New Center Opens Doors for Future Engineers
The global practice of engineering has seen many changes in the past ten years. Today, the biggest markets and the largest sources of manpower are on the other side of the globe from us. Furthermore, our national economy is undergoing a transformation from the manufacturing era to the information era. And, to complicate matters even more, careers in science and technology are losing favor among our own young people; yet only through technological innovation can we continue to enjoy an unparalleled standard of living. How should we address these issues? How can we continue to flourish despite these trends?

As Spartans, we embrace our role in responding to these challenges willingly and with enthusiasm. We, as a college, will be proactive, innovative, and forward thinking.

We are proactive.

This spring, we are opening a new center for recruitment, advising, and job placement. We are empowering our students with guidance and experiential learning options, not just classroom instruction. Time and time again, employers tell us they seek out MSU engineers because they need minimal on-the-job training—our grads are “good to go” upon graduation.

Our undergraduates benefit from experiences in our research labs; they work side by side with graduate students and faculty in developing cutting-edge technologies. More than 50 students were supported last summer as undergraduate research assistants. More are expected to participate this year.

We work closely with employers to place students in paid internship and co-op positions. In February, more than 60 employers came to campus for Engineering Expo—a “laid-back” version of the more formal career fair. More than 350 students took advantage of this informal opportunity to explore career options and job openings with some of the top companies in the region (to read more about Engineering Expo, see the first article in this issue).

We offer an exciting range of opportunities for our students to study overseas. MSU is the top-ranked public university in the United States for study abroad. Through the College of Engineering alone, our students can study in Russia, Germany, England, Italy, or Australia. And we are in the process of finalizing an agreement with the National Taiwan University (see pages 30–31 of this issue to read more about it) as well as exploring further opportunities for our students to gain global experience, making their short time at MSU even more of a life-changing experience.

By fall 2007, we expect to have final details in place to launch a residential engineering program, with full-scale operations anticipated by fall 2008.

We are innovative.

We are developing distinctive, innovative research programs in the areas of energy, health, materials, security, and sustainability, to advance the land-grant ideal of service to humanity.

MSU President Lou Anna K. Simon, with her Boldness by Design strategic positioning campaign, has committed to take us from land-grant to world-grant, “to transform lives on campus, in Michigan, and around the globe.” Our faculty and students are engaged in this transformational process.

Our faculty members are discovering technologies for purifying water. If we could provide clean water to Third World countries, 60 percent of the diseases they encounter today would be wiped out.

Our faculty members are developing alternative fuels. They are looking at a number of exciting new sources of energy, including a genetically modified type of switchgrass that can be grown in brownfields, versus using valuable fertile land to grow crops that will eventually be used for fuel. If we go the route of using fertile land, it’s going to cost us . . . every time we go to the grocery store.

Our faculty members are working on novel ideas in healthcare. For instance, they are using microwaves to diagnose and treat cancers. They have developed instruments that can measure cardiac output with outstanding levels of accuracy; current methods of measuring cardiac output offer relatively poor levels of accuracy or are invasive in nature.

We are forward thinking.

Our world today is facing many significant problems. Who better to attack the ones amenable to technical solution than engineers! Engineers have a long track record of addressing real problems and challenges successfully. During the 20th century, engineers put a man on the moon, invented the computer and Internet, won the Cold War, and enriched the lives of countless people around the globe. What new innovations can we expect in the 21st century? The College of Engineering realizes that the future is boundless through the creativity of our people.

Today, as before, our challenge in the College of Engineering is to add value to our top caliber students so they can become world-class engineers. Our duty is to produce the next generation of engineers capable of solving the next generation of problems. And with your help, I know we can accomplish that.
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New Center Opens Doors for Future Engineers
"Career services' is not just for graduating seniors," says Drew Kim, assistant to the dean for recruitment and K–12 outreach in the College of Engineering. "It must start at a very, very early age, so students can start thinking about their futures."

"What we’re trying to create with the new career services area in the college is a network for each and every one of our students—from day one on campus, if not before," says Garth Motschenbacher, College of Engineering director of employer relations. "We support student success. It’s really that simple." The entire college works with the students and serves as a support system.

The Center’s mission goes hand in hand with Boldness by Design, an MSU initiative to strategically position the university as the premier land-grant university for the 21st century. MSU President Lou Anna K. Simon has called upon the MSU family of students, faculty, staff, alumni, and friends—"Team MSU"—to join together to help transform MSU from a land-grant to a world-grant university.

"Students need to become active learners from their first year on campus," Simon stated in her 2007 State of the University speech. "... By 2012, we plan to lead the nation in the number of students participating in international internships and research experiences.”

"One of the major goals of our new center is to enhance the student experience," says Bernadette Friedrich, director of student advancement in the College of Engineering. And that goal is being met through experiential learning options—like study abroad programs, co-ops, internships, and undergraduate research projects—and career development programs.

"The world is certainly a different place today, compared to just ten years ago," says Satish Udpa, dean of the College of Engineering. "Now, entry level—or 'routine engineering'—jobs are being outsourced. This means that our graduates are starting their careers at higher levels, not entry level. To get a
Drew Kim, assistant to the dean for recruitment and K–12 outreach in the College of Engineering, addressed about 30 teachers at the inaugural Teacher Summit, hosted by the college during SET (Science, Engineering, and Technology) Day on February 24. More than 350 students—along with their parents and teachers—registered to attend SET Day, an annual MSU event that gives high school sophomores, juniors, and seniors the opportunity to meet with professors, tour laboratories, see scientific demonstrations, and learn about majors and careers. Activities are scheduled in several buildings throughout the campus.

In addition to being a recruitment tool, SET Day is an opportunity for the college to interact with teachers. “We want to improve teacher training,” Kim told the group. “We can continue to work with students, but without working with teachers, we’re not going to get very far.” He informed the teachers that he and his colleagues are available to discuss K–12 initiatives and collaborations, offer research experience for teachers, and assist with proposal writing. “Here at MSU,” he says, “what we like to do is bring teachers in and figure out how we can help each other.”

Bernadette Friedrich, director of student advancement in the College of Engineering, discusses engineering co-op opportunities with SET Day visitors.

head start, students need to position themselves for this next tier by taking advantage of internships, co-ops, and undergraduate research experiences. This may add six months to their college career, but it will be six months well spent.”

Tom Wolff, associate dean for undergraduate studies, agrees. “Students are going to get hired not for how fast they graduated, but for all of the co-curricular and interesting things that they did in addition to finishing the curriculum with very good grades.”

When looking for jobs, students should not be settling for “whatever’s out there,” says Motschenbacher. “They need to grab what they want. Mixing the education they get in the classroom with experiential learning helps students figure out what they really want to do.” And this is where career service centers can help—if students make the time to utilize them.

“There are a number of career development services on campus that students just don’t take advantage of,” Friedrich says. “In fact, career services, historically, are underutilized across the country,” she says. “As part of this university’s Career Services Network, we are trying to follow MSU’s overall mission and ‘bring services to our students,’” she says, so it will be virtually impossible for them not to take advantage of these opportunities.

For instance, an on-site field career consultant will be permanently housed in the new center. In addition, the college recently hosted an Engineering Expo. Described as “a more laid-back approach to a career fair,” students were able to meet with employers informally, between classes, at tables lining the hallways of the Engineering Building.

“Expo provided a venue for students to explore a variety of options within the manufacturing and technology sectors and gave employers a chance to review talent and offer advice,” says Motschenbacher. “This was an invaluable opportunity for students to hear from professionals and alumni in industry about career preparation, success factors, and suggested coursework, as well as possible co-op, internship, and full-time positions.”

The free event drew more than 60 employers and more than 350 students.
SERVING ALUMNI AND FACULTY

In addition to helping students, the new center also serves alumni. Here are two recent examples:

• A faculty member was contacted by an alumna who would be visiting campus to recruit for her company. She asked if the professor could help set up interviews with a few students who were seeking full-time employment.
• An alumnus contacted the college saying that he was moving back to Michigan because his wife just took a new job. He needed help reconnecting with employers in the area.

“Our job is to facilitate these types of connections,” says Motschenbacher. “To accomplish this, we need to communicate with the faculty in each of the departments,” he adds. “It’s very important for everyone to get what they need.”

In fact, faculty play a lead role in this endeavor. It may mean mentoring a co-op student, taking a lunch hour to meet with company representatives who are visiting campus, or sponsoring a student who is participating in a research project.

“We can tell the students what’s good for them, but it means more if it comes from the faculty.” Friedrich says. “Our students really respect them.”

“And the college certainly recognizes that this doesn’t come without a time commitment and a personal cost on the part of the faculty,” Motschenbacher says.

ENGINEERING “WELCOME CENTER”

The new office, located in the main lobby of the Engineering Building, also serves as a welcome center for visitors, a meeting spot for Engineering Building tours, and a launch point for special activities like SET (Science, Engineering and Technology) Day, held each February.

“We want to attract students to a life in engineering and the sciences . . . and, more

MSU CAREER SERVICES NETWORK

CAREER SERVICES AT THE STUDENT SERVICES BUILDING
Career Services at the Student Services Building specializes in the early stages of career development. They provide assistance with resume development and help students who are seeking internships or other experiential learning opportunities. They also host interviews with employers from the health, human services, and public sector areas.

113 Student Services Building
Phone: (517) 355-9510
http://careernetwork.msu.edu/student-services-center

THE LEAR CORPORATION CAREER SERVICES CENTER
The Lear Corporation Career Services Center, located in The Eli Broad College of Business Complex, serves students, alumni, and employers. It provides career development and placement support to undergraduate students preparing for careers in business. They host interviews with hundreds of companies seeking interns or entry-level hires.

21 Eppley Center
Phone: (517) 432-0830
http://www.bus.msu.edu/learcenter/

CAREER SERVICES AT THE STADIUM
Career Services at the Stadium specializes in the communication, science, and technology career fields. They host interviews with companies in a wide range of industries, and organize 12 career events annually.

290 Spartan Way (in the football stadium addition)
Phone: (517) 884-1300
http://careernetwork.msu.edu/stadium-center

COLLEGE CENTERS
Field career consultants, located in many of the colleges, are connection points to help students plug in to employers, career resources, services, and programming specific to the colleges they serve. They also assist employers in finding the best students to fill open positions or help increase employer visibility on campus through internships, on-campus presentations, or mock interview sessions. Field career consultants are located in the colleges of Agriculture and Natural Resources, Arts and Letters, Communication Arts and Sciences, Engineering, Natural Science, and Social Science, as well as in James Madison College and The Graduate School.

Kelley Bishop, director of MSU Career Services and Placement, says The Center complements the MSU Career Services Network.
specifically, to Michigan State University’s College of Engineering,” says Kim. “We want them to come here and see this wonderful facility, which is second to none.” State-of-the-art facilities like this new center, he says, can be just as important as high-caliber faculty and the quality of the academic instruction offered.

“Bottom line, we want to let young people see that engineering and engineers are cool!”

STUDENT LEADERS AN INTEGRAL PART

When future engineers visit the College of Engineering, their first contact will be with student leaders, or “Career Peers.”

“When it comes to running The Center, students are going to be an integral part,” says Friedrich. Career Peers hired to staff the center may find themselves greeting prospective students and conducting tours of the Engineering Building, talking to freshmen and sophomores about experiential options, critiquing a résumé, counseling juniors and seniors about searching for a job, teaching a student how to use SpartanTRAK (an Internet-based national career and placement tool), or simply giving someone directions on how to get to a certain classroom.

“If we’re successful,” says Motschenbacher, “the students will be able to help 80 percent of the time. We’ll be behind the scenes, orchestrating and making sure that everybody has what they need to be successful.”

After all, students are much more likely to
**COLLEGE TEAMS WITH ALUMNUS ON NEW CAREER CENTER**

The College of Engineering has teamed with alumnus Ben C. Maibach III (BS ’69 civil engineering) to launch a new career services center. Thanks to a generous financial gift from Ben and his wife, Barbara, who earned her BA in mathematics in 1968 from MSU, The Center will open its doors this spring.

When Ben was a college student, there was not a wide range of internship, co-op, or study abroad opportunities available, at least not at the level that today’s students are familiar with. But he was in a unique position. His family owned and ran Barton Malow Company, now the largest design and construction services company in Michigan and one of the largest in the world.

Ben worked at Barton Malow every summer while in college—except for the summer of 1967. That’s when there was a lengthy carpenters’ strike that stopped construction in Michigan. So he went to work on the assembly line at Cadillac Motor in downtown Detroit (working the afternoon shift during the summer of the riots). “That was a tremendous educational experience!” Ben says.

Today, Ben is president, chairman of the board, and chief executive officer of Barton Malow. Representing the third generation working at the company (he is sometimes called “Ben Three”), he began his employment there in 1964. Over the years, under his guidance, the company has grown from a single office in Southfield, Michigan, to a $1.4-billion-a-year enterprise, with five regional offices and specialties in health, education, industrial construction, and sports facilities.

