



IMPULSE

JEROME J. LOHR COLLEGE OF ENGINEERING



FALL 2017



DEAR ALUMNI AND FRIENDS,

CHANGES CREATE MORE OPPORTUNITIES

I've been struck with the high number of alums who have visited our campus in recent years and commented about "the great change." Not just the obvious changes in landscape, facilities and people, but the changes they see in our programs and student opportunities since they were themselves students.

It is probably not exaggerating to say that the Jerome J. Lohr College of Engineering has never experienced as much change as it has just recently in terms of facilities, staff, academic programs and student opportunities. When I compare our college now to what it was in the early 1990s when I began as a new faculty member, the changes are incredible.

What has remained constant is the spirit of faculty, students and alumni and their desire to advance the college and ever-increasing circles beyond as well as their own lives.

This issue is full of stories of people making their sphere of life better, whether that be new equipment in the Department of Civil and Environmental Engineering labs to allow us to do increased research or faculty members spending a week of their summer helping high school students gain a better idea of what career they would like to pursue.

Also inside this issue you will find stories of two mechanical engineering graduate students making advances in biomedical engineering. Ryan Mahutga has received a National Science Foundation Graduate Research Fellowship in his work with a prestigious research group at the University of Minnesota. John Asiruwa hopes his work under Stephen Gent will help make minimally invasive surgery more common in his native Nigeria.

Of course, all learning doesn't come in the classroom or during a required lab. A number of our students sink their teeth into extracurricular activities like the Human Powered Vehicle and the Quarter-Scale Tractor competitions and become not only some of the best contestants in the nation but also better-equipped future engineers.

Speaking of extracurriculars, I'm always amazed at the number of student-athletes who choose the demanding engineering major. In fall semester, there are 79. We've listed them for you on Page 18. You can also get to know a few of them a little better through accompanying articles.

This issue also highlights a couple examples of alumni giving back to the college—Bruce Lutz, who is using a charitable remainder trust to help fund biomedical engineering, and Arlen Ottman, who has created an endowment to help finance the steel-bridge building team.

In closing this letter, I would like to note one other change for the college. In July, I announced my retirement, effective June 30, 2018. I really have been blessed to serve in this position for the past 16 years. The quality of people I have worked with—colleagues and students—couldn't have been better.

A national search for my replacement is underway and by the time the spring issue arrives, we should be able to announce a new dean.

In my remaining months as dean, I am committed to devoting my full energies to make the college I've known as a student, faculty member and an administrator the best it can be.

I invite you to return to campus Dec. 9 for the college's winter graduation and Order of Engineer ceremony to see more examples of success for yourself.

*Lewis Brown '84 Ph.D.
Dean of Engineering*



SDSU PRESIDENT
Barry H. Dunn

PUBLICATIONS EDITOR
Andrea Kieckhefer

EDITOR
Matt Schmidt

PHOTOGRAPHER
Emily Weber

DESIGNER
Micayla Standish

CONTRIBUTING WRITERS
Lora Berg
Dave Graves
Christie Delfanian
Heidi Kronaizl
Matt Schmidt

IMPULSE
is published twice annually
by University Marketing and
Communications and the
Jerome J. Lohr College of
Engineering, South Dakota State
University, Brookings, S.D.

**SOUTH DAKOTA STATE
UNIVERSITY**
University Marketing and
Communications
Brookings, S.D. 57007-1498
(605) 688-6161



**SOUTH DAKOTA
STATE UNIVERSITY**

*Jerome J. Lohr College
of Engineering*

2017 DEAN'S ADVISORY COUNCIL

Jay Bender '82, president, Falcon Plastics

Paul Bezdicsek, '06, senior sales engineer, Ingersoll Rand Industrial Technologies

Jim Edwards '82, assistant general manager of operations, East River Electric Power Cooperative

Daryl Englund '72, retired president, Banner Associates

Alfred Furth, '09, vice president/chief data scientist, CAPITAL Services

Carla Gatzke '84, vice president for human resources, Daktronics

Richard Gustaf '73, principal, TSP

Al Heuton, executive director/vice president, Brookings Chamber/Brookings Economic Development Corporation

Brian Hoellein '85/'88, water treatment manager/vice president, Bartlett & West

Dale Jans '74, vice president, Jans Corporation

Mike Kondratuk, director of engineering & quality, Larson Manufacturing

Heidi Konynenbelt, manager, computer systems, Otter Tail Power Company

Gary Larson, '88, president, ESI

Blair Metzger '86, president, DGR Engineering

Kevin Moe '88, IT solution architect, Stinger Ghaffarian Technologies

Dana Nachreiner, vice president of operations, Sencore

Wanda Reder '86, vice president, Power Systems Services Division, S&C Electric

Dan Rykhus, president/CEO, Raven Industries

Mark Shoup '95, manufacturing engineering manager, 3M Brookings

Gene Sieve '90, principal/regional office manager, Minneapolis-St. Paul, Burns & McDonnell

Gregg Stedronsky '84, vice president of engineering, global safety and engineering, General Mills

Brad Wermers '89, president of Banner Associates

ABOUT THE COVER

Doctoral student Buddhika Prasad Rajapaksha works with a machine that determines the adhesion properties of different types of aggregates to be used in an asphalt mix. It is one of several pieces of equipment added to the labs in the civil and environmental engineering department.

See story on page 2.

IMPULSE

FALL 2017



FEATURES

2 | BETTER EQUIPPED

4 | FISHBACK SUMMER SCHOLARS

6 | BIOMEDICAL ENGINEERING

- Ryan Mahutga is the third mechanical engineering graduate in five years to receive a prestigious National Science Foundation Graduate Research Fellowship.
- Nigerian native John Asiruwa is working with associate professor Stephen Gent on a mechanical engineering project to help Sanford Health build better heart stents.
- Electrical engineering graduate Bruce Lutz has selected the biomedical engineering program as a target for his future giving.

9 | PROGRAMS ACCREDITED

10 | FAST WHEELS

12 | FIVE UNFORGETTABLE WEEKS

14 | SECOND IN THE NATION

16 | ATHLETES AND ENGINEERING

20 | RECRUITING NATIVE AMERICAN STUDENTS

22 | NEW FACULTY

26 | LAVONNE RIECHERS

27 | DUNE DUDES

28 | DAVID MONNENS

30 | FUND IT AND THEY WILL BUILD

32 | DISTINGUISHED ALUMNI

33 | A CULTURE OF PHILANTHROPY

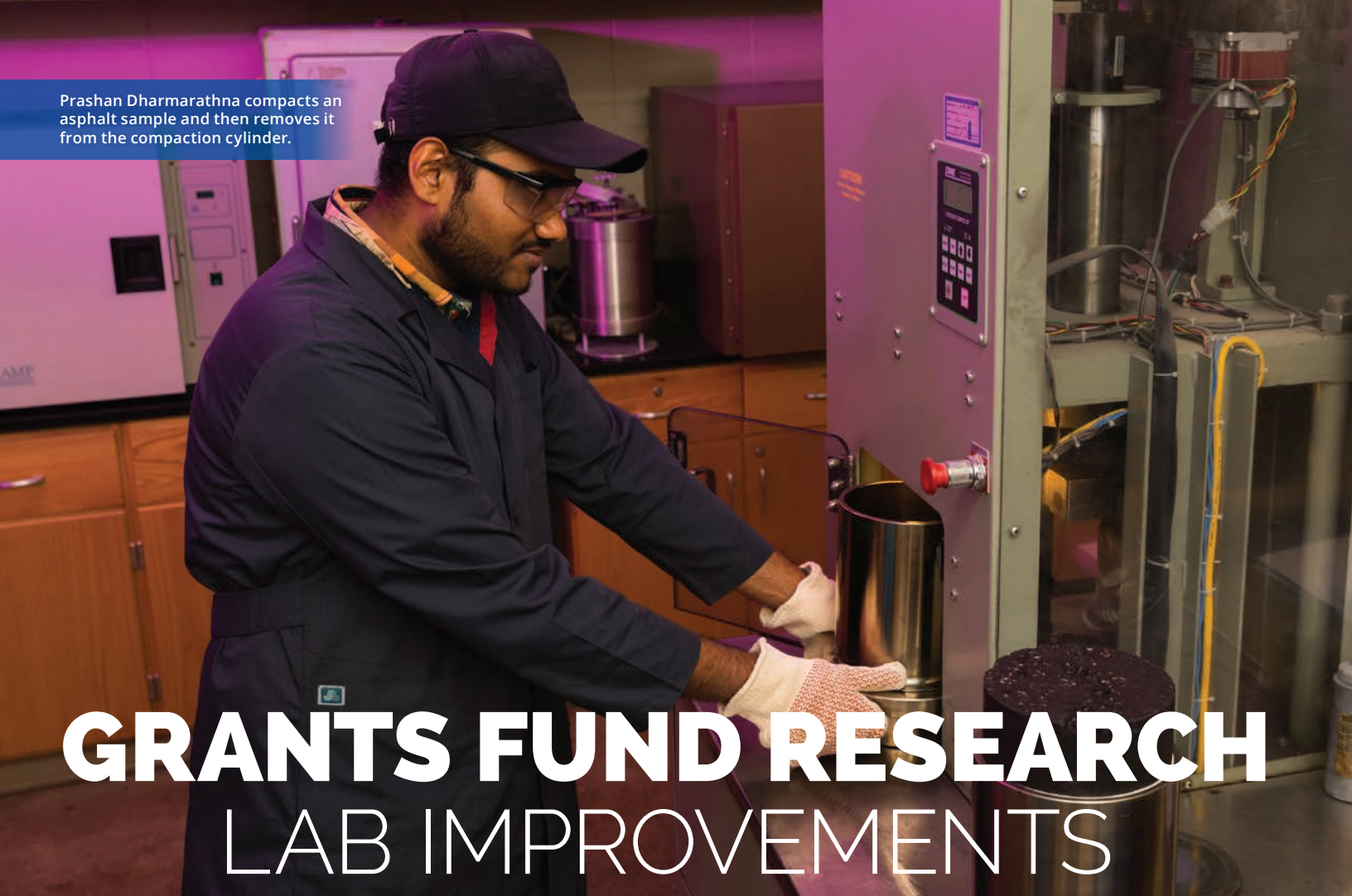
34 | GLENN MEIER

34 | ALUMNI NEWS

37 | IN MEMORIAM

38 | DEAN'S CLUB

40 | DEVELOPMENT DIRECTOR'S REPORT



Prashan Dharmarathna compacts an asphalt sample and then removes it from the compaction cylinder.

GRANTS FUND RESEARCH LAB IMPROVEMENTS

The Department of Civil and Environmental Engineering has several big plans to increase the amount of research it conducts. Helping fund those plans have been several grants to the amount of nearly \$400,000 to purchase equipment.

The new equipment created an asphalt research lab as well as add to equipment in the Lohr Structures Laboratory and the Water and Environmental Engineering Research Center.

ASPHALT LABORATORY

Rouzbeh Ghabchi, an assistant professor, received two research grants from the Mountain Plains Consortium, a University Transportation Center sponsored by the U.S. Department of Transportation. These grants were instrumental in developing an asphalt laboratory.

Through these grants and matching funds, an asphalt standard tester, an asphalt interlayer shear strength tester, a pneumatic adhesion tensile testing instrument, a floor oven and other pieces of equipment required for testing asphalt mixes and aggregates according to Superpave® specifications were procured. In addition, the Ingevity Corp. donated the Superpave® Gyratory Compactor. The newly purchased pieces enable Ghabchi and his student researchers to study the impact of climate and traffic conditions on asphalt pavement performance.

“SDSU can become the leading institution in the state of South Dakota for asphalt research,” Ghabchi said. “Our lab and asphalt research program can serve the asphalt industry and the Department of Transportation by developing a trained

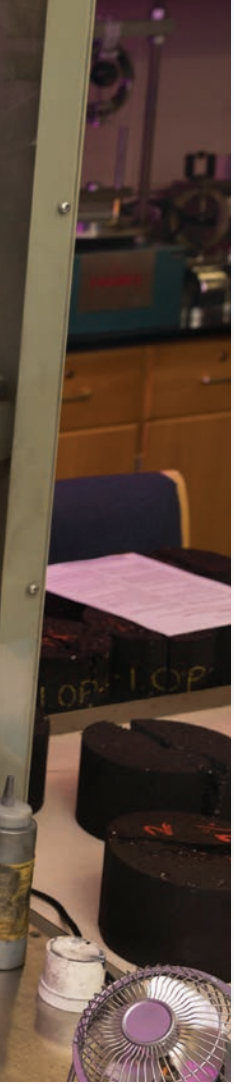
transportation workforce and solving pavement-related issues through research and collaboration.

“Collectively, roads and highways constitute the largest asset in the U.S.,” he continued. “There is a need to spend billions of dollars every year to maintain the highway infrastructure and keep it in working condition. Increasing the durability and longevity of the highways through research and development can easily result in saving billions of dollars in maintenance and repair cost, saving time and money by reducing traffic-related delays and improving transportation safety.

“This has been really a good grant for us because it allows us to modernize our laboratory and provide those services and capabilities to do cutting-edge research,”

*-Chris Schmit
Professor*

“The final goal of conducting research on asphalt materials is to find solutions to existing problems and those emerging as a result of the introduction of new techniques and materials in the pavement industry,” Ghabchi said. “Our laboratory is capable of answering the demand for expert workforce in asphalt materials by providing opportunities and support for undergraduate and graduate students to gain experience in working with novel materials and the state-of-the-art equipment.”



Graduate student Puskar Dahal removes a test specimen from the high-capacity MTS machine.



Graduate student Prashan Dharmarathna places an asphalt mix into the oven.

MECHANICAL BAR SPLICES

Speaking of products, Mostafa Tazarv, also an assistant professor, and Puskar Dahal, who is pursuing a master's degree, are working to understand the behavior of mechanical bar splices using a new universal testing machine located in the Lohr Structures Laboratory. This machine can pull a bar up to 135,000 pounds.

After purchasing the machine, they started testing different types of bar splices to determine if they are stronger than the bars that enter the splice or coupler. They are currently testing more than 150 couplers donated by national and international manufacturers.

"The main outcome will be a unified testing method for couplers that could be used in ductile members of buildings and bridges," Tazarv said. "We don't have it right now for this purpose. When we do, manufacturers can use the proposed testing method to report what's needed for an engineer to successfully design bridges and buildings with these devices. We have left the door open for emerging couplers in the proposed testing standard but those also need to go through this testing process.

"In conventional construction, bars are overlapped in concrete members, which requires more steel," Tazarv continued. "You can save some money using splices, especially when they are used to accelerate the construction. At the area of the splice, these couplers would also help reduce the congestion. The current code allows splices to be used only in nonductile members. Our

goal is to show engineers that it is feasible to use them in ductile members as well. We will give them a model, properties and tools to design with so they will know how much they need to adjust design parameters."

WATER RESEARCH

By purchasing a spectrophotometer, ion chromatograph, gas chromatograph with electron capture detector and a gas chromatograph mass spectrophotometer, the Water and Environmental Engineering Research Center improves its ability to measure volatile organic compounds found in water and soil.

"This has been really a good grant for us because it allows us to modernize our laboratory and provide those services and capabilities to do cutting-edge research," said Chris Schmit, a professor and director of the Water and Environmental Engineering Research Center.

The new equipment will improve the study of how the volatile organic compounds and metals interact with the soil, water and biological filtration.

"Our undergrads and graduate students interested in environmental engineering are able to now go on these instruments and learn how they work," Schmit said. "We're training future scientists and future engineers on this equipment. That's the teaching side but we also have the research side and the service side where we can provide laboratory services for industry, the public and municipalities."

Matt Schmidt



FISHBACK SUMMER SCHOLARS

PROGRAM GIVES HIGH SCHOOL STUDENTS A FEEL FOR MAJORS, CAREERS

What do you want to do when you grow up?

It's a question children hear often. By the time they're in high school, the answer "pirate" or "ballerina" no longer cuts it. The Fishback Summer Scholars Program gives students a chance to better find their niche. It attracted more than 100 high school students from as close as Brookings to as far as California this past summer.

The camp is designed to give high-performing students a chance to explore a variety of academic and research experiences on the campus of South Dakota State.

Last year, the camp drew 82 students. This year the Jerome J. Lohr College of Engineering folded its Youth Engineering Adventure into Summer Scholars and enrollment hit 103. The age range was incoming high school freshmen to incoming seniors, though most were juniors or seniors. The South Dakota head count was 50 with another 31 from Minnesota.

"We want you to understand that a lot of people are interested in your future. We want you informed so you can navigate through ... Every experience will teach you something."

-Leah Brink

Daktronics corporate recruiter talking to touring high school students

Students spent the morning working with faculty in their primary academic interest. Two of the afternoons could be spent with secondary choices.

Associate Dean Rich Reid, who handled coordination for the college, said, "This was such a great opportunity to have our engineering students interact with a large group of scholars of diverse interests and get a sample of how this manifests itself in a collegelike setting.

"Additionally, it provides students whose first choice was outside of engineering to use one of their second- or third-choice activities to choose an engineering activity. This broadens our exposure to students who may not have previously been exposed to our majors, which was not possible during our engineering-

only camp. This is a definite strength of the Fishback Summer Scholars program."

SAMPLING FROM AN ACADEMIC SMORGASBORD

A universal comment among the engineering students interviewed was they were happy to learn about the various types of engineering taught at SDSU and which careers could follow.

"I liked getting to meet all of the professors and see what all of the classes would be like. They did a good job explaining all the kinds of engineering you could take," said Andrew Mairose, a 16-year-old, homeschooled junior from Kimball. After attending the July 9-14 camp, he decided mechanical engineering was best suited for him because he likes to "build and design things."

His lab partner, Noah Holm, 17, of Brandon, was leaning toward mechanical engineering or precision ag at SDSU.

Now a senior at Brandon Valley High School, Holm had pretty well committed to SDSU after a May campus visit. "I like being close to home and the hunting around here, plus I have friends who go here."

BROTHER-TESTED, SISTER-APPROVED

Marrisa Carlson, 17, of Rochester, Minnesota, has a brother who is studying electrical engineering at State. He chose SDSU because of affordability and the feel of the campus, she said. Thomas Carlson lived in Mathews Hall, which has an engineering living-learning community, and "liked being in a learning community where you could work on problems together," his sister said.

Carlson said she expects to follow her brother to State.

"I've visited the school two times already. SDSU is affordable. I like the campus a lot. I like the size—not too big, not too small. Classroom sizes are really reasonable. You get to see all the engineering students and get close to them," she said. Carlson said the camp helped her narrow her academic choices to mechanical or electrical engineering.

