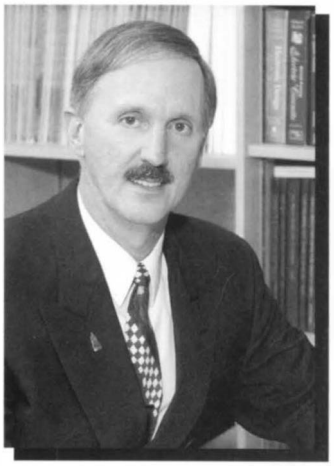
Impulse

College of Engineering
South Dakota State University

Winter 2003



Dear *alumni and friends*

Another calendar year is behind us, and what a great year it was for the College of Engineering!

It was a year of great change in the College, for both facilities and personnel, as will be evident as you read this issue. You also will learn that it was a year of focused attention on building and strengthening our relationships with local and regional industry, preparing for accreditation, and planning for the future in our strategic plan. For the College to continue to produce high quality graduates who are prepared to meet the changing needs of both today and tomorrow, it must continue to adapt to change and continuously improve itself.

Within this issue are several articles on the new facilities of Crothers Engineering Hall. The addition to Crothers was formally dedicated in a memorable ceremony on October 4. You will see how our faculty are quickly making use of the new facilities for the benefit of students.

We have also tried to highlight many recent special accomplishments of our students and faculty. You will also note some of our special efforts aimed at recruiting students into careers in engineering, science, and technology. These and other focused efforts for recruitment and retention, and help from the new Jackrabbit Guarantee, have boosted our institutional enrollments to record levels this year.

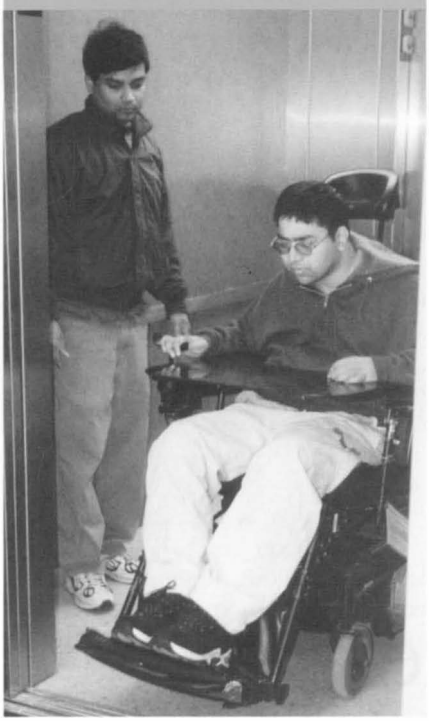
I'm very proud of the article on the extra-curricular involvement of our College of Engineering students. We have always known that our graduates have contributed much to the extra-curricular success of SDSU, but in this issue we take time to list our current students and their extra-curricular activities and it is truly impressive.

In an effort to help those graduates who desire a return to South Dakota and our region, the *Impulse* will soon include advertisements from local and regional employers of engineering and technology workers. It is my hope that we can play a role in helping those who want to continue their profession "closer to home."

Please notice our growing list of Dean's Club members and take the time to thank them whenever you get the chance. It is only through the generosity of our loyal supporters that we can continue the tradition of our excellence.

I hope you enjoy this latest issue and will drop us a line or stop in for a visit if you're in our area. Remember, you are always welcome!

Lew Brown, Ph.D.
Dean of Engineering



Bangladesh graduate student Obaidul Haque no longer has to attend engineering classes in a converted meeting room in his residence hall. Page 8

About the Cover

The commons on the east end of the Crothers Engineering Hall addition is aglow on a winter evening. The top photo is a closeup showing the Distinguished Engineers plaques in the commons. See story on Page 2.

Cover photo by Eric Landwehr.

Impulse

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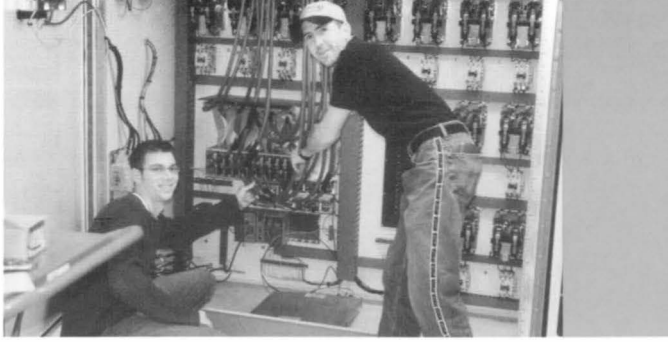
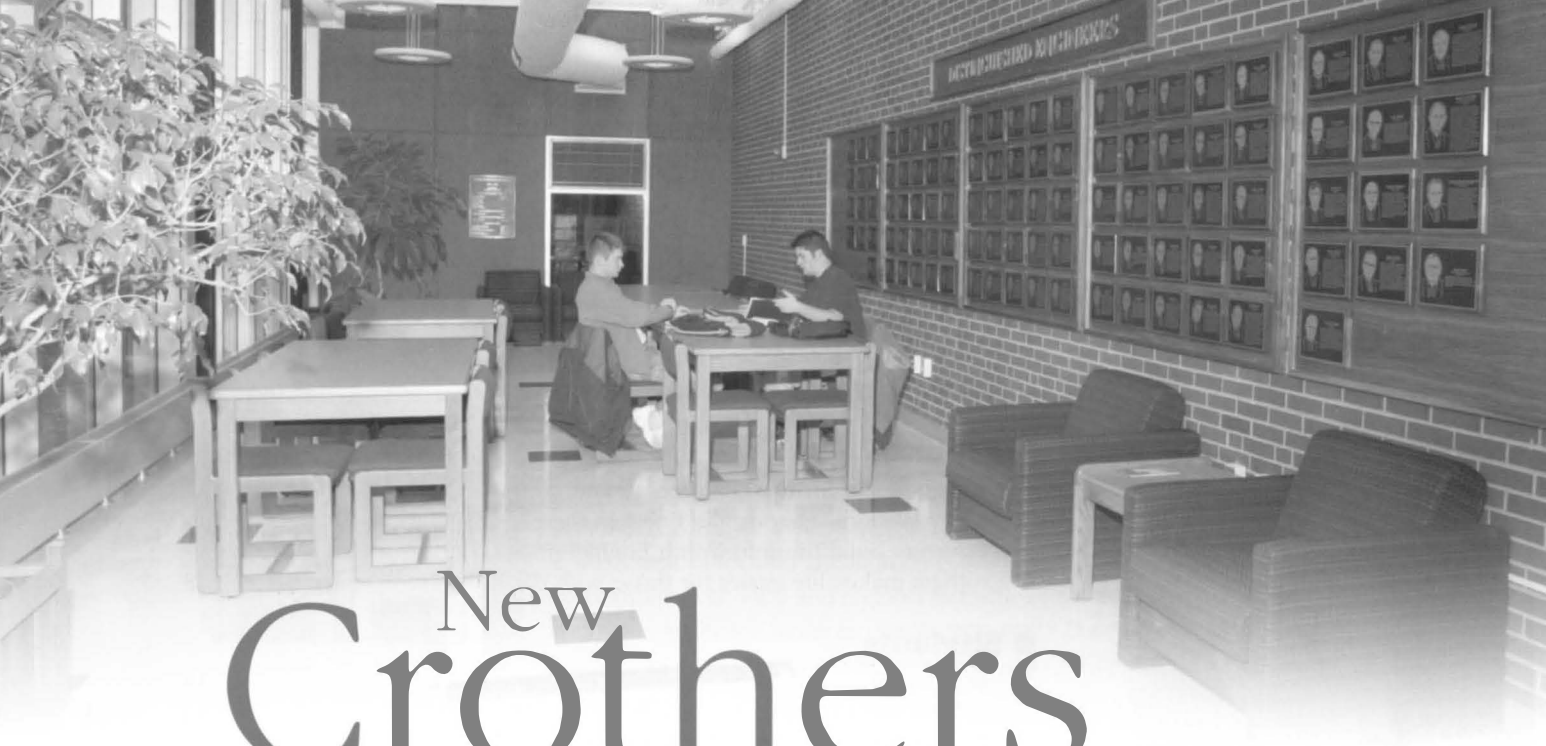
The third-floor energy lab at Crothers Hall was designed and built by SDSU students. Page 4



Impulse

College of Engineering, South Dakota State University

A successful first year has organizers excited about this summer's Youth Engineering Adventure. Page 7



New Crothers
ready for the next generation

What better place to hold a dedication than in the grandest room of them all. In this case, the location was a brand new high-bay structures laboratory, which was the scene of an October 4 dedication of the $6.95 million expansion and renovation of Crothers Engineering Hall.

With about 200 packed in the spacious lab, measuring twenty-six feet high, thirty-five feet wide, and ninety-feet long, SDSU President Peggy Miller says, "What a luxury it is to have so many people here to celebrate this exciting moment in the history of South Dakota State University. It's appropriate to have this on Hobo Day weekend where so many alums, supporters, and friends of SDSU have gathered to celebrate the contribution this University has made in their lives."

"All of us have worked hard to make this happen for the state of South Dakota" she adds. "Those who gave gifts, large or small, have been extremely important in making this happy moment arrive." The expansion is a 24,000-square-foot addition built onto the southeast corner of Crothers. Rising three stories high, it contains laboratories and teaching rooms for civil and environmental engineering, mechanical engineering, electrical engineering, and physics. The Jerome J. Lohr Structures Lab (named for the College's 1958 civil engineering graduate) is the largest and most visible component of the addition. It features an overhead crane and a twenty-four-foot clearance to allow for testing of large structural members. It not only benefits civil and mechanical engineering, but also the agricultural and biosystems engineering and technology programs.

The expansion also includes a student commons on the east end of Crothers. Stretching forty-eight feet long and sixteen feet across, the double-door entrance serves as a social, study, and research area for students. An elevator tower, large enough to transport heavy equipment and machines, was constructed on the northeast corner of the existing building.

The original Crothers received an interior facelift with upgrades in heating, wiring, lighting, and fire exit and safety measures. In addition, the building was installed with a central air conditioning system for the first time.

The renovation also meets the requirements of the American Disabilities Act. The elevator makes the building completely accessible for people in wheelchairs, crutches, and other physical disabilities. Automatic door openers were installed and all door handles were made so they can be easily grasped. A ramp leading down into the structures lab was constructed as well as a chair lift into the main auditorium.

Dream means more space

"This is a dream come true," says Dean Lew Brown. "I took classes in Harding, Crothers and Solberg twenty years ago. Now, to see an air-conditioned, state-of-the-art version of Crothers is unthinkable.

"This kind of moment doesn't happen by itself," he adds. "There are so many people who gave to this project, not only from the pocketbook, but the countless hours of planning and working together to achieve a successful end. I have to say that the improvements have more than exceeded all of our expectations."

The expansion created much needed space for the engineering programs, a point that Brown can't stress enough.

"We have a host of new research and instructional lab facilities in the building that are flexible in design. They can be used for research, development,

and classroom teaching. There's also more office space for faculty, staff, and for our students."

Former Dean Duane Sander, who was at the helm during the initial planning of the project, termed the occasion "a time to celebrate" the College's first line of improvements since the construction of Crothers in 1957. "We have had a number of labs in engineering over the years that have really been good labs," he says, "but these improvements really provide the opportunity for our faculty to give excellent, world-class education for our students. This couldn't have happened without the generous support of our alumni and friends."

The renovation didn't come soon enough for civil engineering, which, according to Brown, "took the brunt of the dust, noise, and the most inconvenience" during the fifteen-month construction process.

When the project was finally finished, only a couple weeks prior to the dedication, the south side of the entire first floor of civil engineering had new laboratories and teaching facilities.

"When I look into the classrooms, where there had been tools, dust, and pretty loud at times, now I see students taking notes, listening to the instructor, and helping each other. If you are an educator like me, a scene like that does something to you. When a person thinks about the inconvenience staff and students endured, and then see them able to utilize the new facilities, that's a very special feeling."

Bringing everybody together

The various engineering programs are utilizing the extra space in many beneficial ways. For example, the environmental and water quality labs moved to Crothers from their off-campus location north of the Brookings Multiplex.

Physics has greatly expanded its space in all areas for faculty, students, research, and design projects. The new addition also is home for equipment and experiments that were previously at other locations, like the scanning electron microscope, which was moved from the nuclear laboratory on the first floor of Crothers.

Mechanical engineering utilizes areas on both the first and second floors. Considerable improvement has occurred within essential labs with the Crothers addition now housing new labs for thermodynamics, materials, and design. Electrical engineering has traded outdated equipment and rooms on the first floor of Crothers for high-tech equipment on the third floor. The department has also moved several of its labs from Harding Hall to the new addition.

Connecting past and present

The dedication ceremony offered many nostalgic moments. For Brown, the student commons was in stark contrast to the oak table that still occupies the west end of Crothers on the third floor.

"That old oak table probably still has fingernail marks from me doing physics homework problems there," he says. "But, I learned a lot at that table. And, it was with the help of other students that we became a team. We saw the future and knew we couldn't do it on our own. We knew when we finally became engineers we would be working on other teams, teams that would make this project possible.

"To have this large commons area become a reality is very special. On any given day, a number of students will be in there solving those same types of physics problems. I find that very interesting. Times change, but education remains the same."

For students of disability, especially those confined to wheelchairs, the renovation served as a sweet homecoming, a point Brown took deep personal pride in.

"I've had personal meetings with our quadriplegic engineering students," he says. "Before this building was opened, we didn't have a single engineering facility where I could meet with these students. Now, they can come right into my office, go to the labs or to their classrooms. I've been recruiting people with disabilities for a number of years, and finally, we have a first-rate facility that we can bring them into now."