A hallmark of the Barton Malow Company is its LEAPS (LEArning Practicum for Students) summer internship program, which has been running since 1984. Ben says the goal of the program is to give minority and women college students a competitive edge in the job market. Each year 30 to 40 students participate; approximately 50 percent are women, and 33 percent are minorities. The company typically makes job offers to 90 percent of its LEAPS graduates.

Ben and Barbara chose to get involved with helping launch The Center in the College of Engineering for multiple reasons.

In addition to his own company’s LEAPS program, the fact that other engineering colleges in the Big Ten are beginning to launch successful internship programs spurred the Maibachs on to do something at MSU.

“Education and development of youth is very important to me,” says Ben, who grew up in a family of eight children. “If there’s a group of adults, and a group of students, you’ll always find me with the students.”

“But primarily,” says Ben, “Dean Satish Udpa’s personal interest and support positively caught our attention.”

A career services office like The Center is vital, Ben says. “You have to do things at a different level today. You can’t just provide classroom education to students. You need partnerships with business. You need to be more effective in giving education. Students need to be better prepared.” If a student does not have co-op or internship experience, preferably related to his or her area of study, he or she is at a disadvantage.

According to statistics from Michigan State University’s Collegiate Employment Research Institute, in the early 1980s about 35 to 45 percent of college students completed internships. Today, about 75 percent of students participate in such programs. And it’s no longer an option. It’s what today’s employers expect.

Ben says that The Center is a win-win situation for everyone, from the college, to the students, to the employers—because employers are getting the additional help that they need, and at the same time they are contributing to training today’s students to be better prepared employees while also becoming more linked to the university.

The College of Engineering views the Maibachs as the catalyst in the development of The Center. It’s because of their financial support and commitment to experiential learning that the new center has become a reality. Construction began in January 2007; it is expected to open for business before the end of spring semester.

“We helped initiate this, but it will evolve due to partnerships with numerous entities. That is what will move it forward,” says Ben.

Barton Malow has been repeatedly ranked as one of the best places to work. In 2006, for the fifth time, they were named one of Metro Detroit’s 101 Best and Brightest Companies to Work For, according to the Michigan Business and Professional Association. The company was also named Corporation of the Year, Construction Sector, by the Michigan Minority Business Development Council (MMBDC) in 2005. They have also won awards for encouraging diversity, for excellence and innovation in construction, for construction safety, and for employee empowerment. Barton Malow was the first construction company in the nation to have a profit-sharing plan for its employees.

Barton Malow construction projects have included DaimlerChrysler Proving Grounds, Detroit School of the Arts (which won a 2006 Construction and Design Award from the Engineering Society of Detroit), Shriners Hospitals for Children (Boston), and the recent addition to MSU’s Spartan Stadium. Current projects include Detroit Metro Airport’s new North Terminal Redevelopment (NTR) Project and the Baseball Grounds of Jacksonville (Florida).

—Laura Luptowski Seeley
Tom Wolff, associate dean for undergraduate studies, shared the following view with a group of high school and community college teachers at the Teacher Summit on February 24:

“We are challenged by the large numbers of engineers being produced on the other side of the globe; but much of their curricula are limited to ‘simple’ problem solving. What the U.S. excels in is integration and innovation. The engineering curricula in the U.S. are team-based, communication-based, project-based, and hands-on based—this is what we do.”

“Routine engineering work is a commodity. These types of routine tasks—like determining stress analysis on a spring, or how much concrete and steel it would take to design a specific column for a building—can be sent across the ocean, completed overnight by good engineers at one-third or one-half the price, and returned to us the next morning. But someone needs to be at the top of this complex engineering management organization. That ‘brain trust’ at the top, making sense of all this and setting the direction, is the engineering curricula in the U.S.”

Dr. James Harris (left), executive director for school leadership, Grand Rapids Public Schools, talks with Satish Udpa, dean of the College of Engineering, during the Teacher Summit, which was hosted by the college in February on SET (Science, Engineering and Technology) Day. Students in the Grand Rapids Public Schools have access to Davenport University’s GRAPCEP Engineering & Biomedical School, located at Creston High School. Approximately 160 students attended the school during 2005-06.

Mohamed Elias, who received his bachelor’s degree in computer science in 2006, discusses job opportunities with Toyota representative Jeff Bailey (right) at Engineering Expo.

A student talks with TechSmith representative Paul Middlin (right). TechSmith was one of more than 60 employers who participated in the Engineering Expo. They are one of the fastest growing companies in the state.

A multifaceted mentoring program can be accessed through The Center. Faculty members act as mentors to co-op students. “Career Peers” mentor fellow students, and alumni are connected with current students to offer career advice. If you would like more information about mentoring opportunities, contact Garth Motschenbacher at motschen@egr.msu.edu or Bernadette Friedrich at friedric@egr.msu.edu.
listen to what their peers say and respect the advice they offer. “They provide a perspective that we may have but can’t deliver in the same way,” Motschenbacher acknowledges.

**CENTER OPENS IN SPRING 2007**

Officially open for business in spring 2007, the new center joins the larger MSU Career Services Network, which includes centers at the Eli Broad College of Business, the Student Services Building, and Spartan Stadium (see sidebar on page 5 for more details).

“Our constituents will be able to interact with us in ways they never have before,” says Motschenbacher. “Nothing is off limits.”

Friedrich describes the center as “the College of Engineering’s Nordstrom’s approach.” (Nordstrom department store is known for going above and beyond what is expected to provide extraordinary customer service.)

“It’s all about customer service,” she says. “We serve a wide variety of constituents—employers, students, prospective students, alumni, faculty—and we want to go that extra mile to serve them all well.”

“We are prepared to provide quality service, and we expect that kind of performance by the people who work with us, around us, and through us,” Motschenbacher says. Yet, he promises it will be a “fun, energizing atmosphere.”

Kelley Bishop, director of MSU Career Services and Placement, says he is excited about the new center. “Clearly, the College of Engineering is infusing career readiness into the academic life of the students. It’s not just an afterthought.”

Associate Dean Wolff tells students, “Get a good technical education. But what’s going to drive your career, and open opportunities, is learning to do engineering—and non-engineering-related activities—in the bigger, global setting.”

“After all, our primary business,” says Dean Udpa, “is to produce the next generation of engineers capable of going out into the world to solve the next generation of problems.”

—Laura Luptowski Seeley

Garth Motschenbacher, College of Engineering director of employer relations, welcomes students to the opening session of Engineering Expo on Thursday, February 22.

Students attending Engineering Expo got a chance to meet with representatives from Rexam PLC, headquartered in London. Rexam is one of the world’s top consumer packaging companies and the world’s leading beverage can maker. They offer a prestigious 18-month training program for new employees, a portion of which is run in conjunction with leading business schools in the UK, Paris, Hong Kong, and the United States. The global consumer packaging company employs more than 25,000 staff in 22 countries. Anna Skorich (left), a chemical engineering junior, met with Rexam representative Greg Brooke (who received his BA in journalism from MSU in 1987) to discuss career opportunities.

**FUTURE ENGINEERS**

Launched in October 2006, this new Web site is filled with information for youth, parents, and teachers who want to learn more about engineering education and engineering as a career. Visit it at www.egr.msu.edu/future-engineer/.
Robert George Frear III of Fenton, Michigan, is a senior in applied engineering sciences and an Honors College student. He decided during his senior year of high school to attend Michigan State. “I wanted a big school, one that I knew I couldn’t outgrow (socially),” he says. “And I felt comfortable here in East Lansing. I also got accepted to other schools—including the University of Michigan—but I turned them all down. I knew I would do well in the honors program that was available here, plus I genuinely liked the friendly people here at State; I couldn’t say the same about the other schools.”

Frear entered MSU as an “engineering—no preference” freshman. Since he had always excelled at math and science, he thought engineering would be the best path for him—even though he wasn’t sure which engineering discipline would be the best fit.

After completing two engineering courses—CSE 131 and ME 180—Frear says he knew he was capable of doing the work of an engineer; but he recognized that he needed more interaction with people, “rather than sitting behind a computer and hammering away on a project by myself.”

As a result of doing some research on his own and talking with his academic adviser, he discovered the Applied Engineering Sciences program. He learned that he could pursue this field of study without losing the 37 credits he had already earned toward an engineering degree. He also knew that in this program, he would be able to more actively pursue his interest in business. (To learn more about the Applied Engineering Sciences program, go to www.egr.msu.edu/future-engineer/what/applied-egr.)

Currents Magazine recently invited Frear to tell us about his experience at MSU and share his views about the experiential learning options available in the College of Engineering.

The College of Engineering offers students many “value added” services like experiential learning options (internships, co-ops, and study abroad programs) and career development tools (career fairs, résumé critiquing, interviewing practice). Why is it important to take advantage of these services?

In today’s job market, an internship experience is worth almost more than the degree itself. Of course you need to be pursuing a degree in order to get the internship in the first place, but it is very important.

I think it is crucial for students to recognize that as important as school is, taking advantage of career fairs, interviewing, networking, etc., is critical. It will yield the job you want in the future.

Tell us about your most recent internship.

Last summer I had an internship with Holcim (US) Inc., a cement manufacturing company with headquarters in Dundee, Michigan. I managed a warehouse optimization project at their cement manufacturing facility in Artesia, Mississippi. I led two teams of warehouse and maintenance personnel in order to achieve four work stream objectives centered around bill of materials completion/failure mode effect analysis, inventory optimization, physical organization, and sustainability. I organized and monitored project progress via capacity schedules/Gantt charts in order to develop detailed plans and implement actions while maintaining a budget of $10,000. I reported to a steering committee that included CFO, CPO, and other stakeholder management personnel and reported progress through weekly reports and monthly presentations.

What other experiential learning options did you take advantage of while you were earning your degree?

I had two other internships. One was with Holcim in Trident, Montana, summer of 2005; the other was with Delta Controls in Thomasville, North Carolina, summer 2004. I also participated in a study abroad program—“Social Science in the Mediterranean”—in Mytilini, Greece, during the summer of 2004.

What did you learn as a result of these experiences and how will that affect you as you graduate with your engineering degree and enter the work world?

I have learned how to effectively lead a diverse group of people in order to achieve corporate objectives.

My business experience, coupled with my technical background and my studies, has become very marketable in today’s job market. I have had a very active interviewing schedule. Last semester, as a result of the Career Gallery, I received six job offers with various companies focusing on supply chain management positions. I believe it is my past experiences that will propel me to my future challenges.

How do you find the time for all of these extra activities?

Generally, I enjoy doing things like this. My life is a busy one, though. Between class, homework, group work, student organizations, studying for post-graduate tests, and a social life, being able to organize becomes a necessity in order to survive. I believe it is these organizational skills that are the most critical to learn in the university setting.

I did have to sacrifice a lot to go to career fairs such as the Career Gallery, as well as interviews both on campus and off. I’ve religiously attended both the Career Gallery and the Supply Chain Management (SCM) Career Fair every year. Sophomore year, after the SCM Career Fair, I had netted eight interviews, which kept me busy for four hours the following day. And classes do not mold to your interviewing schedule. I generally do not miss a class and will do so only if a future job is what I am sacrificing for. Last semester in particular had me traveling across the country—from Atlanta, to Phoenix, to Chicago—for interviews. If I’d had more than twelve credits, my grades probably would have suffered. But for the most part, professors understand that since
getting a job is the purpose of going to college, your interview is more important than completing their reading assignment on time.

■ I understand you will be going to work for IBM after graduation. What will you be doing there?

After graduating in May 2007, I will be working for IBM doing business consulting within their supply chain management strategy and change group. The scope of the job will require me to travel up to 100 percent of the time to the client’s site.

■ Can you tell me how this job opportunity came about?

This is my perspective: I got the job through my own ingenuity. I know what employers are looking for on a resume and I’ve learned how to highlight my strengths and, at the same time, present my weaknesses in a good light. I take advantage of opportunities by attending company presentations to get my name out there, networking, asking questions, and making sure I’m marketing myself to the right people. With IBM, I took the same approach; however, it was slightly more aggressive. In all of my career searching I found it is important to keep up a positive attitude and a smile.

As far as interviewing goes, I’m a firm believer that you learn through experience. Practicing prepares individuals for future interviews by giving them that experience. Ideally, your first interview should not be for your dream job. I did my practicing during my freshman and sophomore years. It took only one company to give me a chance and from that, my experience has sold my talent.

■ Do you feel that MSU’s College of Engineering has prepared you well to enter the workforce as a dynamic engineer, one who is ready to go to work with little—if any—additional on-the-job training needed?

I believe that the college of engineering has not necessarily given me the tools, but rather the hardware. I have developed a way of thinking that is unique from my average future co-worker who graduated with a business degree. I credit that line of thinking to the structure of courses taught within the College of Engineering.

I’m thankful for the experience that I have had at MSU and I look forward to continuing my education in the future. I will be taking the GMAT in April in order to use my score within the next five years to go back to school to earn an MBA.
Michigan State University will expand its efforts to improve the design and function of military and civilian vehicles with $5.5 million in funding from the U.S. Defense Department. The work holds promise not only for the military, but also for civilian consumers.