One of her favorite camp activities was building a miniature windmill that actually generated electricity. It was a project she worked on with camp roommate Claire Hanke, 16, of Watertown.

She echoed Carlson's choice of the windmill activity. "I found problem-solving and trying to improve the windmill really fun."



The satisfaction of problem-solving is part of the attraction to her for engineering. The incoming junior hasn't decided on a college, but the camp experience made her more certain of her engineering choice—mechanical.

PLENTY OF ENGINEERING IN AG

Students who took the precision ag track left being excited about being behind the wheel of a Kubota side-by-side utility terrain vehicle with auto-steer.

The GPS equipment takes the guesswork out of knowing when to turn. "Pretty interesting," said Holm. He also enjoyed counting the corn population (counting plants on a 209-inch row and counting the space between rows) and viewing the farrowing crates at the new SDSU Swine Education and Research Facility north of campus.

Given those interests, it's not surprising that Holm is considering a precision ag major at State, although he also is considering mechanical.

"Camp has been fun. I liked it because I got to meet faculty and kids who had been here a year. They gave us some advice and it was fun to experience the different careers," Holm said.

PUTTING LEARNING TO WORK

Careers were the focus of a morninglong tour taken by 23 prospective engineering students to Daktronics, the world leader in programmable digital displays and scoreboards. Students were walked through the electronics assembly production floor of the Brookings facility, viewed completed demonstration displays and witnessed the reliability lab.

"I definitely would like to get a student position here," said Adam Young, a senior at Brookings High School. "One thing that stood out was talking to the engineers and getting a closer look at the reliability lab."

The lab's tour guide joked that he had the best job in the world because he got to break things. Some of the destruction is slow motion through long-term exposure in a salt fog unit while other destruction can come rapidly through vibration and tension testing. There also is an electro-magnetic EMI room that tests frequencies coming from the displays.

Daktronics corporate recruiter Leah Brink said Daktronics hires a wide variety of engineers with a heavy emphasis on electrical, mechanical, electronics engineering technology and computer science engineers.

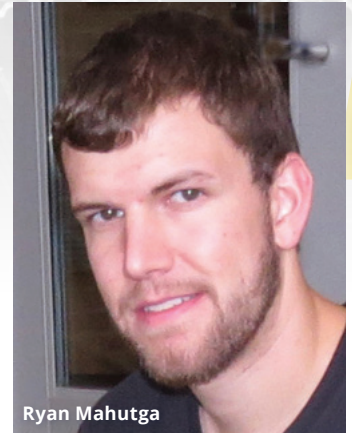
Many full-time employees start as student employees or interns. In fact, Daktronics aims to hire at least 50 percent of its employees from its student pipeline, Brink said. Interns work 40 hours per week for seven months while student employees work 15 hours per week during the school year, she said.

Since its founding in 1968 by two SDSU engineering professors, Daktronics has had more than 8,000 student employees and 1,000 interns.

In comments that also mirror the focus of the Summer Scholars Program, Brink said, "We want you to understand that a lot of people are interested in your future. We want you informed so you can navigate through ... Every experience will teach you something."

Dave Graves

MAHUTGA CHOSEN FOR NSF GRADUATE RESEARCH FELLOWSHIP



For the third time in five years, one of science's most prestigious graduate awards has gone to an SDSU mechanical engineering graduate.

The latest recipient is Ryan Mahutga, who has completed two years in the University of Minnesota's biomedical engineering doctoral program. A 2015 graduate of Kurt Bassett's department, Mahutga was notified in March that he was among 2,000 selections nationwide for the National Science Foundation's Graduate Research Fellowship Program.

The award provides three years of financial support (\$34,000 annual stipend and \$12,000 cost-of-education allowance to the graduate institution) within a five-year fellowship period.

Jim Lewis, NSF acting assistant director for education and human resources, said, "This unique program has nurtured economic innovation and leadership in the U.S. continuously since 1952 by recruiting and supporting outstanding students with high potential in science, technology, engineering and mathematics very early in their graduate training.

"These talented individuals have gone on to make important discoveries, win Nobel Prizes, train many generations of American scientists and engineers and create inventions that improve our lives."

More than 13,000 applicants competed for the 2017 awards.

Previous SDSU recipients of the Graduate Research Fellowship Program are:

- Laura Baumberger – civil – 2001,
- Caitlin Gerdes – mechanical engineering – 2013,
- Andrew Robison – mechanical engineering (plus chemistry and German) – 2016.

STUDYING CONNECTIVE TISSUE AT U OF M

Mahutga, a 2010 graduate of Baltic High School, said he opted to pursue biomedical engineering after watching a video that was sent to him in fall 2014 by a friend, and "the light bulb went on."

The video was of a hydraulics engineer who used a CT scan to create a custom aortic sleeve. "I thought, 'If he could do it, why couldn't I?'"

At the University of Minnesota, he is studying the ascending aorta on mice that develop aneurysms. Mahutga is particularly interested in looking at aortic involvement in Marfan syndrome, which is a genetic disorder that affects the body's connective tissue. Connective tissue holds all the body's cells, organs and tissue together and plays an important role in helping the body grow and develop properly.

About one in 5,000 people have Marfan syndrome and three out of four people with Marfan syndrome inherit it, meaning they get the genetic mutation from a parent who has it.

Mahutga is the one in 5,000 and had mitral valve replacement and aortic root graft in 2008.

While at State, he worked with Stephen Gent, an associate professor in mechanical engineering. He became interested in mathematics and simulation due to Gent's ongoing research on computational fluid dynamics in stent grafts.

PAST TAU BETA PI RECIPIENT

At State, Mahutga distinguished himself beyond his 4.0 GPA and his minors in sustainable energy systems, mathematics and business. In spring 2015, he and classmate Megan Waytashek were among 30 recipients nationally to receive a Tau Beta Pi Fellowship, which carries a \$10,000 award and is based on scholarship, campus leadership and promise of future engineering success.

To illustrate the significance of this honor, before Waytashek and Mahutga received the fellowship award, only six other SDSU students had received the award in the past 82 years.

FUTURE GOAL: UNIVERSITY RESEARCH

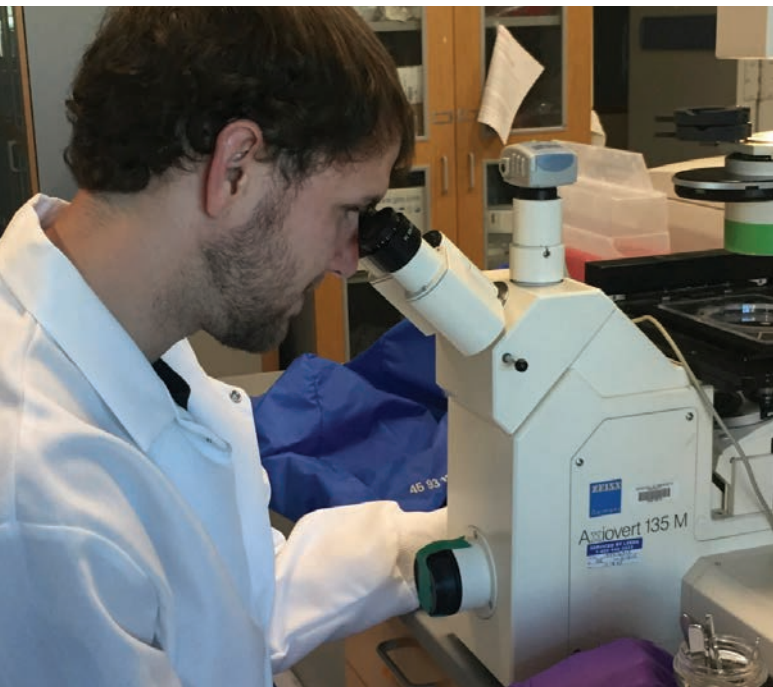
At the University of Minnesota, Mahutga is one of 11 graduate students and eight undergraduates who form the Barocas Research Group, headed by Victor Barocas, director of graduate studies in the Department of Biomedical Engineering. The group studies how the underlying makeup of tissues affect overall behavior.

In Mahutga's area, he said, "We want to study the aortic root and aortic arch because there hasn't been that many people who have looked at it in disease because the geometry is so complex. We want to try to decouple the material properties in that area from the geometry. Additionally, we want to look at creating mathematical models of aneurysm growth."

He has three years remaining in his doctoral research.

Mahutga's long-term goal is to teach and do research at a university.

Dave Graves



John Asiruwa, who earned his master's degree in mechanical engineering in fall 2017, uses computational fluid dynamics modeling to evaluate how the angle at which the coronary artery branches affects blood flow. What he learned can help those designing stents as well as surgeons doing coronary bypass surgeries and placing stents.

BLOOD-FLOW MODELING

INSPIRES PASSION FOR BIOMEDICAL ENGINEERING

When John Asiruwa came to Brookings in fall 2015 to begin graduate work in mechanical engineering, his first stop was the office of Associate Professor Stephen Gent.

"I want to be involved in something that can make life better for others," he recalls telling Gent. The Nigeria native, who completed his master's degree in fall 2017, credits Gent and his work with Sanford Health for igniting his passion for biomedical engineering.

Since 2014, Gent has been collaborating with Sanford Health vascular surgeon Dr. Pat Kelly and biomedical engineer Tyler Remund '07, who is part of Kelly's product development team, to evaluate blood flow through stent grafts. The data from Gent's computational fluid dynamics simulations support Sanford Health's efforts to commercialize these life-saving devices.

Asiruwa, who earned his bachelor's degree in mechanical engineering from the University of Benin, Nigeria, worked as a process engineer for a year before deciding to go to graduate school. His uncle, Christopher Igbinedion, who earned his master's degree in civil engineering here in 1993, recommended his alma mater.

LEARNING THE ROPES

Asiruwa began by taking a special topics course, Engineering Mechanics in Biomedical Applications, which Gent developed as an extension of his biomedical research and as part of the specialization in biomedical engineering.

As a teaching assistant, Asiruwa graded homework assignments for a fluid mechanics class and then thermodynamics. In spring 2016, he took two more graduate classes, one in computational fluid dynamics and another in advanced fluid mechanics.

In addition, he met weekly with Gent to discuss papers on blood-flow modeling and stent graft designs. As Asiruwa began learning the computational fluid dynamics software, he became what he called "the postprocessing guy" for the stent graft modeling team, eventually transitioning to a research assistantship.

Gent said, "I have been quite impressed with John's enthusiasm and abilities. He has proven to be an asset for our research group."

MODELING CORONARY ARTERIES

For his thesis work, Asiruwa used computational fluid dynamics modeling to evaluate how the angle at which the coronary artery branches affects the blood flow and, therefore, the likelihood of clotting and plaque buildup, commonly known as hardening of the arteries. This information is vital when carrying out coronary bypass surgeries and placing stents.

"A stent is difficult to deploy in a coronary artery," he explained, noting the critical role that blood pressure and flow dynamics play in this part of the body.

"The takeoff angle of the left coronary artery can make a difference in the blood-flow mechanics through the



John Asiruwa

coronary artery," Asiruwa said. Based on these analyses, he can identify which angles are associated with an increased likelihood of blockages reoccurring. The results will give surgeons data to make decisions that will affect patient outcomes.

"Understanding the flow dynamics in coronary stenting and its complexity will help those designing biostents and tissue-engineered degradable stent grafts used for more complex aneurysm-prone regions with delicate arterial networks," explained Asiruwa.

"I come from an area of the world where minimally invasive medical techniques are not common," he said. "I can see what I am doing can be life-changing for patients."

Christie Delfanian



INNOVATIVE GIVING CONCEPT

BENEFITS BIOMEDICAL ENGINEERING

Acting on a piece of advice from his supervisor, electrical engineering major Bruce Lutz took some law classes while working for General Mills in his first year after graduating from South Dakota State in 1958.

It was a pivotal decision in Lutz's life. He went on to become a patent attorney, practicing first in Minneapolis and later in Dallas. Today, Lutz has made decisions that can have pivotal impacts on students in the Jerome J. Lohr College of Engineering as well as the College of Nursing. By creating a unique endowment, he will fund those academic interests as well as provide funds to his heirs.

Once the estate plan goes into effect, upon the death of both Bruce and his wife, Gloria, a charitable gift annuity will fund any listed heirs still alive with a fixed quarterly income beginning at age 65.

Bruce and Gloria Lutz, of Plano, Texas, a Dallas suburb, presently have seven heirs: two sons, a daughter-in-law and four grandchildren. When an heir dies, the funds supporting annuity distributions that person had been receiving will go to SDSU. The grandchildren are in their 30s and 40s.

"We can guarantee the heirs a pretty high payout because we've got all those years of tax-free growth," said Marc Littlecott, director of gift planning at the SDSU Foundation.

Lutz had included SDSU in a trust he wrote about 10 years ago, but after reading an article written by Littlecott in a university publication, Lutz decided to rewrite that trust to ease the work placed upon the trustee and the problems that might arise when the trustee is also an heir, along with any legal problems associated with distribution of money to the many heirs until their deaths.

GIFT GIVES DISCRETION TO DEANS

The decision on where within the university to direct their estate proceeds was a matter of considerable discussion.

An interest in seeing South Dakota benefit from more widely dispersed health care swung the decision to aid the biomedical engineering and doctor of nursing practice (DNP) programs.

BIOMED ATTRACTS COLLEGE'S TOP STUDENTS

The college offers a minor in biomedical engineering, said Lew Brown, dean of the Jerome J. Lohr College of Engineering, who was the program's first coordinator. It is popular with top academic students, especially women, who have already taken some life science courses, Brown said.

"A typical biomedical engineer can converse with the physician," Brown said. "They have had the anatomy and the physiology. They have enough background in biomechanics, bioinstrumentation to basically apply the engineering skills they've acquired to medical problems. It's really attracted some of our best engineering students."

In Lutz's own education, he said he was working at General Mills in Minneapolis when his supervisor said any engineer could greatly benefit from a year of law school. As a first-year law school student at William Mitchell in St. Paul, he responded to a Honeywell offer of free law school tuition in exchange for becoming a patent trainee.

He eventually became a senior patent attorney with Honeywell before taking corporate patent posts in Dallas and then opening his own practice.

ENGINEERING SERVED AS GREAT BACKGROUND

"The only way you can be a realistically competent patent attorney is to have a good engineering background," Lutz said. "I have thoroughly enjoyed patent work. Every idea that comes along gives me further education." He added that a patent attorney has to learn enough about an invention to prepare a document with enough detail to teach others how to duplicate the inventive concept.

The same can be said of his innovative charitable giving plan.

Dave Graves



Bruce & Gloria Lutz

THREE PROGRAMS

EARN ACCREDITATION

Bachelor's degree programs in construction management, operations management and electronics engineering technology received accreditation in time for the new school year.

The designation by the Accreditation Board for Engineering and Technology "gives an external validation of the quality of our programs," said Teresa Hall, department head for construction and operations management. "The on-site evaluators gave us some very positive feedback in the exit interview with administration last fall.

"It was nice to hear we were doing good things, but they also gave us ideas to improve and we've integrated those. It's good to know our programs measure up to our peers and stretch peers."

ABET accreditation assures that programs meet standards to produce graduates ready to enter critical technical fields that are leading the way in innovation and emerging technologies, and anticipating the welfare and safety needs of the public.

"Becoming ABET-accredited is a significant historic milestone for these three programs, which now join our five other ABET-accredited programs in the college," said Dean Lew Brown. "It took years of work to prepare these programs for the initial review by ABET, and I commend the excellent work of the department's faculty and the leadership of Department Head Teresa Hall."

"These accreditations will help us attract faculty as we continue to grow our programs," Hall said, noting operations

management is expanding into process improvement for food and beverage supply chains. "It should also help place graduates with employers by raising awareness of the high-quality programs here at SDSU."

ABET criteria focus on what students experience and learn. Accreditation reviews look at program curricula, faculty, facilities and institutional support and are conducted by teams of professionals from industry, academia and government, with expertise in the ABET disciplines.

The three degree programs now mean South Dakota State has 44 accredited programs, exceeding the goal set in Impact 2018, the university's strategic plan.

Matt Schmidt



FAST WHEELS

SDSU ENGINEERING STUDENTS PEDAL TO VICTORIES

Human powered vehicles—bikes that don't look like bikes—are fueled by pedal power, but their real energy source is motivation.

The SDSU team that assembled and drove this spring's entry in the Human Powered Vehicle Challenge used high-octane motivation and the contest results reflected that. The SDSU team entered the East and West regional contests sponsored by the American Society of Mechanical Engineering and placed second and third, respectively.

It was by far the team's best finish and the first time SDSU competed in both regionals. In 2015, the team placed 17th. Last year, the team finished 23rd.

When the team finished third of 25 teams at the West Regional at the University of Nevada-Las Vegas March 17, it was an achievement that left team captain Jake Ostby, a senior from Cologne, Minnesota, "super pumped. Our goal at the beginning of the year was to bring home a trophy. We brought home three. I'm super happy."

In addition to being third overall, the team also won the men's sprint event and was third in the innovation contest.

Five weeks later at the East Regional in Cookeville, Tennessee, the team finished second overall, won all three races and placed third in design and ninth in innovation.

"We have three seniors who have been here for all three years. We've been very dedicated and put in a lot of hours," Ostby said. He is joined by Darrin Zomer, of Canton, who put in an estimated 300 hours working particularly with the fairing, and Brennen Walley, of Chaska, Minnesota. Overall, there were 19 team members.

'APPLIES REAL-LIFE ENGINEERING PRACTICES'

Eric Looyenga, the captain for the 2017-18 team, expects even more participation this year. "People are more likely to join a team that is competitive, and I think we have built something that students want to be involved with."

Adviser Greg Michna said the team started with 10 students in 2014-15 and grew to 15 in 2015-16.

