on a trip to Virginia. In the future, I hope to be able to do more rock climbing and more skydiving. I am running the Bayshore marathon in Traverse City on May 27. I have been training and will hopefully complete it.

Greg Kehrier
Graduate Student (Bay City, Michigan)
Industrial Mathematics

► What were your highlights/challenges during the summer semester?

I had one job offer for full-time employment, and one offer to go to graduate school at MSU to pursue a professional master’s in industrial mathematics. It was a tough decision to make. Near the end of the fourth year of my undergraduate program, I started thinking about going to graduate school, so earning a higher degree has been a goal that I’ve had in mind for a while. Most people I talked to advised me to go for my master’s right away, rather than working and then trying to go back to school later.

The biggest factor affecting my decision was that I didn’t want to be done with my “academic life” just yet. I wanted to keep learning about even more interesting things. So I decided to go to graduate school. To prepare myself for the high-level math courses, I spent my summer reviewing calculus, linear algebra, and all sorts of other fun mathematical subjects that I never studied as an undergraduate engineering student. Getting ready for grad school was my pseudo full-time job, but of course, the salary wasn’t very good. It was time well spent though, because the transition from engineering to math was fairly smooth as a result.

► How is graduate school going?

The industrial math program is going very well. The degree program is rather flexible, so it’s a near-perfect fit for me. The program consists of two predetermined math courses, four choices from mathematics, two in statistics, and four in some other field. Not surprisingly, for the classes in “some other field,” I chose my personal favorite, chemical engineering. My plan is to take the four core graduate-level chemical engineering courses during my two years in the master’s program. I still intend to be an engineer when I receive my master’s degree. I am not trying to be a
mathematician with an engineering degree, but rather, just the opposite.

My aspiration is to land in process research and development at some point. I still want to start my career with a typical production engineering role, because based on my internship experience, I can tell that’s important to have. But I want to progress to some more exciting engineering roles before I get old. That’s what I’m hoping the MS degree will do for me. So after next year, I will have a BS in chemical engineering and a professional master’s degree in industrial mathematics with a focus in chemical engineering. Hopefully that will help get me where I want to go.

▶ What were your highlights/challenges during the fall semester?

I suppose my fall semester had a few highlight-worthy features. After working as an undergraduate mathematics teaching assistant (TA) for three years, I am now a graduate TA. I taught my own math class this fall, and I had an undergraduate TA helping me. It was an exciting change, because as an undergrad I only taught recitations, but now I am a lecturer. Of course, it’s just for a basic algebra class, but it was a new experience anyway. The transition to graduate-level math was my main challenge, but I made it. I was glad I had a chemical engineering class (advanced thermo) to go along with my two math classes, because I felt like I was still academically “at home.” Another challenge was watching the Spartan Marching Band from the stands after being on the field every weekend for the last five years. It was my time to move on, but that didn’t mean it was an easy transition.

Overall, I am very happy I decided to go to graduate school. I am learning interesting things and I am still being challenged academically. In addition, my teaching assistantship through the math department is paying me to go to school, so it’s a great situation. I’ve also had some better luck with job searching recently, so I have an internship with Shell coming up this summer, which I’m very excited about. I feel I definitely made the right decision, and I feel like I’m still at home in East Lansing.

Tracy Kamikawa
GRADE STUDENT (HONOLULU, HAWAII)
BIOSYSTEMS ENGINEERING

▶ What were your highlights/challenges during the summer semester?

I spent this summer recovering from my thyroidectomy and adjusting to my new medication. After a few months of fine-tuning the dosage, I felt like myself again. [Tracy was diagnosed with thyroid cancer in spring of 2005 and underwent a near-total thyroidectomy in late April.] I chose to take a break from my schoolwork during the summer months and once the fall semester came around, I felt energized and ready to go again.

My sister did get a chance to come up from Hawaii for a visit during her summer break. She came up for a few weeks before she started her senior year in high school. She had been to Washington, D.C., once before, but we still hit the main tourist attractions. She particularly enjoyed the Smithsonian, as she is interested in the arts. We also visited the grave of a family friend in Arlington Cemetery. We would have done more, but the sauna-like heat that Virginia is known for was overwhelming.

We were also lucky enough to spend a week in New York City. We stayed in a great hotel close to Broadway, stuffed ourselves on all the fabulous food, and did quite a bit of window (and real) shopping. Little Italy and Soho were particularly enjoyable. The weather was sunny and cool and we had a clear view of the Statue of Liberty from a riverboat. The horse-drawn carriage tour of Central Park should not be missed. We took in quite a few Broadway shows, including The Producers, Movin’ Out, Avenue Q, and Sweet Charity. All of the performers were incredibly talented, and we had a great time. The city truly never sleeps, and there is always something new to try. We wished we didn’t have to leave, but promised to return soon.

▶ What’s happening with the partnership with the FDA Center for Biologics?

We have not yet worked out the details of our partnership, but I am slated to begin my research there this coming summer or fall. It is still certainly in the works, and I am excited to flesh out the specifics as the time approaches.

▶ What were your highlights/challenges during the fall semester?

This fall semester was one of my most challenging yet. I had a heavy course load and began staying up later and later every night to study. I think I became nocturnal. But I enjoyed all of my classes and, as usual, had great professors. It was a relief to get through the semester, and I was particularly glad to be done with classes so I wouldn’t have to walk in the cold and snow anymore!

I have one more semester of classes to go. It will be another heavy load, but I always just have to keep the end goal in mind, and it motivates me to get through. Of course, I also have the support of my family, friends, and colleagues, which I always appreciate.

Left to right: Jacob Kirshman, Greg Kehrier, and Tracy Kamikawa.
Beverly Starrak always wanted to be the first woman driver in the Indy 500, but she never realized that goal. Now, she has a new goal. She wants to complete her degree in mechanical engineering by December 2007. She’ll be 52 years old.

Growing up in Lansing, Michigan—the “Car Capital”—cars were a big part of her life. “I’ve always been interested in cars, and my dad worked for Oldsmobile his entire career,” says Starrak.