The U.S. Congress approved the funding for MSU’s project on advanced composite materials research for air and ground vehicles, which will be implemented in the new Composite Vehicle Research Center at MSU.

MSU will combine decades of experience in research aimed at making vehicles safer, lighter, more durable, and more environmentally safe through the use of advanced composite materials and related technologies. An industrial consortium will be an important part of the center.

“We’ll be looking at long-term solutions, as well as ideas that will help one year down the road,” says Gary Cloud, the center’s director and a mechanical engineering professor. “It makes sense to do the work in Michigan where we have capability and history in building vehicles. We foresee expansion of Michigan’s technological capability and improvement of the state’s economic welfare.”

Partnering closely with the U.S. Army Tank Automotive Research, Development and Engineering Center in Warren, MSU will examine problems unique to heavy-duty vehicles, striving for solutions applicable to combat vehicles while also answering design questions with civilian applications.

The Iraq war has battered combat vehicles with extreme heat, sand, ordnance, and explosive devices. Vehicles there need to be light enough to transport by air and conducive to quick and correct assembly on the ground. While armor is a high priority, added weight is brutal on suspensions and running gear.

Cloud brings years of research to the table. He has worked periodically with the military for 24 years; for the past 10 years, he and a colleague have been conducting research specifically related to future combat systems. That background positions MSU to hit the ground running to address pressing research challenges.

In addition to Cloud, the founding group includes Lawrence Drzal, University Distinguished Professor and director of the MSU Composite Materials and Structures Center; Dahsin Liu, professor of mechanical engineering; and Eann Patterson, chairperson of mechanical engineering. Several additional researchers will be hired.

“Our question is, ‘Why not do it better?’” Cloud says. “This effort is timely, given the need for a mobile army and the state of our auto industry. Because of previous research, we’re able to make immediate contributions to the problem.”

Many of the solutions involve composite materials—materials that blend conventional materials such as plastics and ceramics with fibers such as fiberglass or graphite to create materials that are strong, light, and durable.

The MSU Composite Vehicle Research Center will eventually occupy a new building on campus. The center focuses on six areas:

- **Vehicle survivability and occupant safety:** Approaching problems crucial in combat environments and in consumer markets, using a multifunctional testing facility, advanced computational programs, and novel composite designs.

  “We will have a strong civilian component,” Cloud says. “We’re defining vehicles in a very broad sense and eventually intend to have an impact on airplanes, watercraft, and personal protection devices. Many of the problems are the same, whether in aircraft or cars.”

- **Composite joining:** Bolting together vehicles so they are tolerant of difficult service environments is a tough problem. Military vehicles need to be bolted together quickly on the ground.

  “One of the nastiest problems in all engineering is fastening things together,” Cloud says. “We’re going to look at better ways to fasten composite components so they can function and survive.”

- **Multifunctional composites:** Searching for new composite materials that have mechanical, thermal, electrical, barrier, fire, and self-healing properties at low cost. Research includes using nanotechnology in composite products.

- **Self-diagnostic composites:** Building technology that can indicate flaws or damage in a structure—such as a crack in a flying airplane or combat damage. Sensors, algorithms, and electronics can be used for technology that can help make crucial decisions about continued service, repair, or retirement.

- **Structural integrity of composites:** Improving the durability of vehicles operated in highly stressed service over long periods.

  “Conventional design practices for predicting reliability of metal components do not work well for composite materials,” Cloud says. “We must account for uncertainties in service demands and damage for military and civilian vehicles.”

- **Biomimetics:** Exploring and exploiting nature’s engineering, especially when it comes to armored vehicles. Cloud points out that nature has some of the most ingenious designs—the turtle, the armadillo, and the shrimp, for example. Understanding properties of living organisms and living tissue can provide insight.

—Sue Nichols, University Relations

Decades of experience combined with cutting-edge research will position the MSU Composite Vehicle Research Center, led by mechanical engineering professor Gary Cloud, to improve the design and function of military vehicles—and ultimately consumer products as well.
NANOTECHNOLOGY:
The next big idea in preventing wrinkles is very, very small.

Nano small.
Ilsoon Lee, an assistant professor of chemical engineering, has discovered that nanoparticles can stop thin polymer films from buckling and wrinkling. It’s a new solution to a critical problem as thin films become more important in new technology such as electronic monitors.

The cosmetic arsenal to fight human wrinkles embraces technologies that seem crossed with science fiction—from microdermabrasions to lasers to Botox injections—and nanoparticles are poised to join the war by warding off dreaded buckles in human skin.

Lee, along with PhD student Troy Hendricks, published an online article in the American Chemical Society’s Nano Letters in December 2006 that outlines the potential of using infinitesimally small nanoparticles—50nm—between films to smooth out the tiny buckles that are the origin of wrinkles.

While the article addresses breakthroughs in the buckling of polymer films as they were compressed or heated during the manufacturing process, Lee says the principles show promise for application to human skin.

Their work was also featured in the January 9, 2007, issue of Chemistry World.

The research is supported by the National Science Foundation and the Michigan Economic Development Corp.

On all fronts, it’s all about nailing a wrinkle before it starts.

“Everything starts at a really small scale, so if we can prevent the buckling at the very beginning—at the nano level—we can eliminate large-scale wrinkles,” says Lee. “Wrinkles can initiate from the small scale, and once it grows we cannot remove it.”

Nanoparticles already have entered the cosmetic marketplace because they can penetrate deeper into the skin, transporting vitamins and other compounds to plump and smooth tissue. But Lee envisions thin films that can be injected beneath the thinning outer layer of the skin, the epidermis, which over time stiffens and buckles with aging, and the thicker dermis beneath it, which remains more pliable over time. Think of a raisin.

Lee explains that nanoparticles spread in a thin film can break up the compressive forces on a plane and redirect them. Once the force is reduced below the critical buckling strain, the film will not buckle. No buckles, no wrinkles. The nanoparticles in the film can be stress busters without affecting the neighboring layers.

“The wrinkle-free films will automatically absorb or deflect the stress and stay flat, just as they are after formation,” he says.

Nanoparticle films wouldn’t be a face-lift itself, but Lee sees the possibility in a film that could be added during a cosmetic procedure—such as an eyelift—to stabilize the improvements and prevent further wrinkling. He also sees applications in medical procedures—such as artificial skins for surgery.

The ideas are in the early stages with health and safety concerns to be worked through. Already Lee’s lab, with collaborators, is testing polymer films by applying various cells and proteins to see if there are toxic reactions.

Ilsoon Lee, assistant professor in the Department of Chemical Engineering and Materials Science, explains his work to a group of students who attended SET (Science, Engineering, & Technology) Day on Saturday, February 24, 2007. SET Day is an opportunity for high school sophomores, juniors, and seniors to meet professors, tour labs, see scientific demonstrations, and learn about majors and careers. The MSU event takes place in several buildings around campus. This year, more than 300 students registered to attend.

To view the full text of the paper that appeared in the American Chemical Society’s Nano Letters, go to www.egr.msu.edu/egr/publications/today/articles/20070110_wrinkle-free_film.pdf. To read the article in Chemistry World, go to www.rsc.org/chemistryworld/News/2007/January/09010602.asp.
Testing for deadly food, air, and water pathogens may get a lot easier and cheaper thanks to the work of an MSU researcher and his team.

Syed Hashsham, an associate professor in the Department of Civil and Environmental Engineering and the Center for Microbial Ecology, is developing a portable, hand-held device capable of detecting up to 50 microbial threat agents in air, water, and food.

“This device will give us the ability to measure pathogens in a manner and at a price that really matters for human health,” Hashsham says. “If we can screen for all pathogens together, we can minimize the threat significantly.”

Hashsham intends for the portable, hand-held device to be an all-in-one pathogen-testing center where DNA amplification and pathogen identification will happen on the same DNA biochip. A DNA biochip has signature pieces of DNA attached to a silica surface, similar to a computer chip, and is about the size of a thumbnail.

Today, testing air, water, or food for pathogens like cholera and dysentery must be done one pathogen at a time. Testing for each pathogen on an individual basis is dangerous, more expensive, and time consuming. Simultaneous testing simplifies the process, making it safer and more cost effective.

Hashsham has been awarded $966,608 from the state’s 21st Century Jobs Fund to develop and commercialize the device.

Hashsham, James Tiedje, University Distinguished Professor of crop and soil sciences and director of the Center for Microbial Ecology, and Erdogan Gulari, professor at the University of Michigan’s Department of Chemical Engineering, formed a cross-disciplinary team to develop this technology.

The procedure begins with sample pro-

Syed Hashsham, associate professor, Department of Civil and Environmental Engineering.
cessing that extracts DNA from all microorganisms present in the sample. The DNA can then be introduced into the device where it will undergo polymerase chain reaction for the selected harmful pathogens. Polymerase chain reaction is a process that takes a small amount of DNA and makes billions of copies so the pathogens can be easily detected, Hashsham explains.

Most of the genetic material in any bacteria isn’t harmful. For instance, the bacterium *Vibrio cholerae*, responsible for the waterborne illness cholera, has many housekeeping genes that maintain the organism, but they are not dangerous to humans by themselves. But the gene producing the cholera toxin is harmful. These genes serve as good markers for detection. Hashsham’s device will be designed to look for such marker genes.

“This technology is rugged and highly parallel; it can analyze lots of marker genes in a lot of samples, together with significantly lower false positives,” Hashsham says.

He said the hand-held testing device could be used anywhere that cost-effective testing of food, water, or air is needed for a number of pathogens.

“Because of the lower cost, there also will be applications in countries where fewer resources are available for drinking water safety,” says Hashsham.

Looking toward the future, Hashsham has been in touch with several organizations that might be interested in the device. AquaBioChip LLC, a Lansing-based company formed by the same team through a previous grant from the Michigan Economic Development Corp., will test the device under field conditions.

He has a team of six graduate students and technicians working on this device. “They are the heart of the project as well as the scientists being trained for the future,” Hashsham says. That number of employees is likely to increase when the device gets to the commercialization stage.

—Alicia Clarke, University Relations
Last November, for the first time ever, Michigan State University hosted a FIRST LEGO League regional tournament.

The FIRST LEGO League (FLL) is the result of a partnership between FIRST and the LEGO Group. FIRST (For Inspiration and Recognition of Science and Technology) is a multinational, nonprofit organization that aims to make science, math, engineering and technology “as cool for kids as sports are today.”

“FIRST LEGO League gets kids excited about science and engineering; they have fun while they’re learning. And it teaches them about teamwork,” says Drew Kim, assistant to the dean for recruitment and K–12 outreach for the College of Engineering.

With the help of LEGO MINDSTORM Robotics Invention System kits—which consist of bricks, motors, sensors, gears and software—elementary and middle school students, ages 9 through 14, learn engineering and computer programming principles as they design, build, and program fully autonomous robots that are capable of performing specified, theme-related tasks on a specially designed playing field. The 2006 theme was Nano Quest.

Nine-year-old Evelyn Rose Whitlock, a student at Charyl Stockwell Academy in Howell, Michigan, says, “It’s just fun, playing with LEGOs.” When she first got involved, she didn’t realize there would be an official competition. She says she used to be into “simple little robots that didn’t move on their own; you had to push them with your hands.” Now, she’s learning how to program them so they are autonomous.

Emanuel Davis-King, a 10-year-old fifth-grader at Glencairn Elementary in East Lansing, says his favorite part is the programming. He got interested in FIRST LEGO League after a field trip to the College of Engineering last summer. He signed up to participate and was one of only a few students from his school selected to be on the team. He says he does it “because it’s fun.”

Emanuel’s mother, Carmellia Davis-King, says of the program, “It expands his mind to the possibilities of things he can pursue when he gets older. It’s an early intro into engineering.”

Through a grant from Shell Oil Company, the MSU College of Engineering was able to sponsor 10 teams from Lansing area elementary and middle schools at the November regional competition. More than 125 students competed. Six of the teams advanced to the state competition in December, one of which was a first-time team from Dwight Rich Middle Magnet School. Coached by Ryan Oswald, an MSU junior in materials science engineering, and Mary Villegas, a science teacher at the school, the team posted the third best robot performance score—338—at the state tournament.

MSU is slated to host the state competition in 2008.

To learn more about FIRST and FIRST LEGO League, visit www.usfirst.org/jrobtcs/flego.htm.

—Laura Luptowski Seeley
COLLEGE OF ENGINEERING

ACCOMPLISHMENTS

Fiscal Year 05/06 (July 1, 2005–June 30, 2006)

■ The College of Engineering raised $8,993,529 in new gifts and pledges, representing an increase in giving over the previous year by 58%.
■ Cash support from alumni increased by 61%—from $744,604 to $1,887,492.
■ Nineteen gifts of $100,000 or more were received, with two of these gifts being $1 million or more.

Year to Date (as of March 3, 2007)

■ The College of Engineering has raised $194,065,000 in cash, gift, and in-kind support toward The Campaign for MSU. This represents nearly 93% of the College of Engineering’s overall campaign goal of $209 million, and accounts for over 15% of total MSU dollars raised.

Michigan State University

OVERALL GOAL: $1,200,000,000

PROGRESS TO DATE: $1,266,139,015 (over goal!)