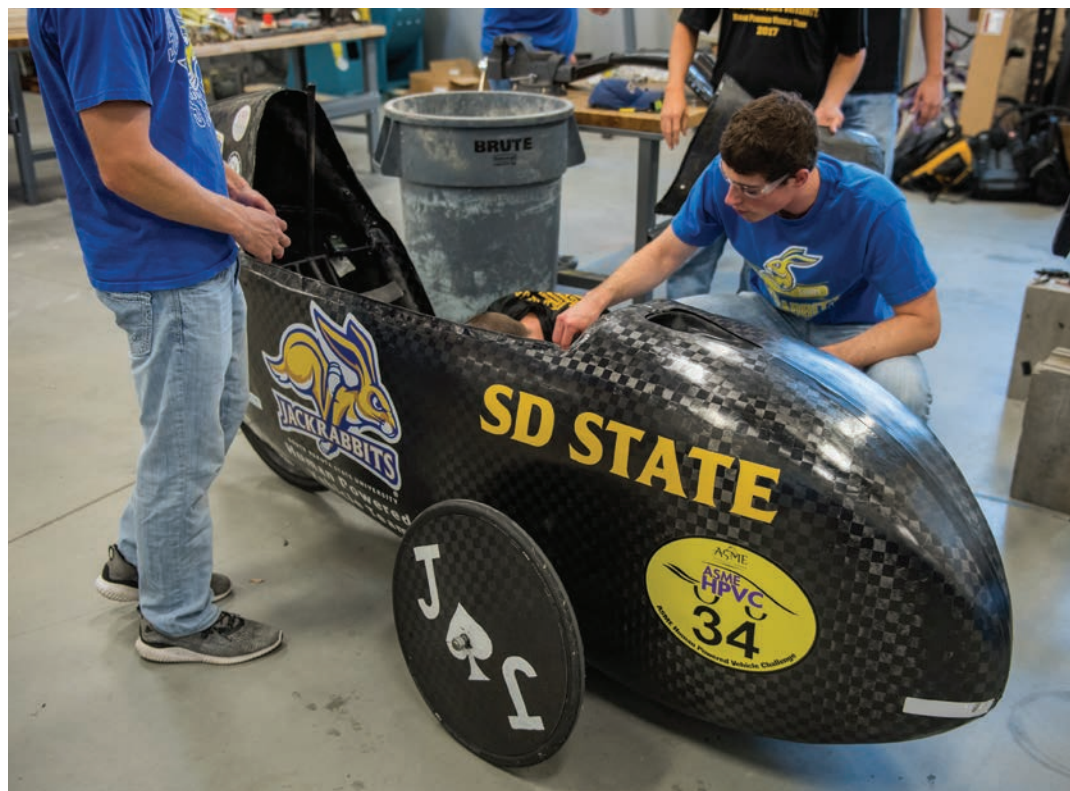
"With the team's recent success, we expect even more interested students this year. I encourage participation in the human powered vehicle because students can experience the entire product design process from conceptualization to analysis, prototyping, testing and fabrication.

"THIS IS A GREAT SUPPLEMENT TO OUR EDUCATION BECAUSE IT APPLIES REAL-LIFE ENGINEERING PRACTICES."

-Eric Looyenga, 2017-18 team captain

"Our students will have a chance to do this in their capstone senior design class as well, but this is one of the only places for younger students to gain this valuable engineering experience," Michna said.

Looyenga, a senior mechanical engineering major from Webster, wasn't sure about getting involved on the team his freshman year. "I was reluctant to join the team because it was the first year of HPVC at SDSU and I simply didn't know what to expect. I'm so glad I joined. I've always had a passion for creating



things—that’s why I’m a mechanical engineering major—so being on this team allows me to do that.

“We start with ideas, bring them to virtual life through computer-aided drawings and then test them using simulations of finite element analysis and computational fluid dynamics. After running the simulations, we already have an idea of how the vehicle should perform before we even start building.

“This is a great supplement to our education because it applies real-life engineering practices.

“The next step of the process is building. It’s exciting to see our ideas come to life, and we learn new practices and skills that can only be taught by experience. Throughout the design and build processes, we all learn how to work with each other as a team.

“And, of course, the best part of the process is showing up and racing at competition. It’s when all of the hard work pays off, and we get to see how we stack up against the rest. It really gets the competitive juices flowing.”

CONTEST: STRATEGY, CONDITIONING, SKILL

Those juices flowed rapidly at the Cookeville campus of Tennessee Tech, where The Black Jack, the SDSU entry, won the men’s and women’s sprint competition as well as the 2-1/2-hour endurance contest.

The endurance contest allows for multiple riders (at least one male and one female) and involved hill climbs, sudden turns, stop signs and other obstacles on a 1.73-kilometer course.

“Steering is quite a bit different (than on a bike),” Ostby said. “You have to know what to do if you throw your weight the wrong way. I got up on two wheels once when I was given a late command (by the course marshal) to turn right and I was expecting to turn left. Riding and knowing how to handle the weight shifts is a big deal.”

The endurance riders—sophomore Alex Gray and seniors Libby Molitor, Weston Christensen, Ostby and Zomer—were carefully selected by Ostby and Gray.

“I thought long and hard for about two weeks about what I wanted to do for a team. We did a lot of testing on campus and had six or seven people come out for time trials,” Ostby said.

Another factor was shoe size. The team had three pairs of cycling cleats. Gray, Christensen and Zomer wear the same size of shoe and shared a pair of cleats, so they couldn’t follow one another on the bike.

Ostby also chose the group’s best athletes. Gray is an experienced endurance bicycle racer. Molitor is an SDSU pole vaulter and Christensen was an SDSU swimmer. Ostby had Gray and Christensen ride the maximum of 20 kilometers while Molitor and Ostby were sprinters for 5 kilometers, the minimum distance. Zomer went 6.9 kilometers when time expired.

Other team members were involved in the pit stops. Riders were actually lifted out of the bike. A pit stop took only 15 seconds compared to a couple of minutes for slower teams.

Ostby, who hopes to become a design engineer after graduating in December, said, “Being involved with the team taught me valuable skills in the different aspects of creating the vehicle, from designing to manufacturing. It has helped me think how I would create the vehicle and if there are areas where improvements can be made on the vehicle.



“Most importantly though, it has given me something to work toward and be proud of, and I’ll always have a connection with the people on the team.”

Michna said, “Like the others involved for three years, Jake has grown tremendously. He displayed exceptional leadership of the team this year, keeping everyone on track. This is especially impressive given that ASME changed the timing of the event this year, so the deadlines were close to two months earlier than they had been in previous years.”

BIGGEST CHALLENGE FOR 2018

So how do you improve on a bike that is already the fastest human powered vehicle in the nation?

Looyenga said, “Now that we know that last year’s design had what it took to succeed, I don’t anticipate a complete overhaul in next year’s design. Overall, the plan is to stick with a tadpole tricycle design.

“But the biggest challenge will be filling the void left by last year’s seniors. I would say 90 percent of the competition is behind the scenes—the design process, design report, building, testing, fine tuning and training at the gym. Our seniors played integral roles in every aspect of the competition, which is why we performed so well.

“Without them, all of us will have to step up and put in the time and effort it takes to fill that void.”

Michna added, “I’m really looking forward to seeing what the team does this year. With so many team members coming back after the success of last year, I know that they’ll be working toward an even better performance this year.”

Dave Graves

FIVE UNFORGETTABLE WEEKS

E.E. MAJOR EXPLORES MAJOR PHYSICS RESEARCH FACILITIES

Exploring a former gold mine, climbing South Dakota's highest peak, eating ice cream with new friends, witnessing a nuclear reactor and touring Rome.

Sounds like a smorgasbord of vacation ideas, but it's just part of Vanessa Konyonenbelt's answer to the essay "How I Spent My Summer Vacation."

Konyonenbelt, who is a sophomore electrical engineering major from Fergus Falls, Minnesota, spent five weeks this summer as a Davis Bahcall Scholar, which allowed her and seven others to experience world-leading science at the former Homestake Gold Mine as well as tour facilities in Aberdeen, Fargo, North Dakota, Minneapolis and Chicago.

Then there was a week in Rome, where the itinerary included the Gran Sasso National Laboratory as well as plenty of sightseeing.

The Davis Bahcall Scholar Program is for students entering their first or second year of college and are majoring in the physical sciences or engineering and are chosen based on grades, SAT scores, an entrance essay, recommendation letters and an interview. "We try to get the brightest students in South Dakota each year," said Brianna Mount, who oversees the Davis Bahcall Scholars Program in addition to her duties as a research assistant professor at Black Hills State University,

Konyonenbelt said, "When they told me I was accepted, I was over the moon."

'COOLEST EXPERIENCE I'VE GOT TO DO'

She is the 11th SDSU student to be selected since the program began at Sanford Lab in 2008. For its first six years, the program was sponsored by the 3M Company. First Premier Bank now is the lead sponsor with cooperation from the South Dakota Space Grant Consortium, Black Hills State University and Sanford Lab at a total cost of \$60,000.

Each Davis Bahcall Scholarship is valued at \$7,500 and Konyonenbelt considers it money well spent.

"The Davis Bahcall program has been one of the coolest experiences I have had the opportunity to do. I was really grateful for this experience—meeting with professors, engineers and physicists from all over the world, seeing a nuclear reactor,

learning about particle accelerators and a free trip to Italy. I'm so grateful for those who funded it.

"Every day we were learning something new. I loved it. It made me excited to wake up in the morning and see what we would be doing that day," said Konyonenbelt, who received one of four prestigious Briggs Scholarships when she enrolled at State.

If there was a comprehensive exam, the list of questions would be lengthy.

The eight students arrived at the Jonas Science Hall on the BHSU campus June 4. By the time they checked out of a BHSU residence hall July 9, they had traveled thousands of miles and worked at the Sanford Underground Research Facility and visited EROS in Baltic, 3M Aberdeen, Microsoft in Fargo, the University of Minneapolis, labs at the University of Wisconsin, Argonne National Accelerator Laboratory, Fermilab National Accelerator Lab and Gran Sasso National Laboratory.

MINING NEUTRINOS AT HOMESTAKE

The first two weeks were spent at Sanford Underground Research Facility as well as taking in some of the Black Hills attractions.

"Before we went underground, we had a six-hour lecture in particle physics. It was one of the most enjoyable days we had at SURF. The lecture was super-interactive and engaging. We got to learn a lot," Konyonenbelt said. She had a pretty good background in basic physics after taking Physics 211 and 213 and being a teaching assistant for 211 in the spring semester.

She had some knowledge of neutrinos and dark matter before becoming a Davis Bahcall Scholar, but she admits it was similar to the matter itself—very small and hard to detect.

Neutrinos have often been called ghost particles because they have no electrical charge and virtually no mass but are so abundant that if one holds a hand toward the sunlight for a second, about a billion neutrinos from the sun will pass through it. In 2002, Homestake Mine was donated to the state of South Dakota to become a dedicated deep underground research facility.

MINERS TURNED RESEARCHERS

Before becoming scientists, the Davis Bahcall Scholars got a feel for being miners. They toured the Black Hills Mining Museum

The group gathers at an international flag display outside the Fermilab in Batavia, Illinois. It houses 2,300 physicists from around the world.



Donning hard hats and muck boots, the group gathers for a photo at the Yates Shaft in the former Homestake Gold Mine.

in advance of taking a cage 4,850 feet below the surface to the Sanford Lab.

Reaching the lab even made the scholars feel like miners. They donned personal protective gear, including muck boots and hard hats with lamps, and descended into the shaft for a 12-minute ride. When it was operating as the deepest gold mine in North America, the elevator dropped to that level in just three minutes.

The first physics experiments at that depth were done in the mid-1960s by Ray Davis, a chemist from Brookhaven National Lab. One of the labs at Sanford Underground Research Laboratory is named after Davis, who received the Nobel Prize in physics in 2002 for his work with neutrinos.

EXPLORING MIDWEST'S MAJOR RESEARCH FACILITIES

After two weeks at the underground lab, with escapes to climb Black Elk Peak, watch a weather balloon launch and experience Spearfish's Downtown Friday Nights, the scholars boarded "Clifford," their big red, 12-person passenger van, and explored the Badlands, EROS, 3M Aberdeen, Microsoft in Fargo, and the University of Minnesota (June 18-22).

June 23 was spent at labs at the University of Wisconsin-Madison, where the scholars learned about the school's neutrino observatory in Antarctica.

Then it was on to Chicago, where the students had a free weekend and then spent three days touring the Argonne National Lab and the Fermi National Accelerator Lab. Argonne conducts research in 14 divisions and has hundreds of research partners, including SDSU. There are 1,000 visiting scientists and 3,200 total employees.

Fermilab is billed as "America's particle physics laboratory," but it truly is international with 2,300 physicists from around the world working there.

"Fermi has a multicultural vibe. There are visitors from all around the world and flags from all around the world—about 25, plus there is a herd of bison on the grounds," Konynenbelt said. On a walking tour, she said they learned about the figure-eight particle accelerator that uses magnets to steer the particles and voltage to accelerate them, she said.

ENJOYING ROMAN CULTURE

At 6:30 p.m. June 28, the scholars flew from O'Hare International and just over 16 hours later touched down in Rome. That was a Thursday and the students had free days until Monday.

"Rome was my favorite place we visited. It's so old and there's so much history and vibrant culture. One of the restaurants we went to was 130 years older than the Colosseum," which was built in 70 A.D., Konynenbelt said. "I enjoyed the artwork. We were roaming Rome on the first night and there was the Colosseum.

"We got Roma passes so we could skip the lines and listened to audio books we had downloaded. There were frescos on the walls and sculptures everywhere. We saw the Tervi Fountain. I loved seeing the sculptures and the artwork. It made me wish I could see a little more of that in my daily life," she said.

WORLD'S LARGEST UNDERGROUND LAB

Gran Sasso National Laboratory is about 75 miles east of Rome and is the largest underground laboratory in the world for experiments with particles and astroparticle physics. Its research under Gran Sasso Mountain focuses on neutrino physics with neutrinos naturally produced in the sun and dark matter research.

"We compared the experiments between Homestake and Gran Sasso," said Konynenbelt, noting that Gran Sasso is logistically more compact and its labs more open.


The scholars flew out of Rome at 12:40 p.m. July 6 and thanks to good connections and time zone changes, arrived in Rapid City at 8:45 p.m. The next two days were rest and preparation for their concluding presentations, which were made to parents and staff of the Sanford Underground Research Facility, including its executive director, Mike Headley '92.

Each of the eight scholars reported on one aspect of the five weeks. Konynenbelt chose the Microsoft facility in Fargo, which writes programs.

"I got excited to join the workforce. The company culture seemed very innovative and multicultural. It's Microsoft's second-largest facility outside of company headquarters. I loved how big the company was and how international it is. They've got sites all over the world. They tailor their company to their employees. There are free sodas and a game room for people to relax," she noted.

The overall experience "made me excited to pursue my degree at South Dakota State. I can't wait to get back to school," Konynenbelt said.

Dave Graves



Vanessa Konynenbelt poses on the balcony of the Collurania-Teramo Observatory (built in 1890) in Teramo, Italy, a city near the Apennines and the Adriatic Sea.



Photo courtesy of the American Society of Agricultural and Biological Engineers.

QUARTER-SCALE TRACTOR

TAKES SECOND IN NATION

By winning the tractor pull contest and finishing high in other judging areas, the SDSU Quarter-Scale Tractor Team finished second nationally, its best finish ever.

The team of 15 SDSU agricultural and biosystems engineering students competed in the International Quarter-Scale Tractor Student Design Competition in Peoria, Illinois, June 1-4, sponsored by American Society of Agricultural and Biological Engineers.

Competing teams are given a 31-horsepower Briggs & Stratton engine and a set of Titan tires; the tractor is theirs to design and create.

“At the competition we go through technical inspection, design judging, oral presentation, maneuverability, durability and tractor pulling events,” explained Tia Muller, a senior ag engineering student. “We placed second overall, placed second in performance (which combines all three tractor performance activities) and won the pulling competition. The lowest placing among all the other categories was seventh.”

This was the highest placing for SDSU in its 15-year history of attending. Muller said SDSU’s previous best ranking was eighth overall. Last year, SDSU was 11th.

DEDICATED TEAM

SDSU’s group competed with two garden-sized tractors in the A and X class. The A-class tractor was named TB-242 (Traction-Boss 2 cylinder, 4-speed, 2 WD) and X-Class was JR-15. Students built the A-class from scratch this year. The X-class tractor features modifications made after judging the previous year.

Those entering the workforce sometimes have little or no practical knowledge or design experience. In this competition, students from across the world are challenged to harness the power of a specified stock engine in order to maximize performance during the tractor pulls with a manufacturable and cost effective design.

“Our team exhibits impressive strengths,” Muller said. “Some of the team members redo old cars so they know what drivetrain systems will work. Some take part in tractor pulls so they understand ballasting and traction. Others work with farm equipment so they know about maneuverability and durability requirements. We generate a lot of ideas and talk about what works well from what we’ve learned in life and in classes.”

Members and advisers of the second-place SDSU Quarter-Scale Tractor Team are, from left, Nate Wright, Ryan VanTassel, Tia Muller, Miranda LeBrun, Mitch Sandey, Alex Koepke, T.J. Harder, Chandler Jansen, Lucas Derald, Joe DeBoer, Caleb Dinse, Spencer Van Overbeke, Doug Prairie, Tate Ketelhut, Joe Darrington and Brady Buck. Not pictured: Aaron Franzen.

Ryan VanTassel, the team captain for 2016-17, said the competition is design-based. He feels it's a great way for students to test ideas. The event forces students to learn time management and manufacturing processes, and many other practical skills folks in industry are looking for in the new job force.

"Our design was unique when compared to other tractors," VanTassel said. "A lot of teams use a similar drivetrain configuration, but we went a different route than all of the other teams. Even if two teams shared all of the same ideas, everyone has a different outlook on how to do things and you end up with some neat designs."

LOOKING TO NEXT YEAR

Muller said planning for the next year's tractor began as the group left the current year's competition. During the summer, team members communicate ideas through conference calls and the search begins for critical parts, such as a rear end or transmission.

Once students return to school, they will work in the ag engineering shop twice a week from 5 to 9 p.m.

Students use computer software to design the whole tractor model, incorporating the desired elements before cutting or shaping any material.

"This year, we used a program called Inventor," Muller said. "Our goal is to have the model completed by mid-December. The parts are laser cut during Christmas break. Then we can do the full build, including the fine details we need to fabricate. Once we have it built, we tear it down and send to Twin City Fan for the final painting. And then we reassemble and make adjustments."

Twin City Fan is a sponsor and fabricates parts, makes laser cuts and does the powder coating. "It would be nearly impossible to fabricate those parts in-house," Muller said. "Sponsors and local businesses have stepped up to provide us with needed support and supplies."

Muller said the group functions much like a club. All of the work is extracurricular, unrelated from school except they are using the knowledge learned to create a model tractor, the shop and equipment.

"We are really tight knit and all of us know our role in preparing for the competition," Muller said. "I'm passionate about this project. This is our sport. We put our efforts into the designing and building of the tractor much like athletes train outside of class."