The crowd also heard from Lohr, who played a key role in the planning and fund-raising for the project.

"This whole thing didn't come about because of any one person," he says. "Think of this as a football field. Football fields exist all over the country but it's what the team does on the field that makes it important. This is a turning point for all of us. It is time to go forward with a building that is state-of-the-art in every sense of the word."

"To have this large commons area become a reality is very special. On any given day, a number of students will be in there solving those same types of physics problems. I find that very interesting. Times change, but education remains the same."

– Dean Lew Brown

ENERGY lab

ranks among the finest in the country

Energy is one of the underlying currents of the College's engineering programs.

The renovation and remodeling of Crothers Engineering Hall satisfied many needs, including those closely associated with electricity.

On the third floor of the addition to Crothers is the new state-of-the-art Russell E. Christiansen Energy Laboratory. Next door, is a large energy lecture laboratory.

The lab is unlike all others in that it was designed and built by a team of electrical engineering students under the supervision of Steve Hietpas, associate professor of electrical engineering and coordinator of the Center for Power System Studies.

"This laboratory was designed, developed, fabricated, and tested – from beginning to end – by our students," says Hietpas. "This lab enables us to show exactly what our electrical engineers are capable of doing when they complete our program. "We can also boast that this laboratory is one of the most unique laboratories in the country in terms of electrical engineering labs," he adds. "There are other energy labs around that might have some of the same features, but nothing like this one that includes complete automation and programmable distribution of energy resources."

In the planning stages for six years, the lab came to fruition in summer 2002, just in time for the October dedication of Crothers. Among those keeping a close eye on the progress was Dean Lew Brown.

"When I look at it, not only is it impressive, it's a cutting-edge instructional facility that about a dozen students went through and had the most incredible hands-on design experience possible," he says. "Almost everything in there is custom designed and built, and I mean from scratch, by Steve and his staff of students."

The old energy lab, built in 1957, was demolished and is now an environmental lab for civil engineering.

"We really needed a new energy lab," says Hietpas. "The old lab was fast becoming obsolete. It served its purpose well but was very limited with what we could do with it. Everything was stationary and it could only be used for a single-purpose laboratory."

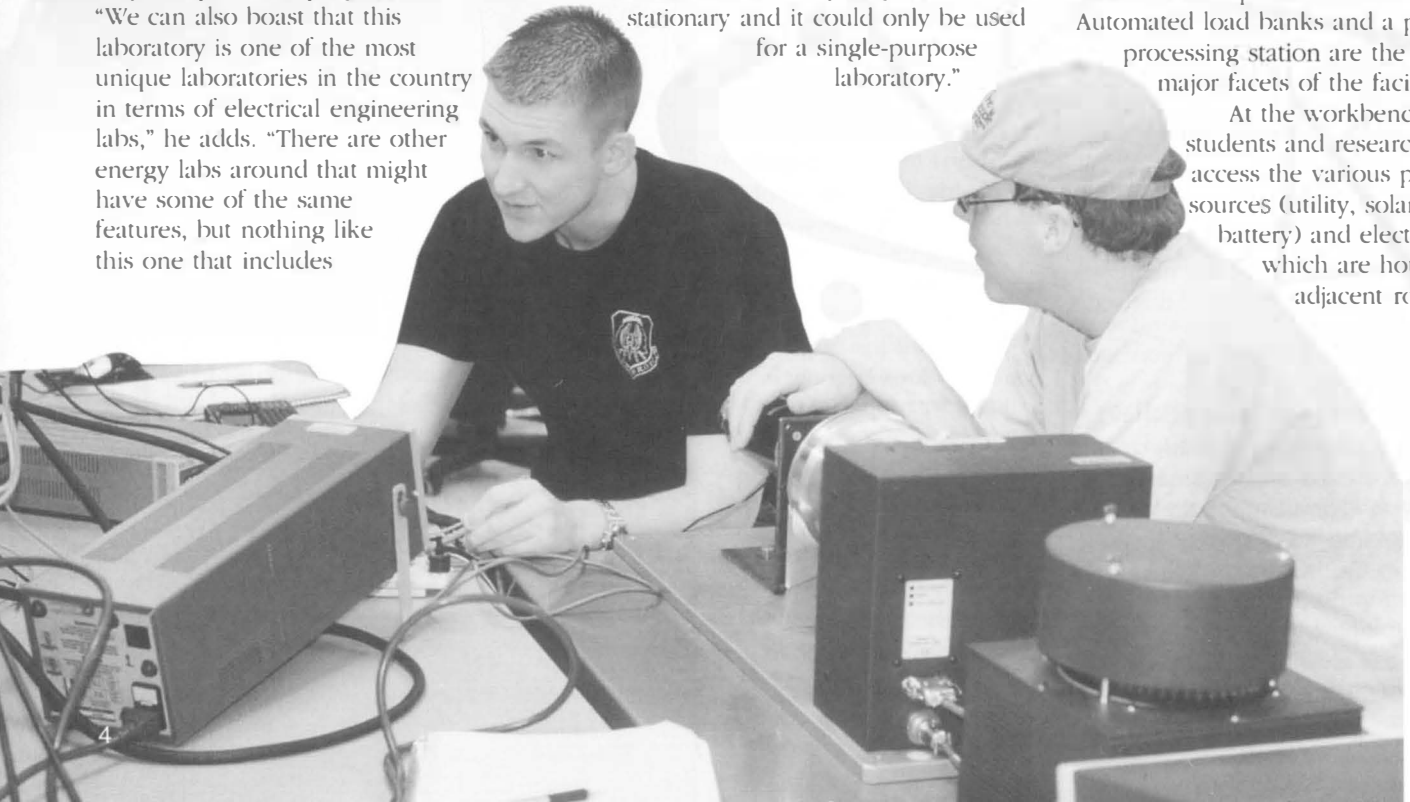
The new lab creates more versatility, according to Hietpas. Among its many uses, he says, are undergraduate classes for circuits and challenging electives like control theory classes and power electronics. The lab also allows coverage of all areas of energy conversion, including conversion components for wind turbines and solar cell technology as well as motor drive technology.

"We wanted the lab to be used to incorporate things our students are working on through senior design," he notes. "It was also our intention that the lab shouldn't just be for undergraduate studies, but be utilized for undergraduate and graduate research."

The energy components

The lab features a fully integrated approach between energy sources and electrical loads, which are accessible by ten power workbench stations through individual computer interface. Automated load banks and a power processing station are the other major facets of the facility.

At the workbench stations, students and researchers access the various power sources (utility, solar, and battery) and electrical loads, which are housed in an adjacent room.



The power processing station—composed of a programmable logic controller, a touch screen control monitor, large DC and AC controllable contactor switches, and data matrix system—is at the heart of the energy and load distribution control. Through the power processing station, all power is received and delivered to all power workbenches and automated load banks.

The lab, with its high-tech equipment, has provided the means to introduce new course material. Through a $140,000 grant from the National Science Foundation, new exercises have been developed to complement a newly developed approach to teaching energy conversion.

While attending a workshop in 1997 at the University of Minnesota, hosted by Professor Ned Mohan, who held sessions on a revolutionary way of teaching courses on electrical machines, Hietpas has adapted similar approaches into the electrical engineering curriculum.

"Mohan has been setting a national trend that involves, not just teaching electrical machines themselves, but teaching the electronic drives that are behind these motors that are used in everyday industry, whether for power conversion or the process control industry," he says. "I took those ideas, plus what we were doing in our own lab, and wrote the grant proposal with Mike Ropp [assistant professor of electrical engineering] to develop the new course material."

Students learn plenty

Prior to the final stages of design, construction, and testing of the new laboratory this past summer, various portions of the project had been worked on by numerous students over a period of several years.

The students who helped in the design and construction of prototypes were Tony Harrell '99, Scott Hoberg '00, Sara Horner '99, Vijay Kambhammettu, Matt Karlgaard '01, Jason Kautz '00, Andy Koob '02, Troy Metzger '02, James Ziebarth '02, and Wade Ziegeldorf '99. Brian Ludens, the department technician, contributed greatly to the overall success.

Students playing key roles in the lab's final design and construction were seniors Joshua Olson of Sioux Falls, Steve Bostrom of West Yellowstone, Montana, and junior Justin Morrill of Logan, Utah.

Morrill designed the layout of all components associated with the power processing system, making sure the power workstation benches were distributed to the correct load banks.

"I couldn't have asked for a better summer job," says Morrill. "It was intellectually stimulating working with Dr. Hietpas in the design and construction of the control and monitoring circuitry. It's a great feeling to know that the hard work we put into the project will benefit the education of each student who passes through the electrical engineering curriculum."

Morrill adds that the experience was "morally and professionally rewarding" especially when employment time arrives. "It helped me gain a greater understanding of the design process, including the construction and debugging stages," he says. "It also gave me the opportunity to work as a member of a team and to offer and receive advice from my team members."

Olson was charged with the board layout design of the several circuit boards for the power processing station, automated load banks, and power workstation benches. Working with Daktronics and Star Circuits of Brookings, Olson was responsible for getting the boards fabricated and delivered, so all the components could be installed and the more than 20,000 solder connections made.

"It was beneficial to see how a project goes from design at the schematic level to the complete implementation in hardware," says Olson. "I learned how to layout circuits and devices in a way that makes testing, debugging, and evaluation easier. Even though we worked long and hard days, we always managed to have a good time at each other's expense."

Bostrom was responsible for various duties, according to Hietpas. "He really helped to manage the project, where Justin, Josh, and myself were more involved in design and testing,"

Working initially in program management, Bostrom set up a data base to document the number of parts being ordered, which amounted to about $76,000 worth of components like resistors, transistors, packaging materials, motors, and other larger items. Later, he was responsible for fabricating all the power workbench stations.

For Bostrom, the project was in parallel to the ebb and flow of real workplace conditions.

"We had problems to overcome and deadlines to meet," he says. "Some of

CONTINUED NEXT PAGE

> "This laboratory was designed, developed, fabricated, and tested – from beginning to end – by our students. This lab enables us to show exactly what our electrical engineers are capable of doing when they complete our program."
>
> *Steve Hietpas*

ENERGY *lab* CONTINUED

the work was pretty tedious like soldering several thousand connections. It was rewarding to see all the parts we ordered come together to form the finished product.

"I am proud of the work we did. The scope of the project was definitely bigger than I expected at the beginning of the summer. I'm also impressed with the end result. I can look back and say, 'Wow, I had a part in that.' The fact that some of my work will be used to help educate electrical engineering students for years to come is quite humbling. I hope we did a good job."

Olson and Bostrom also designed and interfaced the receiver control boxes that provide a communication link between the computer at the power workbench stations and the power processing system.

The students constantly shared ideas and assisted each other in designing and building the power processing station, the automated load banks, and the workbench stations. During the short summer timeframe, they worked forty hours per week, sometimes fifty, before finally seeing the fruits of their labor.

"The students had their major responsibilities, but they always helped each other to insure success on all the design components," says Hietpas. "It was an incredible team effort. There was a tremendous amount of work to do and they all did a fabulous job."

New lab in operation

The new lab was used for teaching circuits I and II lab courses, and also the energy conversion lab course during the fall semester.

"The laboratory worked better than we had hoped, with only a few minor glitches, resulting in less than a total of two hours of downtime for the entire semester," says Ludens.

"This is extremely small, considering the laboratory was used on average twenty-one hours per week throughout the semester," Hietpas notes.

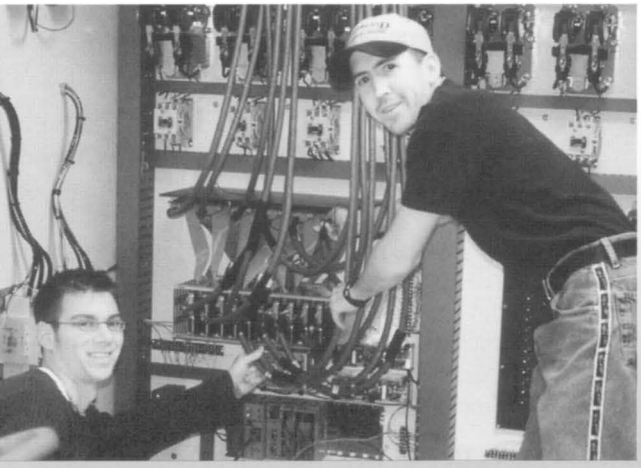
Funds for equipment and the thousands of pieces of components were made possible by several entities. MidAmerican Energy and the Russell Christiansen family donated $100,000. Black Hills Power and Light gave $35,000. Otter Tail Power and Burns & McDonnell each contributed $10,000. The majority of the components for the power processing station, valued at $37,000, were donated by Cutler-Hammer Corporation.

Russell Christiansen earned his mechanical engineering degree in 1959 and retired in 1997 after a thirty-eight-year career with MidAmerican Energy, including the last eleven years as chief executive officer.

"It was such a thrill for the family to be present for the dedication," says Marilyn Christiansen. "It's a tremendous tribute to Russ. He had a lot of pride in SDSU. The lab was very well done and we were so impressed with the students and their design work. It was a nice experience for all of us and a huge honor for the family."

Other sources, like Sioux Valley Southwestern Electric Cooperative donated $1,000 toward a salary for a student worker on the project. Monies also came from the Center for Power System Studies and its members.

"There was a combination of funds from a variety of sources that helped to buy equipment and pay for hourly wages," adds Hietpas. "We certainly couldn't have done this project without their generous support."



ENGINEERING Adventure

Teenagers build fun into Youth Engineering Adventure

Sixteen-year-olds live for adventures.

This summer, the College provided the educational adventure of a lifetime for a group of thirty-four high school students at its first Youth Engineering Adventure.

