During five calling sessions, Feb. 12–16, student efforts for the 2006 Engineering Telefund netted $307,089 in pledges from alumni across the nation. With the money raised going towards funding of scholarships and student projects, the 232 volunteers averaged just more than $1300 per caller.

Nationally and internationally recognized as one of the most effective and productive collegiate telephone campaigns, K-State’s Telefund has provided nearly $20 million for scholarships and educational benefits in its first 26 years.
Taking on the ‘flat world’

In the 10 years since her graduation from Kansas State with dual bachelor degrees in electrical engineering and physics, Michelle Munson has been a software engineer for IBM, completed a master’s degree in computer science from the University of Cambridge, on a Fulbright Scholarship, and worked as a software engineer in research and start-up companies. In 2003 she co-founded her own company, Aspera, Inc., creating a new high-speed transfer technology and thus becoming a recognized market leader for high-performance file transfer.

This year she was named the College of Engineering Alumni Fellow—the youngest graduate ever to receive this designation. "Engineering is an integrated community," she said. "We’re constantly facing challenging situations that stretch our problem-solving skills and mental and physical stamina.”

A native of rural Junction City, Munson said she was raised with a Kansas or Midwest work ethic, and her undergraduate experience at K-State strengthened that characteristic.

"The fundamentals of engineering taught at Kansas State are extremely solid," she said. "The challenging curriculum I encountered here set the tone for my professional career. "The day-in and day-out productive discipline that was required is the hallmark of an engineering education. It was an exposure to something larger than any one individual and it instills humility," Munson said.

Her time at K-State also set her path on a life of research. "K-State is unique in that students are oriented towards classical research and interdisciplinary research. I was encouraged early on to develop an instinct for problem solving, often applying ideas across technical disciplines," she said.

As part of her two-day visit to campus in February for Alumni Fellow activities, Munson spoke to the Freshman Honors Seminar. "This was the very class that had inspired me as a freshman in engineering," Munson said. She titled her presentation "Getting there—choices and advice from the gal who was you.”

Michelle Munson was excited and energized about the engineering profession,” said Paul Wicoff, freshman in architectural engineering. “She’s found so much success in her career, and it made me realize that I could find myself in a similar place someday.”

"The fundamentals of engineering taught at K-State are extremely solid . . . .”

"Participating in the ‘flat world’ is not the norm in her career. "Right now at Aspera, we have people from Ghana, Africa; Bucharest, Romania; Nanking, China; New Delhi, India; Madison, S.D.; Manhattan, Kan.; Houston, Texas; Chicago, Ill.; and Kansas City, Mo.

"Engineering is an integrated community," she said. "Despite our highly varied backgrounds, we come together around a common love of problem solving and innovation, speaking the common language of science and technology. This is the tremendously positive side of ‘globalization’ that people often forget.”

Concern exists that today’s educational institutions in the U.S. may be losing some of their rigor, concentrating on making students feel good rather than challenging them. "Society has somewhat lost its grip on education fundamentals," Munson said. "We ask, ‘Are students suffering?’ when we should be asking, ‘Are students developing?’

“Participating in the ‘flat world’ is not so much about being competitive as it is about having a respect for what is available in our country and taking advantage of it. My experience with recent engineering graduates is that the ones who have been properly motivated are outstanding.”

—by Mary Rankin

Michelle Munson 2006 Alumni Fellow

College of Engineering ■ Kansas State University

Impact

Spring 2006
Two lectures highlight spring series

The College of Engineering Eyestone Lecture Series was honored to host two prestigious speakers this spring. Established in 2000, the series is funded by an endowment of the late Fred, EE ’41, and Mona Eyestone and is designed to bring innovators in engineering and the applied sciences to campus.

George O. Strawn

George O. Strawn, chief information officer of the National Science Foundation (NSF), delivered the address, “Change: The Constant of Modern Times,” March 7, in Fiedler Hall Auditorium.

Strawn offered personal insight on the past and future of digital information technology and suggested that if “modern times” is defined as the last 200 years, there has been more change in modern times than in the previous 5000 years.

As NSF’s chief information officer, Strawn guides the agency as development and design of innovative information technology. Since joining NSF in 1991, Strawn has served in numerous roles including directorate for computer and information science and engineering, executive officer, and acting assistant director. From 1995 through 1998 he was director of the division of advanced networking infrastructure and research where he led efforts in the Presidential Next-Generation Internet Initiative, which created the first national high-performance network test bed.

Strawn was also a computer science faculty member at Iowa State University where he served as director of the computation center, and from 1983 to 1986 served as chair of the computer science department. Under his leadership, the program was among the first in the nation to be accredited by the Computer Science Accreditation Board.

He holds a Ph.D. in mathematics from Iowa State University and an undergraduate degree from Cornell College.

John Brooks Slaughter

John Brooks Slaughter, president and chief executive officer of the National Action Council for Minorities in Engineering (NACME), Inc., presented “Engineers for Tomorrow: An Imperative for America” April 27, in Fiedler Hall Auditorium.

According to Slaughter, a 1956 K-State graduate in electrical engineering, America has found itself losing its leadership position in innovation and technology. In order to regain and retain its place as the global leader in research and development, it must produce more individuals skilled in engineering and science disciplines, rather than placing such a heavy dependence upon importing scientific and engineering talent and exporting technical jobs.