$ millions: 250 500 750 1,000

College of Engineering

OVERALL GOAL: $209,000,000

PROGRESS TO DATE: $194,429,714

$ millions: 50 100 150 200

Engineering Endowments

ENDOWMENT GOAL: $36,000,000

PROGRESS TO DATE: $26,553,559

$ millions: 10 20 30

Von Ehr Scholars

On Friday, November 17, 2006, James Von Ehr (BS Comp Sci ’72) and his wife, Gayla, visited campus to meet with the first four Von Ehr Scholars, who were named earlier in the year. Von Ehr, a successful entrepreneur and long-time supporter of the College of Engineering, recently established a $1 million endowed scholarship fund. The November dinner gave the scholarship recipients, all freshmen, an opportunity to meet Von Ehr and socialize with one another. From left to right: James R. Von Ehr II; Jared Dorvinen of Houghton, Michigan (mechanical engineering); Brian Goldberg of Hackettstown, New Jersey (civil engineering); Rebecca Frear of Farmington Hills, Michigan (chemical engineering); Mark Goldy of Stevensville, Michigan (mechanical engineering); and Satish Udpa, dean of the College of Engineering.

Ford Gift Supports Biofuels Development

Ford Motor Company representative John L. Sullivan presented a check to the Department of Chemical Engineering and Materials Science on September 5, 2006, to support efforts in biofuels development. The total gift amount is $230,000. From left to right: Dennis Miller, professor of chemical engineering and materials science; John L. Sullivan, staff technical specialist, Physical and Environmental Sciences Department, Ford Motor Company; Martin Hawley, chairperson, Department of Chemical Engineering and Materials Science; and Ramani Narayan, professor of chemical engineering and materials science.
A number of “Meet the Dean” alumni receptions will be held across the country throughout this year. Keep an eye on your mailbox and on the Events section on the home page of the College of Engineering Web site (www.egr.msu.edu) to see if an alumni reception will be held near you. If you have any questions or would like additional information, please contact Vicki Essenmacher, alumni relations coordinator, at (517) 355-8339 or vicki@egr.msu.edu.
Boy Scouts and leaders from Troop 352 in Wyoming, Michigan, pose with an MSU flag. Scoutmaster Mark Graham, a lifelong MSU supporter and fan, heard about the Homecoming Tailgate event and wanted to give the Scouts a feel for what they can be a part of when they go to college. They enjoyed seeing displays such as the LEGO Robotics competition table and the SAE Mini Baja and Formula racing cars. The Boy Scouts and leaders said they were “overjoyed” with how they were treated by the engineering students and staff.

At the College of Engineering Homecoming Tailgate last fall, many attendees waited their turn to have their faces scanned by face recognition software. But don’t worry; this doesn’t mean you need to go through checkpoints now to get into an alumni tailgate! As 200 alumni, faculty, students, and friends gathered to eat and visit before the MSU vs. Illinois football game on Saturday, September 30, adjunct professor Dirk Colbry and computer science and engineering senior Rayshawn Holbrook were using a laser scanner to demonstrate 3D-ID—face recognition software developed by the Department of Computer Science and Engineering. This biometrics project, funded by the U.S. Department of Defense and the Michigan Economic Development Corporation, was just one of many displays set up by engineering faculty and students to showcase research and activities taking place in the college.

—Vicki Essenmacher

SAVE THE DATE!

MSU vs. Indiana
SATURDAY, OCTOBER 13, 2007

This year’s College of Engineering Homecoming Tailgate will be held on Saturday, October 13, 2007, two hours prior to the MSU vs. Indiana football game. For more information, please contact Vicki Essenmacher, Alumni Relations Coordinator for the College of Engineering, at (517) 355-8339 or vicki@egr.msu.edu.
Alumnus Mike McDonald (BS Chem Egr ’87) watches his son Andrew McDonald draw a variety of bridges. At the age of six, Andrew has already decided he wants to be a civil engineer!

MSU President Lou Anna K. Simon (right) stopped by during the event and was given a tour of research and student organization displays by Dean Satish Udpa (left).

A student looks on as electrical engineering freshman Arslan Qaiser (right) demonstrates how a programmable robot operates on a LEGO Robotics competition table. Qaiser volunteers as an engineering student coach for the Shell SITES program, which supports MSU-sponsored FIRST LEGO League teams of elementary and middle school students who build, program, and test fully autonomous robots. (See related article on page 19.)

From left to right: Alumni Leslie Williams (BS Civil Egr ’51) and Reid McClelland (BS Elec Egr ’50) discuss the 2006 Formula SAE race car with graduate student and alumnus Adam Zemke (BS Mech Egr ’05). In 2006, the MSU team won the Spirit of Excellence trophy at the Formula SAE series in Romeo, Michigan.
Three Engineers Honored

Three representatives of the College of Engineering were honored at the MSU Alumni Association (MSUAA) Grand Awards Ceremony on September 28, 2006, at the Kellogg Hotel and Conference Center as part of MSU’s annual Homecoming celebration. Recipients of these awards are selected for having the highest standards of integrity and character and for benefiting society and positively reflecting and enhancing the prestige of Michigan State University.

Joon S. Moon (BS ’60 Chem Egr) of Vancouver, Washington, received a Distinguished Alumnus Award, which recognizes alumni who have attained the highest level of professional accomplishment. Moon earned his PhD in chemical engineering at the University of California–Berkeley (1965). Born in South Korea, he became a U.S. citizen in 1967.

In 1969, after having worked for DuPont and Celanese Corporations, he bought a small manufacturing company in Howell, Michigan. Over the next 40 years he bought and sold a number of other companies, primarily in the consumer products, plastics, and swimming pool industries. Today, he owns and operates two manufacturing companies that produce household and industrial cleaning products: the Rooto Corp., based in Michigan, and Star Pacific, Inc., based in California. He is a founder of North Pointe Insurance Co., based in Michigan, and the chairman of Mt. Rose Capital, Inc. (a holding company). He now focuses primarily on startup capital ventures and investment management.

Moon and his wife, Zaiga (BA MSU ’62), are members of the John Hannah Society, having provided generous financial support to various facets of MSU. One of their more prominent gifts was the Mirdza Kuze Library Endowment Fund, named for Mrs. Moon’s mother, which enabled MSU Libraries to begin a Baltic collection for Latvian, Lithuanian, and Estonian materials. Another gift in 1991 established the Joon S. Moon Distinguished International Alumni Award, which is presented each year to a recipient who demonstrates outstanding leadership in the international field.

Moon has sat on the boards of several universities and corporations. In 1991 he was appointed by Governor John Engler to the Michigan International Trade Authority, which provides export assistance for small and medium-sized companies. As chairman of the MSU Foundation and of its technology committee during the nineties, Moon played an important role in shaping MSU’s future. He has also served on the College of Engineering Alumni Board.

Aan Chaikittisilpa (MS ’69 Civil Egr) of Bangkok, Thailand, received an Alumni Service Award, which is given to alumni who have demonstrated outstanding volunteer service to MSU and/or meritorious public service on a local,
Chaikittisilpa has been tireless in routing Thai students to MSU, providing leadership in the establishment of scholarships among Thai alumni to send students to MSU, and finding worthy prospects to receive the scholarships. He helped MSU set up study abroad programs in Thailand, which include experience-based components in the public and private sectors. He is the principal point of contact for the MSU–Chulalongkorn University student exchange program and has made himself the “go to” person for problem solving. According to John Hudzik, MSU Vice President for Global Engagement and Strategic Projects, Chaikittisilpa’s commitment and loyalty to MSU are “surpassed by none.”

Davis came to MSU in 1973 after serving as a captain in the U.S. Army Medical Service Corps. At MSU he specialized in teaching and conducting research on pollution control and hazardous waste management. In 1987 and 1989–92, he performed technology assessments of treatment methods for the U.S. Environmental Protection Agency. He belongs to numerous professional organizations and has won many honors, including the State-of-the-Art award from the ASCE and election as a fellow in the Air & Waste Management Association.

On the occasion of his retirement in 2003, he established the Mackenzie L. Davis Student Activity Discretionary Endowment Fund to enhance student activities, including the concrete canoe team, the steel bridge team, and a number of student professional organizations. He embraces the philosophy that student activities promote the leadership, creativity, organization, commitment, and sociability that make good engineers into great engineers.

During his MSU career, Davis taught more than 8,000 students in 19 different courses, served 10 years as faculty advisor for Chi Epsilon (the civil engineering honor society), and coached MSU’s Concrete Canoe Team for 25 years—winning one national championship and placing in the top five eight times. He also served 15 years as adviser for the ASCE student chapter and, after helping to found it, 15 years as adviser to the Environmental Engineering Student Society.

One Friday each fall, Davis declared “Spirit Day” in his classes. He gave an award to the person wearing the most green. He also encouraged everyone in his department to wear green every Friday, giving out a gold star whenever he saw someone in compliance. Now that he is retired, he still wears green on Fridays.
Four College of Engineering faculty and staff members were recognized at the annual university-wide Awards Convocation February 8 at the Pasant Theatre, Wharton Center. They were among 30 individuals honored at the ceremony.

Betty H. C. Cheng, professor of computer science and engineering, received the MSU Distinguished Faculty Award. She was one of 10 faculty members university-wide to receive this honor. 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. She is working on high assurance computing systems in the complementary areas of software engineering, including software specification, requirements analysis and modeling, reuse, reverse engineering, and program visualization of parallel and distributed systems.

Erik D. Goodman, professor of electrical and computer engineering and mechanical engineering, received the MSU Alumni Club of Mid-Michigan Quality in Undergraduate Teaching Award. He 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. Goodman’s research interests lie in genetic algorithms, genetic programming, design optimization, and automated design of multidomain systems.

Timothy J. Hinds, an academic specialist in mechanical engineering, received one of four MSU Distinguished Academic Staff Awards. The award acknowledges the 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. Hinds has recently taken over the

Engineering Faculty and Staff Receive University Awards

University Awards Convocation—College of Engineering recipients (left to right): Betty H. C. Cheng, professor of computer science and engineering, received the MSU Distinguished Faculty Award; Jeffrey F. Rhoads, PhD student in mechanical engineering, received an MSU Excellence-in-Teaching Citation; Timothy J. Hinds, academic specialist in mechanical engineering, received an MSU Distinguished Academic Staff Award; and Erik D. Goodman, professor of electrical and computer engineering and mechanical engineering, received the MSU Alumni Club of Mid-Michigan Quality in Undergraduate Teaching Award.
supervision of ME 481, Creative Engineering Design, consisting of numerous sections in which students are guided through the process of completing their senior capstone design projects.

Jeffrey F. Rhoads, a PhD student in mechanical engineering, received one of six MSU Excellence-in-Teaching Citations. The award is presented to teaching assistants who have distinguished themselves by the care they have given and the skill they have shown in meeting their classroom responsibilities. Rhoads most recently taught ME 391, Mechanical Engineering Analysis; and ME 471, Mechanical Design II. He also taught a two-week summer course in the Mathematics, Science & Technology Program for academically gifted middle-school students. He was a teaching assistant for two years in ME 361, Dynamics; ME 471; and ME 475, Optimization of Automotive Structures. Rhoads’s research has focused on developing resonant micro-mechanical systems—chemical and biological sensors that can help improve national security, and signal filters that can give cell phones a clearer reception.

Professor Brian S. Thompson and his Design Day team—Robert P. Hubbard, Craig W. Somerton, Alan G. Haddow, Ranjan Mukherjee, Jill A. Bielawski, and Roy A. Bailiff—received the 2006 Faculty/Staff Community Service-Learning Award from the Michigan Campus Compact. This is the highest annual award that MCC bestows on faculty and staff in the state of Michigan.

The award is given to someone at each member campus for influencing students to be involved in community service or service-learning through modeling, influence, or instruction. This year’s recipients were acknowledged February 8, 2007, at MCC’s annual Institute on Service-Learning awards dinner on the campus of Schoolcraft College in Livonia, Michigan.

Michigan Campus Compact promotes the education and commitment of Michigan college students to be civically engaged citizens, through creating and expanding academic, co-curricular, and campus-wide opportunities for community service, service-learning, and civic engagement.
Several members of our faculty were recently named fellows by prestigious professional organizations.

Venkatesh Kodur, professor of civil and environmental engineering, was named a fellow by the American Society of Civil Engineers for his leadership and contributions to the profession. He has broad-based expertise in structural, material (concrete), and fire areas and has earned significant world recognition for his research in the structural fire safety area. He has undertaken research—both laboratory testing and numerical modeling—for the evaluation of fire resistance of structural members and non-linear design and analysis of structures.

Kodur was part of the ASCE/FEMA “Building Performance Assessment Team” established to study the WTC disaster as a result of September 11 incidents.

Eann Patterson, professor and chair of mechanical engineering, was named an SEM (Society for Experimental Mechanics) fellow for his contributions to the Society and the technical community. The award will be presented at the June 5, 2007, All Society Award Luncheon during the SEM annual conference in Springfield, Massachusetts.