After graduating from Waverly High School, she attended Lansing Community College for about 2½ years (while working as a forklift driver at the General Motors Lansing Parts Warehouse) before she took a detour to get married and raise four children.

While her children were growing up, she taught ballet classes for several years. When it got to the point where teaching ballet meant she was missing her own kids’ afterschool activities, she gave that up and found a daytime office job at a medical society. From there, she took a job with an organization doing public policy work. She’s been there for 10 years.

In 2003, Starrak felt it was time for a new challenge. She decided to go back to school to finish her engineering degree, something she’s always wanted to do.

She met with an MSU admissions counselor and discovered that most of the credits she’d earned years ago would transfer over. She reenrolled at Lansing Community College for two years before coming to MSU fall semester 2005. She attends school part-time while working a full-time job.

When Starrak walked into the large lecture hall for her first mechanical engineering course—ME 180, “Engineering Graphic Communications”—she says she was a little nervous, and the other students seemed a little hesitant, as if they were in class with their mother! But she quickly settled in and enjoyed her first lab experience—a biomechanical project. She and two other team members designed a shoulder implant. Biomechanics was not a career option she would have sought out on her own, but she says, “This project opened up this field to me as a possibility, especially with the automotive industry not doing quite as well as we’d like to see.” She also took a statistics course her first semester and earned a 4.0.

This term, she is taking three classes for a total of eight credits—an 8:00 a.m. thermodynamics course, a statics course during her lunch hour, and an online, self-paced physics course. And she is taking it all in stride. “All three courses tie in together. They reinforce each other,” she says. She spends two or three hours each night—and much of her weekend—studying. Nothing seems to surprise or faze her.

In ME 180, she learned how to use a new computer aided design software program—NX—which she describes as fascinating. “It’s an awesome program. You could have a lot of fun with it. It’s incredible what they can do with modeling.”

Taking her first final exam after all these years didn’t scare her either. “I really want this degree. I want to know the material, I want to know what’s going on.” By the end of the term, she knew the material so well that the final exam was just a formality for her.

Starrak plans to take two courses each fall and spring semester, and one course each summer. If the classes she needs are available when she needs them, and if they fit within her work schedule, she anticipates graduating in December 2007.

She says her public policy work or even her ballet could fit in with her mechanical engineering degree. “Ballet is very line oriented; it’s defining lines in space with your body. In fact, there is a big connection there. You could do vector analysis on ballet dancers—measuring movement and motion. She also recently noticed a public policy internship with an engineering firm in Washington, D.C.

Starrak just wishes she had time to participate in some of the out-of-classroom and extracurricular activities. She may have to consider joining the Formula SAE car team; she says that would be especially fun. “The opportunities here are fabulous—Formula car team, internships, overseas studies, career fairs. Anyone who does not take advantage of these opportunities is really making a mistake.”

And her advice for other nontraditional students? “Go for it. You have nothing to lose. Be organized. Manage your time. It’s a challenge, and you’ll have to give up some social activities, but it’s worth it.”

It helps that she has a very supportive husband. “He still has a big dream,” Starrak says. “He says ‘we’re going to go work for NASCAR.’ Watch out, Ryan Newman!”

If not NASCAR, perhaps Starrak will set her sights on becoming the first woman driver on the MSU Formula SAE team!

—Laura Luptowski Seeley

Beverly Starrak listens as Craig Somerton, associate professor of mechanical engineering, explains how a double-pipe heat exchanger system operates.
Students Work Hard to Earn Degrees, Jobs

Klemm Visits Shell on the Island of Gourami, Sails Away with Job

Peter Klemm (BS Chem Egr ’05) didn’t know what he was in for when he applied to be part of Shell Oil’s 2005 Gourami Business Challenge, but he sure knows what he got. The 22-year-old walked away with a job as a process engineer at Shell’s Deer Park, Texas, facility after a rigorous week of project management collaboration with 46 other students from across the country.

Klemm and the other handpicked candidates flew to the Westin Mission Hills Resort and Spa in Rancho Mirage, California, last August to prove their business and technical savvy to a board of Shell executives. What followed were six intense days in which students were split up into teams to work on a case study requiring them to develop a five-year business plan for oil production on the fictitious island of Gourami. Students were put into groups with representatives from diverse disciplines like marketing, geophysics, engineering, finance, and human resources. It was up to the teams to bring their content-specific talents together to create a workable proposal.

“Ts not until I went down there,” says Klemm. “This experience really challenged and enhanced my teamwork proficiency.”

Though he went to California to sell his skills to Shell, Klemm didn’t decide he really wanted to work there until the challenge was over. “After I went there, I became much more excited about working for Shell. I got the impression that Shell is not a money-hungry company. They value the employee as a person and promote work/life balance,” he says.

Klemm was also attracted by the quality and type of work he will be doing. During his first three years with the company, he will perform one-year rotations in operations support, controls engineering, and project engineering. This professional development program is designed to give new Shell engineers a taste of some aspects of the industry before they decide what career path they want to follow. “There is a broad range of opportunities at Shell,” he says. “There are lots of different avenues to success, but Shell’s people have unity. They can work in all different places and still feel connected.”

Klemm came to MSU in 2001 from Clarkston, Michigan, and graduated in December 2005. He went to work for Shell in February of this year and plans to marry college sweetheart Karey Schlachter (BA Elementary Education ’05) in June at East Lansing’s Martin Luther Chapel.

—Elizabeth Connelly

Vincent Trades in Shooting Hoops to Shoot for the Sky

Some might say Jayson Vincent (BS Comp Sci ’05) was born to play basketball at Michigan State. His father, Jay Vincent, played on the 1979 MSU National Championship Team with hoops icon Magic Johnson, and his uncle, Sam Vincent, played with legend Scott Skiles. So it was no surprise that Jayson’s name was on the roster when he came to MSU as a freshman. The surprise came two years later when the shooting guard hung up his jersey to concentrate full-time on studying computer science.

“I didn’t know it was going to be that difficult when I went down there,” explains Vincent. “There came a time when I had to decide what I wanted to do, and I saw a much brighter future in computer science.”