COMPETITION IMPORTANT

"Out of everything I've done, FFA, sports, 4-H, this is the activity that has prepared me for my career," Muller said. "We are all looking for jobs and that's the basis for why I joined the group. I'm not the most mechanically minded, but I wanted to be able to learn and to grow my engineering knowledge. In this competition, I learn from teammates. I learn by writing about the process and presenting our work. I learn from listening to industry representatives judge our model.

"It's not just building a tractor. A big part of what the industry wants is the ability to prove to your customers, using data and written design reports, that this works. It means convincing a company that this machine is one they want to develop and manufacture."

"OUT OF EVERYTHING I'VE DONE, FFA, SPORTS, 4-H, THIS IS THE ACTIVITY THAT HAS PREPARED ME FOR MY CAREER."

-Tia Muller, ag engineering student

This was the first time Caleb Dinse, a junior, took part in the competition. He was interested because he wanted to learn about designing and building a product for actual use.

"The competition exposes students to the realities of the agriculture industry, where there are requirements for the products and challenges for displaying and presenting the product for production and sale," Dinse said. "As students, we gain valuable experience through the different parts of the competition, from the oral presentations and design report, to actual designing and building a functioning tractor."

SDSU ENTRY: NEW IDEAS PLUS SIMPLICITY

Joe DeBoer, a junior and a three-year member of the group, said the competition is designed to prepare engineering students for their future careers, by helping develop skills in teamwork and communication, and the ability to follow guidelines.

"Our design is a 100 percent mechanical drive-line," DeBoer said. "It utilized a different clutching method that stood apart from the popular CVT clutch designs. At Peoria, it is common to see some teams step out of the box and design a tractor that has an edge over everyone else. Our tractor was a well-balanced combination of new ideas while maintaining simplicity to achieve maximum efficiency as proven by our tractor pull results."

As far as the future, even if autonomous tractors are built to get the most done with the least labor, there will be a need to understand the mechanical aspects. "They will need shafts, bearings, belts and gears to make that happen," Muller said. "They'll need people, like us, who understand how to make it all work."

Lora Berg

COMPETITION RANKINGS:

Overall Placing: 2nd
Overall Performance: 2nd
Overall Pulling: 1st
Written Report: 6th
Presentation: 5th
Design Judging: 7th
Durability: Tied for 5th
Maneuverability: 7th



LONG ROAD PAYS OFF

CIVIL ENGINEER STARTING IN NFL

When Bryan Witzmann finished his summer internship with Civil Design Inc., in Brookings, CDI President Carey Bretsch said if Witzmann's plan to play in the National Football League did not pan out, he should look him up for a job.

Despite being cut four times, Witzmann's plan has worked out. After appearing in 12 games last season with the Kansas City Chiefs, Witzmann is now starting at guard.

Witzmann's career at South Dakota State saw him start 49-straight games as a tackle and earn The Associated Press All-America honors in 2012 and 2013. Despite those accomplishments, which also include Missouri Valley Football Conference academic honors, Witzmann went undrafted but later signed with the Houston Texans. He spent the 2014 season on the Texans' injured reserve. After being released by Houston in 2015, he was signed and released by the New Orleans Saints on two occasions. The Dallas Cowboys later signed and released him before Witzmann joined the Chiefs in September 2016.

"It's been a journey and continues to be a journey," said Witzmann, a native of Houlton, Wisconsin. "I've kept my head down and tried to push forward. While I've been cut four times, I tried to keep from being discouraged. I knew I had the ability; it was just a matter of time.

"Getting picked up in the NFL is so unpredictable. At a couple of points, I thought I'd never get picked up ever again," he continued.

"Obviously, I believed in myself and thought I deserved a spot. It's really about getting film out there, and I didn't have much film out there."

Despite appearing in several special offensive packages and specials teams play last season, Witzmann knew this year would be different.

"This year is a totally different beast," he said. "Last year, I had to be ready, knowing if someone went down, I'd go in. I always needed to have the razorlike focus so I could be ready and be confident when I would step on the field.

"Finding out I was starting that day, it felt good," Witzmann recalled of being named a starter for the team's opening-season game. "I was finally reaping the rewards for all of the hard work I'd been putting in. It's a sense of pride to beat the odds. No team thought I was worthy of being drafted. It's amazing what hard work and having a great support system can do for you."

Part of that support system includes former Jackrabbit Zach Zenner, another undrafted free agent playing in the NFL. Witzmann said the two shared a number of items about their paths to the NFL, but a common theme was hard work.

Hard work was how Witzmann described his ability to balance the demands of pursuing a bachelor's degree in civil engineering with his commitments as a student-athlete. His love of mathematics and science drew him to engineering.

Photo courtesy of the Kansas City Chiefs.



“I like the design aspect in civil engineering; to have the ability to drive by something you helped design and build is really cool, too. The (civil engineering) program was difficult, and by balancing it with football, it gave me the approach to push through things, no matter how tough things get,” Witzmann said. “I was always busy. It was tough but I’m happy I went through that and didn’t take the easy road.”

That road included balancing classes, conditioning and the internship with CDI.

“One thing about hiring student-athletes is they understand commitment and understand teamwork, concepts that are very important when you’re trying to run a business and manage a team,” said Bretsch, noting Witzmann worked on bridge inspections and a number of miscellaneous jobs. “We typically have a lot of people involved in a project, and Bryan understood those concepts and understood them very well. He worked very well as part of the team and when assigned to a project, he was committed to it, all-in, until it was completed to one’s satisfaction.

“He was a great guy to have around, a great personality and got along with everybody,” Bretsch continued. “I remember telling him on his last day if he wanted to be an engineer instead of being a football player, he should look me up.”

Witzmann has somewhat kept that thought in mind as he now takes MBA classes in the offseason. He’d like to use the MBA as a way to enter the business side of an engineering firm when his playing days conclude.

When that day happens, Bretsch said his offer still stands.

Matt Schmidt

SMART SWIMMERS



Wes Christensen



Christopher Rumrill

May civil engineering graduate Wes Christensen, of Pierre, repeated as a CoSIDA Academic All-America® selection, being named to the second team on the Men's At-Large squad. He was a third-team selection in 2016.

A four-year letterman, Christensen recorded top 10 marks in school history in both the 1,000-yard and 1,650 freestyle. He also was a part of SDSU's Human Powered Vehicle Team, served as an officer for the Jackrabbits Student-Athlete Advisory Committee and carried a 3.94 GPA.

He advanced to All-American status after being named to the All-District VI At-Large Team in May. He was joined on that list by Christopher Rumrill, also of Pierre.

Rumrill, a junior electrical engineering major, holds a 4.0 GPA. At the 2017 conference meet, Rumrill placed in the 100-yard individual medley, the 200 IM and the 200 freestyle as well as swimming on the fourth-place 800 freestyle relay. A two-time Summit League All-Academic selection, Rumrill has been inducted into several engineering honor societies.

Both men advanced to the national ballot for Academic All-American consideration.

The district team is chosen by sports information directors in the Midwest while the national team is chosen by district coordinators. The at-large team is comprised of athletes from nine minor sports.

ENGINEERING AND BASKETBALL

FRESHMEN FIND NEW HOME AT STATE

When driving his son to visit South Dakota State University, Kurt Krueger started to question his son's interest in attending the university.

"Dad said 'Dude, this is a long drive, a long flat boring drive.' But when we pulled into campus, saw the huge Jackrabbit lit up and the rest of campus, he said, 'I guess this drive wasn't all that bad,'" said Ryan Krueger, a freshman mechanical engineering major from Hortonville, Wisconsin.

By comparison, the drive from Arcadia, Iowa, for Matt Dentlinger was not as long. And State was his "dream school" as a choice to major in engineering and continue his basketball career.

Krueger also is a member of the men's basketball program and the Jerome J. Lohr College of Engineering was a key factor in his decision to come to State.

"South Dakota State entered the picture when coach (T.J.) Otzelberger called, said he'd been watching me a lot on film and offered a scholarship," Krueger said. "That's when it first came on my radar ... and ever since, it's been a really good fit. When looking at the academic side of things, it was the best engineering opportunity for me out of all of the engineering opportunities I had. It was a no-brainer."

MATH INTERESTS

Krueger, a self-proclaimed math-driven individual, and Dentlinger, who considers himself a problem solver, both said academics were stressed from a young age in their families. Dentlinger said his mother used to have him and his siblings work on problems when they were in kindergarten, and his parents would make sure homework was done before helping with chores on the family farm.

The priorities must have worked for the Dentlinger family as he has an older sister who played volleyball at Michigan State and earned three Academic All-Big Ten honors, an older brother played basketball at Briar Cliff but is now at Iowa State for engineering, and an older sister who plays basketball at Northwest Missouri State and earned academic all-conference honors there in 2016-17.

"If there's something wrong, whether it's computers or other technology things or something on the farm, I like trying to figure out what's going on and fix it—things engineers do," Dentlinger said, noting his father, Joel, is an industrial engineer. "Since I heard of it, South Dakota State has always been a 'dream' school as I could both play basketball and be part of the engineering college. The campus has a lot of new buildings, particularly in engineering. It was the only place I visited but it was the right fit. It had all of the best pieces I was looking for."

Krueger's interest in engineering came from taking Project Lead the Way classes. The project-based, hands-on classes allow students to learn about a career. He also took Introduction for Engineering Design, Principles of Engineering and Engineering Design and Development while in high school.

"My parents have helped me understand the importance of academics and what you do in the classroom is going to carry over into the rest of your life and can teach you so many things about life," Krueger said.

CAMPUS WALK WAS KEY

Those high school classes and parental influence sparked an interest in engineering but it was a walk on campus with Associate Dean Richard Reid that really got Krueger interested in SDSU.

"I don't think I was expecting the engineering college to be half as good or be as up to date as it is," Krueger said of his visit on Father's Day weekend. "Once we got into the buildings and Dr. Reid started showing me around, the scope of things was pretty unbelievable. I didn't think engineering had such a focus here. When I walked into the AME, it was 'wow.' The work areas and the quality of the classrooms were crazy."

Reid remembers Krueger's visit on Father's Day as well as talking to Dentlinger during the phone interview. Their interest in the college, as well as playing basketball, is part of what Reid looks for when recruiting.

"One of the outstanding things about SDSU is the way academics and athletics support each other," Reid said. "Athletics recruits outstanding students to our college who, if it weren't for our athletic programs, might not have considered coming to SDSU. On the flip side, our academic programs make SDSU a great choice for prospective student-athletes because they can see SDSU is a place where they can achieve both their academic and athletic goals.

"We're thankful for the athletic program and their assistance in recruiting these high-performing engineering students and the donors who provide athletic and academic scholarships. It's been great to help Matt, Ryan and their families through this process, and we're excited to see them in our engineering classrooms and on the court."

Matt Schmidt



SDSU basketball players Ryan Krueger, left, and Matt Dentlinger flank Rich Reid, associate dean, outside Crothers Engineering Hall. The freshmen both said majoring in engineering was a major factor in choosing State.

JEROME J. LOHR COLLEGE OF ENGINEERING STUDENT-ATHLETES

NAME	MAJOR	TEAM (S)	NAME	MAJOR	TEAM (S)
Mitchel Acker	Mathematics	Track and field	Krockett Krolikowski	Construction Management	Football
Austin Allard	Civil Engineering	Baseball	Ryan Krueger	General Engineering	Basketball
Adam Anderson	Construction Management	Football	Caleb Lang	Agricultural & Biosystems Eng.	Football
Alexander Auch	Mechanical Engineering	Cross country, Track and field	Mason Leiseth	Mechanical Engineering	Football
Bret Barnett	Electrical Engineering	Baseball	Tristen Leiseth	Mechanical Engineering	Football
Peter Bates	Mechanical Engineering	Track and field	Marquise Lewis	Electronics Eng. Technology	Football
William Bierschbach	Mechanical Engineering	Swimming and diving	Austin Lohsandt	Mechanical Engineering	Football
Jessica Boesch	Mechanical Engineering	Equestrian	Jared Miller	Mechanical Engineering	Swimming and diving
Brendan Branick	Mathematics	Track and field	Madison Mingo	Mechanical Engineering	Track and field
Caleb Bray	Mechanical Engineering	Track and field	Blair Mulholland	Operations Management	Football
Brady Brockel	Civil Engineering	Track and field	Amy Muller	Civil Engineering	Track and field
Parker Brown	Civil Engineering	Swimming and diving	Ray Munsterman	Mechanical Engineering	Cross country, Track and field
Levi Brown	Computer Science	Football	Mitchell Oehme	Civil Engineering	Baseball
Daniel Callender Torres	Electrical Engineering	Football	Tolulope Ogunrinde	Computer Science	Football
Henrique Conrado Stemmer	Mechanical Engineering	Tennis	Jacob Ohnesorge	Mechanical engineering (master's)	Football
Colton Cook	Operations Management	Football	Sydney Palmer	Mathematics	Basketball
Alex Crow	Computer Science	Swimming and diving	Marco Paulo Pereira Castro	Civil Engineering	Tennis
Matthew Dentlinger	General Engineering	Basketball	Gabriel Peters	Mechanical Engineering	Cross country
Michael Dobrenski	Mathematics	Football	Austin Pham	Mechanical Engineering	Swimming and diving
Taylor Duerr	Civil Engineering	Equestrian	Daniel Radtke	Mathematics	Cross country, Track and field
Arthur Egan	Mechanical Engineering	Football	Mitchell Raihle	Mechanical Engineering	Swimming and diving
Anna Fasen	Mechanical Engineering	Cross country, Track and field	Alejandro Restrepo Luzardo	Mechanical Engineering	Golf
Evan Fick	Mechanical Engineering	Cross country, Track and field	Christopher Rumrill	Electrical Engineering	Swimming and diving
Tiffany Flaata	Mechanical Engineering	Basketball	Cade Schoenauer	Civil Engineering	Swimming and diving
Nolan Funk	Mechanical Engineering	Wrestling	Zachary Schroeder	Mathematics	Track and field
Dallas Goedert	Operations Management	Football	Marisa Schulz	Mechanical Engineering	Soccer
Joshua Goehring	Mechanical Engineering	Track and field	Hunter Shelton	Civil Engineering	Wrestling
Alberto Gonzalez Raton	Mechanical Engineering	Tennis	Tylen Small	Electrical Engineering	Football
Charles Greene	Mechanical Engineering	Swimming and diving	Sebastian Sowada	Mathematics, Statistics	Cross country, Track and field
Evan Greeneway	Civil Engineering	Football	Austin Suhr	Mechanical Engineering	Baseball
Jonathan Gruetzmacher	Mechanical Engineering	Football	Chuck Tang	Electrical Engineering	Tennis
Mykin Gunning	Civil Engineering	Swimming	Nicholas Wessels	Computer Science	Track and field
Derek Hackman	Computer Science	Baseball	Seven Wilson	Construction Management	Football
Kallan Hart	Civil Engineering	Football	Jack Winter	Electrical Engineering	Track and field
Paige Hinton	Biology, Mathematics	Swimming and diving	Blake Wolters	Agricultural & Biosystems Eng.	Wrestling
Samuel Ivanecky	Computer Science	Cross country, Track and field	Daria Yakovleva	Mathematics	Tennis
Maclaine Johnson	Computer Science	Swimming and diving	Robert Zavagno	Construction Management	Football
Ayub Kassim	Electronics Eng. Technology	Cross country, Track and field	Nichole Zazula	Operations Management	Equestrian
Mary Krause	Electrical Engineering	Cross country, Track and field	Samuel Zenner	Operations Management	Track and field
			Andrew Zimmerman	Mechanical Engineering	Baseball



MCLAUGHLIN/MOBRIDGE JUNIOR SHARES PASSION FOR ENGINEERING WITH NATIVE AMERICAN PEERS

Keely Moriarty is focused on becoming a civil engineer, but she'd like to bring some of her peers from the Standing Rock Reservation along for the journey.

Those goals made her a perfect fit to work with the Pre-Engineering Education Collaborative, a National Science Foundation project to encourage Native Americans to become engineers.

"She was already recruiting for SDSU," said professor Suzette Burckhard, who leads the SDSU team working on PEEC in collaboration with faculty at the Oglala Lakota College and the South Dakota School of Mines. "Keely is a natural, conveying her excitement for engineering by helping Native students understand what engineering is and mentoring those who want to explore engineering as a career."

Moriarty chose SDSU because she wanted a good engineering school, but also a broader educational experience that allowed her to minor in French culture through the Department of Modern Languages and Global Studies. In the long run, she hopes to use her engineering skills to help people in countries around the world.

PASSING ON HER PASSION

"I always liked building stuff—Legos, K'nex, Lincoln Logs, but I didn't know it was engineering," explained Moriarty. The McLaughlin native credits her second-grade teacher in McIntosh for pointing her toward engineering—and her participation on a Lego robotics team.

Last summer, she taught an engineering class at the Standing Rock Middle School in Fort Yates, North Dakota. Moriarty used the Lego robotics to show fourth- through sixth-graders the different facets of science, technology, engineering and mathematics.

"STEM is the best place," she said, pointing out students can utilize a variety of skills—writing, mathematics, artistic design and chemistry—to name a few. However, she admitted, "It's easier to learn STEM than to teach it."

STEM subjects are taught individually in the classroom, but integrating those skills through a project, such as Lego robotics,

usually occurs outside the regular school day. That's difficult for students who must ride the bus to get home, Moriarty pointed out.

Through her work with PEEC, Moriarty wants to do outreach once a month for six months during the school day with reservation and near-reservation schools. She will work with students preparing for the spring robotics competition. "I can help them relate what they are learning in class and how it applies to their projects," she said.

PROVIDING SUPPORT

Moriarty credits the Summer Bridge Program, in which incoming freshman take classes for three weeks prior to the beginning of the school year, for helping her adjust to college life. "I knew my way around campus and knew what to expect from college-level classes," she said.

Since 2015, Moriarty has worked as a peer mentor, helping new students transition to campus life. She also takes classes each summer, which helps balance her class load during the school year.

As Moriarty continues to encourage other Native American students to become engineers through her robotic outreach program, a key part of her message will be, "I will be at SDSU and I can help you."

Christie Delfanian



Undergraduate civil engineering student Keely Moriarty, right, shows students a concrete column used to test the mixtures that they are creating at the National Summer Transportation Camp at SDSU.

Photo by Joanita Kant

Graduate student Freddy Moran, undergraduate Keely Moriarty, center, and graduate student Calvin Wampol set up instrumentation to get 3-D images of a Hidatsa reproduction earth lodge at Knife River Indian Villages National Historic Site northwest of Bismarck, North Dakota.