Patterson received the society’s Zandman Award in 2004 for his innovative contributions to the field of photoelastic coatings, which have led to the development of an automated system using digital photoelasticity to determine the complete three-dimensional state of stress in a component and to the development of a poleidoscope, which allows quantitative evaluation of stress magnitudes and directions in dynamic photoelasticity.

Robert T. Pennock, professor of computer science and engineering, has been named a fellow of the American Association for the Advancement of Science. He was honored at the Fellows Forum during the February 15–19, 2007, AAAS annual meeting in San Francisco. The AAAS is the world’s largest general scientific society and is the publisher of the journal Science. Election as a fellow is an honor bestowed upon members by their peers, a tradition that began in 1874. Fellows are honored for meritorious efforts to advance science or its applications. Pennock is recognized for distinguished service in articulating the philosophical deficits in arguments for “intelligent design” and defending against their inclusion in science teaching.

Pennock has published two books and many articles that critique the intelligent design creationist movement. His 1999 book, *Tower of Babel: The Evidence Against the New Creationism*, was nominated for a Pulitzer Prize.

Parviz Soroushian, professor of civil and environmental engineering, was named a fellow by the American Society of Civil Engineers for leadership and contributions to the profession. He has pioneered major developments in the field of civil engineering materials, emphasizing cement-based composites. His long-term research on cellulose fiber cement has contributed to broad introduction of fiber cement products to residential construction markets in the United States.

Ning Xi, John D. Ryder Professor in the Department of Electrical & Computer Engineering, has been named an IEEE (Institute of Electrical and Electronics Engineers) fellow, effective January 1, 2007, for his contributions to the field of nano-robotic manipulation and assembly. The grade of fellow is conferred upon a person of extraordinary qualifications by invitation of the board of directors. Fewer than one-tenth of a percent of IEEE’s voting membership are named as fellows in any given year. With more than 365,000 members in over 150 countries, the IEEE is made up of engineers, scientists, and allied professionals whose technical interests are rooted in electrical and computer sciences, engineering, and related disciplines.
Hubbard Recognized by Society of Automotive Engineers

Robert P. Hubbard, professor emeritus of mechanical engineering, will be recognized as an SAE (Society of Automotive Engineers) fellow during the 2007 SAE World Congress and Exhibition in April. The fellow grade honors SAE members who have made a significant impact on society’s mobility technology through research, innovation, and/or creative leadership.

Hubbard has achieved international acclaim for his bioengineering research on human spinal mechanics and product development. In collaboration with osteopathic physicians, Hubbard and his students developed biomechanical models and measurement technologies to represent human torso shape and movement that are being used to design and assess new products in automotive and office seating, most notably the Steelcase LEAP® office chair. He also invented the HANS® head and neck support, which is now mandated for all Formula 1 drivers in major car racing series around the world.

He also received an inaugural Auto Racing Safety and Humanitarian Service Award from the American Auto Racing Writers and Broadcasters Association (AARWBA). This award was presented at the AARWBA Auto Racing All America Team Banquet in Indianapolis in January.

Donald Morelli

Donald Morelli joined the Department of Chemical Engineering and Materials Science in January as a professor. He received his BS and PhD degrees in physics from the University of Michigan in 1981 and 1985, respectively. He was employed by General Motors Research Laboratories as a senior research scientist in 1985, then moved to Delphi Corporation Research Labs in 1999, where he was a staff research scientist and group leader in the emerging materials group. He has published over eighty scientific papers, coauthored four book chapters, and holds sixteen U.S. patents. His research has spanned a variety of topics, including: semimetals, conducting polymers, high-temperature superconductors, wide- and narrow-band-gap semiconductors, thermoelectric materials, and magnetics. His current interests include new semiconductors for energy conversion and high thermal conductivity materials for thermal management.
PAVING THE WAY TO STUDY ABROAD IN TAIWAN

Maggie Blair-Ramsey at the National Palace Museum.
The College of Engineering has been working for several years through the Chicago-based Taiwanese Ministry of Education’s Taipei Economic and Cultural Office to facilitate a study abroad exchange program with National Taiwan University (NTU) in Taipei, which is considered the top engineering school in Taiwan. NTU has already been sending students to us for five years.

As a result of the relationship with NTU, the Taiwanese Ministry of Education offered Maggie Blair-Ramsey, MSU’s engineering study abroad coordinator, the opportunity to participate in an “academic” tour of Taiwan as a guest of the Taiwanese Ministry of Education. After Blair-Ramsey had accepted the invitation, two additional top engineering schools—National Tsing Hua University and National Chiao Tung University, both in the city of Hsinchu—invited her to visit them as part of her August 2006 tour. She is now working to establish exchange programs with them as well.

Professor Lalita Udpa is the faculty leader of the National Taiwan University program for the College of Engineering. Colleges at MSU can begin sending students to a school in another country only after a thorough approval process. In this case, the College of Engineering takes the initial steps, then the MSU International Studies Programs (ISP) academic committee gives final approval. “The visit to National Taiwan University confirmed what we already believed—that this will be a good relationship for us,” Blair-Ramsey says. They teach classes in both Mandarin Chinese and English. The NTU exchange program just recently received official approval from the International Studies Program, so we will be sending at least one student there as soon as summer 2007.” (Summer exchange students carry out research with professors, since most summer classes are taught in Mandarin.)

“Taiwan is a beautiful place,” Blair-Ramsey says, “very mountainous, with many small islands around a large main island.” Taipei, at the north end of the main island, is the largest city. She describes it as “busy and crowded like New York.” In addition to its cities, Taiwan has national parks and botanical gardens, along with rural areas where people farm. “I feel privileged to be able to visit other countries and see the wonderful sights,” she says, “but above all, the travel allows me to come back home and build a program for our students. There’s no way we should or would send students to an unknown area. We have to consider safety factors and what type of housing they would live in. We must have face-to-face contact with people whom we hold accountable for our students’ welfare. For instance, I found that the educational buildings in Taiwan were pleasantly air conditioned, but it was smoldering hot in the student housing I visited, which makes me think it will be best to send our students there in the fall or spring.”

Blair-Ramsey’s tour group of 14 people from universities all over the world—Australia, Canada, Germany, Malaysia, mainland China, Japan, Korea, Singapore, and the United States—visited all kinds of schools, not just engineering, with sightseeing excursions along the way. She spent her final two days in Taiwan visiting the three engineering schools. “They were very serious about explaining their research to me in each lab. It was impressive, but challenging to take it all in!” she says. “They’re doing some really important work. They are big on nanotechnology. Some of our departments are looking into doing collaborative research with Tsing Hua and Chiao Tung Universities. Their students will come here as soon as we can set up a program. And we’ll start sending students to them.”

Taiwan has a number of advantages for American students. Blair-Ramsey estimates that as many as 90 percent of Taiwanese professors have been educated in the United States, so they are fluent in English and familiar with Western customs. She says, “I was approached by many professors as I visited the engineering schools. They said, ‘I got my education at MSU [or U of M or some other school in the United States].’ Most people in the university settings speak English as a second language. So that makes it easy and comfortable for our students to find their way around and to function.”

—Lynn Anderson

Blair-Ramsey was delighted at the opportunity for a reunion with three students who had come to MSU for study abroad in the past. They took her out to dinner and on a tour of the city, sharing important information about the area with her. Left to right: Chia-Hua Lin (Charlton) and Ching-Wei Liu (Jason). Not pictured: Yu-Shih Yi.

Maggie Blair-Ramsey in the observatory on the top floor of the Taiwan 101 Building, a 101-floor marvel of steel and glass, and the tallest building in the world as of 2003. She says, “You can see the whole city of Taipei and even other cities in the distance. I went up in an elevator that seemed like a rocket. I didn’t feel motion, I just heard a mechanical whine and prayed that we would make it to the top and get out.”
This is the final installment of “Engineers of the Future,” which has been running since 2003 when six students were first featured in Currents Magazine, Volume 2, Number 2. We hope you have enjoyed the experience of watching these students learn and grow at MSU. If you missed any of the earlier installments, back issues are available upon request; or you may 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 fall semester?**

  The main highlight/challenge of this past fall semester was taking the ME 481 senior design class. I worked on a team with three other mechanical engineering students to design an ergonomic water cooler for Whirlpool. The course walked us through the steps in designing and building a final prototype for the company. The class was very demanding and many hours were spent outside of class time working on the project. Our design incorporated a bottom-load feature for a water cooler, along with a higher dispensing area and extendable filling hose. The final prototype was then presented at Design Day, where it was shown to fellow students, professors, engineers, and future MSU students.

- **I understand you had a job waiting for you at DENSO after you graduated?**

  Yes, I started working full-time at DENSO Manufacturing Michigan, Inc., in Battle Creek, one week after my December graduation. I work as a design engineer in the mold/die design department. My job functions include new mold design, mold changes, and new product introduction.

  The cooperative education that I participated in while at MSU provided me with the opportunity to experience real-world engineering. And it led to this stable job in the not-so-stable automotive market of Michigan. The people I work with provide an outstanding environment in which to increase my engineering knowledge for future projects. Also, as a new engineer, I have numerous opportunities to apply the knowledge that I learned at MSU to my new job.

- **I hear you have some other big news . . .**

  Yes, I am engaged! I will be tying the knot on June 15, 2007, at the Kellogg Center in East Lansing. My fiancée is Jill Wieland, the most amazing woman I’ve ever met. I proposed last October at the peak of Sharp Top Mountain in Virginia; she was completely surprised to find me up there waiting for her at the end of her hike up the mountain! We just bought a home in Portage, and will begin our lives together there in southern Michigan. The wedding plans have been fun and are going very well. It is amazing all the details that go into a wedding. Jill is doing a wonderful job taking care of things and I cannot wait to see it all come together!

  - **Share with us your overall experience as a Spartan Engineer. Looking back, why would you say MSU is the place to go to get an excellent engineering education?**

    My experience as an engineering student at MSU has been invaluable. The classes prepared me well for my engineering career. The atmosphere at MSU also allows you to meet people in many different areas of study and build lifelong bonds with them. State provided an atmosphere that encouraged me and helped me learn how to balance both my work and social life.

    The co-op between MSU and DENSO was the best thing I participated in while at college. I strongly recommend that students get some type of work experience in their field while at college—it provides the opportunity to find out what you are getting into before you spend thousands of dollars on an education that may not be suitable for you. The rotational co-op [in which the student works one semester and then takes classes the next semester] made it so that I did not have to work while I was attending class; therefore, I was able to focus completely on either class or work, depending on the semester.

    The engineering school program incorporated traditional learning along with design-intensive classes. In the design classes, we worked in groups on real-world projects, which provided an opportunity to see how things function out in the field.

- **This is the final installment of this feature. Do you have any insights or parting comments you’d like to share with our readers or other engineers of the future?**

  I have enjoyed participating in this series of articles and allowing others to follow me throughout my college career as a student at MSU. I hope my story has shown future engineers one of the possible pathways that can be taken while at college. I have been happy with all that I have accomplished throughout my time at MSU and hope that the readers have enjoyed my story.

**Tracy Kamikawa**

**Graduate Student (Honolulu, Hawaii)**

**Biosystems Engineering**

- **What were your highlights/challenges during fall semester?**

  This past fall semester was exciting and demanding in all aspects of life. As usual, my coursework was a priority, and I was able to finish my credit requirements via MSU’s online learning environment. I also began my work at the FDA Center for Biologics Evaluation and Research at the National Institutes of Health in Bethesda, Maryland. These starting months mostly entailed the paperwork that any federal employee is familiar with, but the help of the faculty and staff made for a painless transition.

  I spent a significant amount of time following up on the thyroidectomy I underwent over a year and a half ago. There were a few complications, but the professionalism, experience, and concern of my specialist in Virginia, Dr. Josef C. Dvorak, as well as his staff, made the hospital a pleasant place to be. I am in fine health now and thank them for all of their hard work.

  On a personal note, I got engaged! My fiancé, Chris Prone, another BAE grad, proposed when we were back in Michigan for Homecoming. We—and our families—are
very excited, but I’ve warned that I’m too busy to plan a wedding for at least another three years! We again spent the holidays in Honolulu, and then it was back to the record-breaking cold weather.

▶ How is your research progressing at the FDA Center for Biologies Evaluation and Research?

I am excited about the many opportunities available at the FDA Center for Biologies Evaluation and Research. My current goal is to develop a disposable biosensor for the rapid detection of avian and pandemic flu, which is a critical worldwide concern. One of the main advantages of working at FDA CBER on the NIH campus is that I have experts in every field relevant to my research at my disposal. My mentor here, Dorothy Scott, and the lab group have made me feel welcome and offered valuable input for my work, and I am daily grateful for the time that they volunteer. Conversations with the FDA group and my MSU adviser, Evangelyn (Vangie) Aloilja, have been elucidating and educational on all sides, with each offering personal expertise. Vangie continues to encourage me academically and personally, and I am thankful for her support in this collaboration, which demands a substantial time commitment on her part.