It looks like he made the right choice. After graduation in December 2005, he headed to St. Louis, Missouri, to join the engineering team at Boeing as a full-time staff member. It’s an environment that Vincent is familiar with. He had completed two summer internships at Boeing already. During the first internship, Vincent worked on redesigning and upgrading the cockpit of the F/A-18 E/P flight simulator. For his second internship, he programmed mission data controls for an unmanned, full-scale military plane.

Vincent’s technical savvy and dedication did not go unnoticed by the people at Boeing. “Jayson is an extremely impressive candidate on all levels,” says Brian Bernsen, Boeing manager of software engineering and integrated defense systems. “He has tremendous potential at Boeing; he’s a very well-rounded person.”

—Elizabeth Connelly
Two Students Honored by MSU Board of Trustees

Two students in the Department of Mechanical Engineering were recognized for academic achievement by the MSU Board of Trustees in December. Neil J. Bokemeier and Ryan D. McCollum, both December graduates, achieved a perfect 4.0 grade point average. Board of Trustees awards are granted at each commencement to students having the highest scholastic averages at the close of their last semester in attendance. Bokemeier was a member of the Honors College and a 2001 graduate of Okemos High School. He is the son of Charlie and Janet Bokemeier. McCollum is a 2001 graduate of Flushing Senior High School. He is the son of Gary and Nancy McCollum.

Mechanical Engineering Senior Named to Homecoming Court

Senior Armon Mahajerin was selected for the 2005 MSU Homecoming Court. The chosen candidates exemplified academic excellence, leadership qualities, community involvement, and Spartan spirit. Students, faculty, staff, and alumni nominated individuals for Homecoming Court; members were then selected by a committee made up of students, faculty, staff, and administrators after personal interviews highlighting the candidates’ honors and achievements.

The Homecoming Court had various responsibilities throughout the week, including participating in the Water Carnival, the sesquicentennial parade, the MSUAA Grand Awards Ceremony, and halftime at the homecoming football game versus Northwestern University. Mahajerin is the son of Enayat and Taherah Mahajerin. Some of his activities and interests include running, biking, reading, movies, his family, and anything related to MSU.

Eight College of Engineering Students Attend Google Workshop

Eight students from the College of Engineering participated in the Google Workshop for Women Engineers January 20–23 at Google headquarters in Mountain View, California. They received an all-expenses-paid trip from Google, explored new technology and potential career opportunities, and met with other women engineers in their field; 193 students representing 100 schools attended the event.

Workshop participants were selected from a highly competitive pool of applicants nationwide. It was a noteworthy achievement for MSU to have eight women engineers chosen for this opportunity. These exceptional students had to demonstrate strong leadership skills, campus and community involvement, unique and inspiring career plans and goals, and hold a minimum grade point average of 3.5.

Computer science and engineering attendees included PhD student Xiaomei Liu; undergraduate students Randee Bierlein, Kirsten Partyka, Kira Johns, and April Noren; and December 2005 graduate Niharika Joglekar. Electrical and computer engineering undergraduate students attending were Ke Zhang-Miske and Tania Yusaf.

Left to right: Kira Johns, Kirsten Partyka, and Ke Zhang-Miske.
From a war-torn country to a commencement stage at Michigan State University, Bosnia native Azra Kapetanovic (BS ’05) is someone who knows the value of an education. The 24-year-old electrical and computer engineering graduate escaped genocide and displacement to a refugee camp, and began life anew in the United States and at MSU. Her personal philosophy is: “You don’t have to be great to start, but you have to start to be great.”

“For the past five years at MSU, I have worked tremendously hard to make my dreams come true,” says Kapetanovic, a 2000 graduate of Troy Athens High School. “Due to my unique background, I am constantly seeking better ways to commit to life-long learning and multicultural experiences.”

Kapetanovic’s story began in the city of Prijedor, Bosnia, in early April 1992, where she lived peacefully with her parents, Kemal and Sabina Kapetanovic, and younger brother Haris, now an MSU sophomore, just before the onset of the war. “It seems like a lifetime, and a world ago, my family and I lived in a wonderful Bosnian home surrounded by the people and things I loved,” she says. “I was a happy child who enjoyed every hour of the day and everything I was blessed with. My goal was to be accepted into the School of Engineering at the University of Sarajevo.”

When war erupted between the Serbs, Bosnians, and Croats within the region, Kapetanovic and her family were caught in the middle. Her parents were harassed and fired from their jobs, her family went into hiding, and open bloodstream and carnage ruled the streets. Several years of war, genocide, and ethnic cleansing within the country amounted to an estimated 200,000 deaths. “That was the time when I found out the real meanings of words like ‘war,’ ‘destruction,’ ‘mass murder,’ ‘terror,’ and ‘disaster,’” Kapetanovic says. “Our freedom was denied in every way possible.”

After three years under sentry of the Serbs, Kapetanovic and her family were expelled to a refugee camp for several months. They made their way to the United States with the help of a refugee relocation organization. They landed in Michigan, first in Hamtramck and then Troy. Never thinking she would need to speak English in Bosnia, Kapetanovic’s struggle to learn the language made the first years of school hard. “I was so shy. I was afraid to talk, to say anything,” she says. “The biggest fear I had was, ‘how am I going to go to college?’”

Eventually, Kapetanovic acclimated herself to life in America. She joined student groups, played sports, made friends, and performed well in her classes. Acceptance to MSU put her back on course to completing her life-long dream.

While earning her BS at MSU, Kapetanovic was a member of the Society of Women Engineers and the Multi-Racial Unity Living Experience Organization. She served as a residence hall mentor for other students through the Department of Residence Life. Her volunteer activities included tutoring math and science at Allen Elementary School in Lansing, and calculus at MSU through the Diversity Programs Office. She returned to Bosnia for a summer to teach computer skills and English to orphaned children in Sarajevo.

Kapetanovic took an internship with Electronic Data System (EDS) in Lansing, providing technical support for General Motors. She also interned with International Business Machines (IBM) in both Rochester, Minnesota, and Boblingen, Germany. She credits her success to both the strong ties she made with her professors at MSU and the support of her parents.