YOUTH CAMPS

2018

TEAMS (TESTS OF ENGINEERING APTITUDE, MATHEMATICS AND SCIENCE)

Feb. 22, 2018
Volstorff Ballroom, University Student Union

CONTACT: Kim Prohaska, kim.prohaska@sdstate.edu, (605) 688-6268.

GEMS (GIRLS, ENGINEERING, MATHEMATICS AND SCIENCE)

March 24, 2018
Crothers Engineering Hall

CONTACT: Rich Reid, richard.reid@sdstate.edu, (605) 688-4161, sdstate.edu/engr/camps/gems.cfm

EASTERN SOUTH DAKOTA SCIENCE AND ENGINEERING FAIR

March 20, 2018
Club 71, Dana J. Dykhouse Stadium

Contact: Brad Blaha, bradley.blaha@sdstate.edu, (605) 688-5133, www.sdstate.edu/science-and-engineering-fair

PROGRAM DESIGN CHALLENGE

March 29, 2018
Lewis & Clark Room, University Student Union

CONTACT: Jerry Cooley, jerry.cooley@sdstate.edu, (605) 688-6618; Myounggyu.Won, Myounggyu.Won@sdstate.edu, (605) 688-5703

ENGINEERING EXPO & PHYSICS BOWL

April 20, 2018, 9 a.m. – 3 p.m.
Swiftel Center, Brookings

CONTACT: sdsu.engineering@sdstate.edu, (605) 688-4161, www.sdstate.edu/jerome-j-lohr-engineering/engineering-expo

SUMMER SCHOLARS

July 9-13, 2018
SDSU campus

CONTACT: Fathi Halaweish@sdstate.edu, (605) 688-4269, <http://www.sdstate.edu/youth-engineering-adventure>

ACE (AEROSPACE CAREER AND EDUCATION) CAMP

July 8-11, 2018
SDSU campus

CONTACT: Cody Christensen, acecamp@sdstate.edu, (605) 688-4983, <https://www.sdstate.edu/consumer-sciences/ace-camp>

ELECTRICAL ENGINEERING CAMP

TBD, late July/early August
Daktronics Engineering Hall

CONTACT: Cory Mettler, cory.mettler@sdstate.edu, (605) 688-5306, www.sdstate.edu/electrical-engineering-and-computer-science/2017-south-dakota-state-electrical-engineering-camp

BEST ROBOTICS

Sept. 15, 2018 Kickoff Event
Union Marketplace

CONTACT: Becky Pistulka, becky.pistulka@sdstate.edu, (605) 688-6792, www.sdstate.edu/jerome-j-lohr-engineering/jackrabbit-best-robotics

READY, SET (SCIENCE, ENGINEERING, TECHNOLOGY)-GO!

Nov. 2018
Crothers Engineering Hall

CONTACT: Rich Reid, richard.reid@sdstate.edu, (605) 688-4161, sdstate.edu/engr/camps/ready-set-go.cfm.



**SOUTH DAKOTA
STATE UNIVERSITY**

*Jerome J. Lohr College
of Engineering*



TRUDY ANDERSON

PROGRAM ASSISTANT I — LTAP

Anderson began work July 24 for South Dakota LTAP (Local Transportation Assistance Program), replacing Nancy Vehorn, who retired.

Anderson had been working as a program assistant with the Division of Security and Technology since June 17, 2008, before making the move. She previously worked as a final title policy processor, a dispatcher,

a project coordinator/system analyst, an office assistant and a bookkeeper, all in the Brookings area.

“I have had in the past and currently have some great co-workers. I have also met many wonderful people throughout my time on campus,” Anderson said.

An Elkton resident since 1976, Anderson earned an associate degree in executive secretarial from Nettleton College in Sioux Falls in 1983.

She and her high school sweetheart, Jim, have a son, Derek, and a daughter, Tanya.

In Anderson’s spare time, she enjoys reading, camping and finding new dessert recipes, which she tests with family and friends.



JESSICA ANDREWS

GRANT SPECIALIST

Andrews has spent her career telling people’s stories, much of it in journalism and public relations. Now, she helps the college’s researchers tell their stories to funding agencies.

As grant coordinator in engineering research, she works with faculty members in preparing grant proposals and in creating opportunities and training to help them be

successful. It is a key position as external research funding has totaled \$4 to \$6 million annually in the last five years. She began in June, replacing Lisa Wells.

Andrews previously served as the communications coordinator of the South Dakota Humanities Council, which is based in Brookings, from July 2015 to October 2016.

She has also served as development officer for Lower Brule Community College in Lower Brule (March 2014-July 2015) and editor of the Chamberlain/Oacoma Sun (December 2007-October 2013). In August 2012, while working at the Sun, she met British adventurer Dave Cornthwaite, who was to swim 1,000 miles down the Missouri River starting in Chamberlain, ending in St. Louis.

“I spent three days on their support team, navigating a stand-up paddleboard en route to Pickstown. His message was ‘Say Yes More,’ which motivated me to explore my own adventures just as life was changing dramatically for me,” Andrews said.

While Andrews was raised in Rapid City and Murdo, she spent nearly 15 years in Chamberlain before moving to Brookings two years ago.

She also spent her college years in Brookings, graduating with a bachelor’s degree in communication studies in 2001 and a master of mass communication in 2015.

“As an alum, I am thrilled to use my degrees and experience in a way I never expected. I don’t think many realize the extent of research and discovery that happens at SDSU. It’s an exciting challenge to help our COE research faculty communicate their

work and goals,” said Andrews, who is married to Allen Day. They are raising three children, elementary through middle school age, as well as a noisy pug and cats.

In her spare time, Andrews bicycles, participates in roller derby, supports her husband’s running habit, plans the kids’ activities, spends time outdoors, enjoys homegrown tomatoes and does the laundry.



RUBEN BEHNKE

TEMPORARY ASSISTANT STATE CLIMATOLOGIST FOR SOUTH DAKOTA

Most people head for the basement when a tornado warning comes, but given Behnke’s background, it isn’t surprising he has been known to chase tornadoes.

He is a newcomer to South Dakota, taking his current position Aug. 22. Behnke has chased tornadoes throughout the Great Plains and saw a couple tornadoes in Oklahoma and

Texas and one in his home state of Wisconsin.

There are certainly possibilities for him to chase tornadoes in South Dakota but his official duties entail teaching climate risk management in the precision ag program and being responsible for data management, analysis and quality control for the South Dakota State Mesonet, which is a network of weather stations across South Dakota used in agricultural and water-management decision making.

The precision ag class gives students a general background in the science behind weather, and teaches them how to read and interpret forecasts, use weather data and make planting, harvesting and fertilizing decisions given the available weather data and forecasts.

He comes to this position after finishing his doctorate in forestry and conservation sciences from the University of Montana, Missoula. His other degrees were earned in Wisconsin—a bachelor’s in field biology and environment science from Wisconsin-Green Bay and a master’s in atmospheric and oceanic sciences from Wisconsin-Madison.

Behnke was raised on a Wisconsin dairy farm as the oldest of five children. The rest of his family still lives in Wisconsin. His work background includes farming, landscaping and scientific research, including making a data set of humidity for the United States.

Free time activities include weightlifting, board games, biking, going to restaurants and watching movies.

He has found SDSU to be “a nice, friendly school with a focus on agriculture.”

JASMINE GREENE

PROGRAM COORDINATOR — AGRICULTURAL AND BIOSYSTEMS ENGINEERING

Greene started with the department as a program assistant in August 2015, but switched to program coordinator, where she advises students, this August.

She advises sophomores through seniors in the precision ag, ag systems technology and agricultural and biosystems engineering majors. Other duties include marketing and student recruitment within the department.



Originally from Richland, Washington, Greene holds a bachelor’s

degree in political science from Emporia (Kansas) State University, with minors in Spanish and political science, in 2013, and a master's of public administration, with an emphasis in public budgeting, from Kansas State University, in 2015.

"I have learned an incredible amount about agriculture in the last couple of years of working at SDSU. The students, faculty and staff are some of the nicest people I've ever met," Greene said.

Her interests include reading, trying new art styles, taking art classes and traveling. She spent her senior year at Emporia State in a study abroad program at the University of Bradford in England taking classes in peace studies. She has traveled to 12 countries.



GILL HEDMAN
TECHNICAL ASSISTANCE PROVIDER — LTAP

Hedman, of Pierre, began work in July for South Dakota LTAP as the technical assistance provider for central South Dakota, replacing Larry Weiss.

Hedman retired in June as the lead pavement design engineer with the South Dakota Department of Transportation. He spent more than 24 years in the position and began as a pavement design engineer and

surfacing plans engineer for South Dakota DOT in September 1987. He graduated from South Dakota School of Mines and Technology with a civil engineering degree in 1975.

Currently, his main duty is to translate the latest highway and bridge technology into understandable terms for local government entities throughout the state, to keep local government officials informed about new publications, techniques and training opportunities that may benefit their communities.

Hedman said he has found the LTAP staff "friendly and easy to work with."

When away from the job, Hedman enjoys golf, small-game hunting, watching all sports, especially baseball and spending time with family, which includes his wife, Jan; two daughters, Alli and Brittany Hedman; and three grandchildren.

In earlier years, the Hedman family raised, trained and raced quarter horses at racetracks in the Upper Midwest.



TAMMY HINTZ
*SAFETY & HEALTH CONSULTANT,
ENGINEERING EXTENSION*

Hintz has spent 30 years in the field of safety and health, primarily in the U.S. Air Force. She spent 23 years there as an occupational safety and health technician ensuring a safe working environment for active duty and civilian employees. After retiring in 2011, she worked for various consultation firms doing the same type of work until starting at SDSU

in March 2017.

In her current position, she provides on-site safety and health consultation visits to evaluate working conditions and assists with compliance of Occupational Safety and Health Administration-mandated programs.

Hintz holds a bachelor's degree in occupational education from Wayland Baptist University, San Antonio, in 2003 and a master's in human relations from Oklahoma University in 2008.

During the three years she was stationed in Germany, she visited 14 countries. But now she is enjoying being able to spend time

with family after being separated due to military service. While she calls Milwaukee her hometown, her immediate family is in Sioux Falls, and she has a nephew, Tyler Hintz, who is an exercise science student at State.

She also enjoys visiting the Black Hills, cooking, going to movies and relaxing at home, which now is Volga. Hintz said she found the Brookings area to be a "great location with very friendly people."



JOHN JASPER
ASSISTANT PROFESSOR OF MATHEMATICS

Jasper arrived at SDSU in August after serving as a visiting assistant professor at the University of Cincinnati. He did postdoctoral research at the University of Missouri from 2011-14.

Jasper is originally from Enumclaw, Washington. All of his degrees are in mathematics—a bachelor's from Western Washington University in 2003 and a

master's and doctorate from the University of Oregon in 2007 and 2011, respectively.

Those Northwest roots play into his spare time. At the top of the list is watching the Oregon Ducks and Seattle Seahawks. He also plays bridge and pinochle and bowls.

This is his first experience in South Dakota for he and his wife, Deb. He said he has enjoyed the walkability of the town. "I walk to my office every day and I have walked down to Cubby's on a couple of Saturdays to watch football with some of the other faculty members in the department."

One thing that hasn't changed since moving here is shaving. He hasn't done it in four years.



SARAH MICHNA
INSTRUCTOR OF MECHANICAL ENGINEERING

Michna is new in title but not to the department. She was hired in August 2013 as a temporary part-time instructor, but this fall became a permanent part-time instructor.

Michna, whose husband Gregory is an associate professor in the department, teaches a variety of classes, including dynamics, thermodynamics, and production

and fabrication processes.

For several years, while home with their four children—Rebecca, Joseph, Catie and Matthew—Michna worked as an online physics and mathematics tutor and a team mentor with Tutor.com, an online tutoring service that serves students of all ages. Previously, she taught pre-algebra at Parkland Community College, in Champaign, Illinois.

As an undergrad at the University of Wisconsin-Madison, she held a multisequence co-op position at the NASA Johnson Space Center and had an internship with General Motors.

Her 2001 bachelor's degree in mechanical engineering was followed by a master's in materials science and engineering from the University of Illinois-Champaign in 2004. Her thesis was "Directed Assembly of 3-D Hydroxyapatite Scaffolds."

At SDSU, she enjoys "the positive working environment of the mechanical engineering department and working with our great students."

Away from SDSU, she enjoys spending time outside and going on summer road trips. This summer the Michnas drove to Washington, D.C., to view monuments, museums and the giant pandas at the National Zoo.

During the school year, Michna enjoys reading and participating in a local book club that focuses on classic literature.



CRAIG MAESCHEN

INSTRUCTOR OF CONSTRUCTION OPERATIONS AND MANAGEMENT

Maeschen, who started Aug. 21, teaches classes at the University Center in Sioux Falls and supervises the manufacturing lab in Solberg Hall in Brookings.

He comes from a background in industry and technical schools. He has been a supervisor for Andis Co. in Sturtevant, Wisconsin; the quality manager for Wisconsin

Products of Racine, and applications engineer for Cline Tool in Sturtevant. Maeschen then taught in the workforce and economic development division of Gateway Technical College in Kenosha, Wis., for 11 years.

Maeschen holds a bachelor's degree in electronics engineering technology from SDSU (1990) and a master's degree in manufacturing from Minnesota State University, Mankato in 1992.

Originally from Mitchell, Maeschen enjoys helping on the family farm near Mitchell and riding his bicycle.

In his new setting, he has enjoyed learning the differences between a technical college and a university, including the very different ways of doing business, as well as learning the differences in the communities from Wisconsin to South Dakota.

He and his wife, Laura, have three daughters—Olivia, 28; Jocelyn, 24; and Hannah, 18.



JOHN MCMAINE

ASSISTANT PROFESSOR, AGRICULTURAL AND BIOSYSTEMS ENGINEERING

McMaine hails from Salvisa, Kentucky, a berg in the north-central hills, but like the water he studies, McMaine has flowed about everywhere.

The SDSU Extension water management engineer said, "I have had the opportunity to travel throughout my life and have always sought to enter into the local experience.

I have ridden rancheras (open-sided buses or trucks) through the mountains of Ecuador; shared mate (a tea) in the pampas of Argentina; and met local Rastafarians and visited their community in the Blue Mountains overlooking Kingston, Jamaica.

"I have also spent time in Monterrey, Mexico, and visited Australia."

The locations are a world away from the Bluegrass State, where he received his bachelor's (2011) and master's (2013) degrees in biosystems and agricultural engineering from the University of Kentucky. He added a doctorate in biosystems engineering from Oklahoma State University in 2017.

He came to SDSU in August and his primary role is to develop new water management tools and assist agricultural and urban stakeholders in implementing new technologies.

In his doctoral research, McMaine explored ways for nurseries to reduce pesticides and nutrients in runoff through implementing

engineered structures and modifying management strategies. "This involved extensive field- and bench-scale experiments. I was responsible for managing water quality sampling and data collection at multiple constructed wetland sites," McMaine said.

His nonacademic interests include hiking, adventuring, finding new experiences from local to international, working out at the gym and playing pickup basketball at the Wellness Center.

McMaine said he and his wife, Laura, have found SDSU to have "a great small-town feel with more activities than we have time to partake in. I have a great group of people to work with. I feel supported and each individual and group is happy to welcome me and help. There is great interaction between the university and community, whether it is with producers or local, state and national government."



MICHAEL PAWLOVICH

LECTURER IN CIVIL AND ENVIRONMENTAL ENGINEERING

Pawlovich is originally from southeast Minnesota but spent nine formative years in Huron (Huron High School, 1989), before traveling to central Iowa for college.

All of his degrees have been in civil engineering from Iowa State. His bachelor's was in 1994 followed by a master's in 1996 with a transportation emphasis and a

doctorate in 2003 with an emphasis in transportation/traffic safety.

He worked as a graduate research assistant at Iowa State in 1994-2000 and then joined the Office of Traffic and Safety in the Iowa Department of Transportation. He served as a transportation engineer intern from 2000 to 2004, was a transportation engineer 2005-2008, and a transportation engineer specialist 2008-17. Throughout his tenure, he was known as the crash data and analysis specialist.

He started Aug. 14 at SDSU and teaches two classes per semester in transportation. Pawlovich said he has enjoyed "the challenging yet rewarding opportunity to explore a long-standing interest in teaching and student interaction. The people throughout the university that I have encountered and interacted with have been terrific."

In 2009, he was inducted into the inaugural class for the Iowa Transportation Heroes.

Pawlovich co-developed the SAVER (Safety, Analysis, Visualization and Exploration Resource) program, Iowa's primary traffic-safety analysis resource. SAVER is a geographic information system-based software program that identifies and analyzes crashes that occur along Iowa's roadways, and allows Iowans to have county-specific data.

The software has recently been transferred to a web environment under his leadership.

While at that 2009 induction, he had the opportunity to have an impromptu conversation with NASA astronaut Peggy Whitson, the keynote speaker.

Pawlovich's wife, Vanessa, and their seven children remain in Nevada, Iowa, where their two oldest are involved in First Tech Challenge, an annual national robotics competition. Last year, through 4-H, he was a team mentor and the team qualified for state. He remains a remote mentor this year.

Pawlovich's other varied interests include soccer, biking, running, walking, watching movies, reading, drawing and doing home/yard upgrades—carpentry, plumbing, wiring, painting and gardening.



DOUG PETERS
INSTRUCTOR IN MECHANICAL ENGINEERING

Peters falls in the “new and returning faculty” category.

He resigned at the end of spring semester 2013 to devote time to Green Acres Equipment, the farm equipment dealership he owned. Peters, of Wentworth, spent 13 years in the mechanical engineering department, beginning as a technician while working toward his bachelor’s degree in

mechanical engineering in 2001.

(Peters already had earned a bachelor’s in mathematics from Southwest Minnesota State in 1984 and added a master’s degree from the University of North Dakota in 1991.)

He spent 10 years as an instructor and in August began his 11th year.

He teaches classes in dynamics, mechanical design, mechanical engineering design technologies and fabrication/production processes. In addition to teaching engineering courses at SDSU, Peters also has taught various combinations of courses in mathematics and physics at Dakota State University and Southwest Minnesota State.

“What I enjoy most about SDSU are the people who make up the SDSU community. The friends and acquaintances I have made throughout the years have helped me become the person I am. Being part of the SDSU community and having access to the teaching and learning resources here are valuable assets.