From June 16 to June 20, twenty-seven boys and seven girls from around the state learned how to make a single-piston engine, took a half-day tour of Daktronics, and found out just how much engineering is involved in operating a grocery store. "For example, we took the milk process back to the farm and how engineering was involved all the way," says Mylo Hellickson.

Hellickson, a professor in the Ag and Biosystems Engineering Department, coordinated Youth Engineering Adventure.

The program is conducted in partnership with South Dakota School of Mines and Technology, which started the program in 2001 and conducted its own camp in 2002. It is patterned after the well-established Youth Business Adventure. The objective is to create enthusiasm for engineering as a career.

• Not a 'geek' gathering

On Sunday afternoon, when the students showed up for Youth Engineering Adventure, none of them had pocket protectors.

"It was a good mix between city kids and farm and ranch kids," says Hellickson, who adds that the recruiting was conducted primarily though high school math and science teachers. The students came from fifteen schools, primarily East River, but there were a couple students from West River, he reports.

John Odde, who hails from Pollock in the north-central area of the state, "was pretty anxious to go" after his math teacher told him about the opportunity.

And after spending five days with engineering faculty and students, Odde, now a junior at Pollock High School, is considering a career as a design engineer in a motor company. He says initial interests in mechanical and electrical engineering were developed through projects like building the single-piston engine and learning how remote control cars are assembled.

For a kid whose favorite subject is shop class, that hands-on approach to engineering was right up Odde's alley.

• Former deans help out

Steve Bierschbach, now a junior at Brookings High School, "wasn't really sure about engineering" heading into Youth Engineering Adventure. "It sounded interesting, but I didn't know what they [engineers] did." That changed with lessons taught by current and retired faculty members from the College.

Hellickson recruited former deans Virgil Ellerbruch and Duane Sander as well as Bob Brotsky and Darrell DeBoer, who can't quite stay retired.

In addition, Hellickson, as coordinator, made it a point to get to know the students. "I didn't want anybody to fail because they didn't feel apart of it," he explains. Also to improve the learning environment, students were assigned to groups with an adult "so there wouldn't be a pecking order," he says.

By Thursday afternoon, when the students were headed back home, Hellickson was as happy about the week as the students.

"When the kid gives you a handshake or a hug, you know you're doing something right," he shares. Hellickson got further evidence when he went to get a prescription filled. The pharmacist told him, "'My son participated in that [Youth Engineering Adventure] and he's still talking about it.'"

• Opportunities bring benefits

This summer, Hellickson hopes to have fifty students in the program.

He says the emphasis and concepts stressed this summer will be very similar to what was presented in the first summer. "We're really happy with how that first year went," Hellickson says.

Sponsors allowed students to pay only a fraction ($100) of the actual cost of the camp. Hellickson particularly cited the support of Daktronics, which gave extensive tours of its scoreboard-manufacturing plant to each of the student groups, provided refreshments, and donated the time of a staffer (Vince Landau) to work with the students all week.

A Daktronics speaker told of taking a seat in the third row of the hockey rink at the Winter Olympics in Salt Lake City thanks to the all-venue pass he had as a result of his job.

"What a great chance for these students to understand there are benefits that come with opportunities in engineering," Hellickson asserts.

Crothers

makes life easier for those wi

There are more than 185 individuals on campus, students and employees, who possess a learning disability - whether it relates to heart, respiratory, walking, seeing, or using a wheelchair.

For those with disabilities entering the newly remodeled Crothers Engineering Hall, the act of attending classes now resembles routine behavior.

"It gives me a sense of independence," says Obaidul Haque, a quadriplegic student from Bangladesh, who was injured March 2000 when the van that he was riding in blew a tire and rolled several times. "Crothers is very good now. It's spacious and all the rooms are very big. There's even room to study in the main entrance."

Haque, who is pursuing a master's degree in electrical engineering, had been taking classes in a converted meeting room in Bailey Hall where he lives.

"I've had to wait for two years to go to the main engineering building for a class," he adds. "I thank the University, the administration, and the engineering professors for making it possible. They are very positive and helpful in doing something for people with disability."

The $6.95 million renovation and expansion of Crothers was completed September 2002. A dedication ceremony October 4 saluted the building's many improvements, which included recognizing the fact that the structure now meets the requirements of the American Disabilities Act that was originally signed into law in 1990.

"I'm really encouraged by the support of the administration and faculty in its commitment in making this campus more accessible for people of disability," says Nancy Schade, coordinator of disability services. "For the students enrolled in engineering, the improvements have made a significant difference."

Dennis Helder, Haque's advisor, labels Crothers' accessibility a "tremendous improvement."

"I have seen our handicapped students change from being isolated members of our community to becoming fully integrated into our classrooms, laboratories, and research," says Helder, professor and acting head of electrical engineering. "It has been a great pleasure for me to see the smiles on their faces and their increased enthusiasm when we are able to meet in Crothers."

At a public meeting of the Brookings City Council last summer, the College was the recipient of the Ability Belief Leadership Equality award for its design of Crothers.

The award is presented annually by the city's disability advisory board to a Brookings-area organization that has built new construction or renovated old construction to better suit those with a disability.

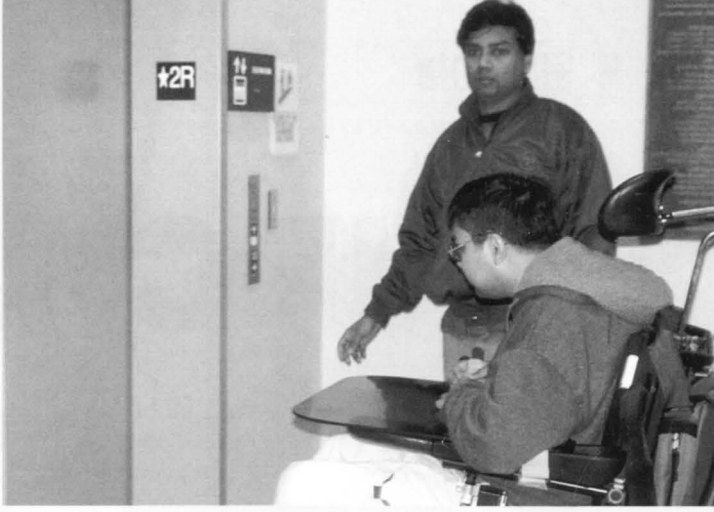
Kurt Cogswell, a member of the advisory board and associate professor of mathematics, calls Crothers the perfect choice for the ABLE honor.

"For people in wheelchairs and other mobility problems, these improvements are phenomenal," he says. "Before, when students were working on projects and couldn't get into the building, they had to be carried in. That's no way to have to function."

A one-story, glass-enclosed entryway with double doors was constructed onto the east side of Crothers. Serving as a social, study, and research area, the doors to the addition can be opened by pressing an exterior button. Once inside, an elevator can transport a person with a disability to any one of the three floors. In the main lecture hall, a lift was built to lower and raise disabled people in and out. All door handles were made for easy grasping, and the restrooms were all accessibility equipped. The two-story high-bay structures laboratory features an entrance ramp with arm rails.

> "For people in wheelchairs like me, we often get overlooked, because there are those who just don't realize what it takes to get around," adds Sweeney. "The handicap improvements to Crothers and other buildings gives me a sense of normalcy that I didn't have before."
>
> Clark Sweeney

It didn't take Clark Sweeney long to appreciate the SDSU treatment when arriving on campus for the fall semester. After suffering a snow-related injury that left him a quadriplegic, while attending



disabilities

ABOVE: Obaidul Haque leaves a wheelchair-lift equipped mini-bus and enters the handicapped-accessible Crothers Engineering Hall.

BELOW: Clark Sweeney

South Dakota School of Mines and Technology in Rapid City, Sweeney's new surroundings were just what he wanted.

"They have welcomed Obaidul and me with open arms," he says. "The improvements at Crothers are awesome. I don't have to have people go with me to get into the building. I can open all the doors myself and I can get to the first, second, and third floors by using the elevator, which is very nice."

Sweeney, a sophomore electrical engineering major from Hayti, was also taking classes in Bailey as well as the NFA building before Crothers was completed.

"I am really grateful for all the remodeling and what this University has done for people with a disability," he notes. "I'm handicapped, but there are other handicaps that you don't notice – people who get tired going upstairs, have poor hearing, poor eye sight, and people with heart conditions.

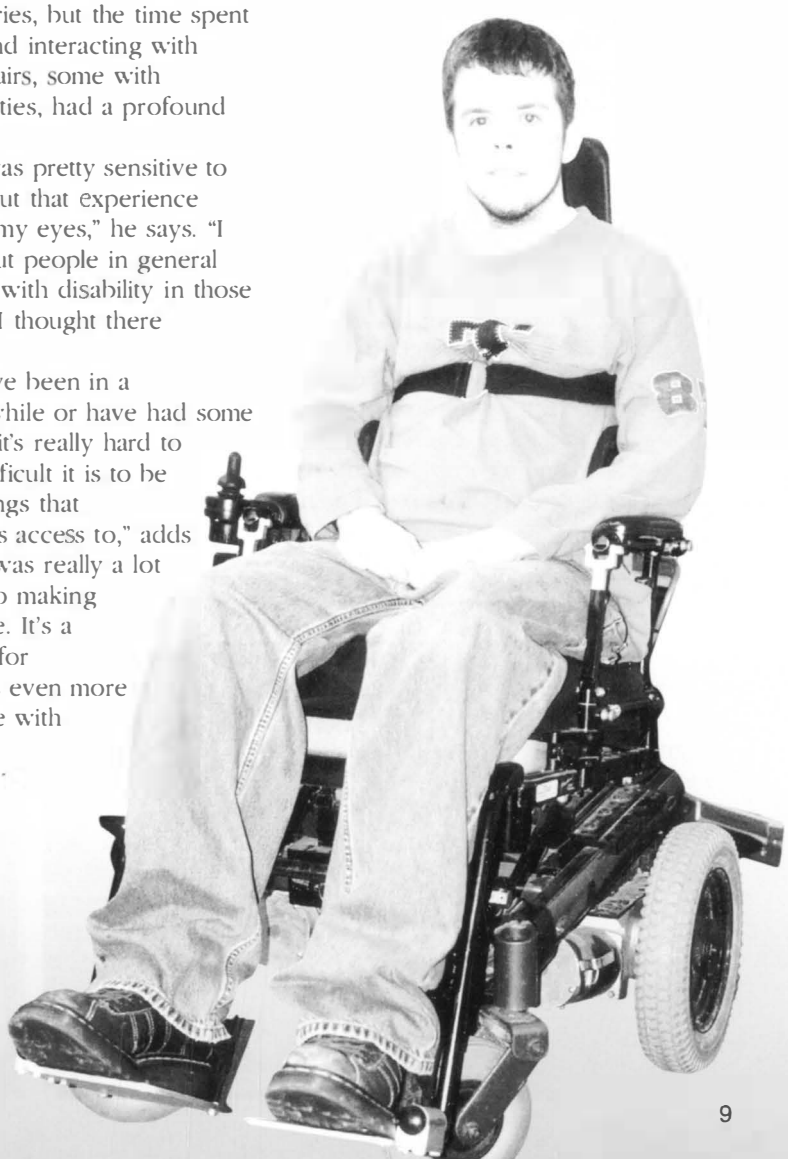
"For people in wheelchairs like me, we often get overlooked, because there are those who just don't realize what it takes to get around," adds Sweeney. "The handicap improvements to Crothers and other buildings gives me a sense of normalcy that I didn't have before."

Cogswell has first-hand experience of what it feels like to be disabled. In 1996, shortly after earning his doctorate, he was teaching at Case Western Reserve University in Cleveland, Ohio. While riding a bicycle in rush hour traffic down a busy street, a car cut in front of him and he was thrown onto the pavement.

With broken legs, arms and ribs, Cogswell spent the next month in a hospital and three more months in a wheelchair. He would eventually recover fully from his injuries, but the time spent in rehabilitation and interacting with others in wheelchairs, some with permanent disabilities, had a profound impact on him.

"I thought I was pretty sensitive to the whole issue, but that experience really opened up my eyes," he says. "I learned more about people in general and about people with disability in those four months than I thought there was to know.

"Until you have been in a wheelchair for a while or have had some type of disability, it's really hard to know just how difficult it is to be excluded from things that everybody else has access to," adds Cogswell. "There was really a lot of thought put into making Crothers accessible. It's a wonderful facility for everybody, but it's even more exciting for people with disabilities."



JOB FAIR

JEC *impresses companies a*

Preparation can save a lot of headaches, but it doesn't eliminate hard work. Just ask any member of the Joint Engineering Council.

The College hosted its annual Job Fair October 24-25 at the Volstorff Ballroom, and as usual the JEC was busy behind the scenes organizing booth exhibits, directing traffic, and handing out pamphlets describing the companies in attendance.

During the first day, company representatives eagerly answered questions from students about their businesses. The second day was devoted to interviews for students seeking employment and internships.

The fair opened in the afternoon after a somewhat hectic morning. JEC students, short in numbers at the time, were hustling to get booths and tables set up, and making sure each company had electrical power for its booth presentations.

"The biggest challenge was today," says JEC Secretary-Treasurer Holly Boomsma of the opening session. "Everybody was coming and we only had three people here from 11 to 2 p.m. when it started. It was really busy because we had about fifty booths to get ready and we were having some problems getting electrical power to the right places."

Boomsma, a senior from Hitchcock, points out that the JEC's job is made easier since several of the companies return every year.

"Many of the same companies have been coming here for years so they are very familiar with the setup," she says. "That makes it much easier for us."

Being a civil engineering student, Boomsma, like her fellow students, has a personal stake in the Job Fair. "This is where a lot of people are hoping to find internships and jobs when they graduate," she indicates. "I'm hoping to find a summer internship just like everybody else."