“Here I felt I could talk to professors and ask them for help anytime. I would probably never have gotten a job at IBM if I had not gone to MSU,” Kapetanovic says. “I also don’t think I would be where I am today if I didn’t have my parents behind me.”

Kapetanovic is furthering her education in MSU’s electrical engineering graduate program.
Hashsham Plays Vital Role in Homeland Security

Syed Hashsham, associate professor of civil and environmental engineering, will play an integral research role in MSU’s new Center for Advancing Microbial Risk Assessment (CAMRA). The center, jointly funded by the Environmental Protection Agency (EPA) and the Department of Homeland Security (DHS), will focus on two primary goals. The first goal is to find ways to reduce or eliminate health impacts from the deliberate or natural release of indoor and outdoor biological agents of concern. Potential agents of concern include smallpox, anthrax, Legionella, and hemorrhagic fevers.

The second aim of CAMRA is to build a national network for information transfer on the topic of microbial risk assessment among universities, professionals, communities, and governments. To achieve these goals, the center will work on five complementary projects in conjunction with Carnegie Mellon University, Drexel University, Northern Arizona University, University of Arizona, University of California at Berkeley, and University of Michigan. The team is co-directed by Joan Rose, MSU professor of fisheries and wildlife, and Chuck Haas of Drexel University.

Michigan State University will participate in the effort to improve our ability to measure exposure to biological agents of concern in drinking water. According to Hashsham, his goal for the first year is to evaluate the sensitivity and effectiveness of existing biological hazard detection methods as well as to develop new, more efficient and accurate tools.

“The risk of biological exposure cannot be accurately quantified until you can detect the hazards with a high sensitivity,” says Hashsham. “For most organisms, ten to 100 cells can infect a person. We need to have very sensitive, very fast screening tools. Processing a large number of samples in a short period of time is one of the critical needs.”

In the event of intentional, unintentional, or natural human exposure to infectious agents, the information the center develops will be crucial to assisting first responders and policymakers in protecting lives and setting decontamination goals. The CAMRA team was awarded a total of $10 million from the EPA and DHS for five years of study, and Hashsham is one of the four co-PIs from MSU.

According to Andrew Avel, acting director of the National Homeland Security Research Center in the EPA, the CAMRA team presented an extraordinarily strong proposal. “We at the EPA are extremely excited to be able to award this grant,” said Avel at an October 24 press conference to announce the new center. “We consider this one of our toughest technological problems, and we look forward to great results.”

Mike Rogers, Michigan 8th District congressman and member of the Congressional Intelligence Committee, says that the United States needs to do better in the area of food and water safety, and that CAMRA will take a leading role in that effort. “MSU is going to save lives—not only here in America, but around the globe,” says Rogers. “The kind of research coming from MSU is exciting and will impact the world.”

Complementing the work he does with CAMRA, Hashsham is currently working on developing a series of microfluidic chips that can screen for the DNA of between 20 and 90 known pathogens—many of which are waterborne—with a single test. “If there’s one thing you can do in terms of safety, it’s to make sure the water is safe,” says Hashsham. “If you just make sure people have safe water for drinking and swimming, you’ve saved lives.”

Hashsham was also named the 2005–2006 Edwin Willits Associate Professor of Civil and Environmental Engineering during spring commencement ceremonies on May 8, 2005.

The title of named chair is presented to a highly accomplished, tenure-track faculty member based on research accomplishments and the individual’s graduate student advising and mentoring record.

In addition to the title, Hashsham will receive a five-year annual stipend of $5,000. The award title was chosen to honor Willits, president of MSU—then Michigan Agricultural College—from 1885–1889.

“Because the award is named after the ‘Father of Engineering’ at MSU, I treat it as a sign of recognition and appreciation for the changing nature of engineering today,” says Hashsham. “Today’s engineering is more focused on micro and nanoscale structures and really does wonders when it crosses traditional boundaries.”

Hashsham received his PhD in environmental engineering and science from the University of Illinois in 1996. He was a visiting research associate at MSU from 1996 to 1998 and at Stanford University from 1998 to 1999. He joined the College of Engineering as an assistant professor in 1999. His current research interests include the development of in situ synthesized and glass slide–based microchips for water safety, microbial ecology, biotechnology, and mathematical modeling of molecular data. He is also interested in developing and using genomic and molecular tools to solve environmental engineering problems. During his career thus far, he has been awarded 17 research grants totaling more than $3 million. 

—Elizabeth Connelly
New Faculty

Alison M. Cupples, assistant professor of civil and environmental engineering, effective January 2, 2006, earned her PhD ('03) in environmental engineering and science from Stanford University in California. She received her BS ('97) from the University of East Anglia, England, and her MS ('99) in environmental sciences from the University of Illinois. Before coming to MSU she was a postdoctoral fellow with the USDA-ARS at the University of Illinois, Urbana-Champaign. She is a member of the American Society for Microbiology and the American Society of Agronomy. Her primary research interests include the biological degradation of environmental contaminants. She is especially interested in using quantitative molecular methods to investigate the in situ transformation of these compounds.

Irene Xagoraraki, assistant professor of civil and environmental engineering, effective January 2, 2006, earned her PhD ('01) and her MS ('95) in civil and environmental engineering from the University of Wisconsin–Madison. She earned a BS ('93) in environmental studies from the University of the Aegean in Greece. Before coming to MSU she held a postdoctoral position at the University of Wisconsin–Madison. Her research interests include drinking water safety, public health, and water quality engineering, in particular the detection, removal, and inactivation of emerging biological and chemical contaminants in drinking water. Her recent research includes: disinfection of enteric viruses in municipal groundwater systems; inactivation of cyanobacterial toxins by free chlorine; emerging pathogen removal in conventional pilot-scale water treatment; and coagulation and sedimentation of cryptosporidium parvum.

Engineering Faculty and Staff Honored at University Awards Convocation

Six College of Engineering faculty and staff members received awards at the annual university-wide Awards Convocation February 9 at the Pasant Theatre, Wharton Center.