“I appreciate the quality of students at SDSU and the opportunity to work with them as they develop the skills and tools they need to become successful in their educational endeavors and careers,” Peters said.

Away from the university, he enjoys watching high school wrestling and football as well as various motor sports, including sprint car racing and tractor pulling. “I also enjoy studying the evolution of agricultural equipment and the way technology has changed modern farming practices and life in rural America,” he said.

Peters rates a 2006 trip to the U.S. Army Watervliet Arsenal in Watervliet, New York, as “one of the most memorable and unique professional experiences I’ve had.

“This facility was founded in 1813 to support the War of 1812 and has since become one of the nation’s premier manufacturers of gun barrels for tanks and mortars. We witnessed the rotary forging of a tank gun barrel during our visit and toured the facility where research and development was being done for new mortar round propulsion and guidance systems,” he said.

Peters and his wife, Ruth, have four children—Jared, Nichole, Jason and Justin.



DAWN VAN BALLEGOOYEN
SECRETARY IN THE DEAN’S OFFICE

Van Ballegooyen brings 14 years of experience at SDSU into her new position, which she started in September. Van Ballegooyen replaced LaVonne Riechers, who retired. She spent eight years in the print lab and for the last six years has been in the natural resource management program.

Her current position involves customer service, clerical support in correspondence, filing, creating and maintaining databases, and recording fiscal activities to support office operations.

Van Ballegooyen, a native of Rock Valley, Iowa, holds an associate degree in applied sciences in financial administration and a minor in credit operations from the University of Minnesota in 1996.

Away from the office, she researches areas of science and government to advocate for changes.

She and her husband, Larry, have four children—Travis, Jacob, Brady and Hope.

RETIREMENTS

NANCY VEHORN

Nancy Vehorn, a program assistant with LTAP (Local Transportation Assistance Program), retired April 27 after 5 ½ years. She also worked in electrical engineering from August 1988 to June 2010. In retirement, she and her husband, Dave, moved to Kentucky.



30 years

RIECHERS RETIRES FROM DEAN'S OFFICE

The dean's office staff in the Jerome J. Lohr College of Engineering's is slated to move into its renovated space in the 2018 spring semester, but one of its fixtures won't be there.

After 30 years in the college and 36 years with the State of South Dakota, LaVonne Riechers retired Sept. 21. She started part time/temporary in the dean of engineering office in December 1987, working with fellow Volga resident Barb Dyer, who retired Sept. 21, 2016, as program assistant II after 47 years at the university. Riechers turned 65 Sept. 3 and was ready to spend more time with grandkids.

She has two children—Jason (Melissa), of Sioux Falls, and Amber (Rob) Ness, of Yankton—and three grandchildren.

As secretary/receptionist, in addition to answering phones and helping students find rooms, Riechers helped with career fairs, graduation, the Dean's Advisory Council, the awards banquet and outreach activities like GEMS and Ready SET Go! The Redfield native also has helped students change majors and register for classes.

The most enjoyable aspect of her job? "The students. Engineering just has the best students. They're courteous; they're nice," she said.

Dyer said, "I think one of LaVonne's greatest attributes is her ability to make our 'customers' feel welcome in the college. She gives them 100 percent of her attention the minute they walk through the door. The students feel very much at home in our college, dropping in the office when they go by just to say hi and get a piece of her candy."

Those comments were from a February 2003 press release when Riechers was named the university career service employee of the month, however, they are still just as valid in 2017, Dyer said.

The secretaries in the department have bonded closely, most for many years.

Riechers said, "We all get along. Once or twice we get together for a Christmas party or something in the summer. I could have applied for other jobs but I don't think I would have enjoyed them as much. When you like the people you work with and work for, sometimes it's better to stay where you're at. I liked the people I worked with, the students I worked with and the people I worked for."

Outside of the office, Riechers has kept the official scorebook for the Sioux Valley High School boys' and girls' basketball teams since December 2002 (after her son graduated) and has been active with Beta Psi Sorority and activities at First Lutheran Church in Volga, which has been her home since 1979.

In retirement, besides doting over grandchildren, Riechers plans to knit and crochet, take up the piano again, and continue to record buckets and fouls for the Cossacks.

However, this year those late-night doubleheaders won't be followed by the all-too-early alarm clock buzzer.

Dave Graves

MICHNA, GENT DOING SIMULATION WORK ON NEW HOMESTAKE EXPERIMENT

Mechanical engineering associate professors Greg Michna and Stephen Gent are helping with an international physics research effort at the Sanford Underground Research Facility in Lead.

They are performing computational fluid dynamics simulations to help those designing a particle detector for the Sanford Underground Research Facility. Their work is a one-year effort that is part of a 10-year project to construct the Deep Underground Neutrino Experiment (DUNE). A groundbreaking was held July 21.

The U.S. Department of Energy's Fermi National Accelerator Laboratory, known as Fermilab, in Batavia, Illinois, is a partner in the project.

During the next 10 years, more than 800,000 tons of rock will be excavated from the former Homestake Mine to create three large underground caverns nearly 1 mile below the surface. The space will house a particle detector filled with 70,000 tons of liquid argon cooled to -300 degrees Fahrenheit. Scientists study the interaction neutrinos make with argon atoms in the detector.

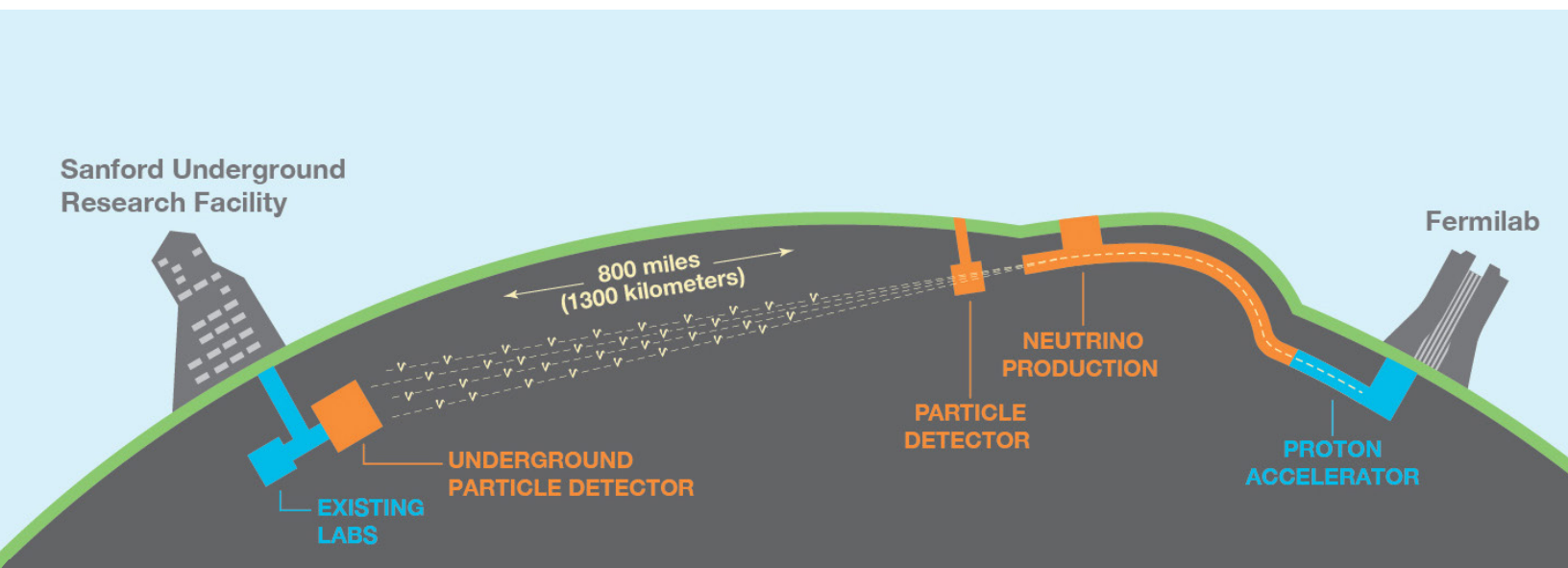
Fermilab is funding the \$50,000 grant for Michna and Gent's work. The researchers simulate the fluid flow, heat transfer and impurity distribution of argon in proposed detector designs. One graduate student and one undergraduate are involved in the project.

"When a neutrino hits something, it gives off electrons. The electron lifetime is dependent upon the impurity levels of the argon," explained Michna, the principal investigator on the project. "There should be few impurities in the liquid argon and the distribution of impurities should be uniform." The researchers are evaluating different manifold designs and the inlet-outlet plans for the pumps that filter and distribute the argon throughout the detector.

The detector will record particle interactions, capturing images of neutrinos beamed 800 miles through the Earth from Fermilab's neutrino-producing facility in Illinois. It must be housed deep underground to prevent interference from neutrinos produced naturally by the sun and other stars. Fermilab collaborated with the University of Minnesota on a similar research facility at the Soudan Underground Laboratory, north of Duluth.

Construction of prototype detectors for DUNE has begun at the European research center CERN, one of the project's major partners. A team of 1,000 scientists and engineers from more than 160 institutions in 30 countries will work on the DUNE project.

Christie Delfanian





FROM SOFTWARE ENGINEER TO PEACE CORPS VOLUNTEER

David Monnens took his mathematics degree to a position as a software engineer in Sioux Falls, but that job didn't hold him long.

Monnens, the son of retired Jerome J. Lohr College of Engineering staffers Michael and Ann Monnens, left SDSU in 2014 with degrees in math and Spanish and an interest in the Peace Corps.

"I was looking for a job where I could work with people and do something out of my comfort zone ... a new language, new people, a new country. It's been a growing process for me. You have to adapt and it's very good for anybody to go through," said Monnens, who began his three-month Peace Corps orientation session in August 2015.

He began a two-year assignment to help English teachers become better English teachers in Jinotepe, Nicaragua, in November 2015.

Monnens teaches fifth- through 12th-graders beside a Nicaraguan teacher in a small Catholic school and teaches at a local university, Unan Farem Carazo, where he works with English majors and tourism majors who are required to study English. He also has taught a community English class for children and plans a class for teachers.

In his senior year at State, Monnens got a taste for teaching by volunteering with the English as a Second Language program in informal tutoring.

'FIRST YEAR ... VERY DIFFICULT'

Despite having a degree in Spanish and three months of language/teacher training with the Peace Corps, Monnens said, "The first year that I was here was very difficult. Getting acclimated and figuring out how to teach was uncomfortable. My lack of experience (in teaching) is not a big deal. Now, I have the experience but more than that I have credibility. The main thing is to create that interpersonal connection and build up trust."

He worked with the same teacher at the Catholic school last year.

The Peace Corps works "with people in the community who are interested in working with us. The first year is spent building relationships. The second year is when the handoff begins," said Monnens, a 2010 Brookings High School graduate.

Sometimes volunteers aren't able to hand off as much as they would like.



Left: David Monnens poses with students in the eighth-grade class he teaches in a small Catholic school near Jinotepe, Nicaragua.



Right: After a pinata party, David Monnens poses with a group of Jinotepe children between the ages of 8 to 10 to whom he taught English with the help of local teens (also pictured).



Michael Monnens, a retired health and safety consultant with Engineering Extension, visits with his son, David, who is serving with the Peace Corps in Nicaragua, in September 2016. In the background is Lake Nicaragua, the largest lake in Central America.

“There’s always more to do. One of the things you realize is you can’t change everything in your two years. There are some bigger challenges I wanted to confront, but wasn’t able to.” He cited some language teaching methodology. “There’s a lot of little techniques, tricks you can do, that really make a difference. But convincing others to use them is easier said than done,” Monnens said.

He said the Catholic school, which is just outside of Jinotepe, has 12 to 14 students per class and his university classes have 20 to 25 students.

DRAWING PARALLELS WITH BROOKINGS

Monnens draws a lot of similarities between Brookings and Jinotepe, which is the capital of Carazo and about an hour from the national capital of Managua. With five universities, “the level of people with higher education is greater than in most parts of Nicaragua and there are similar amenities to Brookings,” including, as of June, a Subway.

“I work with great people. I’ve met so many motivated people who want to improve themselves and their community,” Monnens said.

While it’s Monnens’ job to teach, he said he has been learning as well.

“I have a lot more patience in understanding a person’s perspective. Sometimes I may ask a person do an activity but the person isn’t able to do it. I have more understanding, more empathy. Part of it is culture—people work at a different pace in Nicaragua than what I’m accustomed to. In the United States, people work quickly to get something accomplished. Here, not so much.

“Also, the person you’re working with may not have water or electricity that day. There are other issues they’re dealing with,” he said.

When Monnens’ Peace Corps term ended in November, which corresponds with the end of the Nicaraguan school year, he returned to the States to begin a master’s degree program in civil engineering or urban planning.

In the meantime, “I’m very happy in the community where I live; there are a lot of good things happening in this country.”

Dave Graves



Arlen Ottman

Arlen Ottman spent a half-century designing and detailing plans and framing specifications for state and interstate bridges in Minnesota.

Today, he is helping Jerome

J. Lohr College of Engineering students master the challenge of designing, fabricating and erecting model-scale bridges in an American Society of Civil Engineering student competition. In 2016, he created an endowment that will pay for travel and materials for SDSU students who enter the five-state Midwest regional competition.

“When this endowment is ‘grown’ in five or six years, it will be tremendous knowing that the team has a reliable income source

to pay for fabrication costs and update equipment,” according to Zach Gutzmer, competition adviser and a civil engineering instructor.

In the competition, students at the competing schools design and build a steel bridge, spanning an object as quickly and efficiently as possible. Teams are judged on construction time, lightness, aesthetics, stiffness, economy and structural efficiency.

Ottman said, “It gives students some hands-on experience. They must be resourceful on how they’re going to do it.”

Gutzmer noted, “The students put an incredible amount of work into the bridge competition. There are many opportunities to learn engineering lessons through this hands-on competition that go far beyond the conventional classroom. It is exciting to watch the lessons learned before, during and after the competition.”

ASCE BEFORE COMPETITIONS

There were no steel bridge-building or concrete canoe competitions when Ottman was studying civil engineering at South Dakota State College. There was a student chapter of the ASCE at State when the 1955 Lemmon High School graduate was pursuing his degree. “Emory Johnson was head of the civil engineering department. He insisted that every student be a member of ASCE,” Ottman said.

The first steel bridge-building competition was held at a regional conference in Michigan in 1987 and became a national ASCE contest in 1992.

Ottman’s first experience with bridge design came in fall 1959, when, after graduating from State in June, he took a job with the bridge division at what was then the Minnesota Department of Highways. He was put on a design squad, working in the state capital of St. Paul. He was later given



FUND IT AND THEY WILL BUILD

responsibilities for handling the utilities that are attached to bridges.

During his career, he provided engineers' estimates, reviewed contractors' bids and checked off on bridges on secondary roads that were receiving state or federal dollars.

For the last 22 years of his career (1987-2009), Ottman was a principal engineer for a bridge design unit of five to seven engineers and technicians. In that position, he served on a national highway research panel that would consider research proposals and award grants to selected projects. It also was during this time that he attended the International Bridge Conference in Pittsburgh.

'BRIDGING' CONNECTION TO NEXT GENERATION

In 2004, Ottman served as a judge at the Midwest regional steel bridge-building competition at the University of Minnesota.

He was impressed by the students' enthusiasm.

So it was natural when Bruce Nearhood, senior gift planning officer with the SDSU Foundation, approached Ottman about giving back to his alma mater that an endowment benefiting future bridge builders would be suggested. Ottman said he wanted to give, but was uncertain how his gift would work best.

The retired bridge engineer, who now is back home in Lemmon, said he couldn't be happier to be helping a future generation of bridge engineers.

Gutzmer added, "50 years as a bridge engineer is a tremendously career. With Mr. Ottman's endowment, his impact on the field will continue on for generations."

Dave Graves

2017 TEAM FINISHES FOURTH AT REGIONALS

SDSU sent 19 civil engineering students to the American Society of Civil Engineering Midwest Regional Student Conference in Fargo, North Dakota, March 30-April 1.

The group included six members from the steel bridge-building team: co-captains Brian Kidd and Matt Zobel as well as Steve Bunch, Mathew LaVoy, Ben Lichty and Jordan Twedt. The design and fabrication of the bridge prior to the competition involved 20 students ranging from freshmen to graduate students, according to adviser Zach Gutzmer.

SDSU finished fourth out of 11 teams. North Dakota State and Lakehead University, Thunder Bay, Ontario, advanced to the national competition.

DISTINGUISHED ALUMNI

Two of the university's six alums honored at the 2017 Legends and Leaders banquet Oct. 13 hail from the Jerome J. Lohr College of Engineering.

Receiving recognition at a reception and banquet Oct. 13 and in the Oct. 14 Hobo Day parade were David Blegen, of Rochester, Minnesota, a 1964 mechanical engineering graduate, and Zach Carter, of Spearfish, a 1999 civil engineering graduate.



DAVID BLEGEN

Blegen, a Lake Benton, Minnesota, native, devoted 42 years to business management at IBM (1964-97) and Pemstar (1997-2007). He also chaired the Budget and Finance Committee for the SDSU Foundation's Council of Trustees from 2011 to 2016 and contributed to the development of the Hobo Day Gallery, including serving as the model for the Weary Wil statue.

After earning a degree in mechanical engineering, Blegen joined IBM in Rochester,

working as a resource manager, manufacturing strategic planning manager, business manager and marketing support manager for various IBM products.

Forty years after he chaired the Hobo Day Committee, Blegen renewed his service to SDSU in 2003 when he was invited to join the SDSU Foundation Board. When the board reorganized through the creation of an executive committee, Blegen was included, serving on the Budget and Finance Committee before becoming chair in 2011.

While in that role, he was known for asking tough questions and being diligent to make sure increases in the operating budget were generating a favorable return on investment for the university.

Blegen also took an integral role to create the Hobo Day Gallery in the University Student Union, which is understandable since this 1963 Grand Pooba also served as the 1966 Weary Wil. Blegen also agreed to serve as the model for the Weary Wil statue that was erected outside of the Hobo Day Gallery and coined the term "Hobo by choice."



ZACH CARTER

After a preseason in the NFL, Carter went into construction and became a project manager for a firm that does building for the U.S. military and other government entities in remote and dangerous corners of the world.

At 6-4, 300 pounds in his senior year, Carter was a giant even among defensive linemen. Today, he is a giant in a specialized construction industry.