Steve Schemm, senior project engineer with Pella Corporation, saluted the efforts of the Joint Engineering Council.

"The JEC does a great job," he says. "They do a good job making sure everything is organized, making sure we have the things we need, and taking care of us in general."

Schemm, a 1990 agricultural engineering graduate, adds that he's always impressed with the quality of the Job Fair.

"This is an excellent opportunity to visit with a lot of different students at one time and we've been really busy. It's not only the students, but we also get a chance to visit with the SDSU faculty as well."

JEC President Todd Nelson, a junior from Redwood Falls, Minnesota, says the council sends out registration forms to prospective companies during the summer. About four weeks before the fair, another letter is sent to verify the company's information. Shortly after that, the JEC meets to assign job duties and members begin compiling informational packets about each company that are distributed at the Job Fair. They also lay out a floor plan to place the exhibits and food is ordered for the two-day event.

As an agricultural and biosystems engineering major looking for a career in designing and testing, Nelson points to the Job Fair as the ideal place to start looking.

Job Fair

"This is definitely a great benefit for all the students and the employers," he says. "The employers want to be here every year. Even though the economy has been a little rough lately, they still want to come. They want to remain in contact with the students and keep good relations with the University because a lot of them say they like to hire students from the Midwest area."

Nelson and Boomsma were assisted by JEC vice president Jeremy Gilb, a senior from Marshall, Minnesota. JEC representatives helping out were freshman Nick Harrington, Huron; sophomore Chris Harrington, Huron; senior Rusty Olson, Rochester, Minnesota; and senior Katie Gilhoi, Brookings.

In addition, the JEC is composed of about twenty-five other students representing a cross-section of the different engineering disciplines, engineering chapters, and various student organizations in the College.

"Members of the JEC did a great job," cites Nelson. "The Job Fair was a success and many students were able to get leads on jobs and internship possibilities."

Ken Swanda of the U.S. Army Corps of Engineers labels the Job Fair "well organized with a good variety of students passing through." The 1980 agricultural engineering graduate terms the fair worthwhile for a couple of good reasons.

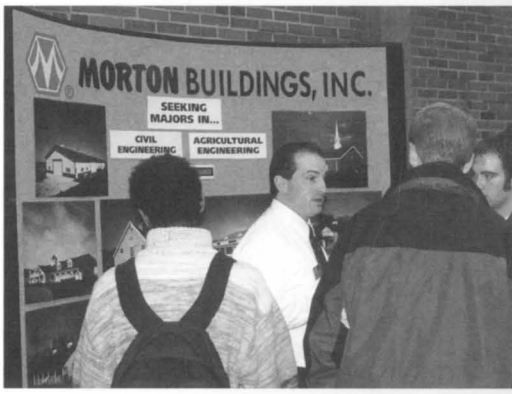
"We are in the process right now of hiring electrical and mechanical engineers so this is extremely valuable for us," he says. "It gives us a way to visit with some of the students who will be graduating.

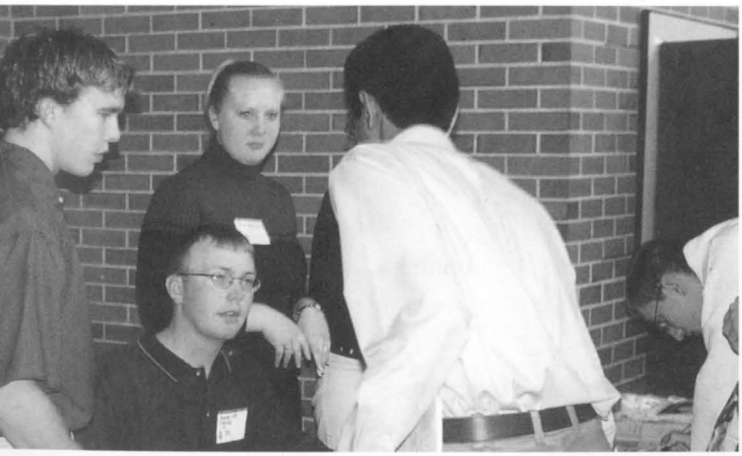
"I just enjoy getting back to campus," he adds. "I try to make it back for a few basketball games and this gives me another opportunity to do that."

Shawn Whalen, a 1991 electrical engineering graduate with Dunham Associates, a consulting engineering firm in Minneapolis, says:

"We hired Justin Artz a couple years ago and he was the president of the JEC. I remember he organized this and that it was a big job getting all these companies together.

"These Job Fairs are highly beneficial for everyone involved," he adds. "For students to see our name, to see one of our projects later, and then look for us when they graduate, is a big advantage for the company in the hiring phase."





Extra-curr

Students successfully meet challenges of studying, performin

"There just aren't enough hours in the day" or "Where did the time go?" Common, everyday used phrases we can all relate to, especially for those trying to succeed in two important endeavors at the same time. Impossible? Not exactly. Challenging? Very much so.

For engineering students like seniors Isaac Anderson, Jennifer Briggs, and Ty Gross, meeting the demands of a rigorous academic pursuit is no easy task. And, if high-profile extra-curricular activities are tossed into the mix, the assignment becomes that much more difficult.

"Sometimes I wonder how most of us do it," says Briggs of Maple Grove, Minnesota. "I try my best to get eight hours of sleep. Most of the time that doesn't happen, but you only live once and I still have a lot to do before I die."

Briggs, a civil engineering major, is a member of the SDSU soccer team. Being a student-athlete is tough at times, she admits, but discipline and determination have kept her focused.

"During the soccer season I usually have to schedule out my days to the minute," she says. "By writing out my daily agenda it helps to keep me on task and to alleviate some stress. Most days I don't find too much time to sit and veg out, but I do sleep better knowing I found enough time to get everything accomplished for the day, the week, and even the month."

Gross is completing work on his manufacturing engineering technology degree. If that wasn't hard enough, he also participates in concert choir, statesmen, and men's ensemble.

The Volga native offers no secret formula for survival, pointing only to utilizing the clock wisely.

"I think my real secret is not to overwhelm myself with too many engineering credits at any one time and make sure I have the right balance of music and engineering," he says. "I guess hard work and lots of studying doesn't hurt either."

At times, according to Gross, it was difficult to juggle the two areas. That fact was hit home when the concert choir noon time slot coincided with required engineering classes. Something had to give and fortunately Charles Canaan, director of choral activities and vocal studies, came to the rescue.

"It just happened that I had a lot of engineering classes that would always conflict with concert choir at that time," he says. "However, Dr. Canaan was very understanding and we never had a problem reaching a compromise."

During the last four years on a weekly basis, Gross averaged five hours of practice for concert choir, two hours for statesmen, and three hours for the men's ensemble. And, those hours don't include the actual concerts.

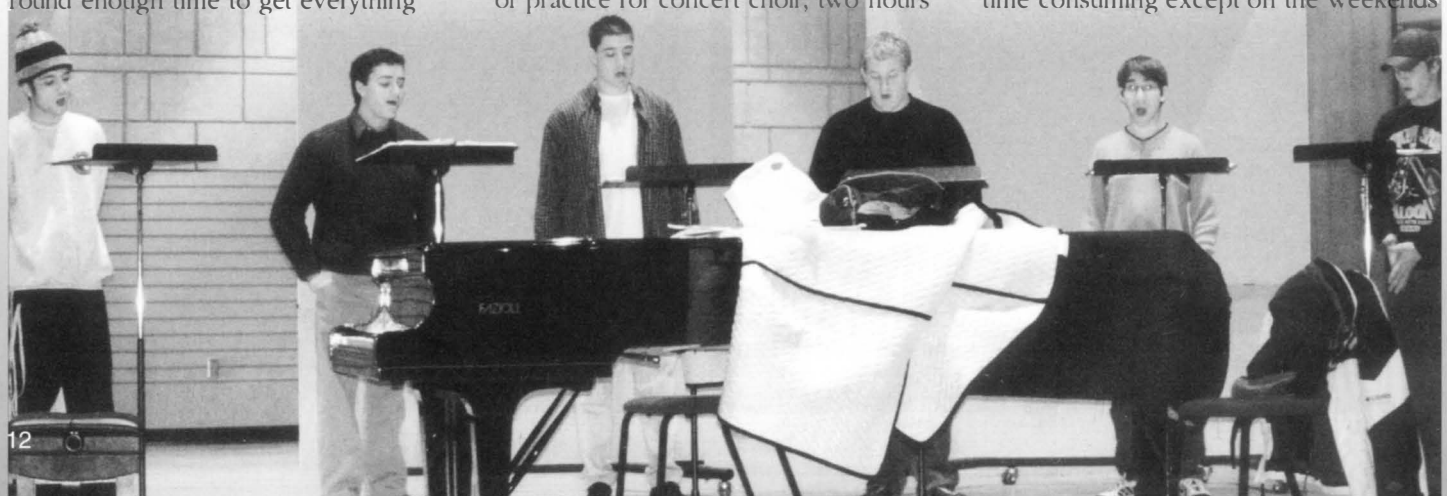
"There were times where sleep was on the back burner, especially when finals and midterms arrived," he says. "Right now my schedule is not very hectic, unlike past years when it was very challenging. Trying to get all of my classes to revolve around the music credits I was taking was always a difficult thing."

Motivation was never a problem for Anderson, a mechanical engineering major from Sioux Falls. As a member of the Pride of the Dakotas Marching Band, the thrill of performing always pushed him to do better, a trait that also carried over into the classroom.

"The feeling you get on the field and the crowd cheering is a great rush," he says. "That is similar to the feeling I get when I compete in a class and get a good grade. The drive is what keeps me motivated and helps me to succeed in my classes and in music."

Anderson spends roughly six hours a week in band practice compared to twenty-five hours a week studying, a ratio that has effectively fit his lifestyle.

"I'm pretty good at balancing my schedule because I enjoy music and will make time to play. Band isn't really that time consuming except on the weekends



cular

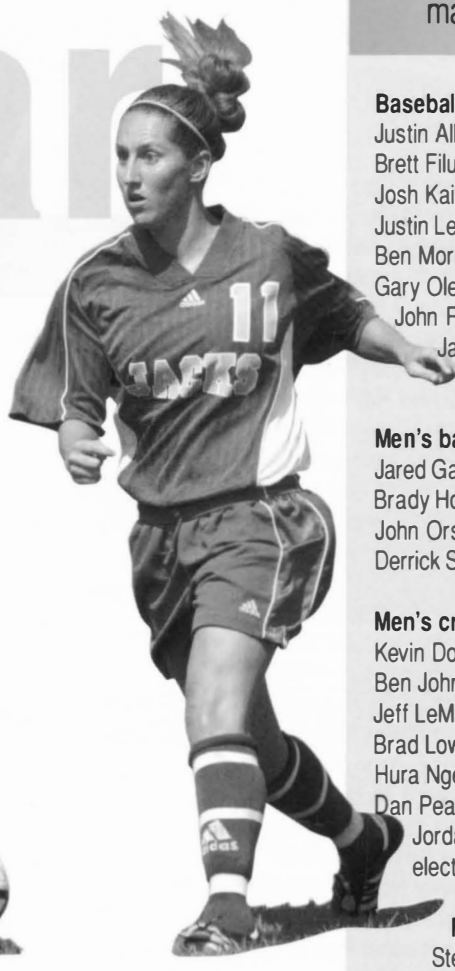
that we perform. The weeks I have midterms and finals I don't get much sleep, but otherwise I get enough."

Briggs, who led the Jackrabbits in scoring this past season, spent about three-and-a-half hours each afternoon during the season watching game film, practicing, and lifting weights after practice. By the time she got home at 6 p.m. there was still nearly four hours of homework left to do.

"Some days are hectic, especially during the season when some of our practice schedules would run long," she notes. "When you get home in the evening and still have to eat, shower, and study, it does make for some long nights."

Briggs says she always had to miss Wednesday practices due to a four-hour lab, which never posed a problem for her coach, Lang Wedemeyer.

"Coach Wedemeyer was very great about everything. He understood that I was attending SDSU to major in engineering and not soccer. We always found a common ground and my education was always the main priority. All my professors were neat and very supportive, and they even attended some of my soccer games."



OPPOSITE PAGE: Vocalist Ty Gross, third from left, rehearses with a men's ensemble.
ABOVE: Senior forward Jennifer Briggs.
RIGHT: Pride trumpeter Isaac Anderson.