As a biosystems engineer, I hope to effectively incorporate the biologics into an engineering project. This has involved some “catching up” on my part to re-familiarize myself with the microbiological techniques that I learned in various undergraduate lab classes, but have not performed on a routine basis. The other scientists here have proven generous in taking time out for me in this regard. Once I am able to clone the flu genes that I intend to study, I can proceed to determine the binding properties that will be essential in developing a functional and sensitive biosensor. I hope and expect that my engineering background augmented by the biological expertise at the FDA CBER will yield novel and exciting research.

▶ Share with us your overall experience as a Spartan Engineer. Looking back, why would you say MSU is the place to go to get an excellent engineering education?

I am proud to be a Spartan Engineer, and I will value the memories and experiences I gained at MSU as some of the best of my life. Back in my senior year of high school in 2000, I was offered full scholarships from several universities, including MSU. However, I made the choice to attend MSU because of the lasting impression that the students, faculty, and staff made on me during my first campus visit. Everyone I came into contact with was friendly and helpful and went out of their way to make me feel at home for those two days. The following six years have been no different, and the friends, colleagues, and mentors that I have accumulated over that time are irreplaceable in my personal and academic careers.

The Department of Biosystems and Agricultural Engineering has become my second family. My mentor Vangie has been my greatest support. She and quite literally the entire faculty and staff have all been responsible for my successes at one time or another. Dr. Srivastava and Dr. Steffe have been particularly helpful in the transition to grad school. I thank them all for helping me get to where I am now, and where I will be in the future.

For prospective students, the sheer size of the MSU student body may seem daunting and prohibitive of personalized learning. However, in all of my experiences, I found that the professors were able to use their enthusiasm and concern to make even the largest lecture interesting and engaging. BAE in particular is like a tight-knit family within the engineering community, and I am sure other departments are similar. There are countless opportunities to interact with other professors and students within BAE, within the engineering college, throughout the whole university, and with communities outside of MSU’s walls. In my opinion, MSU offers the best of both worlds. It is easy to foster close personal and academic relationships with your peers and mentors, but just as easy to take advantage of the thousands of experts found on the rest of the campus. For me, it is about finding a balance, and I think that MSU allowed me to do just that.

I cannot recount all of the opportunities for which I am grateful to the engineering college and to MSU. From the friends that I made in Case Hall as a freshman and still have, to studying abroad in Dublin, Ireland, my life for many years to come will echo with the memories that I made at MSU. And of course, I owe any success that I have in my career to the mentors who have supported me throughout my MSU years and who have paved the way for my future.

▶ This is the final installment of this feature. Do you have any insights or parting comments you’d like to share with our readers or other engineers of the future?

I had a great time participating in this column, and am still flattered to have been chosen. At the time, I agreed to participate in passing, but now that it is coming to a close I am sad to see it end! I am forever grateful for being able to immortalize a small chunk of my life in a personalized way. As I am only a couple of years out of undergrad, and still engrossed in grad school, I would not consider myself the best source of real-world advice for engineers of the future, except maybe to repeat the cliché that college will be the best time of your life, so enjoy it!
STUDENT AWARDS & ACCOMPLISHMENTS

Board of Trustees Recognizes Electrical Engineering Student

Luke Niewiadomski, an electrical engineering major and member of the Honors College, was recognized at commencement by the MSU Board of Trustees for academic achievement. He was one of six December graduates university-wide to receive this honor. 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. Niewiadomski, a 2002 graduate of Catholic Central High School in Grand Rapids, had a 4.0 GPA.

ChEMS Seniors Win AIChE Awards

Michigan State University’s Department of Chemical Engineering and Materials Science holds the nation’s best record for placing in the American Institute of Chemical Engineers (AIChE) National Design Competition over the past 35 years. Stephen Shaw and Matthew Yedwabnick received first prize in the 2006 team category. Heather Schultz received third prize in the individual category.

The awards were presented at the AIChE Annual Meeting and National Student Conference in San Francisco in November. First-prize winners presented their projects during a special session at the conference.

Each year, chemical engineers from a designated company devise and judge a student contest problem that typifies a real, working, chemical engineering design situation. Working out a solution requires a wide range of skills in calculating and evaluating both technical data and economic factors.

Students Represent Formula SAE Team at the Detroit Auto Show

Green and white Formula SAE cars from past years were on display in the lower level of Cobo Center at the 2007 North American International Auto Show. A new MSU car, #9, is under construction and will compete later this year against other college and university entries from around the world at the Ford Michigan Proving Ground May 16–20, 2007. Each team conceives, designs, and manufactures a small open-wheel race car, which is judged in both “static” and “dynamic” events. In 2006 the MSU team finished ninth out of 142 entries and won the Spirit of Excellence trophy. The MSU team of about 40 students designs, builds, and tests virtually every component in-house, doing all the work on their own time.


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Alocilja’s Students Semifinalists in Siemens National Competition

Song Kim and Ethan Hoch, participants in biosystems engineering Professor Vangie Alocilja’s High School Honors Science Program, were semifinalists in the Siemens Competition in Math, Science & Technology. Kim is a senior from Phillips Academy, Andover, Massachusetts, and Hoch is a senior from Jericho High School, Jericho, New York. Kim and Hoch submitted research papers to the Siemens Foundation on work they conducted in summer 2006 in Alocilja’s Biosensor Laboratory.

The MSU High School Honors Science/Mathematics/Engineering Program provides an opportunity to students from across the United States and its territories who are entering 11th or 12th grade to engage in intensive research work at MSU over a seven-week period. The high school students were partnered with biosystems engineering graduate students, Deng Zhang and Sudeshna Pal, while Alocilja advised. Kim’s research paper was titled “Quality Control of Hybridization on Nanoporous Silicon Based Biosensor by Using Biotin-Streptavidin System,” and Hoch’s title was “Improving the Sensitivity and Detection Limit of a Biosensor by Using a Polyaniline and Carbon Nanotube Composite.”

The Siemens Competition in Math, Science & Technology recognizes remarkable talent early on, fostering individual growth for high school students willing to challenge themselves through scientific research. The competition gives students an opportunity to achieve national recognition for science research projects that they complete in high school. It is administered by the College Board and funded by the Siemens Foundation. The Siemens Foundation provides nearly $2 million in college scholarships and awards each year for talented high school students in the United States.

(Excerpted from the November/December 2006 Biosystems and Agricultural Engineering online Newsletter, Michigan State University, East Lansing, Mich.)

Homecoming Court

James Pita, a computer science and engineering major, was among seven seniors chosen for the 2006 homecoming court to represent MSU students during Homecoming activities September 20–October 1. Selection was based on an ability to represent MSU with “Spartan spirit,” academic achievements, and leadership skills. Pita has a 3.97 G.P.A. (down from a 4.0 since taking a couple of grad-level classes) and is involved in campus community outreach activities. Among other things, he is a tutor for computer science and physics; helps promote the Honors College; organizes fund-raising events for special needs in the Third World; and participates in service projects in the community surrounding MSU.

After graduation Pita plans to pursue a doctorate in artificial intelligence—autonomous agents. He would like to be a professor at a prestigious university where he can continue his research and make a significant contribution to the scientific community. A native of Rock Springs, Wyoming, he believes that his family and the small community where he grew up gave him a strong character. Not only did his parents always support him in any endeavor he undertook, but his entire community took an active interest in his choices and their outcomes!

2006 IBM “Master the Mainframe” Contest

Bryan Pietrzyk, an electrical engineering senior, and Joshua Roys, a computer science sophomore, were winners in the 2006 IBM “Master the Mainframe” contest. More than 1,000 students competed from 177 schools. Pietrzyk and Roys were among only 25 students to “blaze through the Part 2 challenges 100 percent correctly—a very impressive feat!” according to the contest Web site. They received 4GB iPod nanos and free T-shirts.

For more information, go to www-304.ibm.com/jct09002c/university/students/contests/mainframewinners2006.html.
MSU’s Student Engineering Council (SEC) hosted the National Association of Engineering Student Councils annual Midwest Conference (NAESC) for the first time October 19–21. Representatives from the University of Michigan, University of Toledo, University of Wisconsin–Madison, Iowa State University, University of Illinois Urbana-Champaign, Wright State University, Marquette University, and Michigan State were present. Conference guests stayed at Marriott Hotel at University Place in downtown East Lansing.

The SEC is a form of student government within the College of Engineering that provides the voice of the students on issues such as curriculum changes and coordinates activities of student groups within the college. Council members are usually undergraduate leaders of student groups, although occasionally a grad student also serves on the council.

According to Ana Almonte, president of MSU’s SEC, the main goal of the conference is to share ideas for improving engineering education, professional activities for students, and anything else that will impact the lives of engineering students at their universities. The number of representatives attending per university ranges between one and twenty.

Dean Satish Udpa welcomed conference participants at Thursday’s opening program in the Marriott. During the three-day conference, each university council presented on a chosen topic, such as: E-week events, how to enhance engineering education, how to motivate member participation, and how students can become better leaders.

Workshops and seminars were held Friday and Saturday. At one afternoon session, Tom Wolff, associate dean for undergraduate studies and advisor for the MSU SEC, gave a presentation about his work on the levee assessment team after Hurricane Katrina.

The closing banquet was held at the MSU Union, with alumnus Matt Melis (BS Civil Egr ’82; MS Mech Egr ’83) of NASA’s Glenn Research Center as the keynote speaker. His audience was fascinated to hear of NASA’s work investigating the Columbia Space Shuttle accident and of the space shuttle program’s history.

MSU Society of Women Engineers Wins National Award

In recognition of a new after-school program for students in grades K–5, the MSU chapter of the Society of Women Engineers (SWE) received the 2006 Outstanding Collegiate Activities Certificate at the organization’s national conference in Kansas City, Missouri.

MSU chapter members conducted two 13-week programs last year with Woodcreek Elementary—an engineering, math, and science magnet school in Lansing. One program, for kindergarten through second-grade children, focused on space travel, while another program for third- through fifth-graders presented the different fields of engineering, which included hands-on projects related to each field. Between 10 and 20 children attended each meeting.
The MSU Senior Class Council honored Randee Bierlein, a computer science and engineering major, with a 2006 Outstanding Senior Award for her exemplary academic and extracurricular success. Selection criteria for the award include a strong sense of leadership, commitment, and dedication to MSU. Bierlein was on the Dean’s List for seven semesters, receiving multiple scholarships for academic excellence and involvement in the computer science community. She was also presented with the Outstanding Senior in Computer Science Award, sponsored by the Ford Motor Company, at the Women in Engineering Awards Banquet, which is sponsored by the Society of Women Engineers.

She contributed to MSU research as an undergraduate researcher in CSE’s Digital Evolution Laboratory and as a professorial assistant in the Linguistics and Languages department, where she was an active member of the Computational Linguistics Laboratory. She contributed crucial ideas as a student representative on the CSE curriculum committee and enriched fellow undergraduate students by going the extra mile while a teaching assistant for CSE 231. She was a founding member of MSU Women In Computing and served as the group’s president from December 2005–May 2006.

A passionate advocate for outreach, Bierlein participated in numerous programs to educate the public about the field of computer science, giving presentations at local high schools and inspiring prospective engineering students during MSU SET (Science, Engineering, and Technology) Days. Bierlein graduated in December and is working at the Thomson Corporation in Washington State.

To view Web pages the Girl Scouts created during the workshop, please visit www.egr.msu.edu/~msuwic/cgi-bin/showcase.php. Workshop photos are available at www.cse.msu.edu/gallery/main.php.

**Randee Bierlein Named Outstanding Senior**

**“Women In Computing” Reach Out to Girl Scouts**

MSU Women In Computing conducted an on-campus workshop for the Girl Scouts of Michigan Capital Council on October 28, 2006. In order to earn a “Computers in Everyday Life” badge, Girl Scouts designed Web pages, learned about computing careers, and explored MSU research. Thirty middle-school and high-school-aged girls from troops around the Greater Lansing area participated.

The scouts got a taste of the broad, interdisciplinary nature of computing fields by touring research laboratories in the College of Engineering and the College of Communication Arts and Sciences. MSU graduate students and researchers demonstrated how computers are used to match fingerprints and 3-D images, to develop and control robotic fish, and to create video games.

While helping the girls create Web pages, Women In Computing members spoke about their experiences as students in computer science and electrical engineering. The Girl Scouts were able to create their own personal Web pages in the space of an hour, having started the project with little or no experience.

To view Web pages the Girl Scouts created during the workshop, please visit www.egr.msu.edu/~msuwic/cgi-bin/showcase.php. Workshop photos are available at www.cse.msu.edu/gallery/main.php.

**Women In Computing** Reach Out to Girl Scouts

Photo by Kim Glass Thompson

Randee Bierlein Named Outstanding Senior

Photo by Starr Portice
Ask anyone who has walked on the 5,200-acre swath of land on which the Michigan State University campus sits; it is huge by any measure. Now picture a mesh of roadways that crisscross through its 660 buildings and other structures, and the challenge of navigating through campus becomes even more challenging, especially for a newcomer.