Carter worked as a project manager for BL Harbert International, a Birmingham, Alabama-based construction company that is building a \$1 billion project in Islamabad, Pakistan. Carter was with BL Harbert for 12 years (through December 2016) and also was project manager for projects in Accra, Ghana; Johannesburg, South Africa; and Lusaka, Zambia.

Carter, the 1994 Gatorade State Player of the Year, was named to the all-Coughlin-Alumni Stadium team in 2011 and signed as a free agent with the Buffalo Bills after graduating with a construction management degree in 1999.

When he was the final player to be cut before the start of the regular season, Carter, a Spearfish native, turned to his academic training as a construction engineer with Morrison Knudsen.

As manager of the Pakistan project, Carter managed one of the largest design-build projects for the company and overseas U.S. government operations. It had up to 4,000 local employees, 150 American tradesmen and an office staff of 130 engineers and administrative personnel from 12 different nationalities.

Additionally, he worked with several U.S. government agencies and host country organizations to manage the eight-year project.

LASTING LEGACY

HANSON ENDOWMENT



John M. Hanson, a 1953 civil engineering graduate who created an endowment for a professorship in structural and construction engineering, died peacefully in his sleep in his Green Valley, Arizona, home May 26, 2017.

The Hanson Professorship is funded by a \$1 million endowment, which provides income for a salary stipend to the faculty member plus discretionary funding for student support, research, travel and other scholarly activities.

Hanson, an 84-year-old Brookings native, signed an agreement Oct. 24, 2013, to create the endowed professorship. Professor Nadim Wehbe was selected in January 2014 by a university committee and confirmed by Dean Lew Brown and then-Provost Laurie Nichols.

Hanson took part in the Feb. 4, 2014, ceremony where Wehbe was recognized as the first recipient of the John M. Hanson Professorship in Structural and Construction Engineering at SDSU.

Hanson's career is most defined by his 20 years at Wiss, Janney, Elstner Associates, where he spent 14 years as president, retiring in December 1992. The Chicago-based firm, which has more than 500 employees nationwide, specializes in solving civil engineering problems. Hanson was the firm's 24th employee.

Most of his assignments were comparatively routine—analyzing problems and failures in concrete construction, for example.

However, he also was project manager on some high-profile investigations, including the collapse of sky bridges at the Hyatt Regency Hotels in Kansas City in 1981 that took the lives of more

than 100 people, and the Schoharie Creek Bridge collapse on the New York State Freeway that killed seven people in 1987.

Hanson remained on the Wiss, Janney, Elstner board of directors until 2014.

The year he retired from Wiss, Janney, Elstner, his peers tabbed him for membership in the National Academy of Engineering, one of the highest professional honors accorded an engineer.

After retiring from Wiss, Janney, Elstner, he joined the faculty at North Carolina State University as a Distinguished Professor Emeritus of Civil Engineering and Construction, serving eight years.

Prior to Wehbe's induction ceremony, Hanson said, "I was very fortunate in my practice and the opportunity to be in civil engineering. It turned out to be a great field for me. I worked in many prominent jobs in the country; investigated many structural failures. Even now, when I hear of a bridge failure, I would like to get my boots on."

Hanson served as president of the American Concrete Institute in 1990 and the International Association for Bridge and Structural Engineering from 1993 to 1997. He was inducted into the National Academy of Engineering, Civil Engineering Section, in 1992.

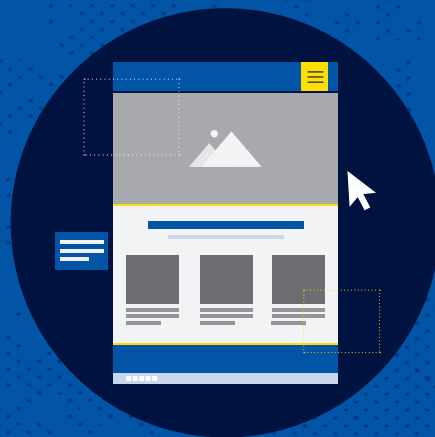
Hanson was cited as a Distinguished Engineer by South Dakota State University in 1979. He was elected an honorary member of American Society of Civil Engineers in 2002.

Hanson was preceded in death by his wife Mary E. (Josephson), and his brother David Hanson. Survivors include four children, Margaret (Glenn) Reed, Eric Hanson, Minda (John) Josten, and Martha (Lee) Weyers; six grandchildren and two sisters. A memorial service, officiated by his niece, the Rev. Kari Hart of The Lutheran Church of the Holy Communion, Philadelphia, was held June 24, 2017, at Grace Evangelical Lutheran Church, Mount Prospect, Illinois.

The professorship funding is permanently endowed and the selected faculty member serves terms of five years with no limits on reappointment.

Dave Graves

FIND
HELP
ON THE
WEB



JEROME J. LOHR COLLEGE OF ENGINEERING

 www.sdstate.edu/engineering

 [/southdakotastateEngineering](https://www.facebook.com/southdakotastateEngineering)

 [SouthDakotaState](https://www.youtube.com/SouthDakotaState)

SDSU HOME PAGE:

www.sdstate.edu

CAREER FAIR:

<http://www.sdstate.edu/engineering/career-fair>

YOUTH CAMPS:

<http://www.sdstate.edu/engineering/camps>

ADMISSIONS:

www.sdstate.edu/office-admissions

ALUMNI:

www.statealum.com

ATHLETICS

www.gojacks.com

FOUNDATION:

www.sdsufoundation.org

MUSIC:

<http://www.sdstate.edu/music>

SOUTH DAKOTA ART MUSEUM:

www.sdstate.edu/south-dakota-art-museum

THEATER:

(State University Theatre/Prairie Repertory Theatre)

<http://www.sdstate.edu/theatre>

www.prairierep.org

EE GRAD HELPS IMPLEMENT NEW AIR TRAFFIC CONTROL SYSTEM

To say working with the Federal Aviation Administration wasn't on Glenn Meier's radar when he enrolled at State in fall 1974, would be both a bad pun and an understatement.

"I grew up on farm near White Lake, was good in science and math and everybody said I should be an engineer. When I won a Briggs Scholarship, it was an easy decision where to go, but I had no idea what I was going to do. I started out taking general engineering courses, and then decided on electrical engineering in the middle of my sophomore year," he said.

When Meier graduated in 1978, he had the travel bug and took a job with Hughes Aircraft in Los Angeles working on radar for the Navy F-18 fighter jet and nine months later was transferred to the Naval Air Test Center in Maryland. Radar and air traffic control has been his life ever since. He started working as a contractor with the FAA in 1985 and became a federal employee in 2010.

Today, he is the project leader for the Automatic Dependent Surveillance-Broadcast (ADS-B) system in the Gulf of Mexico.

Radar is a current technology while Automatic Dependent Surveillance-Broadcast uses leading technology to improve accuracy, he explains. Nationwide, there are more than 650 Automatic Dependent Surveillance-Broadcast ground-based radios in operation in the United States. Eventually, they will replace many of the radar systems still in place at many airports like Sioux Falls.

"The ADS-B transponder pulls the navigation information from the plane's GPS and broadcasts it. Radios on the ground or other aircraft can pick it up and know where the airplane is," Meier said. "The system runs on its own; no pilot interaction is needed. It is dependent on the aircraft's navigation system while current radars depend on radio reflection of skin."

The ADS-B system is particularly valuable in the Gulf of Mexico, where there is no radar service because radars are too large to fit on oil platforms.

CREATING MORE LANES IN THE SKYWAY

The FAA began installing Automatic Dependent Surveillance-Broadcast systems in the Gulf in 2008. Today there are 12 on oil-production platforms providing coverage of more than 100,000 square miles of water. Without radar, air traffic controllers need to assign 30-mile wide lanes to keep helicopters and planes safe.

Now with the Automatic Dependent Surveillance-Broadcast systems, the high-altitude commercial airway lanes can safely be narrowed to 10 miles, allowing more traffic in the airways, Meier said. Additionally, helicopters can receive air traffic services to operate closer in most weather conditions.

He noted, "The FAA's implementation of ADS-B in the Gulf has drastically increased efficiency and reliability of aviation operations while maintaining a high level of safety."

The antennae on an Automatic Dependent Surveillance-Broadcast unit are 5-foot high.



Glenn Meier, left, a 1978 electrical engineering major, poses on an oil-production platform in the Gulf of Mexico.





“The Gulf air traffic system has been specifically implemented to accommodate the diverse aviation needs that include high-altitude commercial aviation traveling between the United States and Mexico or between Florida and Texas, as well as low-altitude helicopters supporting the thousands of oil platforms and the military.”

Helicopters transport workers to deep-sea oil platforms. In 2016, there were 527,000 flights by 344 helicopters carrying 1.5 million passengers, according to a Helicopter Safety Advisory Conference report. While those numbers continue a decrease in each area, the falling numbers are primarily a reflection of sagging oil prices.

‘EVERYTHING EXPENSIVE ON OIL PLATFORM’

While the Automatic Dependent Surveillance-Broadcast system provides full coverage for the Gulf, the oil platforms don’t stay in operation forever. Oil platforms on the shelf (shallow waters) can date to the 1950s “and they’re drying up,” Meier said. Only four of the units are on shallow-water platforms. The rest are on deep-water platforms.

The units can be placed in two racks that are 19 inches wide and 6-feet high with five tube antennas about 5-foot high each, but the process to move them to another oil platform is no simple matter.

“We usually do one relocation a year. That costs us about \$1 million ... Everything is expensive on an oil platform,” said Meier, noting that work is done by a limited number of specialized

contractors. The initial cost to erect a 10-by-10-foot building to house the units can be \$100,000 to \$200,000, depending if an extension to the deck must be built.

Other work includes installing an antenna tower, running cables from the building to the antenna, building trays to secure the cables and building scaffolding to reach them. Installation can take six months, depending on the engineering, and securing the needed paperwork between cooperating oil companies and the government can take a year, Meier said.

As project manager, he said he doesn’t do as much technical work as he would like.

“I actually average two trips a year to these platforms,” said Meier, who otherwise works in an FAA office across from the Air and Space Museum in Washington, D.C. “I go out and do site selection. Then later when a contractor installs the units, you need an oversight person. That’s another role that I do.

“The job is fun because I get to work with some pretty sharp people. Having a good engineering background really helps bring the projects together.”

The FAA ADS-B Program Office has almost 100 people, while the Gulf of Mexico project is run by a team of five people. The equipment on the platforms is maintained by three sets of technicians, six helicopter companies and 20 oil companies.

Dave Graves





CODY EUGENE BARKER '15 construction management, died June 21, 2017, as a result of injuries suffered in an accident near Shawnee, Wyoming.

After earning his degree, Barker, 25, of Edgemont, returned to his hometown to fulfill his lifelong dream of joining the family business, Barker Concrete and Construction.

According to Norma Chandler, who was one of his teachers at SDSU, "Cody had a great personality, a good sense of humor

and was friendly and kind. He was a pleasant person to have in class. He truly cared about doing a good job as he recognized it was helping him to help others.

"Cody was interested in his classwork and accepted challenges with a smile."

He is survived by his father, Kerry (Stephanie) Barker, of Edgemont; his mother, Gaylene (Mark) Richards, of Rapid City; a sister, half-sister, step-brother, his grandparents and his fiancé, Cayleah Friedrich, of Edgemont.

Barker's funeral was at United Church in Edgemont with burial at Pine Lawn Memorial Cemetery in Rapid City.



TOM BENNETT '67 died July 15, 2017, at KU Medical Center in Kansas City, Kansas.

The civil engineering graduate was born Aug. 3, 1945, in Hawarden, Iowa, and graduated from West Sioux High School, Hawarden, in 1963. After earning his bachelor's degree, he worked for the Kansas Department of Transportation in Topeka for eight years. He then joined and became a partner in BG Consultants of Manhattan doing road and bridge design.

He was vice president of the BG board when he retired in 2016. In retirement, he served with Habitat for Humanity and helped rebuild churches damaged by catastrophes.

He was preceded in death by his wife, Gayle (Graham) Bennett, also an SDSU graduate, who died July 3, 2017, at their Manhattan home. They were married Dec. 27, 1967.

The couple is survived by two daughters and three grandchildren.



GAYLE ANTHONY DAVIS '08, mechanical engineering, has been selected for a 40 Under 40 Award by the 2017 Consulting-Specifying Engineer magazine.

Davis, 32, is a project manager with Stanley Consultants' Austin, Texas, office. He joined Stanley, a worldwide provider of engineering, environmental and construction services, after college.

After four years of apprenticeship, he relocated from Minneapolis to the

company's Austin office, passed the exam to become a licensed professional engineer and was promoted to project manager in 2013. He is one of just three within Stanley Consultants to have Certified Commissioning Authority Certification and is the only Certified GeoExchange Designer.

Personally, Davis enjoys minor home improvement projects, reading science fiction novels and roughhousing and backyard campouts with his sons.

CLAY JORGENSEN '17, civil engineering, joined the Fargo office of Houston Engineering Inc. in the spring and will be working in the water resources group. His responsibilities will include hydrologic/hydraulic modeling and civil design for water resource districts. Jorgensen is originally from Viborg and previously interned for Banner Associates Inc. in Brookings.



JAMES NASS '72 died Oct. 12, 2017, at the Brookings hospital.

Nass, 74, of Brookings, was a civil engineer for the Brookings Municipal Utilities Department from the time of his graduation until retiring in 2004. He enrolled at State after being discharged from the U.S. Army in 1965.

He was preceded in death by his wife, Maxine, and a daughter, Laurie. Survivors include a son, Jody, and a brother and a sister.



WAYNE PETERS '51, civil engineering, died April 12, 2017, in Scottsdale, Arizona.

Peters, 87, originally of Humboldt, served in the Korean War as a first lieutenant in the U.S. Air Force after graduating from South Dakota State. After his discharge in 1953, he moved to Sioux Falls and began a 32-year career with Egger Steel Co., eventually serving as executive vice president and general manager.

After retiring, he worked for Sioux Valley Energy and served nine years on the State

Highway Commission, appointed by Gov. George Mickelson.

He was in the first class (1977) to be inducted as an SDSU Distinguished Engineer and also served on the college's advisory board. Peters also was president of the McKennan Hospital Advisory Board, vice chair of the McKennan board of trustees and chair of the building committee during a \$39 million expansion.

Peters also was vice president of the Sioux Falls Industrial Foundation, a Fourth Degree Knights of Columbus member and a member of St. Mary's Parish in Sioux Falls.

Survivors include his wife of 65 years, Patricia; a son, Daniel (Cheryl), of Phoenix; daughters Christie (Richard) Wiggans, of Charlottesville, Virginia, and Cathy Forget, of Lenexa, Kansas, and eight grandchildren.



Retired faculty member **CHUCK TILTRUM** '72/'74 received the 2017 Outstanding Faculty Practitioner Adviser Award for Region 7 of the American Society of Civil Engineers at its fall conference in Pierre Sept. 21.

The region covers Wyoming, Colorado, North and South Dakota, Nebraska, Iowa and Missouri.

He served as chapter faculty adviser from 1981 to 2005, when he retired. However, he has continued as a practitioner adviser.

He also received the award in 2009 and 2012, and was Faculty Adviser of the Year in 1999, 2003 and 2005.

While on the faculty, he served as the first executive director of the South Dakota Society of Professional Land Surveyors in 1994. For many years after his retirement, he maintained his own surveying business.



HARRY WILLMOTT '66 died Aug. 18, 2017, following a six-year battle with lung cancer.

The electrical engineering graduate was born Dec. 12, 1937, in Watertown and graduated from White High School in 1955. He ran the family farm for five years and worked in Alaska before enrolling at State.

After earning his bachelor's degree, he worked for McDonnell Douglas in St. Louis from 1966-1970, L.E. Myers Co. in Marshalltown, Iowa, from 1970-1973

and Hormel Foods, Austin, Minnesota, from 1973-2000, when he retired. He remained an Austin resident until his death.

He was preceded in death by his first wife, Delores, two brothers and five sisters.

Willmott is survived by his wife, Brenda; four sons, a daughter, a brother, two sisters and 10 grandchildren.

IN MEMORY OF CHARLES LUNDQUIST

EARLY ROCKETRY ENGINEER DIES



Charles Arthur "Chuck" Lundquist

Charles Arthur "Chuck" Lundquist '49, a pioneer in space flight engineering, died June 3, 2017, in Huntsville, Alabama, where he lived. He was 89.

Lundquist earned a degree in engineering physics and entered graduate school in physics at the University of Kansas. He completed his doctorate in fall 1953 and became an assistant professor of engineering research at Penn State. However, in 1954 he was drafted because of U.S. involvement in the Korean War.

After basic training, Lundquist was assigned to the Guided Missile Development Division of Redstone Arsenal at Huntsville. Lundquist was immediately assigned to work on Project Orbiter, first under Walter Thiel, then under Ernst Stuhlinger, the No. 2 man for rocketry pioneer Wernher von Braun. Herman Oberth, another rocketry pioneer, was another colleague.

An article in the June 7 Huntsville Times described it "akin to a first-year pro joining a foursome of Tiger Woods, Phil Mickelson and Jack Nicklaus." Lundquist helped plan and launch Explorer I, the first U.S. satellite, from Cape Canaveral in 1958.

After completing a two-year tour in the U.S. Army, he remained in the same position. "I just changed clothes and got a raise," he stated in the Times article.

Lundquist eventually became chief of the physics and astrophysics branch of the Army Ballistic Missile Agency at Redstone Arsenal. When the Marshall Space Flight Center was founded in 1960, he transferred there and continued to work on satellites and space probes. In July 1962, Lundquist became assistant director for science at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, but he continued his close association with NASA and contributed his expertise to the success of the Apollo missions. In 1973, Lundquist returned to Huntsville and became the director of the Space Sciences Laboratory at the Marshall Space Flight Center, making key contributions to Skylab and the first Space Shuttle flight.

In 1981, he retired from NASA and joined the University of Alabama at Huntsville. He was associate vice president for research and director of the interactive projects office when he retired in 2000.

Lundquist was born March 26, 1928, in Webster, where he had a chemistry lab in his garage and a set of Oxford reference books in his bedroom. In sixth grade, he wrote a report about nuclear fission, long before the phenomenon was used to construct the first atomic bombs. He graduated early (summer 1945) intending to join the military, but the armistice allowed him to enroll at SDSU with returning war vets.

SDSU honored him as a Distinguished Alum in 1975 and a Distinguished Engineer in 1984 as well as presenting him an honorary doctorate in 1979.

Lundquist was preceded in death by his wife Patricia in 2004. Survivors include children Clara Perkins, Dawn (Robert) Lee, Eric Lundquist, Frances Lundquist and Gary Lundquist (Kathleen); a sister, Dorothy (David) Parker; two grandchildren and two great-grandchildren.