Student-athletes who have declared a major in the College of Engineering:

Baseball
Justin Allen civil engineering
Brett Filut civil engineering
Josh Kaiser mechanical engineering
Justin Lewis mechanical engineering
Ben Morrison physics
Gary Olechoski construction management
John Roesler construction management
Jared Schleifer construction management
Ben Winkels mechanical engineering

Men's basketball
Jared Gass civil engineering
Brady Hokenson mechanical engineering
John Orsillo civil engineering
Derrick Schantz civil engineering

Men's cross country/track
Kevin Doe electrical engineering
Ben Johnson manufacturing engineering technology
Jeff LeMire civil engineering
Brad Lowery physics
Hura Ngega civil engineering
Dan Pearson mechanical engineering
Jordan Williams engineering physics/ electrical engineering

Football
Steven Bock mechanical engineering
Heath Clifton electronic engineering technology
Eric Dahl mechanical engineering
Shane Delbridge construction management
Dan Fjeldheim mechanical engineering
Ryan Forbush construction management
Matt Fritze mechanical engineering
Jared Haskins civil engineering
Jeff Hegge construction management
Ryan Hovis electrical engineering
Robert Johnston civil engineering
Mitch Klein general engineering
Mike Lesnar construction management
Nate McClanahan physics
Mark Oelkers electrical engineering
Craig O'Hearn manufacturing engineering technology
Phil Oksness manufacturing engineering technology
John Perry general engineering
James Petersen ag-bio systems engineering
Jesse Rounds electrical engineering
Jared Schwader mechanical engineering
Adam Threadgold electrical engineering
Andrew Wagstrom civil engineering

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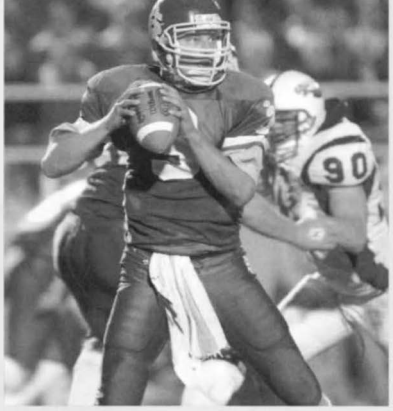
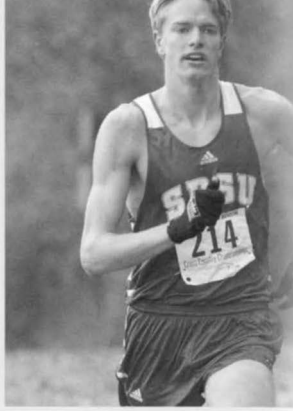
Extra-curricular





Men's golf
Jordan Buri civil engineering
Craig Endahl mechanical engineering
Brett Grosz civil engineering

Soccer
Jennifer Briggs civil engineering

Softball
Holly Altermatt computer science

Men's swimming
Evon Bisbee mechanical engineering
Jesse Peterson civil engineering

Men's tennis
Jeff Everson electrical engineering
Lucas Hoover civil engineering

Wrestling
Nathan Althoff mechanical engineering
Tim Boldt general engineering
Paul Durbahn general engineering
Andy Everson general engineering
Jesse Frederick pre-computer science
Scott King electrical engineering technology
Matt Loban electronic engineering technology
Chuck Rossol manufacturing engineering technology
Jacob Schuring civil engineering
Shawn VanHove civil engineering

Marching band
Isaac Michael Anderson
Pamela Sue Anderson
Steven J. Beckler
Kirk David Danielson
John Michael De Witt
Mark William Ekenstedt
Tyler Duane Frericks
Andrew Christian Geffre
Randy James Giedt
Adam D. Hatle
Corey Jay Kaiser
John Adam Kiesow
Michael Ray Lafrentz
Sara Michelle Landau
Leigha Ann Larsen
Brady Lee Laue
Todd M. Letcher
Timothy Edward Lethcoe
Anthony C. Lund
Kyle Thomas Maurer
Nathaniel Johnson McCorkle
Rachelle Nichole Meyer
Matthew E. Nelson
Ben Patrick Nesson
Eric Eugene Neuharth
Ross B. Nichols
Eric Joseph Novotny
Zachary James Oster
Trevor Norman Rollenhagen
Sara Kristine Schneider
Christopher Paul Schultz
Jeremy Mark Small
Robert Eugene Tagtow
Eric Gene Tellekson
Nicole Anne Tomaszewski
Jesse J. Walter
Matthew Scott Wedeking

Statesmen
Garrett Joseph Bischoff
Jared Robert Clark
Leonard Anton Cousins
Scott Michael Donelan
Geoffrey David Essells
Trent L. Greschke
Chad Allen Meirose
Steven Wayne Menning
Travis Cole Mikkelson
Russel D. Van Der Werff
Andrew John Van Zee
Robert John Vaselaar
Ryan Lane Wilson

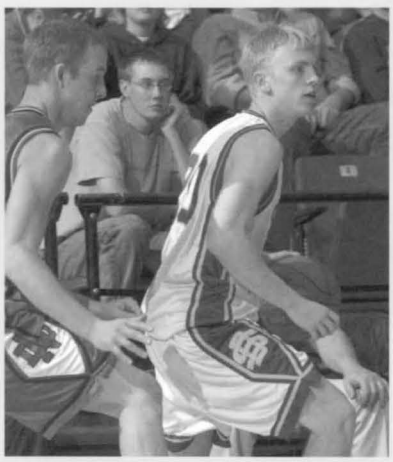
Concert Choir
Jordan Patrick Buri
Wyatt James Cole
Christopher Paul Collier
Tyrone Leigh Gross
Zachary James Oster
Kevin Alex Pond
Alex Dean Sammon

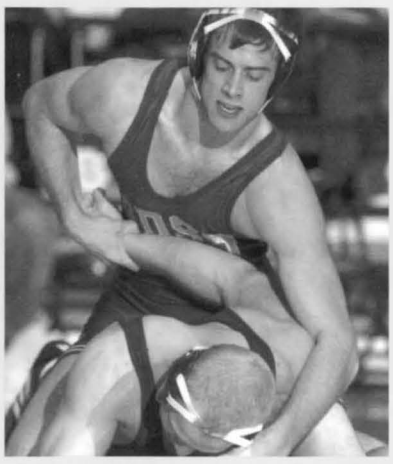
Civic-University Orchestra
Kevin Paul Crago
Sara Michelle Landau

Pasquettes (women's chorus)
Jungman, Rebecca Erin
Beth Michele Rybak

Jazz Ensemble
Todd M. Letcher

Percussion Ensemble
Eric Joseph Novotny





Student athletes, clockwise from upper left, quarterback Dan Fjeldheim, distance runner Kevin Doe, grappler Scott King, guard Brady Hokenson, and catc Holly Altermatt

Helium Hare

ME students create blimp for indoor athletic events

From left, mechanical engineering students Craig Endahl, Byron Jolma, and John Ibeling.

If you've attended an athletic event at the Frost Arena recently, you've seen that the newest Jackrabbit superstar has incredible hang time.

"Helium Hare" may not put any points up on the board, but he definitely is generating some excitement. The newest 'Rabbit is an eleven one-half-foot long, remote-controlled blimp designed and built by three Mechanical Engineering majors as a part of their senior design class.

Craig Endahl of Canby, Minnesota, and John Ibeling of Watertown, Minnesota, graduated in December. Byron Jolma of Hot Springs, Montana, will graduate this spring.

Endahl, a Sioux Falls Stampede season ticket holder, got the idea for the blimp while watching one operate during a Stampede game. He talked it over with his partners, who immediately agreed to the project. They were excited to create something that would be fun to make and fun for people to see.

Once they got approval for the idea, they contacted the Athletic Department, which enthusiastically agreed to support the project. They designed the blimp last spring and built it this past fall. The students agreed that it was a great experience in engineering, not to mention lots of fun to create.

"The Athletic Department is always searching for new and exciting ways to enhance the atmosphere for fans at sporting events," according to Rob Peterson, assistant to the athletic director.

• Quality at beach-ball prices

A professionally designed-and-built blimp would cost $7,000 to $10,000, too expensive for the department. The senior design students were able to design, create and implement the polyurethane blimp for under $2,000, Jolma explains.

The project combines aerodynamics, electronics and mechanics.

Made of material similar to a beach ball, the blimp weighs just nine pounds despite measuring 11 1/2-feet long and five feet wide. The designers needed to keep the weight under ten pounds so it could lift off and still carry a load.

The blimp, which debuted November 29, is capable of carrying items such as coupons, koozies or hats and dropping them on awaiting fans. It also has advertising space on each side where interchangeable banners can be hung. As coupons for free t-shirts fall from the blimp, one can imagine hundreds of fans scrambling to catch them.

• Simple to fly

Operation of the blimp "is very user friendly," says Jolma, comparing it flying a remote-control airplane.

"Helium Hare" uses four channels on a six-channel remote system. One control operates the throttle, which varies the speed of the propellers. Another control adjusts the propeller, which can turn 180 degrees and allow the blimp to go forward or backward.

The control to the rear propeller steers the craft and another control operates the drop mechanism.

Jolma says the balloon kit the students ordered included the rear propeller. "Our design involved powering it and building the gondola," which carries the battery, receiver, and other mechanical hardware, he adds.

• Nowhere but here

When not in action, "Helium Hare" hovers among the girders in Frost Arena. And don't look for it sneaking outside on Saturday afternoons in the fall. It's not built to handle the winds that can be found at football stadiums, Jolma says.

Jolma says the blimp has added excitement for the fans and created a "lasting legacy at SDSU" for the students.

The controls have now been turned over to Travis Johnson, another ME student who also is an Air Force ROTC cadet who serves as an usher at the games.

And regardless of what the scoreboard reads at game's end, "Helium Hare" puts SDSU ahead of the rest of the conference. No other North Central Conference school possesses a blimp, the students found in their research.

Design project aids ADVANCE workers at door manufacturer

Thump!

For four engineering students, opening the door of opportunity required them to master "thumping."

The students were taking a special topics class with Instructor Harvey Svec in the Department of Engineering Technology and Management and had the assignment of developing a product to help ADVANCE in its task at Larson Manufacturing.

ADVANCE workers have the job of putting pins in door hinges at the storm-door manufacturing plant in Brookings.

The work provides constructive opportunities for the crews from ADVANCE, which serves persons with disabilities.

Previously, the workers would use a hammer to tap pins into hinges. But with four hinges per door and two pins per hinge and 2,000 doors being manufactured daily, that's a lot of tapping. Larry Thomas, the production supervisor at ADVANCE, was looking for something better.

Svec was looking for a project for his upper-level students.

• How it works

What they developed was "The Thumper," an electrically actuated air cylinder that pushes a plunger and slams rigid plates against the pins. About twenty-five hinges are put in a container, which is then placed in the thumper. For safety reasons, both hands are needed to make the thumper thump.

An additional benefit is that the ADVANCE workers enjoy operating the machine.

"They get to push the buttons and hear the thump," Svec says.

For Svec's students, the most difficult part of the fall semester project was "coming up with a design that was economical enough for us to build, yet useful," according to junior Travis Renkly, who worked on the thumper with junior Seth Leet, and seniors Denis Flemming and Ryan Halverson.

"We spent a day and we all started drawing stuff on the whiteboard. We each came up with our own ideas and came out with what we did," Renkly explains.

• Labor, materials donated

Rejected ideas included a plan to put the hinges on a conveyor belt system and the pins in each hinge would be seated fully into the hinge by two wheels. However, the students needed to come up with a simple design that was economical and safe to operate.

The only items that needed to be purchased were a couple air valves, pipe fittings, and electrical components. The other material was on hand in the Department's Solberg Hall lab.

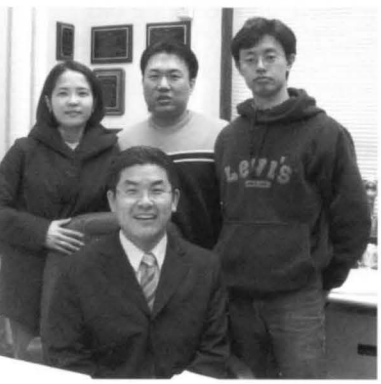
Svec says the students' effort was definitely "A" work.

Not only did the thumper work the first time the students tried it, the machine also was simple, inexpensive, and a benefit to the community, the instructor shares.

Gathered at Larson Manufacturing are, front row, ADVANCE workers; back row, Travis Renkly, Harvey Svec, Seth Leet, Denis Flemming, and Ryan Halverson.

SDView

Grant to broaden access to remote sensing data



When Mary O'Neill, program manager for the Office of Remote Sensing, Engineering Resource Center, attended a meeting at the EROS Data Center featuring a speaker from AmericaView, she could see great benefits for South Dakota.

AmericaView is a consortium to expand remote sensing education through a network of numerous state associations.

O'Neill helped draft a successful proposal for SDSU to receive a $100,000 grant from the United States Geological Survey's AmericaView program, thus making South Dakota one of six states to receive that grant in 2002. SDSU will use the grant money to build a consortium within South Dakota called SouthDakotaView, or SDView for short.

Eventually, AmericaView hopes that all fifty states will join the program. Currently, eleven states are taking part.

AmericaView works to expand the availability and use of remote sensing data in the country. Remote sensing data includes many types of images of the earth taken from satellites and airplanes. These images can be used for a variety of purposes, including information about changes in soil moisture or details of cities and countryside. Individuals can access this information for their business or farm or for personal use, such as zooming in on their house from space. Once the images are online, they will be available across the nation.

O'Neill acts as principal investigator for the grant while Sung Shin, professor of computer science, Kevin Dalsted, director of the Engineering Resource Center, and David Clay, professor of plant science, act as co-investigators.

The grant will assist SDSU in creating the SDView program, which will concentrate on building partnerships in South Dakota to promote the availability, distribution and usage of these remote sensing images in the state.

The program will allow individuals from a broad spectrum of occupations, including governmental, tribal and educational institutions, to take advantage of high quality geospatial data and technologies and their practical applications, all available to them via the Internet at no cost.

The information will be a great benefit for farmers, who will be able to receive training in using the data. For example, farmers may be able to receive nitrogen recommendations for a field based on soil type, weather data, previous crop type, yield data and remotely sensed images of the field.

The technology also will enter the classroom as K-16 teachers receive training to use these images as a part of their curriculum. One aspect of this will be the Adopt-A-Farm Program, which will expose rural and urban students to the use of spatial information for solving problems in agriculture.

The program began in September and will be in its design phase during its first year. This will include acquiring and archiving images and developing security protection. In years two and beyond, the system will be implemented for use in the state.

SDSU hopes to promote statewide support and involvement in its work to establish the SDView consortium and offer information of use throughout the entire state.

TOP: Engineering Resource Center's Zhuojing Liu, Mary O'Neill, Kevin Dalsted.

MIDDLE: Computer Science cohorts Sung Shin, seated, with, from left, Jungyeon Kim, Sang-Taek Lim, and Chan-gon Yoo.

New faces New

Zhong Hu

Yung Huh

Ratnasamy Muniandy

Russel Mileham

Dusty Sabo

Zhong Hu was appointed as an assistant professor of Mechanical Engineering at State on August 15, 2002.