Melissa Baumann, associate professor of chemical engineering and materials science, received the MSU Alumni Club of Mid-Michigan Quality in Undergraduate Teaching Award. She was one of two faculty members university-wide to receive the honor. The award recognizes teachers who take pride in and are committed to quality teaching, and who demonstrate substantial continuing involvement in undergraduate education. Criteria for selection include exhibition of superior classroom performance and achievement of high academic standards.

Rigoberto Burgueño, assistant professor of civil and environmental engineering; Andrew Mason, assistant professor of electrical and computer engineering; and Charles Ofria, assistant professor of computer science and engineering, received MSU Teacher-Scholar Awards. These awards are presented to junior faculty members who have demonstrated dedication and skill in teaching, as well as the promise of becoming outstanding scholars. Burgueño, Mason, and Ofria are three of the six faculty members university-wide to receive the honor.

Ramani Narayan, professor of chemical engineering and materials science, received the MSU Distinguished Faculty Award. He was one of 10 faculty members university-wide to be honored in this category. The awards go to individuals who have made widely recognized contributions to their fields, who have made significant contributions to MSU and its programs, and who represent and reflect the character and qualities of excellence valued at MSU.

Cynthia Sarver, academic adviser and assistant to the dean for student services, received one of four MSU Distinguished Academic Staff Awards. The award acknowledges the outstanding achievements of professionals who serve the university in advising, curriculum development, outreach, extension, research, and teaching. The Distinguished Academic Staff Award is conferred on outstanding individuals with careers demonstrating long-term excellence and exceptional contributions to Michigan State University.

Left to right: Charles Ofria, assistant professor, computer science and engineering; Melissa Baumann, associate professor, chemical engineering and materials science; Rigoberto Burgueño, assistant professor, civil and environmental engineering; Cynthia Sarver, academic adviser and assistant to the dean for student services; Andrew Mason, assistant professor, electrical and computer engineering; Ramani Narayan, professor, chemical engineering and materials science.
Christina Chan, associate professor of chemical engineering and materials science, and PhD student Sachin Patil won the best poster award at the American Institute of Chemical Engineers (AIChE) 2005 national meeting in Cincinnati, Ohio. Chan and Patil’s poster presentation was based on their co-authored paper, “Involvement of Saturated Fatty Acids in the Pathogenesis of Alzheimer’s Disease,” which was published in Neuroscience Letters in August 2005. The objective of their paper was to investigate the basic mechanism by which saturated fatty acids cause Alzheimer’s disease–related changes in brain neurons.

Laura Dillon, professor of computer science and engineering and department chairperson, recently served as a panelist during the Computing Research Association’s Committee on the Status of Women in Computing Research (CRA-W) Graduate Cohort Workshop. The CRA-W Graduate Cohort Program strives to build peer support networks for female students in a male-dominated field in order to bolster retention and post-graduate success. Dillon shared her experiences and offered advice on the question: “To Continue for a PhD or Not?”

Dillon was also named a 2005–06 Committee on Institutional Cooperation Academic Leadership Program (CIC-ALP) fellow. She is one of 60 professors selected from 12 CIC research universities. The fellows will take part in programs aimed at providing a greater awareness and understanding of the complex nature of the research university.

In addition, Dillon was recently elected to serve a third term on the executive board of the Association for Computing Machinery Special Interest Group on Software Engineering.

Lawrence T. Drzal, University Distinguished Professor of chemical engineering and materials science, has been named a fellow of the Society for the Advancement of Materials and Process Engineering (SAMPE) for his contributions to developing a fundamental understanding of adhesion and composite materials. He will receive the award on May 6 at the annual conference in Long Beach, California. The prestigious fellow award represents recognition of a SAMPE member for distinguished contributions in the fields of materials and processes. This international, 4,000+ professional-member society provides information on new materials and processing technologies via technical forums, journal publications, and books. Over its entire history, SAMPE has awarded the rank of fellow to approximately 100 members. Drzal has been designated as a fellow by five different professional organizations over the course of his career.

Ronald Harichandran, professor of civil and environmental engineering and department chairperson, was recently elected chairman of the Michigan Transportation Research Board (MTRB). The MTRB was an outgrowth of the state transportation summit in 2003 that developed action teams to work on transportation issues and problems in Michigan. Harichandran’s team will spearhead the effort to articulate the long- and short-term transportation research needs of the state. The end goal of the MTRB is to develop a better and more cost-effective infrastructure, thus saving taxpayer money.

“I’m very passionate about trying to move this research agenda forward,” says Harichandran. “We need to provide an invigorating environment for transportation research, and I’m working hard to make sure MTRB can provide such an environment.”

Harichandran was also advanced to the status of fellow by the American Society of Civil Engineers (ASCE) in October. According to the ASCE, his fellow status was awarded in recognition of significant contributions to research and service to the profession. Harichandran, who says he was honored to be chosen, joins the fewer than 4 percent of ASCE’s total membership who have attained fellow status.

Anil Jain, University Distinguished Professor of computer science and engineering, was elected a fellow of the American Association for the Advancement of Science (AAAS). He received the fellowship in recognition of his significant contributions to pattern recognition and data clustering with applications in biometrics. In addition, Jain has been appointed a member of the National Academies Committee on Determining Basic Research Needs to Interrupt the Improvised Explosive Device (IED) Delivery Chain. He is already serving on the National Academies Committee on Whither Biometrics.


Milind Khire, assistant professor of civil and environmental engineering, won the 2005 Editorial Board Member Exemplary Service Award from the ASCE Journal of Geotechnical and Geoenvironmental Engineering (JGGE). The award was presented at the ASCE Geo-Congress Heroes Luncheon in Atlanta on March 1. Khire, who is one of approximately
JGGE editorial board members, was presented the award in recognition of his tireless work managing article submissions and overseeing conference planning. He has managed the publication process for approximately 40 research articles during his tenure with the JGGE. Khire is also a member of the Geo Institute’s Committees on Environmental Engineering and Geosynthetics.