But what if you could log on to the MSU Web site for an easy way of finding your way around campus without the hassles? Gugulethu Mabuza, an electrical engineering senior from Zimbabwe, found an answer using the Google Maps application program interface, or API. With this application, a programmer can embed Google Maps in a Web page with JavaScript to enhance user-friendliness.

“As part of my job, I usually go to different academic and office buildings to do work there,” said Mabuza, who is a network assistant for MSU’s Academic Computing and Network Services. “At first, this site was for my personal use. It was a mammoth task to add all the information and building locations, but thereafter it made my task of getting around campus a lot easier.”

Using the official MSU map, his goal was to turn this static map into something interactive and fun. He realized that his newfound discovery could have a universal application, so last semester he decided to host it at www.spartylive.com. He further improved the mapping engine and added pictures and links to the different Web

Editor’s Note: Mabuza, an electrical and computer engineering senior, entered the College of Engineering’s undergraduate research program as a sophomore under the sponsorship (and strong encouragement) of Professor Lalita Udpa. He feels this was probably the most valuable experience of his college life.

The success of his MSU map project led to an internship, beginning fall 2006, with Artemis Solutions Group, where he develops similar products for their clients. A program he developed for Tomie Raines, a local realty company, enables a home buyer to search for all the properties for sale within a specified radius in the Lansing area. (See www.tomieraines.com/FindYourHome/FindHomeNearMe/tabid/4885/Default.aspx.)

He is now working on a project for BEANER’S Coffee.

He has big plans for using this technology back home. He is developing a map for visitors to South Africa that will enable them to research services, hotels, restaurants, traffic conditions, weather forecasts, and tourist attractions. He hopes this will promote tourism that spills over into his own country, Zimbabwe, which is home to Victoria Falls, one of “the seven wonders of the world.”
sites on campus. Throughout the project, his fellow student George Iseid (Elec & Comp Egr ’06), helped him make plans and work through problems.

“Once, I was walking on campus and a group of people stopped me to ask for directions,” he said. “I had my BlackBerry with me and I took them to spartylive.com. They loved the map and immediately added it to their bookmarks and spent the rest of the day using it as a reference to move from building to building.”

The map page at spartylive.com is split in half—one side lists all the buildings on campus; the other lists all the roads, including the bus routes. So if you are going from Cherry Lane apartments to the National Superconducting Cyclotron Laboratory, you click on that choice. A push-pin icon will pop up on the map where that building is located. If you click on the icon, you’ll get written directions to the building. In addition to finding the location, the side panel also could display news and planned events for the building, and other information.

The project is metamorphosing into something bigger. “After creating spartylive.com, I thought it would be fun to use the same technology to create a map for the international students,” he said. “For instance, on the African Students Union page, www.msu.edu/user/asu/, you can search as you would on spartylive.com. I think it will encourage a close-knit community, as Africans and Africanists identify with each other and meet new people.

“For the larger MSU community, it also will be a way to market their study abroad programs in Africa. Students on study abroad can use this map to get firsthand information about the cities and institutions they are going to visit.”

Meanwhile, the Office of International Students and Scholars has become interested. Mabuza is going to feature information such as up-to-date ratios of the student population from each country and some graphs and pie charts to show the trends over the years.

“I am excited to do this, and this may be the first step to building a self-sustaining type project that will be automatically updated even long after I have graduated,” he said. — Ike V. Iyioke, University Relations
Jeff Schmitz stands 20 feet from his office at the intersection of Chocolate and Cocoa Avenues. His address is 14 E. Chocolate Ave.
Jeff Schmitz (BS Mech Egr ’97) made a career move from cars to chocolate in January 2007. The former Jeep vehicle development engineer for DaimlerChrysler is now senior manager for strategy at The Hershey Company in Hershey, Pennsylvania. The company has more than 13,000 employees worldwide and produces more than a billion pounds of chocolate products each year.

Schmitz’s strategy team focuses primarily on examining new markets, new distribution possibilities, operational improvements, and many classified projects with “interesting” code names. He, personally, is a guinea pig for new products. “I have a stack of soon-to-be-released products in my desk,” he says. “My only problem is when I run out of my favorites I have to sneak them from others, since they are not yet available in stores.”

His move to Hershey was motivated by a desire to spend more time with his wife and two young daughters. After several years in auto manufacturing, he spent three years working with A. T. Kearney as a consultant for automotive OEMs and suppliers all over the country. He says, “It was an exciting time. I helped multiple companies save millions of dollars—but I didn’t have enough time to spend with my family.”

When leaving the auto industry, he joked with friends that he would help them promote NASCAR by making a Reese’s Peanut Butter Cup shaped like a car. “It was scary how many people believed me,” he recalls. If he can get The Hershey Company to make mini bars shaped like cars, he feels that he will have done the auto industry proud.

He says, “You can almost always smell chocolate in the air on the Hershey grounds. It’s a bit surreal working in a place officially known as The Sweetest Place on Earth®.” For MSU engineering grads, Schmitz says Hershey has possible positions in sales and marketing, manufacturing, and product development. “MSU is not currently a target school for employee recruitment,” he concedes, “but I hope to change that soon.”

While a student at MSU (having been born and raised in Michigan), Schmitz was the 1997 project manager for the Formula SAE Team; they placed tenth overall in the international competition. He was also president of Tau Beta Pi, a homecoming court member, and a recipient of the Outstanding Senior Award. After graduation from MSU, he earned a master’s degree in mechanical engineering at Oakland University (1999) and an MBA from the University of Michigan (2003). In one U of M course, he says, students had to stand up and sing to the class if their cell phones rang during class. When his rang, he stood up and finished the entire MSU fight song amid boos and flying paper wads. He remembers fondly, “It was awesome.”

Since graduation, Schmitz has served on the MSU College of Engineering alumni board for two terms, and on the mechanical engineering board of visitors for one term. He has been a steward for the MSU Formula SAE team eight times, and was part of a group that founded the Gary Cloud FSAE Endowment, which offers a permanent, flexible stream of support to the MSU Formula SAE Team.

To read more about Schmitz’s ongoing involvement with the College of Engineering, see Currents 6:1, spring 2006, “From Motivated Student to Dedicated Alum,” page 15 (online at www.egr.msu.edu/egr/publications/archive/currents_pdf5/currents-2006-spring.pdf). ☮

—Lynn Anderson
OBITUARIES

John S. Carter (BS Civil Egr ’49) of Waukesha, Wis., died August 21, 2006, at the age of 86. He is survived by his wife of 64 years, Betty; children Elizabeth (Luther), John, Robert, and Brian; 14 grandchildren; and ten great-grandchildren. He retired as a major from the U.S. Army Reserves. He retired from Inryco, a division of Inland Steel, in 1985. He loved woodworking and travel and eating almost any kind of pie.

Thira Chaichanawong (PhD Civil Egr ’74) of Thailand died in 2001.

Paiboon Chaochuvej (PhD Civil Egr ’72) of Thailand died in 2004.

Robert Fridley (PhD Agric Egr ’73) died March 19, 2006, at age 71. A professor emeritus of biological and agricultural engineering at the University of California–Davis, he is widely recognized for his studies of fish farming and the mechanized harvesting of tree fruit. Fridley held several patents and co-authored a book, Principles and Practices for Harvesting Fruits and Vegetables (1983). He was a visiting professor at MSU from 1970–71, where he earned his PhD in 1973. He served as chair of the Department of Agricultural Engineering at UC Davis from 1974 to 1976. From 1977 to 1985, he worked at the Weyerhaeuser Company in Tacoma, Wash., where he became involved in aquaculture operations. He returned to UC Davis in 1985 to direct the aquaculture and fisheries program. He was appointed executive assistant dean of the College of Agriculture and Environmental Sciences in 1989. He officially retired in 1994, but served as a special assistant through 2000. He was elected to the National Academy of Engineering in 1985. In 1989, he chaired a national committee appointed by the National Research Council to assess technology for aquaculture. In 2000 he was appointed to serve on the National Research Council’s advisory board on agriculture and natural resources. He is survived by his wife Jean; three sons: James, Kenneth, and Michael; eight grandchildren; and his mother, Gladys Fridley.

D. Duane Hurtt (BS Mech Egr ’91) of West Bloomfield, Mich., died Jan. 20, 2006, at the age of 38. He was the chief financial officer for Think Detroit PAL, a nonprofit organization dedicated to building character in young people through athletics, academics, and leadership development. He had previously served on Think Detroit’s board of directors for six years while employed as vice president of Ford Motor Company’s Dearborn Capital Corporation. When Think Detroit merged with the Detroit Police Athletic League in 2006, he took a huge pay cut to become chief financial officer of the new organization. According to the chief executive officer of Think Detroit PAL, he was passionate about the city and helping kids achieve their true potential. He held a law degree and an MBA from the University of Michigan (’95). He is survived by his wife, Teyra (Bowman), his daughter Danielle, and his mother and two brothers.

Frank Ward Lundin (BS Chem Egr ’42) of International Falls, Minn., died June 29, 2006, at age 85. After graduating from MSU, he completed graduate courses in engineering hydraulics at the University of California–Berkeley. He worked for Pacific Gas & Electric in California and later for the state of Minnesota as a mining inspector and engineer. He served in the U.S. Army as a first lieutenant from 1942–45. He also served for many years as a civil defense radiological officer. He is survived by his wife of 62 years, Dolores (Hakala); their three children: Cynthia Jaksa, Steven Ward Lundin, and Robert Franklin Lundin; and two grandchildren. He was preceded in death by a son, Steven. He and Dolores enjoyed entertaining guests at their lake home south of Hibbing. He enjoyed Currents Magazine and was proud to have graduated from MSU.

George A. Paul (BS Chem Egr ’70) of Midland, Mich., died Feb. 25, 2007, at age 59. He loved his career in research and development at The Dow Chemical Company, which lasted for over 37 years. He was able to travel all over the world for his job. He was a member of Blessed Sacrament Catholic Church. He enjoyed golfing, skiing, and playing basketball, was an auto enthusiast, and enjoyed walking his four-legged friend Sasha. He also loved spending time with his family at their Lake Bellaire cottage in northern Michigan. He is survived by Diane (Murphy), his wife of 35 years; daughter Michele Eggleston of Livonia; and son Brian Paul of Chicago.

Gerald “Jerry” W. Pearson (BS Chem Egr ’54) of Naples, Fla., died Nov. 28, 2006, at age 73. During his career, he worked at The Dow Chemical Company for 37 years, living in such
places as Argentina, Brazil, and Canada, with Midland, Mich., as home base. He served in the army for 6 months and in the army reserves for 15 years, achieving the rank of captain. He was active in giving back to the community, working with the IRS in the Senior Tax Program. Leisure pastimes included golf and travel and delving into the stock market. He is survived by Mary, his wife of 52 years; daughter Kim Pearson of Orlando, Fla.; son Dennis of Highland Village, Texas; and two grandchildren. Mary says, “He loved life and always looked for an adventure.”

**1970s**

**David A. Lakin**, PE (BS Civ Egr ’76) of Troy, Mich., became president of Spalding DeDecker Associates (SDA), Inc., in April 2006, after 23 years with the company and 30 years of experience in municipal engineering. SDA is an employee-owned civil engineering and land surveying firm headquartered in Detroit. Lakin was elected in March 2006 to the board of directors and before that was vice president and manager of the Municipal Engineering Department. He is active in professional societies, serving as president of the board of directors of the American Society of Civil Engineers, Southeastern Michigan branch, from 1984–91. In 2002, ASCE named him Civil Engineer of the Year. He graduated in Feb. 2006 from the American Council of Engineering Companies Senior Executive Institute and is active in several charity and civic volunteer initiatives such as Riverday, City of Troy Futures, and Focus Macomb Transportation Committee. In Feb. 2007 Lakin received the Engineering Excellence Award from the Michigan Society of Professional Engineers for his efforts as a professional engineer in private practice.

**1980s**

**John R. Chiminski** (BS Elec Egr ’86) of Waukesha, Wis., has been vice president and general manager of GE Healthcare’s Magnetic Resonance Imaging business for the past two years. Prior to that, he was vice president and general manager for GE Healthcare’s Global Service organization. He has been employed by GE Healthcare, the world leader in diagnostic imaging, for over 18 years. He earned an MS in electrical engineering from Purdue in 1987 and was recently awarded that university’s “Outstanding Electrical and Computer Engineer Award.” John.Chiminski@med.ge.com

**Stephen A. Hamstra**, PE (BS Mech Egr ’81) was named 2006 Energy Engineer of the Year for Region III of the international Association of Energy Engineers. Hamstra is executive vice president of GMB Architects-Engineers in Holland, Mich. He was the first engineer in his career in Michigan, then relocated to Indianapolis in 1993. In 2003 he helped NTH establish a new regional office in Cleveland, Ohio. He returned to Indianapolis in the fall of 2006 to open their next new regional office. In his new position, he will help implement NTH’s Midwest geographic expansion plans.
Michigan to receive LEED AP (Leadership in Environment and Energy Design Accredited Professional) status. He also earned designation as a Certified GeoExchange Designer. He was influential in the formation of the West Michigan chapter of the U.S. Green Building Council, and he served on the board during its first critical year. He has also served on the board of the Great Lakes Renewable Energy Association.