He earned his bachelor's and doctorate degrees from Tsinghua University in Beijing in 1983 and 1988, respectively. After working 8 1/2 years as an associate professor and senior engineer in China, Hu spent twenty-two months as a fellow at a Hiroshima, Japan, industrial research institute.

He came to the U.S. in April 1999 and worked as a research associate in for one year at Southern Methodist University, Dallas; Penn State University, State College; and Cornell University, Ithaca, New York.

Hu says the nice people of Brookings and the hard-working students of SDSU attracted him to the position. He has enjoyed the role SDSU's faculty plays in teaching, research and service and says it gives him plenty of freedom for development.

In his free time, Hu enjoys volleyball, tennis and watching international sports news. He lives in Brookings with his wife, two daughters and a son.

Yung Huh, originally from Seoul, Korea, has been named assistant professor of physics at SDSU

SDSU's Engineering Physics Degree program attracted him to the university, as it provides unique opportunities for students interested in industrial employment in the field of high technology.

Since his arrival in August, he has most enjoyed his students, "I can tell you that they are truly the brightest kids in the state of South Dakota," says Huh. He received his bachelor's in physics in 1997 from Myong Ji University, Korea, and went on to earn his doctorate in condensed matter physics in 2001 and master's degree in electrical engineering in 2002, both from Iowa State University. He has been a research assistant in the Microelectronics Research Center at ISU. He looks forward to bringing junior and senior students to the center during the summer.

Huh calls Pittsburg, Kansas, his hometown, but now resides in Brookings with his wife, Kay Kim.

Ratnasamy Muniandy, of Malaysia, is on a one-year sabbatical from the University of Putra, Malaysia, where he is a doctorate candidate and a lecturer.

At SDSU, he is teaching part-time as an instructor in Civil Engineering and conferring on research with the faculty.

He received his undergraduate '91 and graduate '93 degrees in civil engineering from SDSU and now looks forward to putting the university on the international scene.

Muniandy lives in Brookings with his wife Minna and daughter Vishma and enjoys inventing machines and equipment for civil engineering use and playing his bamboo flute in his spare time.

Russel Mileham, currently working for Midwest Micro-Tek, also finds time to teach in the electrical engineering department.

Mileham, originally from Granada, Minnesota, came to Brookings to get an electrical engineering degree and never left. He received his bachelor's degree in electrical engineering in 1995 and his master's in engineering in 1997.

He enjoys the university community and the Brookings community as a whole, and especially looks forward to the interaction he has with his students in his new position. He comments, "Their creativity reminds me of why I wanted to be an engineer."

Mileham now lives in Brookings with his wife, Andrea, and two daughters, Taylor, five, and Michelle, two. In his spare time, he enjoys restoring the old arts-and-crafts house that he and his wife recently purchased, and restoring old furniture. And, although he doesn't get to do it much anymore, he also enjoys hunting.

Dusty Sabo, of Ashland, Oregon, is an associate professor of mathematics at Southern Oregon University. While on sabbatical here last fall, he served as a part-time associate professor in the math department and participated in research with Associate Professor Daniel Schaal.

Sabo earned his bachelor's in engineering from Northern Arizona University in 1983 and his master's and doctorate in math from the University of Idaho in 1991 and 1996, respectively.

While at SDSU, he enjoyed the polite, interested and friendly students. He adds that the math faculty and staff were especially supportive. "I would like to thank Dan and Madeline Schaal for all their hospitality and support while I worked here at SDSU."

The Chadron, Ohio, native is married to Yuko.

Five current faculty members were welcomed into new positions as well:

Darrell DeBoer, professor emeritus, has been named acting head of Engineering and Technology Management and acting director of the Polytechnic Center of Excellence.

Responsibilities in his new position include coordinating activities related to a departmental

positions

move into the refurbished Solberg Hall and involvement with facilities that are providing technical services to regional companies and industries. In addition, he is teaching a class in the Construction Management program and is continuing his research efforts in water resources conservation and engineering.

Formerly a faculty member in the Department of Agricultural and Biosystems Engineering, DeBoer came to SDSU in 1969 and retired from his position as full professor in 2000.

He received his bachelor's in 1963, master's in 1964 and his doctorate in agricultural engineering in1969, all from Iowa State University.

Originally from Sioux Center in northwest Iowa, he has now lived in Brookings for more than half of his life. He and his wife Ruth have two children and eight grandchildren. DeBoer says he's enjoyed working with the high quality students of SDSU, "They are the best."

Delvin DeBoer, professor of Civil and Environmental Engineering, was appointed the new director of the Northern Great Plains Water Resources Research Center, effective January 1.

He replaces Vern Schaefer, who took a faculty position at Iowa State in January.

"Dr. DeBoer brings a record of high achievement and new vision in the area of water resources research for our center," Dean Lewis Brown states in a late December announcement.

DeBoer has taught continuously in the Department since 1987, when he returned to State after working as a research graduate assistant at Iowa State University from 1984 to 1987. He also was an instructor at SDSU from 1981 to 1984, and worked as a project engineer in private industry in 1980-81.

The Revillo native earned his bachelor's and master's degrees from SDSU in 1978 and 1980, respectively. His doctorate was earned at Iowa State in 1990.

In 1999, he received the SDSU Award for Teaching Excellence at the May commencement.

DeBoer and his wife, Davonne, have three children, Kiel, Erin, and Cole.

Huitian Lu, associate professor of Manufacturing and Engineering Technology, was named coordinator of Applied Research for the Polytechnic Center of Excellence in late August 2002.

As a coordinator, his work includes expanding and enhancing applied research for the center; conducting and advising undergraduate and graduate research projects, searching for external funds; making connections with local industries, and coordinating work within the College for research development.

Lu came to SDSU in 1999 from the International Center for Informatics Research at Texas Tech University in Lubbock, where he was a research associate. He earned his bachelor's degree from Nantong Textile Institute of Technology, China, in 1982; and his master's and doctoral degrees in industrial engineering from Texas Tech University in 1992 and 1998, respectively.

He and his wife, Shuying, have a son, who is a student at Brookings High School.

Ivan Ostfeld, associate professor of Construction Management, is now the coordinator of the construction management program.

Ostfeld retired from industry in 1999 and has been at SDSU since 2000. He has enjoyed the opportunity for challenge and personal growth that SDSU offers, the campus environment, and "the wrestling team!"

Ostfeld looks forward to building the construction management program through enhancement of curriculum and addition of qualified faculty and also looks forward to playing a significant role in obtaining accreditation for the program.

Originally from the New York City area, Ostfeld lived in many areas of the country, most recently Denver, before moving to Brookings. He has one married daughter, who is a physical therapist, and a son, a graduate civil engineer working for the Washington State Department of Transportation.

He enjoys alpine skiing, motorcycling, hiking and physical conditioning in his spare time.

Richard Reid, who has served as acting assistant dean of engineering during the past academic year, has now taken on the position on a permanent basis.

Late this fall, he also was appointed acting head of the Department of Civil and Environmental Engineering. He is filling in for Vernon Schaefer, who left in January for a faculty position at Iowa State University after serving at SDSU for fourteen years.

Reid came to SDSU as an assistant professor in the Civil and Environmental Engineering Department in 1995 after receiving his doctorate from Georgia Tech. Since then he has enjoyed the relationships he has built with his students and looks forward to working with high school students as well in his new position

Originally from Kennebunkport, Maine, Reid lives in Brookings with his wife, Kathy, and children Lindsey, Timothy and Rebecca.

Darrell DeBoer

Delvin DeBoer

Huitian Lu

Ivan Ostfeld

Richard Reid

FACULTY NEWS

Doug Peters
Doug Peters, instructor of Mechanical Engineering at SDSU, was selected as Teacher of the Year for 2001- 2002. Every year, student senators from each college nominate instructors for the award and results are decided by an online student poll.

Anyone enrolled in the college can vote. Peters received the award in March and says that it's "a real nice perk for faculty" to receive the recognition. He adds, "It's nice being recognized for the work you do in the department."

Fred Delfanian
Professor of Mechanical Engineering Fred Delfanian has been selected as the American Society of Mechanical Engineers advisor of the region. The region is made up of seventeen universities, including Iowa State, the University of Minnesota, the University of Nebraska-Lincoln and Kansas State.

Delfanian, who has been the ASME faculty advisor at SDSU since 1994, says he's excited about the great amount of active students the program has and he looks forward to continuing his involvement with them.

Alex Moutsoglou
Professor of Mechanical Engineering Alex Moutsoglou was selected as a researcher for EROS Data Center near Baltic this past summer.

His work concentrated on the understanding of the optical modeling of the atmosphere. Although his work only lasted for ten weeks last summer, he intends to continue it.

Mike Twedt and Derek Hengeveld
Mechanical Engineering instructors Derek Hengeveld and Mike Twedt recently passed the Professional Engineering Exam.

Hengeveld and Twedt, who is also the director of the Energy Analysis Lab, took the exam in April. In preparation for the eight-hour exam, they covered many areas of mechanical engineering, such as thermodynamics, vibrations and dynamics.

Hengeveld received a bachelor's in mechanical engineering from SDSU in 1997 and went directly into the graduate program, going on to receive his master's degree in 1998.

Since then he has been doing a combination of teaching and research within the mechanical engineering department. He says the exam was an opportunity to realize the extensive amount of material that is covered in the Engineering curriculum at SDSU. "Receiving my Professional Engineering License was quite an honor and the learning experience in obtaining it was invaluable."

Twedt graduated from SDSU with a bachelor's in mechanical engineering in 1992 and earned his master's degree in 1994.

He plans to continue teaching in the mechanical engineering department and working with local businesses through various programs in the Energy Analysis Lab. He will also continue to pursue additional consulting work in his spare time.

Grant establishes new engineering scholarships

Beginning next fall, students entering SDSU in the fields of computer science, engineering and mathematics can take advantage of a new scholarship program, thanks to a $400,000 grant from the National Science Foundation. The SDSU Computer Science Engineering Mathematics Scholarship (CSEMS) Program was implemented specifically to improve the recruitment, retention and quality of education of students majoring in these fields. The program will target academically talented students with a financial need.

Another goal of the program is to increase the enrollment of currently underrepresented groups in these majors, such as women, persons with disabilities, and minorities.

The awards will be geared toward incoming freshman, but transfer and current students will be offered scholarships in the first year of the program.

This spring, four scholarships will go to juniors, four to sophomores, six to freshmen, and nine to incoming freshmen. In the next three years, nine will be awarded to incoming freshmen. Recipients will be awarded $3,030, which can be renewed for up to four years. The program also calls for students to take part in several enriching activities that will include faculty involvement and also mentoring programs.

Ali Salehnia, professor and acting department head of computer science, was involved in creating the proposal. He says, "The grant emphasizes student and faculty involvement and a mentoring process, which is a win-win situation for students, faculty and SDSU as a whole."

Professor Ross Abraham of the mathematics department wrote the grant proposal. He said students will go through an orientation process, introducing them to helpful information that they can use throughout their college career.

They will learn about good study and spending habits, and also be required to join a professional society on campus, such as Math Club. In addition, students will be paired with a faculty mentor who they will meet with weekly and will also be put in contact with someone involved in industry.

Incoming freshmen and underclass transfer students also will be required to live in Brown Hall—the engineering dorm.

Abraham led the management team for the proposal with Rich Reid, assistant dean of engineering. In creating the grant proposal, he sought the help of Salehnia and Jeffrey Maras, director of TRiO Student Support Services, a program that has received national recognition for its retention initiatives. This team will now work together to support the grant's administration and student success.

Accreditation

College seeks accreditation under new regulations

Three programs within the College have been accredited since 1936. After sixty-seven years, you would think the process would hold as much anticipation as shaving.

But as the College seeks re-accreditation for four programs this year, the process holds the freshness of a new dawn.

That is because the Accreditation Board of Engineering and Technology has developed new criteria to measure SDSU and the other 550 colleges that seek its stamp of approval. State last gained the ABET seal of approval in 1997. That was for the maximum of six years.

In 2000, a totally different set of criteria was put into place, explains Lew Brown, who became dean in July 2001.

"It's gotten significantly more difficult than it was six years ago," says Brown, who was a department head at SDSU then.

Assistant Dean Richard Reid adds, "The old program was almost an inventory."

Brown inserts, "Do you have the faculty and resources, and secondly, are you teaching courses that build a good engineering program? The new criteria is based not on what was taught to the students, but what did the students learn."

• An emphasis on employers

That means the College puts a lot of weight on professional exit exams and feedback from employers.

The accreditation board "wants to make sure we are meeting industry's needs," Brown says. "ABET wants to hear that we're holding regular meetings and seeking input; not just putting a company's name on a paper."

Reid adds, "We have to document that they've had their say and we've acted on their opinions one way or another."

Dan Bierschbach, the sports product engineering manager at Daktronics and a member of the Electrical Engineering Department's advisory board, says that advisory board members are truly valued by the Department.

"I continue to be impressed by the board. There is great communication with not only the University but with other industry members. I wouldn't know a lot of these members if it wasn't for these boards," Bierschbach '87 says.

The scoreboard manufacturer also has representatives on the advisory boards for Mechanical Engineering, Civil and Environmental Engineering, Computer Science, and Electronic Engineering Technology program.

"I think, really, the consensus is the people we see come to Daktronics are very well trained. I think what we're doing is fine-tuning the curriculum; things do change. But I think the lion's share of what the University is doing is very practical and meets our needs," Bierschbach adds.