Norbert Mueller, assistant professor of mechanical engineering, was awarded one of eight Lily Teaching Fellowships for the 2005–06 academic year. The program is designed to advance MSU’s continuing efforts to support excellence in teaching and learning. It provides a cohort of up to nine tenure-stream faculty from across disciplines with an opportunity to engage in a year-long exploration of college teaching and learning with peers. Each fellow works with a faculty mentor to complete an individual project on college teaching. Mueller’s project is titled “An Integrative Approach in Turbomachinery as an Engineering Capstone Experience.” His faculty mentor is Craig Somerton, associate professor of mechanical engineering.

Anthony Wojcik, professor of computer science and engineering, joined the Office of the Vice President of Research and Graduate Studies as assistant vice president for research planning. As part of his assignment he will oversee internal grant programs at MSU. Wojcik remains half-time in CSE where he continues to serve students and faculty as the graduate director.

Elaine Webster Receives Supervisor Recognition Award

Elaine Webster, office supervisor in the Undergraduate Studies Office, was one of five MSU employees to receive a Supervisor Recognition Award in 2005. The award was established by MSU’s Family Resource Center in 2001 to honor supervisors who consistently support the work/life (professional/personal) needs of their employees through positive leadership and managerial practices. These supervisors know that the productivity, quality of work, and morale in the department is enhanced because they understand that their employees have lives outside of work. There are more than 500 supervisors on campus.

Honorees are nominated by their employees and are then selected through a separate awards committee. Webster was nominated by Melissa Jeffries, records secretary in the Undergraduate Studies Office. Webster was honored with a surprise party in her office; friends and family were invited to join in the celebration.

ECE Team Honored for Streamlined Aircraft Inspection System

Lalita Udpa, professor of electrical and computer engineering, with her team from the Nondestructive Evaluation Laboratory (Yiming Deng, Zhiwei Zeng, Yuan Fan, and Xin Liu), received the 2005 Federal Aviation Administration–Air Transport Association of America (ATA) Better Way Award for their work on “Turbo Magneto-Optic Imaging for Inspection of Alodine Fasteners.” The annual award recognizes a government/industry group that has worked together to develop and apply a technology, technique, process, or policy to advance inspection or testing of aircraft structure, aircraft components, or aircraft systems. The winning team developed a more sensitive system to detect surface and sub-surface cracks in the lower row of rivets in aircraft lap splices. ATA President and CEO James C. May says, “This outstanding team of professionals has succeeded in improving both speed and reliability of aircraft inspection procedures. Their innovative efforts will have industry-wide applicability and a lasting impact on the aviation industry.” The award was presented at the ATA Nondestructive Testing Forum on September 21 in Orlando, Florida.
OBITUARIES


John Deets (BS Civ Egr ’50) of Valparaiso, Ind., died in March 2005. He had fond memories of MSU and enjoyed receiving information about the university. He and his wife, Thelma, were loyal fans of Michigan State football.

Milton F. Dickman (BS Chem Egr ’33) of Sarasota, Fla., died January 7, 2005, at age 95. He was employed at the Wyandotte Chemical Corp. in Wyandotte, Mich., for over 40 years. He is survived by his daughter, Sarah Chamberlain, and two grandsons, Lewis and David Chamberlain.

John Theodore “Ted” Ehman (BS Mech Egr ’49) of Benzonia, Mich., died at home on December 26, 2004. He was a member of Tau Beta Pi. He is survived by his wife Elizabeth.

Kenneth J. Lord (BS Elec Egr ’61) of Scottsdale, Ariz. (originally from Marshall, Mich.) died August 13, 2005. As a young man serving the U.S. Army in the Korean conflict, Lord was inspired to pursue an engineering degree at MSU by a news article about a successful army captain who had earned his engineering degree from MSU. In deep appreciation for the outstanding education he received, Ken established the Kenneth J. Lord Endowed Scholarship Fund within the College of Engineering to encourage and inspire students to enter the engineering profession.

Kenneth R. McConnell (BS Elec Egr ’41) of Jupiter, Fla., died April 13, 2005. He joined the Army Signal Corps Labs at Ft. Monmouth, N.J., after graduation from MSU. He went on to become a recognized authority on fax technology. He was a co-author of FAX, Facsimile Technology and Systems (third edition published 1992). He also wrote numerous articles and the “facsimile” sections in McGraw Hill Encyclopedia of Science and Industry and Reinhold Encyclopedia of Electronics. He chaired the IEEE Facsimile Committee, as well as conferences of the Institute for Graphic Communications in the United States and Europe during the 1970s and 1980s. After his retirement in 1992, he and his wife, Priscilla, divided their time between a home on Long Island Sound and a condominium on the beach at Jupiter, Fla. He enjoyed swimming, boating, dancing, and bridge. He is survived by his wife of 62 years, three daughters, Barbara Moulding, Jane Miller, and Susan Dow; and four grandchildren, Alison and Kimberly Moulding and Benjamin and Gregory Dow.

CLASS NOTES

1940s

Minor A. Bower (BS Chem Egr ’49) of Marine City, Mich., retired in 1987 after 38 years with Chrysler. He writes: “I enjoyed the ‘Blast from the Past’ article on the bookends [in Currents summer/fall 2005 issue, p. 33]. I still have mine from 1943–44, but of course they say ‘Michigan State College.’ The outline is identical. I had a drawing course in Olds Hall from 3–5 p.m., and the aroma of food from Wells Hall [the dormitory next door at that time] drove me nuts. I was on a very tight budget.”

1950s

Ronald C. Clarke, P.E. (BS Mech Egr ’59) retired in 1997 from Allied Signal Corp., which is now part of Honeywell. He volunteers on the planning and zoning commission for the town of Carefree, Ariz., as well as on other town and church committees. He lives in Carefree with Nancy, his wife of 48 years, who earned a degree in education at MSU.

1970s

Karen Meyer Gleasman (BS Chem Egr ’79) of Georgetown, Tex., is a director of process engineering for Dell, Inc.