Amy (Bohucki) Harris, PE (Civ Egr BS ’79, MS ’83) of Palm Beach Gardens, Fla., was selected as ASCE’s Government Engineer of the Year for Palm Beach County (PBC) and the state of Florida. Her entire career has been in teaching and engineering—all government related. Her community service activities have included MATHCOUNTS®; Drop It, Build It, Fly It; and serving as a PBC Science Fair judge. She recently received the “Golden Palm Award” from the county administrator for significant cost savings on a civil design project she managed. aharris@pbcgov.com

Julie Barnese Mikula, (BS Mech Egr ’82) of Half Moon Bay, Calif., was inducted into the Montrose, Mich., Sports and Community Hall of Fame in Oct. 2006. She received the Special Achievement Award for her work as a NASA chief of electronics and controls. She is the first female mechanical engineer for NASA’s Simulation Laboratories Facility.

Susan Minicucci, (BS Chem Egr ’80) of Naperville, Ill., is senior vice president in charge of Parsons’s Healthcare Division worldwide. She has been with Parsons for 22 years.

Mark Stemm, (BS Mech Egr ’81) of Dublin, Ohio, was recently selected by his peers for inclusion in The Best Lawyers in America® 2007 (Copyright by Woodward/White, Inc., of Aiken, S.C.) for his expertise in the area of employment law. He is an attorney with Porter Wright Morris & Arthur LLP. Corporate Counsel magazine has called Best Lawyers “the most respected referral list of attorneys in practice.” Stemm is a seasoned litigator in a variety of regulatory law areas, including natural resources, regulatory takings, fair housing, and telecommunications. He serves on the city of Dublin’s personnel board of review, which hears municipal and school district employee grievance appeals, and he is a frequent volunteer for the Dublin Youth Athletics Association.

1990s

Paul Collins, PE (BS Civ & Env Egr ’93) of Haslett, Mich., recently joined the firm of Miller Canfield in Lansing, Mich., as an associate in the Environmental and Regulatory Practice Group. He was previously a legal extern for the Michigan Office of the Attorney General’s Environmental, Natural Resources, and Agriculture Division; and a general manufacturing permit unit supervisor for the Michigan Department of Environmental Quality/Air Quality Division in Lansing. He received his law degree in 2006, summa cum laude, from Thomas M. Cooley Law School.

Craig J. Galecka, PE, CSP (BS Chem Egr ’92; MS Env Egr ’95), of Williamston, Mich., received the 2006 Michigan Water Environment Assoc. Health and Safety Professional of the Year award. He is an environmental engineer with the Lansing office of LJB Inc., a facility and infrastructure design firm.

Robert Gorski, PE (BS Civ Egr ’94) of Chicago,
Kathryn (Felgner) Harrell (BS Engineering Arts ’90) of Kennesaw, Ga., and a senior account manager for ADC Telecommunications, received the top sales award (President’s Advisory Board) at the company’s 2006 annual sales meeting in Scottsdale, Ariz., for exceeding quota and performing her job above and beyond expectations. She received a one-week, all-expense-paid trip to Rome and Florence, Italy. According to her supervisor, “She is the main conduit between ADC and AT&T, handling both conflicts and opportunities between the business unit and the customer. She is uniquely engaged with customers at multiple levels. Her customer relationships are as good as it gets. Achieving over 156 percent of her annual quota and 75 percent growth of her business unit at AT&T is no easy task. She was quick to capture every piece of new business as AT&T did network migrations and integrations. She stayed involved and secured various large projects for ADC.”

Angela (Wallace) Leng (BS Engineering Arts ’95) of Stoneham, Mass., is a strategic market manager for ATTRA (Appropriate Technology Transfer for Rural Areas) Industrial Motion, which recycles food waste for industrial purposes.

Andrew J. VanderWerf (BS Mech Egr ’99) of Grand Rapids, Mich., is an industrialization engineer for Behr Industry in Belmont, Mich. He previously worked for Visteon.

Ozzie Smith (BS Elec Egr ’96) of Winter Park, Fla., joined the Family Services of Metro Orlando board of directors in 2006. The board provides strategy and guidance toward the organization’s mission of protecting children and strengthening families. He is a senior marketing engineer with Siemens Power Generation. Smith has 10 years of experience in technical marketing, project finance, and customer relationship management. He holds an MBA from the University of Florida (2003). He is an active member of the National Society of Black Engineers in central Florida, where he spends numerous hours in community mentoring, tutoring, and encouraging youth to pursue higher education, with an emphasis on engineering and science. He volunteers his summers as an Amateur Athletic Union youth track and field coach and is active with both his church and fraternity, donating time to youth and various social services.

Aswani “Ashu” Pulipaka (MS Civ & Env Egr ’05) of Farmington Hills, Mich., is working as a consulting engineer in the pavement services division for Soil and Materials Engineers, Plymouth office. He has worked on commercial/industrial projects and FHWA research projects.

Jeff Hayball, PE (BS Civ & Env Egr ’00) of Troy, Mich., is a CMMS Systems Analyst for Johnson Controls, Global Workplace Solutions. A G2 employee since 2001, he is a member of the American Society of Civil Engineers.

Mike Jackson (BS Civ Egr ’07) of Mount Prospect, Ill., has been hired as a staff geotechnical engineer in the Chicago office of G2 Consulting Group. He is a member of the American Society of Civil Engineers. G2 provides geotechnical, environmental, and construction engineering services.

Brian J. Cenci, PE (BS Civil Egr–Fisheries & Wildlife ’02) of Lansing, Mich., a project engineer for Fitzgerald Henne & Assoc., Inc., earned his Professional Engineering License in Nov. 2006. He has over four years’ experience in site plan, storm drain, sanitary sewer, and water main design. He is a member of the American Society of Civil Engineers and is certified through the MDEQ as a storm water operator and soil erosion control operator.

Bryce Cleaver (BS Mech Egr ’04) of Howell, Mich., is a CMMS Systems Analyst for Johnson Controls, Global Workplace Solutions. He recently received a Johnson Controls Merit award, which recognizes employees who exceed customer expectations through quality, service, productivity, and time compression. As a member of the team responsible for the commissioning and startup of General Motors’s new powertrain vehicle test facility at the Milford proving ground, he put together the preventive maintenance program for the new facility, which contains many large pieces of specialty equipment.
Materials Testing Laboratory Revised

To keep in tune with changing times, courses in every progressive major university must be revised periodically. Materials Testing Laboratory (MMM 215), taught by the Metallurgy, Mechanics, and Materials Science Department in conjunction with a course on the mechanics of deformable solids, has recently been revised. It is a one-credit course meeting one three-hour period a week.

Its three primary purposes are: (A) to introduce the student to the elementary concepts of experimentation, (B) to give the student a general familiarity with properties of engineering materials, and (C) to act as an aid in the understanding of the theory of materials strength.

A basic objective of the course is to cause the student to use his own ingenuity while he participates in the experiment rather than to follow a cookbook procedure.

Each team of three students has a separate tabletop experimental setup that it uses throughout the term. The apparatus includes a cam-loading mechanism, a load cell, a deformation gage, and an x-y recorder for conducting experiments related to the theory of strength of materials and determination of material properties. Universal testing machines are also utilized.

Part of the course is devoted to individual team experiments previously proposed and discussed by the students. This experiment emphasizes the concepts of experimentation and the basic ideas of report writing, and it encourages independent thinking.

The revised course is very popular with students and seems to be a valuable contributor to their learning experience.

— from Currents No. 2, 1970

Dave Powder (BS Mech Egr ’05) of Rochester, Michigan, writes: “The man is measuring the stress-strain response of a piece of wire. There is a piece of wire pulled taut in the window-like area to his left. On the middle of the wire is attached an old-fashioned strain gauge for measuring strain, or at least the change in length of the wire section between the attachment points of the strain gauge. The strain gauge is actually measuring electrical resistance of an element in the gauge. Notice the black wire going from the gauge to the data collection machine in front of him. The machine prints, as its readout, the stress-strain curve for the data set he is collecting. If you look closely, you can even see a diagonal line on the left of the readout paper, indicative of the elastic region of the curve. Based on where the printer is on the page, I would say the wire has reached the maximum load it can carry. Notice the top bar from which the wire is suspended. This bar is parallel to the horizontal lines of the mortar in the cinderblock wall. The bottom bar from which the wire is suspended, however, is not level. It has a pivot at its back end, away from the man. The long bar that the man has his hand on is used as a lever to apply a force to the lower bar to which the wire is attached. The white markings on the half-round plate next to the man can be used to determine the applied force. Using this machine, force is input and strain is measured. Today’s tensile test machines control the displacement via at least two large screws, and the force is measured using a load cell.”

Peter Bolander (BS Civil Egr ’77) of Eugene, Oregon, writes: “I don’t recognize the equipment or the individual but can speculate on what the person may be doing. He is testing a cable or wire in the frame to determine its stress/strain characteristics possibly to failure. A strain gauge is attached to the cable or wire (seen in front of his forehead as a small black C-shaped device which is probably made of spring steel with

Written on the back of the photo: “Gary Kropf (senior, Met Engr) running a stress-strain curve at one of the tabletop units.”
a strain gauge attached to the spring steel. The electronic feedback from the strain gauge is then fed into the small box in the middle and provides an electronic output as the load is applied. The electronic output is then fed into the x-y plotter equipment (at his right hand) and from calibration plots the strain or displacement onto one of the scales of the x-y plotter as the cable or wire is loaded. I assume his left hand is controlling the load being applied to the cable or wire and the markings on the half disk are to help uniformly apply the load (i.e., so many ticks, or markings, per second). As the handle moves down I assume it transfers more weight (i.e., load) to the cable or wire. How that is done, I don’t know, since that transfer is behind the person in the photo. I don’t know if the other scale of the x-y plotter measures this load or time. It could be either, but typically load is measured; and since there are two cables plugged into the x-y plotter I would assume it is the load. But again, how this is done, I do not know. One can make out a plot already made on the graph and the operator may be in the process of making another plot so that the wire or cable is not loaded to failure.”

Did YOU HELP “ENGINEER” MSU?

We are still accepting stories from College of Engineering alumni, faculty, and students who helped build the MSU campus—new buildings or renovations, roads, bridges, or other projects.

Did you help prepare a feasibility study for a project? Did you work for a firm that designed, built, or renovated one of the campus buildings?

Did you act in a consulting capacity? Were you instrumental in the construction of one of the roads, bridges, or parking structures? If you contributed in any way—or know someone who did—we’d like to hear from you.

We will run the resulting article in the fall 2007 issue of Currents Magazine in recognition of the college’s centennial.
LET US HEAR FROM YOU!

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; or contact us at editor@egr.msu.edu.

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☐ ☐ YES. PUBLISH MY E-MAIL ADDRESS SO CLASSMATES CAN GET IN TOUCH WITH ME.
☐ ☐ NO. DO NOT PUBLISH MY E-MAIL ADDRESS.
Academic Computing and Network Services (ACNS) recently celebrated 50 Years of Computing at MSU. The September 29 open house featured tours of the Computer Center, historical exhibits developed by the MSU Museum, and a panel discussion composed of six MSU computing pioneers. To hear MSU technologist Rich Wiggins talk about the early days of computing at MSU, go to http://wkar.org/morningedition/story.php?storyid=986.

Above: ACNS open house panel members (left to right): Julian Kateley, associate director emeritus of the Computer Laboratory and professor emeritus of computer science; Henry Blosser, founder and director emeritus of MSU’s National Superconducting Cyclotron Laboratory; Lawrence W. Von Tersch, dean emeritus of the College of Engineering, founder and director emeritus of the Computer Laboratory, and professor emeritus of electrical engineering; Elizabeth A. Unger (mech egr ’61), vice provost of Academic Services and Technology, dean of continuing education, and professor of computing and information sciences at Kansas State University; Glen Keeney, associate professor emeritus of computer science; and Richard Reid, professor emeritus and founding chair of the Department of Computer Science.

Far Right: Julian Kateley (left) and Lawrence W. Von Tersch at the Computer Center open house on September 29, 2006, posed inside the doorway of room 500. MSU’s first computer, MISTIC (Michigan State Integral Computer), was built and housed in room 500 of what was then the Electrical Engineering Building. MISTIC became operational in October 1957. It was replaced by the CDC 3600 in June 1963.

Inset: Von Tersch (left) and Kateley working on a MISTIC chassis (circa 1956). To read more about MISTIC, visit www.egr.msu.edu/egi/publications/archive/currents_pdfs/currents-2003-summer.pdf (see pages 34-36).
The College of Engineering will be celebrating its 100-year anniversary in 2007–2008. We invite you to share your “memories” of MSU or the College of Engineering with us. Your stories may be included in upcoming issues of Currents Magazine, posted to our Web site, or used in other publications as we celebrate our centennial. So tell us your favorite stories about your time at MSU, and feel free to submit photos as well!

Can you identify the musically inclined engineers in this photo? Do you have stories about them that you’d like to share with us?

Contact us at editor@egr.msu.edu.