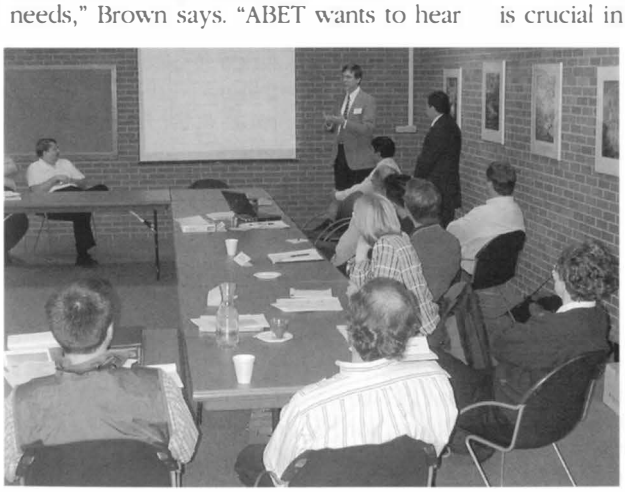
• Preparing for accreditation

The Electrical, Mechanical and Civil and Environmental Engineering Departments have been accredited since 1936. The Department of Agricultural and Biosystems Engineering has been accredited since 1961. Accreditation is crucial in these core programs, Brown says.

"You'd better be accredited if you want to recruit students, place them in jobs, and recruit faculty," he stresses.

To help the College with its accreditation, Brown has been an accreditation board reviewer for the last two years. He has taken what he has gained from reviewing other colleges and held workshops with his own department heads.

The College began preparing for the accreditation in 2000, the year before Brown became dean. Efforts intensified one and half years ago.



Dennis Helder addresses a joint meeting of the Electrical Engineering and Computer Science Advisory Boards.

• The department head's role

"There is a spirited teamwork approach among our department heads for getting prepared," Brown says. All four departments drafted a self-study during fall semester. Brown reviewed them during Christmas break.

Departments will refine their self-study during spring semester and then forward the studies to an accreditation board reviewer in June. A review team will be on campus for two and one-half days in October or November, the dean outlines.

"Programs will prepare portfolios on all their courses. ABET reviewers will interview faculty, department heads, some students, and talk to a class about ABET, and how students like the classes and the program," Brown explains.

That can make a department head nervous.

"For the department head, this is the most anxious time of your career. It's two and one-half days of sweat, no matter how well you're prepared. It's a capstone of your academic management career," Brown shares from experience.

• Final findings wait 'til summer

The reviewers give a verbal exit report, but the written findings won't come until the summer.

"As an academic dean, there's nothing worse than having a problem hanging over your head with ABET," Brown says.

A look at how the College's students have fared in professional exit exams and the growth in advisory boards throughout the College should give Brown plenty of confidence entering the final stages of this round of accreditation.

But since the College is experiencing its first accreditation under the new rules, he admits to a little apprehension.

Continued page 26

Recruiting and Retention

Rrecruiting and retention are the lifeline for colleges and universities across the country. For the engineering arm at SDSU, their existence has produced a number of quality initiatives that has given new meaning to their definition.

"We've had heightened interest in activities in recruitment and retention this year," says Dean Lew Brown. "We feel it has paid off, because if you look at our enrollment figures, we have broken every record."

Indeed, this year the College reported an all-time high in enrollment with 1,359 students. The figure includes undergraduate and graduate students.

"We've seen our enrollments continually go up," points out Assistant Dean Richard Reid, who has been analyzing and documenting the College's efforts in recruiting and retaining students. "We are confident that trend will continue."

The Jackrabbit influence

Numbers indicate the newly created Jackrabbit Guarantee has been a key factor in enrollment growth. The Jackrabbit Guarantee promises $1,000 per year in scholarship assistance to all new incoming students who score at least a 24 on their ACT test. In addition, the Jackrabbit Guarantee is renewable each year for four years, provided a student averages 15 credits per semester and maintains a 2.5 GPA or higher.

"The Jackrabbit Guarantee is a unique scholarship in the country," cites Brown. "What we are finding is that it's actually driving high school education. Teachers are making sure that their students know the importance of getting a score of 24 on their ACT test."

A record 452 freshmen entered the College compared to 364 just two years ago. According to Reid, the Jackrabbit Guarantee is a major reason for the surge in incoming students because it's designed to attract students with ACT scores of 24 to 27.

This year, of the 119 engineering students offered a Jackrabbit Guarantee in that ACT target range, 104 accepted the money and enrolled in the College.

"The Jackrabbit Guarantee has increased our recruiting in what SDSU always refers to as its bread-and-butter students, the good upper-average student who has gone through a good college prep program in high school," he says. "They are good students, but traditionally they have not received a lot of money. The Jackrabbit Guarantee carries a lot of weight."

Reid reports the College "has always done well" with students whose ACT scores are 31 to the maximum 36. This year 85 percent of those in that score area accepted a financial aid package. The group typically benefits from the prestigious Briggs scholarship, which is $6,700 per year, and the Viola and Phillip May $5,000 scholarship.

> "The Jackrabbit Guarantee has increased our recruiting in what SDSU always refers to as its bread-and-butter students, the good upper-average student who has gone through a good college prep program in high school."
>
> *Dean Lew Brown*

Help from NSF grant

The weakest group in terms of recruiting, says Reid, has been students with ACT scores between 28 and 30. Of the 49 students offered a scholarship in that group, 33 accepted for a success ratio of only 67 percent. "They are right on the borderline," he notes. "They are close to bigger money and yet maybe deserve more than Jackrabbit."

To improve those numbers, the College received a National Science Foundation Grant of $400,000 in October ($100,000 annually for four years) for creation of the Computer Science Engineering Mathematics (CSEM) scholarship. Students pursuing computer science, engineering, and math are now eligible to receive a renewable $3,000 scholarship.

"The new CSEM scholarship program will hopefully address the financial needs of students with ACT scores of 28 to 30," says Reid. "They will be awarded for the next academic year, focusing on financial need, academics, and recruiting traditionally underrepresented groups." (See separate story on Page 20 for details.)

Facilities, admissions, camps

Reid emphasizes there are a number of factors involved when it comes to recruiting and retaining students.

Perhaps the most eye-catching is the renovation of Crothers Engineering Hall, which includes a 24,000-square-foot addition to the existing building and state-of-the-art laboratories for electrical, civil, and mechanical engineering along with physics.

"I don't think you can underestimate the impact that makes on a visitor and it can be viewed as progress," he says. "It's like walking into a new home or buying a new car. We all like to be around new

Engineering students in Brown Hall feast on pizza at a "Meet the Dean's Night," which is held each semester for freshman and sophomore engineering students in the dorm.

Numbers show recruiting, retention paying positive dividends

and modern things, especially young people.

"Couple that with the work on Solberg Hall and we can say that almost all our engineering space is either new or significantly remodeled. It's not just this College but it's across the entire campus, too. This all adds enthusiasm and excitement for a young student."

The work of the Admissions Office is an on-going success story, says Reid, who has accompanied staff members on their recruiting visits.

"They do a wonderful job presenting the University, how they conduct their visit, and the positive impression they leave with the high school students.

"When you have the first-class job of Admissions, the commitment to financial support, the commitment to new facilities, the Brookings community, the band, and success in athletics, there suddenly are a lot of positive areas we can use in the recruiting process."

Last summer the College hosted its first Youth Engineering Adventure, which Reid termed "a big success." During a week on campus, thirty-four high school juniors gathered for hands-on exercises in the various engineering disciplines.

"I couldn't believe how excited these kids were about this engineering camp," he says. "The feedback we got back from parents was wonderful. Many of them changed their high school classes because they realized they weren't taking enough science and math, and they began thinking about careers in science, math, and engineering." (See separate story on Page 7 for details.)

Other successes

The College will soon see the fruits of its association with the Flandreau Indian School Success Academy. Led by engineering, in conjunction with other colleges, the idea has been to work with Indian students and encourage them to consider post-high school education.

"We started three years ago with freshmen so we have one more year before we see if these students are inclined to pursue higher education," says Reid. "We see an increase in their Stanford Achievement Test scores and there have been big jumps in student retention. They seem to be seeing career options beyond high school and that's exciting. If we want to increase and maintain enrollment, we need to be recruiting outside our traditional recruiting areas."

The College continues to hold summer seminars for high school teachers who teach advancement placement in physics. Under the direction of Physics Professor Larry Browning, teachers come for workshops and learn hands-on activities they can perform in their own classroom.

"These teachers deal with students with a high interest and high ability in science and math who will likely go into an engineering field," explains Reid. "We want to work with them because they can have a big influence on the majors chosen by the high school students. Part of the interest, too, is to make sure they are teaching a class at the high school level that is worthy of advanced placement and potential college credit."

The popular spring Engineering Expo brings high school and college students together for a day devoted to engineering inventions. Students can participate in contests, view SDSU senior design projects, and stop at booths to visit with professionals about careers.

Exploring retention

Spreading the word about scholarships was the impetus for the second annual Scholarship Fair that was held in January in Crothers' new high-bay structures lab.

Booths were set up for each engineering department to display the scholarships they award. All scholarship and financial aid-granting personnel from across campus gathered to discuss with students the proper procedures to apply for financial assistance.

"It's important to go to the students and tell them how to apply for these scholarships, because they don't always come knocking at your door," relates Reid. "We've had a very nice turnout for the fair, bringing students and faculty together for discussions about financial aid."

The home for most engineering students during their freshman and sophomore year has been Brown Hall, where a library and a computer room have been specifically designed for their use.

Each semester a "Meet the Dean's Night" is held at the Student Union for students in Brown Hall. In an informal session that includes pizza and pop, Brown and Reid have an open dialogue on whatever topics the students wish to discuss.

"This is an excellent way for us to hear whatever concerns they have about engineering and answer their questions," says Reid. "When you think of retention, if we are going to lose students, it likely happens in their first or second year. We also use this opportunity to point out upcoming events in the College and simply to make sure they are on the right path with their studies."

Finding a summer job is also critical, according to Reid. "If students take a summer job in the engineering field at the end of their freshman year they are much more likely to stay. Once they've had that first job in an engineering or construction-related field, they can see where their degree will get them."

A retention issue that Reid is especially concerned with is quality of academic instruction. It's his intention to locate the necessary funding to send two to five professors every year to teaching seminars for the purpose of improving and creating new teaching techniques in the classroom.

"Our professors receive little formal training in classroom delivery," he says. "That's not to say they aren't doing a good job, but they might come back from these seminars with better teaching techniques.

"Quality of teaching has an effect on how we retain and attract students," he adds. "It's an important retention issue as well as quality of education. We've always said this is an institution that prides itself on undergraduate education."

People skills *carry* Bell *to top of profession*

The ability to relate to people, a simple concept in itself, has been a skill that Richard Bell, a 1998 Distinguished Engineer honoree, has honed and crafted throughout his life.

The characterization has been instrumental in his rise to the top of his profession. As chairman, chief executive officer and president of HDR, Inc., Bell describes himself as a "caring dictator," who directs a professional consulting enterprise that has more than 3,200 employees and reported gross revenues of $500 million in 2001.

"My profile is much like an orchestra leader," he says. "I've been associated with a lot of good people over the years and I couldn't have done it without them. It's a great working relationship, one where I can easily communicate my message and ideas so our employees can effectively carry out our company's objectives."

HDR, headquartered in Omaha, Nebraska, is a nationally recognized architectural, engineering, and consulting firm. It is the parent corporation of HDR Engineering, Inc. and HDR Architecture, Inc.

Established in 1917, HDR provides clients tailor-made solutions to their diverse needs. The HDR office in Sioux Falls was significantly involved with the design-build scheme of SDSU's new Performing Arts Center and the remodeling of Crothers Engineering Hall.

Bell, who earned his bachelor's degree in civil engineering from SDSU in 1970 and his master's in 1971, is a 28-year veteran of HDR – his only source of employment since leaving campus. He joined HDR in 1974 after serving four years in the U.S. Army.

"It's been an outstanding ride and I wouldn't want to do anything different," he says. "Omaha has proven to be a perfect location. Not only is it close to family in South Dakota, but it's the professional challenge of working for an outstanding Omaha-based company. It's very satisfying. I'm proud of HDR's performance and reputation."

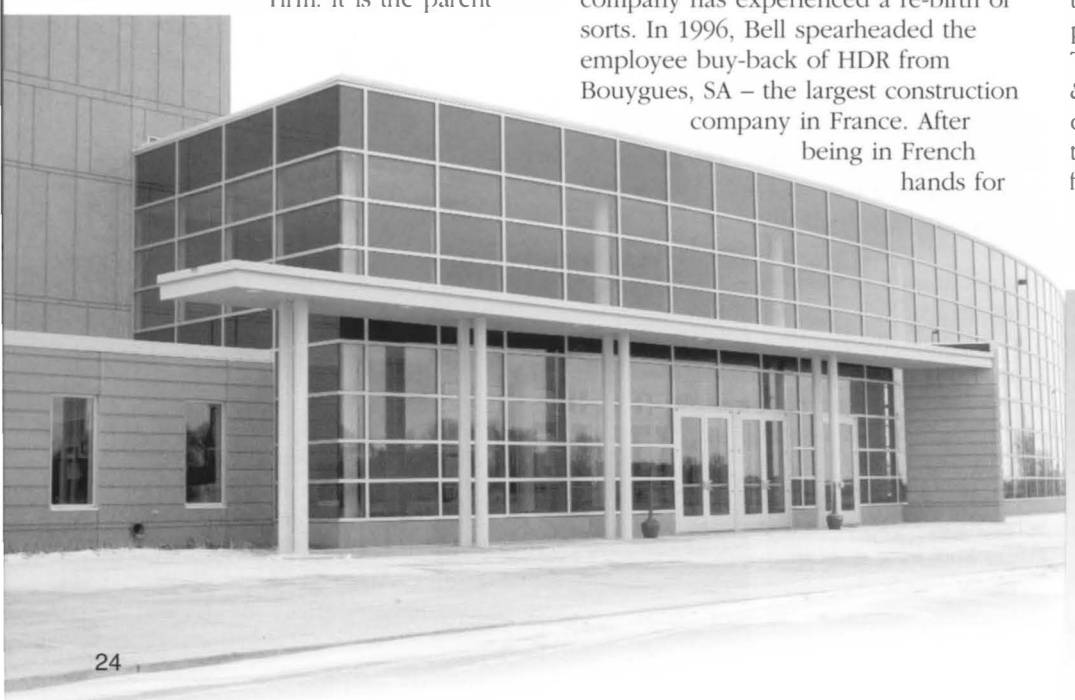
Although HDR is in its 85th year, the company has experienced a re-birth of sorts. In 1996, Bell spearheaded the employee buy-back of HDR from Bouygues, SA – the largest construction company in France. After being in French hands for thirteen years, it was time to celebrate the return of ownership to its Omaha roots.