George E. “Jed” Hubbell II, P.E., DEE (BS ’77, MS ’78 Civ Egr) of Milford, Mich., was named president of Hubbell, Roth, & Clark, Inc., in January 2006. The company is a consulting engineering firm serving southeastern Michigan and various national clients. A fourth-generation successor, Hubbell follows in the footsteps of
his great grandfather who founded the firm in the early twentieth century. A 26-year veteran of the company, Hubbell will continue to direct planning, design, and construction efforts and provide technical expertise for major road, bridge, sanitary, stormwater, water system, and municipal and industrial wastewater treatment projects. He is a member of the Michigan Society of Professional Engineers, the Michigan Water Environment Association, the American Water Works Association, the Water Environment Federation, the American Society of Civil Engineers, and the American Council of Engineering Companies–Michigan.

1980s

Charles P. Cavedoni, P.E. (BS Mech Egr ’81) of Hakalau, Hawaii, is a principal engineer for Hakalau Engineering, LLC. ccavedoni@hakalaengineering.com

Thomas P. Gielda (BS ’80, MS ’84 Mech Egr) of St. Joseph, Mich., was recently elected to the grade of Fellow by the American Society of Mechanical Engineers (ASME) in recognition of his exceptional engineering achievements and contributions to the engineering profession. Gielda began his career with McDonnell Douglas Aircraft Company after completing his PhD at North Carolina State University in 1988. He worked for both Ford Motor Company and Visteon Automotive Systems before joining Whirlpool Corporation as the global director of mechanical structures and systems in 2004. In his position with Whirlpool he oversees technical centers around the world. Gielda has ten U.S. patents, two French patents, and over 35 technical publications to his credit.

Wayne A. Harrall (BS Civ Egr ’81) of Grand Rapids, Mich., is a director of engineering for the Kent County Road Commission. wharrall@kentcountyroads.net

Mark Megerian (BS Comp Sci ’87) of Rochester, Minn., is a software development team leader on the IBM Blue Gene SuperComputer project. Blue Gene is the fastest supercomputer in the world. Megerian has been employed by IBM for 18 years.

1990s

Duane E. Dinkel (MS Chem Egr ’91) has been appointed president of Sagitta, Inc., an international manufacturer of automation equipment used in the semiconductor and fiber optic industry. He has 16 years of experience in engineering and business management within the optical and technology sector. He has written over a dozen technical publications, served on Fiber Optics Online’s expert advisory panel, and was named a distinguished member of the International Engineering Consortium (IEC), a nonprofit organization dedicated to catalyzing technology and business progress worldwide. He resides in Greenville, S.C., with his wife, Kristin, and children Sam (11), Will (9), and Zoë (3).
John R. Short (BS ’67, MS ’68, PhD ’71 Elec Egr) and Andrew J. Hull (BS ’83, MS ’85, PhD ’90 Mech Egr) met while working together at the Naval Undersea Warfare Center (NUWC) in Newport, R.I. They formed a friendship based on the fact that they had both studied engineering at Michigan State, and they both liked climbing, trekking, and hiking. Both men have traveled the world trekking through mountains and climbing a few peaks. When John expressed an interest in Mt. Kilimanjaro, Andy agreed that it sounded like fun. It turned out to be a spectacular trip. After the climb, they went on safari in the Serengeti and Ngorongoro Crater for five days.

Andy works on sonar research in the Advanced Acoustic Division of the Autonomous Systems and Technology Department at the Naval Undersea Warfare Center (NUWC) in Newport, R.I. He started his career in the Submarine Sonar Department where he has worked on towed arrays, hull arrays, and the spherical array. He spent two years on loan from the navy under a cooperative research and development agreement at a medical imaging company where he was responsible for modifying underwater target localization algorithms for use in detecting, localizing, and characterizing partially occluded coronary arteries in humans. Upon return to the navy, he transferred to the Autonomous Systems and Technology Department where he performs structural acoustic modeling of next-generation torpedo sonar systems. While he was a graduate student at Michigan State, he was a research and teaching assistant. hullaj@npt.nuwc.navy.mil

John works for Raytheon Integrated Defense Systems as an Engineering Fellow; he is the area lead for undersea technology. Previously he spent 33 years working for a U.S. Navy research and development Laboratory at the NUWC, retiring as a member of the U.S. Government Sensor Executive Service in 1985. He has led a number of senior advisory teams and blue ribbon panels for the United States Chief of Naval Operations and for the Assistant Secretary of the Navy for RD&A, as well as for the Australian Chief of Navy. He received the Presidential Meritorious Executive Rank Award in 1996 in recognition of his sustained outstanding achievements during his career. He is an adjunct professor in the MSU Department of Electrical and Computer Engineering, and was a full-time “assistant instructor” teaching Electromagnetic Theory and Applications between 1968 and 1970. He is married to the former Mary A. Garrity (MA Audiology and Speech Sciences ’70) whom he met at MSU. They live in Portsmouth, R.I., and have two grown daughters, Kirstin and Anne, who also enjoy mountain hiking and climbing. ©

Safari Sights: A cheetah, hippos, and zebras.
John Liggett (BS Mech Egr ’43) of Stuart, Florida, writes: “Noted by arrow on enclosed Olds Hall photo was the location of the Tau Beta Pi (TBP) room in the fourth floor corner. Due to some quirk in the building’s heating system, that quasi-penthouse enclave was toasty warm even on the coldest winter days (and it does get cold in Michigan!). As I recall, the room furnishings were tables, chairs, and overstuffed leather-covered sofas. Among my fondest memories of MSC(U) was how nice it was to sack out for a recharging nap in that warm retreat on a winter day after a snowy hike from Dem Hall or Jenison Field House.”

Wayne H. Mueller (BS Mech Egr ’50) of Troy, Michigan writes: “This is a photo of my Michigan State University air compressor that I still use!”

Edgar G. Nesman (BS Ag Mech ’50) of Temple Terrace, Florida, writes: “I just finished reading this issue that has been on my reading table for too long. Three things in the “Looking Back” section struck my interest and brought back many memories.