DEAN'S CLUB

FROM JAN. 1, 2017, TO NOV. 27, 2017

Dean's Club membership consists of alumni and friends who have contributed \$500 or more annually to the Jerome J. Lohr College of Engineering. Dean's Club members are recognized as devoted friends of the college who make a significant impact on the college's future. They also will receive invitations to special college and university functions and updates from the dean.

DONORS OF \$500-\$999

Abbott Laboratories Fund
 Dayton H. and Lisa A. Alsaker
 American Council of Engineering
 Companies of South Dakota Inc.
 Gary L. Andersh
 James M. Anderson
 Apple Inc.
 Applied Engineering Inc.
 APS Foundation Inc.
 B&G Welding Inc.
 Balancing Professionals Inc.
 Tom and Kay Becker
 Gayland J. and Carolyn Bender
 Lynn D. Bennett
 Lyle L. Berg
 Wayne E. and Jacqueline K. Bietz
 Boeing
 Dallas D. and Connie S. Bridges
 Jon R. and Wendy A. Brown
 Curtis D. and Phyllis E. Brudos
 Ronald J. Bymers
 James G. Carlson
 Raymond C. Chao
 Robert J. Cheever
 Billy C. and Lillian Chen
 Chevron Humankind
 Gregg A. Christiansen
 Robert M. Clark
 Vincent L. Connelly
 James J. Corothers
 Dakota Plains Ag Center
 Adam B. Degroff
 Mark A. Diesch
 Dell
 Gary L. and Donna R. Dettman
 Dow Corning Corporation
 Neal D. Drefke
 Burdette H. Dugdale
 Errol P. EerNisse and Sonja

Chesley
 Charles P. Eggen
 Electrical Consultants Inc.
 Leon B. and Sarah A. Ellwein
 Donell P. and Janice M. Froehlich
 Ned and Jenny Gavlick
 Regg A. and Barbara J. Glawe
 Terry L. Gosmire
 Dale A. and Julie A. Goos
 Daniel J. Graber
 Seth M. and Kimberley
 Greenwood
 Bruce and Cathy Hall
 Jim Hanson
 Duane C. Helmberger
 Highwater Ethanol LLC
 Steven H. and Jeanne L. Hoff
 Dawn R. Horner
 Scott S. and Penny J. Hults
 Eugene Iverson
 Brian S. Iwerks and Robin A.
 Wynn-Iwerks
 Bruce A. and Debra J. Jennings
 Kim Johnson
 Jan L. Johnson
 Matthew C. Jones
 Carmen C. Kasner
 Michael T. and Margaret Kelly
 Daniel C. and Michele A. Kemp
 Charles W. Knofczynski
 Delores L. Koepsell
 David L. and LaVonne I. Kurtz
 Peter P. Lee
 Dallas G. and Janice Lien
 David P. Lingo and Shirley Rapp
 Lingo
 Wayne W. Livingston
 Keith A. Lucke
 Joseph H. and Ellen A. Macek
 John P. and Joan M. Mahoney
 Nicholas A. and Kelly M. McCann

James W. and Jo Ann F. Mentele
 James J. Merrill
 Brian D. and Ruth A. Meyer
 Kevin L. Micko
 Kent S. Miller
 Nathan L. Nearman
 Jeffrey L. and Trudiann Nelson
 Allan F. and Bonnie Nereim
 Jin H. Ng
 Howard and Norma M. Nielsen
 Northrop Grumman Foundation
 Colin A. and Renee L. O'Connor
 Jeff T. Omland
 Daniel T. and Heidi J. Ostrem
 John F. and Linda L. Ourada
 Virgil A. Paulson
 Jessica M. Pettibone
 Drew W. Reckmeyer
 Gerhard W. Richter
 Alan M. and Jeraldine E. Rogers
 Frank and Carolyn J. Roitsch
 Kenneth C. Rye
 James P. Samis
 Haifa R. Samra and Nadim Wehbe
 Darren M. Schelske
 Robert C. Schmidt
 Ron D. and Alice M. Schmidt
 Richard E. Sievert
 Arden B. and Lavonne K. Sigl
 Patrick L. Skubic
 Ernest R. Smith and Jane M.
 McKee Smith
 S.D. Soybean Processors
 LaDell R. and Phyllis L. Swiden
 Gary J. Thune
 Jay E. Tolle
 Emil J. Trebesch
 Vernon L. Trimble
 Jay A. Tschetter
 Wesley G. and Lois J. Tschetter

Steven G. Turner
 Valley Machining Company
 Roy E. Van Orman
 Allen M. VandenHoek
 Nicholas P. Veverka
 Thomas L. Weaver
 West Plains Engineering Inc.
 Wheeler Manufacturing
 Company Inc.
 Wurth Electronics Midcom Inc.
 Laurie A. Carrette Zook

DONORS OF \$1,000 OR MORE

3M - Brookings
 3M - Matching Gifts
 AGCO Corporation
 Agland Cooperative
 Timothy T. Amert
 Roderick B. Anderson
 Steven G. and Sheila Anderson
 ASME - Nebraska Section
 Associated Consulting
 Engineering Inc.
 Associated General Contractors of
 S.D.-Building Chapter
 Avera Health
 Gladys Bahnson
 Andrew J. and Angela K. Barnett
 David A. and Jannie A. Barr
 Keith A. and Glynn E. Bartels
 Bartlett & West Inc.
 Basin Electric Power Coop
 Beavers Inc. and Beavers
 Charitable Trust
 Larry E. Bell
 Richard R. Bell
 Don and Carol J. Bender
 Guy J. Bender
 Justin Benson
 Richard A. and Beth E. Berreth



Best Buy
Ken and Marie Bezdicek
Kelly L. Biddle
Dan J. and Donna Bierschbach
Black Hills Utilities Holdings LLC
Charles N. Blackman
Blackman-Helseth Family
Foundation
Gary L. Bliss
Darin L. Brickman
Brookings Municipal Utilities
Lewis F. and Danelle M. Brown
Michael A. Bucher
Tim H. and Suzette R. Burckhard
Burns and McDonnell
Michael J. and Stephanie A. Butler
Edward L. and Judy Cannon
Carl V. Carlson Company
Caterpillar Foundation
Daniel and Tongsai Chase
Noel L. and Rita D. Christensen
Tom S. and Lisa R. Christjans
Citibank South Dakota N.A.
Richard A. and Eleanor J.
Coddington
Kurt D. and Mary Cogswell
Dakota Digital Inc.
Daktronics Inc.
Jeffry A. and Yvette F. Davis
Larry D. De Mers
Arlo B. and Barbara DeKraai
Delta Air Lines Foundation
Cheri A. DeSmet
Jason L. and Jodi L. Devine
DGR Engineering
Maxine F. Dornbush
East River Electric Power
Cooperative Inc.
Eastern Chapter South Dakota
Engineering Society
Edinger Brothers Partnership
James O. and Rita M. Edwards
Electronic Systems Inc.
Thomas D. Elverson
Stephen M. Everson
ExxonMobil Foundation
Falcon Plastics Inc.
Farmers Alliance
Adolph P. Fejfar
Jack W. and Judith A. Finger
First Bank and Trust
First Premier Bank-Sioux Falls
Andre J. and Mary Ann Fischbach
Daniel P. Fischbach and Marjorie
Skubic

Stephen J. Flanagan
Matthew J. Fritze
Full Circle Ag
Jason L. and Jessica A. Garder
GE Fund
Glenn S. and Janice C. Gehring
Mark D. Glissman
Graco Foundation
Grand Electric Cooperative
Great Northern Environmental
Richard L. Gunderson
Jeffrey P. and Melinda M.
Haliburton
Kurt L. and Dori Hansen
Seth T. and Ann M. Hansen
Michael R. Harms
HDR Engineering Inc.
Heartland Consumers Power
District
Jerome D. Heeren
Allen D. and Roxanne Heiden
Richard L. Heiden
Harold C. and Marilyn Hohbach
Wallace J. Hoff Jr.
Weldon I. Hogie
Burton and Gladys Horsted
Scot L. and Mary B. Hoscheid
IBM - New York
IBM Corporation
Jeffrey L. Ihnen
Dale A. and Diane Jans
Ronald R. Jarrett
Dean H. Johnson
G. A. Johnson Construction Inc.
Johnson Controls Inc.
John G. Kappenman
Ret. Col. Virgil D. Kempton USAF
Daniel R. and Nancy K. Kenyon
James F. Kirby
Audrey Knofczynski
John A. and Leah L. Knofczynski
Kyle C. Koch
Kolberg-Pioneer Inc.
Heidi Konynenbelt
Fritz and Joan E. Kub
Aelred J. and Irene Kurtenbach
Matthew J. and Melissa
Kurtenbach
Reece A. and Kami L. Kurtenbach
John A. LaBrie
David T. and Betty F. Larsen
Carl E. and Carol C. Larson
Craig A. Larson
Darrell D. and Vicki K. Larson
Link Manufacturing Ltd.

Jerome J. and Jolene M. Lohr
Sue E. Mabee
Arden V. Mackenthun
Michelle L. McCarville
Duane L. McDonnell
John McNellis and Paul D. Conrad
Blair A. and Julie Metzger
Michael's Energy
MidAmerican Energy Company
Glen D. Middleton
Midwestern Mechanical Inc.
Eugene A. and Debra R. Miller
Tanya L. and Timothy Miller
MinneAnalytics
Minnesota Power
Missouri River Energy Services
Mitchell Manufacturing LLC
Kevin L. Moe
National Association of Home
Builders
Jon D. and Julie K. Ness
Peter W. Neyhart
Gene A. Ninnemann
Susan A. Lahr and Gordon D. Niva
NorthWestern Energy
NorthWestern Energy-Sioux Falls
Novita Nutrition LLC
Thomas D. and Marilyn F. Novotny
Steven F. Oakland
O'Connor Company
David C. and Diane Odens
Omnitech
Michael D. Orr
Otter Tail Power Company
Arlen D. Ottman
James L. Owens
P & M Steel
Darren D. Peterson
POET
Dieter W. Proehl
Tate Profflet and Mary J. DeJong
Puetz Corporation
Harlan J. and Janice E. Quenzer
Raven Industries Inc.
Wanda K. Reder
Redfield Energy LLC
Kathy K. and Richard A. Reid
Jon A. and Cheryl K. Rippke
Fred J. and Ardyne M. Rittershaus
Dwayne A. and Helen L. Rollag
Vivian E. Ruch
Stephen C. and Karen Rudd
Kristine H. Sanders Estate
Sanford Health

Richard F. Sayre
Sayre Associates Inc.
Eugene M. and Barbara A.
Schaefer
Nicholas G. and Joni Schmeichel
Rebecca S. Schmieding
Ronald D. and Jeanne Schultz
SDN Communications
SDSU SET Club
Sideline Productions
Gene M. Sieve
Rodney S. Simonson
Sioux Corporation
Siouxland Chapter of
Construction Financial Mgt.
Mary Ann and Louis G. Skubic
Lyle D. and Donna M. Solem
South Dakota Board of Technical
Professions
South Dakota Water &
Wastewater Association
Sparton Corporation
Gregg E. and Kathryn A.
Stedronsky
Wallace R. Stern
Dale M. Stevens
Storm Analysis LLC
Noel E. and Lois M. Stratmoen
Oren G. Strom
Wayne A. and Wendy S. Stowsand
Richard A. and Katherine Svanda
Harvey R. and Harriet Svec
Tetra Pak Processing
Equipment Inc.
Thomas L. and Susan L. Thelen
Lynette L. Trygstad
Ultima Bank Minnesota
A.J. Van Dierendonck
Joseph P. Vogel
Charles L. and Judith R. Waggoner
Kathryn A. and Mark T. Walker
Robert and Barbara Wilkens
Estate
West River Cooperative Telephone
Company
Western Area Power Association
Shawn M. and Sandra A. Whalen
Archie D. Wilcox
Robert and Barbara Wilkens
Estate
Steven M. Wirtz
Xcel Energy-Minneapolis





Tom Becker
Development Director
Jerome J. Lohr College of Engineering
SDSU Foundation
(605) 695-9250
Tom.Becker@SDStateFoundation.org

IMPACT FELT ON BOTH SIDES

Often the word “impact” is used by philanthropic organizations to describe how a donor’s gift is making a difference for those benefiting from the gift. In this case, “impact” is a verb defined as having a strong effect on someone or something. In fact, “Impact Greatness” is a phrase used by the SDSU Foundation to characterize our purpose for South Dakota State University.

There is no doubt that gifts to the SDSU Foundation are impacting the Jerome J.Lohr College of Engineering students and faculty in a numerous ways. Phonathon gifts provide Excellence Funds with resources that support many different programs. Scholarship gifts help our students pursue their educational aspirations while accumulating less debt. Gifts to endowed faculty positions provide the means to help grow research and insure SDSU has the best faculty possible. Lastly, building projects insure our students and faculty have quality facilities that are often only possible with private donations.

As impactful as all of these gifts are on the SDSU students and faculty, I have personally seen how a gift impacts both the recipient and the donor in very profound ways. It has been my privilege to hear an engineering student explain how receiving the donor’s scholarship made it possible for her to continue at SDSU and pursue an engineering degree. Further, I have been with donors who were speechless after a roomful of future engineers thanked them for their generosity to their department.

These experiences have shown me that “impact” does not only flow in one direction. There is no doubt that scholarship recipients are greatly impacted by receiving a scholarship and they express their gratitude regularly. However, the “impact” does not stop at this point. Such is the beauty of generosity. Generosity affects the receiver, and it also can have a significant impact on the giver. The donor’s desire to know how their gift made a difference may affect them in unexpected ways. I believe that we are designed to be generous and in doing so we grow closer in our relationship with each other.

We all agree when making a gift we should not expect anything in return. However, the act of giving changes everyone involved and the impact can be lasting. Thank you for giving and I hope that you are impacted in unexpected ways. Let’s work to find your way to impact SDSU.

Tom Becker '81





Kyle Maurer, ME07
Mechanical Design
Engineer

Mercedes-Benz Stadium
Atlanta Falcons



The Halo's sheer size combined with its unique elliptical geometry and location inset in the retractable roof are what sets this video board apart from all others to this point. I greatly value the engineering degree I received from SDSU as it provided a great jumpstart for my career with Daktronics."



www.daktronics.com



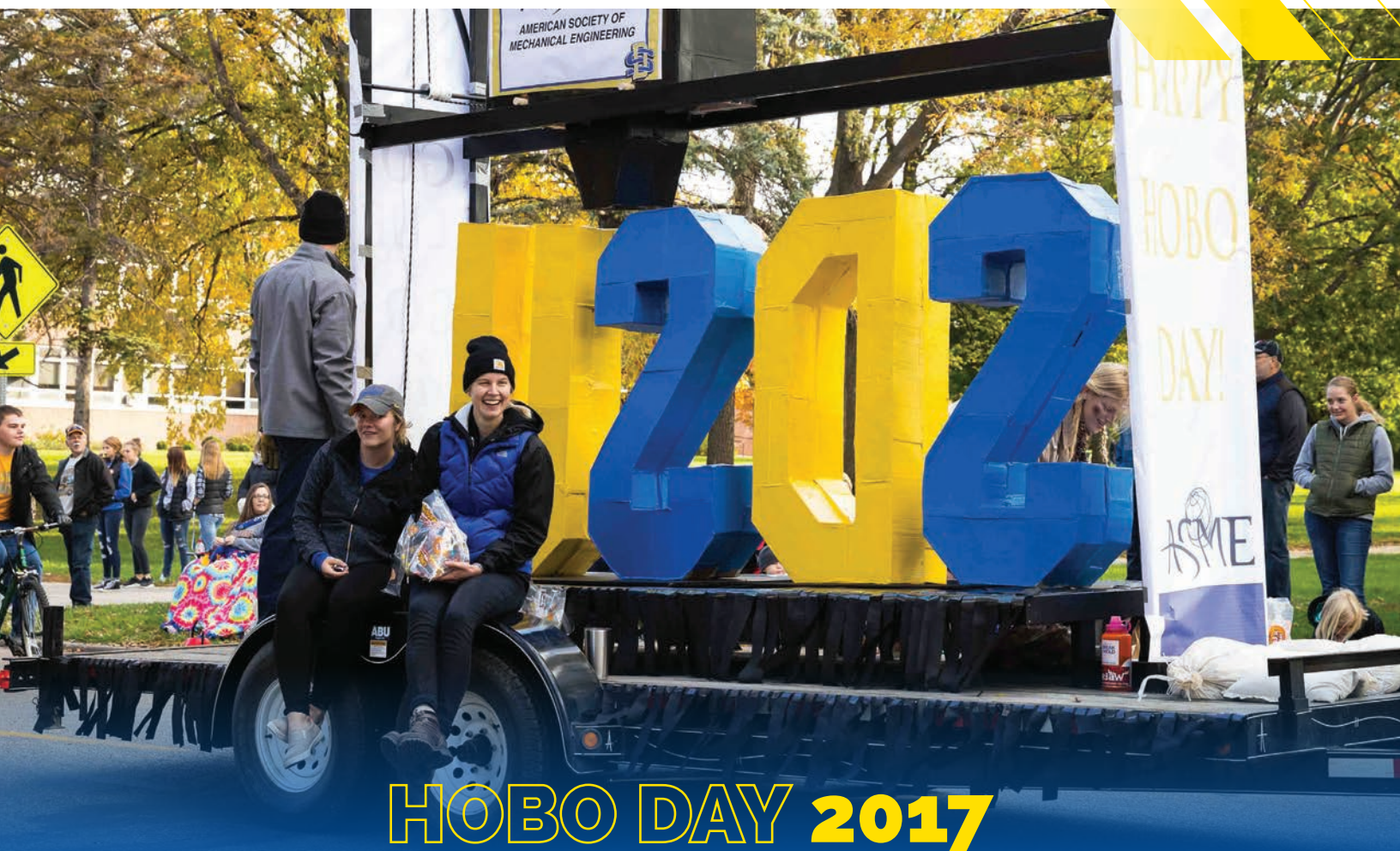


**SOUTH DAKOTA
STATE UNIVERSITY**
Jerome J. Lohr College of Engineering

Crothers Engineering Hall
Brookings, SD 57007

Non-Profit
US Postage Paid
Brookings, SD
Permit 24

10,000 copies of this publication were printed with the financial support of alumni and friends | EG001 | 3/17.



HOBO DAY 2017