"The French didn't want to commit to invest in the U.S. and grow HDR," explains Bell. "Our employees bought it back and continued our development."

The repurchase wasn't a simple process, though. There were plenty of meetings and negotiations behind the scenes led by Bell, who initiated a successful employee stock ownership plan. Since then, the company has enjoyed double-digit growth and record sales.

"We wanted to get control of HDR as soon as possible and provide all employees with the same initial stock price opportunities for ownership," relates Bell. "We also didn't want to pay too much so that we could grow HDR into the 21st century. The bottom line is we believe the employees should be the owners and that's been the key to our success."

Bell was ready for the employees to take control of HDR, but he wasn't prepared for the accolades to follow. This past summer, he was named Ernst & Young's Iowa/Nebraska Entrepreneur of the Year in the service category for the repurchase plan. He was selected from a field of 13 candidates by a panel



"The biggest thing was learning to communicate clearly the ideas you want to accomplish. The graduate program gave me the communication skills to succeed and focus on the individual."

Richard Bell

of independent judges from Ernst & Young, Marsh, Inc., and LaSalle Bank.

"I was shocked," he says. "I wasn't planning to go to the ceremony. It was a busy time. But, at the last minute I changed my mind. I really felt an entrepreneur award is for starting a company from scratch, not something as big as HDR. However, I was pleased and surprised to get the award in honor of the HDR employee-owned organization."

Born and raised in Hecla, Bell lettered in football, basketball, and track before graduating in 1965. He and his wife, Pat, whom he has known since attending grade school together, have two children. Richard graduated from the University of Nebraska, and Andrea earned her degree at the University of Arizona.

Bell displayed a strong math and science background growing up. Working with his father, who delivered bulk fuel, Bell became increasingly interested in pursing a career field that dealt with working outside.

"Dad sparked my interest," recalls Bell. "I was looking at something in civil and mechanical, doing something with infrastructure, roads, and buildings. I never liked the technical side of things and could not picture myself in a laboratory. I'm an outdoor person and a people person."

With a limited family budget, Bell worked his way through college, serving as residential assistant at Mathews Hall. It was in graduate school where Bell hit his full stride, thanks mainly to the coaching of two civil engineering professors, the late J.R. Anderson and James N. Dornbush.

"Once when I was in front of the class, Dr. Anderson said, 'I know how nervous you are, it's in your voice. Don't be nervous, just be yourself, and speak out with confidence.' It was that and many other things that I took from graduate school. The biggest thing was learning to communicate clearly the ideas you want to accomplish. The graduate program gave me the communication skills to succeed and focus on the individual."

Prior to the buy-back, Bell was president and CEO of HDR Engineering. During his tenure, the engineering company's revenues grew by more than 150 percent. And, in the year leading up to the buy-back, he was given operational control of HDR Architecture.

As CEO of HDR, Bell is ultimately responsible for directing all operations and ensuring the appropriate resources are available to meet the needs of each project.

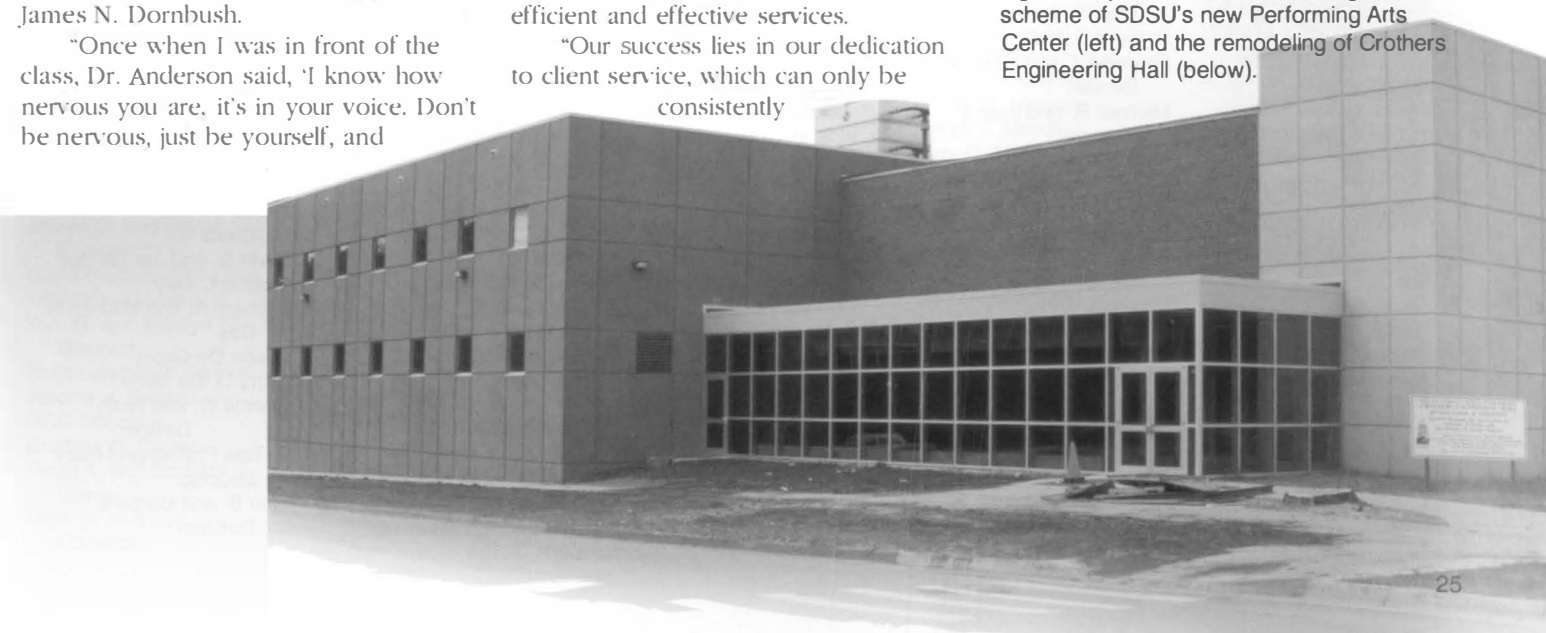
Before assuming the position of president, Bell gained extensive experience in engineering design, project planning, management, coordination, and client liaison. He focused the majority of his design experience on solid waste management projects, conducting studies on collection, waste quantities, markets, and feasibility of energy and resource recovery from solid waste.

His involvement in the waste-to-energy segment was instrumental in HDR becoming a leader in the field. He has been a key figure in the development of innovative design-build delivery systems, scheduling methods, and reporting techniques that have furthered HDR's ability to provide efficient and effective services.

"Our success lies in our dedication to client service, which can only be consistently delivered through employee-owners," says Bell. "Over 80 percent of our employees are company equity owners. Our clients seek value, reliability, performance, and our employees are genuinely dedicated to their work.

"HDR will continue to be aggressive in seeking talented, experienced staff to meet our growth objectives," he adds. "In turn, we will create opportunity, define our strategic direction carefully, and execute our plans for shared success."

The HDR office in Sioux Falls was significantly involved with the design-build scheme of SDSU's new Performing Arts Center (left) and the remodeling of Crothers Engineering Hall (below).



Gareld G "Danny" Dannenbring

Faithful in giving

For thirty-six years, Gareld G. "Danny" Dannenbring '34 has been the picture of loyalty.

The Electrical Engineering graduate has been faithfully giving to the College since 1966, starting when his employer, Southern California Gas Company, was matching his donation. Dannenbring, now 96, continued to give after his retirement as a service supervisor in 1971.

"He was very fond of that University," says his wife, Lillie.

The Dannenbrings live in Visalia, California, which is Lillie's hometown and where Danny has lived for more than fifty years. He grew up in Alcester and graduated from high school in Sioux Falls.

Dannenbring has a son and a daughter, both of whom work in higher education in New York.

Accreditation *continued from page21*

• Reasons for optimism

Brown can take solace in knowing that physically the College is much better prepared for an accreditation review this time. A renovated and expanded Crothers Hall has given the College adequate space for programs that had been criticized in that area previously.

"We are not only going to meet standards, but they are something we can be proud of," Brown says.

Within the next three to five years, he would like to see the technology departments gain accreditation. First, the University and the Board of Regents must give their blessings because accreditation does have a financial impact.

• 'It's in our best interests'

In addition to the cost of being accredited ($2,500 per program), there can be an impact on space and staffing.

So while accreditation is "a very expensive, very time-consuming process" with as much paperwork as a government audit, Brown underscores, "it's in our best interest to not just say what we're doing, but to measure it."

And that's not the end of it. Reid notes that the new accreditation rules require continuous work on areas needing improvement.

"It's continuous improvement process," Brown says of a philosophy that also describes the profession of engineering.

Dean's Club

Susan E. Ahlers
Mark W. Allen
Kenneth L. and Ann R. Allender
Timothy T. Amert
John L. Amidon
Daniel L. and Virginia Amundson
Delwyn D. and Clara M. Anderson
Harvey D. Anderson
James H. Anderson
Roderick B. Anderson
APEX Structural Design, LLC
Associated General Contractors of South Dakota
Ho An-Au
Timothy and Renae Aughenbaugh
Thomas V. and Jo Anne R. Augustin
James B. Bakkedahl
John C. Ballard
Michael J. Banks
Banner Associates, Inc.
Brent L. Bargmann
Keith A. and Glynn E. Bartels
BASF Corporation
Basin Electric Power Cooperative
Vernon L. Baumberger
Thomas B. Beason
Richard R. Bell
Gayland J. and Carolyn Bender
Michael R. and Julie E. Benson
Keith V. Benthin
Duane A. and Norma M. Benton
Herman I. Berg
Robert M. and Sharon Gilchrist Berg
Steven L. Berg
Christine Berger-Wilkey
Gerald E. and Shirley Bergum
Doug N. Berkland
Marvin E. and Marjory Berreth
Richard A. Berreth
Martin C. Bettmann
Jennifer J. and Ed Bick
Roger V. Bigham
Jeffrey A. Bjorkman
Black Hills Power, Inc.
Francis M. and Beverly A. Blaze
Gary L. Bleeker
David R. and Peggy M. Blegen
Gary L. Bliss
C. Robert and Sara J. Blizzard
Bobcat Company
Lori S. Bocklund
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Alumni NEWS

SDSU grads win awards

The Minnesota Society of Professional Engineers has named Jon Rippke, P.E., Engineer of the Year, and Chad Fowlds, P.E., Young Engineer of the Year for 2002.

Rippke, SDSU Class of 1970, is the president of Bolton and Menk, Inc., a 215-employee civil engineering and land surveying firm headquartered in Mankato, with eight offices in Minnesota, Iowa and Missouri. He has more than thirty years of experience in the planning design and administration of civil and municipal engineering projects.

Fowlds, SDSU Class of 1995, serves as the resident engineer in the District Seven office of the Minnesota Department of Transportation in Mankato, where he is charged with coordinating and overseeing all of the construction projects out of the district office. Fowlds is the youngest individual to hold the position of resident engineer within the department.

Nominees were judged on the basis of engineering achievement; civil and humanitarian activities; and continuing engagement in the field of engineering.

Matthew '92 and Yvonne DeWitte – A son, Gilbert Matthew, born on Mother's Day – May 12, 2002. Matt has been with National Presto Industries for six years as a design engineer.

Joann (Adelman) '94 and Rod '92 Fischer – A daughter, Julie Elizabeth, born August 20, 2001. Rod is an engineer for Angus Palm in Watertown and Joann is a stay-at-home mom. They live in Castlewood.

Brenda Standiford '90 and Brian Hemmelman were married June 1, 2002. Brenda is the assistant coordinator of Academic Support Development at the South Dakota School of Mines & Technology. Her husband is an assistant professor of electrical and computer engineering at Mines. They live in Piedmont.

The Minnesota Society of Professional Engineers has named Jon Rippke '70 left, Engineer of the Year, and Chad Fowlds '95, right, Young Engineer of the Year for 2002.

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Impulse will soon include advertisements from local and regional employers of engineering and technology workers.

To reach more than 8,500 readers who share passions in engineering and South Dakota State University, contact the dean's office. The summer issue will soon be in the planning stage, so act today.

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2003 Events

Feb. 17-23	National Engineers Week	April 14-15	Sioux Empire Quality Symposium
March 3-7	Spring Break	April 18-21	Easter Recess
April 4	Advisory Council meetings, USU, 7 a.m. – 5 p.m.	April 25	Engineering Expo/Physics Bowl
April 4	Distinguished Engineers Banquet, Volstorff Ballroom, 6:30 p.m. (Social in Gallery Lounge from 5:30 to 6:30 p.m.)	May 3	Commencement/Order of the Engineer
		June 15-19	Youth Engineering Adventure
		Oct. 23	Job Fair, Volstorff Ballroom (interviews on Oct. 24)

College of Engineering

This summer, the College provided the educational adventure of a lifetime for a group of thirty-four high school students at its first Youth Engineering Adventure.