“The first item concerns the ‘Responses’ section that dealt with Professor Sigerfoos and the picture of him in the foundry. I was in his class at about the same time and went through all of the steps to build my air compressor just as those who sent in their responses. My compressor is somewhere in Cuba at the moment as I carried it with me when I went as a volunteer to teach at the Agricultural and Industrial School in the province of Oriente in 1950. I stayed there for 10 years and had to leave everything behind when I left—including the air compressor. Let’s hope that Fidel is making good use of it!

“The second item concerns the picture of the R. E. Olds Engineering Building and the picture on the back cover. My experience in that building started long before I sat in the classrooms during my time there in the late 1940s. That building was the access point to the steam tunnels that my cousin and I explored in the late 1930s while visiting my grandmother who lived a short distance from campus. We had heard that there was a wondrous system of tunnels that connected the buildings of the campus together. Well, the information and the rumors weren’t wrong. It didn’t take us long to find some unmarked doors inside the buildings that we explored in our next visit to the campus—one of which we found unlocked—and we found ourselves in a wondrous underground world.

“We didn’t go far on the first venture. We stayed down for about a half-hour but decided that it wasn’t a good idea to push things too far—we knew we didn’t belong there. It was a few days later when we decided that we wanted to go again. This time we decided to go the whole distance and worked our way the 50 or so yards to where we thought Wells Hall should be. About the right distance, we saw a short stairway leading up to a closed door. Unfortunately, the door was locked so we could not test our theory. I think that ended our underground adventures, but we did continue to explore the campus for a number of years.

“The third item concerns the picture of the electrical engineering building on the inside of the back cover as it was being built in the late 1940s. It housed amateur radio station W8SH in the tower and that also was an important part of my life on campus. Soon after starting classes at MSU I found out about the Amateur Radio Club. I discovered that they had a ‘radio shack’ in one of the small buildings behind Olds Engineering Building where I had a number of classes. It wasn’t much of a location, but it was big enough to house some equipment that was available to members that wanted to use the licensed MSU radio station.

“During those years there were many returning servicemen (and women) who had radio and electron experience. We soon outgrew our small space . . . [and] our faculty advisor was . . . able to get us a good spot in the new electrical engineering building that was being built. The club did a lot more than just build equipment and communicate . . . we held classes so that others could learn code and radio theory and pass their federal exams to get a license. Even though I was not an electrical engineering student, the club was important for me.

“I graduated from MSU with a degree in agricultural mechanics in 1950 and returned to do my MS in agricultural extension. I later finished my PhD in rural sociology and Latin American studies at the University of Florida and taught at the University of South Florida in Tampa up to my retirement in 1992. Thanks for the memories.”

Theodore V. Seling (BS Elec Egr ’49) of Ann Arbor, Michigan, writes: “In 1948, I was working for the electrical engineering department moving equipment from Olds Hall to the new Electrical Engineering Building. We were moving equipment from the power labs in the basement. We had to disconnect various machines from their power sources to move them. We opened a raceway in the floor to access some of the wiring, and found two large bus bars running in the raceway. We had been assured that all power had been turned off, but for lack of a voltmeter, we had to give it the “screwdriver” test. There was a flash, and a partially melted screwdriver. The bus bars were the DC supply for the building’s elevators!”
The College of Engineering and your former classmates are interested in you. Please keep everyone informed. Fill out this form (please type or print clearly) and return it along with any photos, news clips, or press releases to: Currents Magazine, Office of Publications and Public Relations, 3412 Engineering Building, MSU, East Lansing, MI 48824-1226.

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☐ YES. PUBLISH MY E-MAIL ADDRESS SO CLASSMATES CAN GET IN TOUCH WITH ME.

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We’d thank you . . . if only we knew
The MSU Libraries Digital and Multimedia Center recently completed digitizing all available issues of the Spartan Engineer, and they can now be viewed on the Web at http://digital.lib.msu.edu/collections/index.cfm?TitleID=618. This student engineering magazine was published between 1948 and 1972 and was modeled after student publications at other universities.

Many of the articles in the magazine were written by engineering students, and topics ranged from discussions of job opportunities in engineering to campus-related issues. For example, Volume 1, Number 1, contained articles titled “Sales Engineering: A Post-War Profession” and “W K A R - A M: The Broadcasting Service of Michigan State College.” By reporting on campus-related events, Spartan Engineer inadvertently became a source of historical information about the university as a whole. Both the content and advertisements in the magazine are a reflection of the times. For instance, the job recruitment ads never show women as engineering students or as engineers.

The Engineering Library has all but two issues of Spartan Engineer. Numbers two and four from 1967 are missing. If anyone has these issues and would be willing to donate them to MSU, or if anyone has information about issues of the magazine published after 1972, please contact Tom Volkening, engineering librarian, at (517) 432-1498 or volkening@msu.edu.

Currently, each online issue of Spartan Engineer must be viewed individually. If you are looking for a particular article, or looking for information on a particular subject, you must know which issue to look in or search the issues one at a time. In the future, it may be possible to search all issues at once. The print copies of Spartan Engineer are available in the Engineering Library at the call number TA 1.565.

**Spartan Engineer Now Available Online**

**Save the Date!**

**Homecoming Tailgate**

**MSU vs. Illinois**

**Saturday, September 30, 2006**

Reconnect with former classmates
Meet other engineering alumni, current students, and faculty
Door prizes will be given!

**Time:** Two hours before kick-off

**Location:** College of Engineering homecoming tent, west side of the Engineering Building

**Info:** Visit www.egr.msu.edu/homecoming or contact Vicki Essenmacher at (517) 355-8339 or vicki@egr.msu.edu

Jim Niebling (BS Math ’85) of Portland, Michigan, and the MSU Strolling Spartans Band performed for alums at the College of Engineering Homecoming Tailgate on October 22, 2005. These MSU Spartan Marching Band alumni stroll parking lot tailgate parties before every Spartan home football game. Niebling thinks he qualifies for an “Engineering Excellence Award” for his innovative tuba/water bottle contraption!
A future engineer checks out the ASME display in the Power Lab. The sign above the display reads, in part: “One H.P. Intermittent Duty Fan Motor, Squirrel Cage Rotor.”

Can anyone identify the individuals in this photo? Any idea what year this is?