“America must recognize and develop the potential that resides in those groups that have been historically underrepresented in the science and engineering professions. Failure to do so will negate national efforts to strengthen innovation and restore technological competitiveness,” Slaughter said.

A former director of the National Science Foundation, president of Occidental College in Los Angeles, and chancellor at the University of Maryland, College Park, Slaughter has a long and distinguished background as a leader in the education, engineering, and scientific communities.

Slaughter began his professional career as an electronics engineer at General Dynamics. He has been director of the Applied Physics Laboratory and professor of electrical engineering at the University of Washington, academic vice president and provost at Washington State University, and most recently The Irving R. Melbo Professor of Leadership in Education at the University of Southern California. He has served as president and CEO of NACME since August 2000.

Slaughter earned a Ph.D. in engineering science from the University of California, San Diego; and an M.S. in engineering from the University of California, Los Angeles. He holds honorary degrees from more than 25 institutions. Winner of the Martin Luther King, Jr. National Award in 1997 and UCLA’s Medal of Excellence in 1989, Slaughter was also honored with the first “U.S. Black Engineer of the Year” award in 1987 and the Arthur M. Bueche Award from the National Academy of Engineering in 2004.

As many of you by now have heard, I have accepted the appointment of Provost and Vice President for Academic Affairs at Ball State University in Muncie, Indiana, effective July 1, 2006. My duties at K-State will come to a close at the end of June.

Standard questions often come to the forefront at times like this: What will I miss the most? What are the new challenges ahead? What do I see as my legacy as I leave Kansas State? Let’s start with the last item. Though I would never presume to call this “my” legacy, a total team effort has brought numerous accomplishments in the college over the past nine years, and I’m proud to list some these:

- Final funding and building of Fiedler Hall completed
- West Seaton Hall renovated
- Renovation of front plaza and Rathbone Hall lobby begun
- $75 million target in Changing Lives capital campaign completed
- Research expenditures per year doubled
- Endowment dollars tripled
- Endowed chairs and professorships increased by 300%
- Endowed scholarships increased by 100%
- Partnership with NACME ($285,000 in scholarships over five years for MEP students) established
- Seaton Society founded
- Professional Progress Awards (PPA) established
- Project LEAR/RN™ initiated
- Women in Engineering and Science Program (WESP) established
- Eyestone Lecture series established
- Leadership team structure established
- Departmental advisory councils promoted
- Faculty hiring incentives for women and minorities developed
- College scholarship program restructured to support university scholarship program
- Mission and vision statements, and core values developed
- Nuclear engineering program revived
- Two successful ABET accreditation reviews for all undergraduate programs completed
- Focus on legislative area, resulting in a National Transportation Center and regular visits to our facilities from the national Congressional delegation

I will miss seeing the college move ahead in these achievements, as well as with the new initiatives and ideas that will come from new leadership.

Provost Duane Nellis has convened a small committee, chaired by the department head of chemical engineering, Mary Rezac, to begin the process of selecting an interim dean. I think this will provide a smooth transition. There is tremendous potential here with the quality of students and faculty we have.

Yes, there will be different challenges ahead for me at Ball State, yet they will be the same in many ways. Higher education in the U.S. is a precious treasure for those of us blessed to work in it, and I will strive to see its cause advanced whether here at K-State or at any other university.

The support and loyalty of faculty and staff, students, alumni, and friends have made my tenure here as dean a profound experience for which I’ll always be grateful.

John Brooks Slaughter
If asked to name the ‘hottest spot’ on the K-State campus, responders might suggest the Union, Bramlage Coliseum, or even the more literal idea of the power plant and steam tunnels.

But according to chemical engineering professor Jim Edgar, that claim to fame is located at his research facility in Durland Hall.

“I’ve thought about putting a label on my laboratory door: ‘The hottest spot on campus.’” Edgar said, “as we reach temperatures of 2080°C in our research furnace— hot enough to melt most metals such as iron and nickel, and hot enough to boil lead.”

The goal of Edgar’s research project is to develop methods of making large, single crystals of aluminum nitride to be used as the substrate for better, more efficient electronic and optoelectronic devices. Such substrates will provide mechanical support as well as serve as a template for producing other single-crystal layers such as gallium nitride.

“The aluminum nitride crystals we are developing,” Edgar said, “are efficient at converting it into an electric signal. Physical and chemical properties of the aluminum nitride crystals Edgar is developing are better matched to the single-crystal layers that compose the devices rather than other currently used materials.

“With our substrates,” he said, “the layers will have fewer defects, less stress, and better purity. This in turn improves the device efficiency, such as more light per watt of electricity, and allows more powerful devices to be built.”

“LEDs have so greatly improved,” Edgar said, “that the goal of solid-state lighting for general illumination is rapidly becoming a reality. The lifetime of LEDs is 20 times longer than incandescent lights, and another advantage is that they consume a lot less energy. Most traffic lights now employ LEDs instead of incandescent lights, because they are ultimately less expensive even though initial costs are higher.”

While red LEDs have been around for decades and blue LEDs for about 10 years, ultraviolet (UV) LEDs have proven difficult to fabricate.

“The aluminum nitride crystals we are developing,” Edgar said, “should help. UV LEDs and UV LDs would have several applications such as bio/chemical reagent detection, DNA sequencing, sterilizing plastics and other materials without heat, sterilizing water, etc. The military is even interested in their use for developing sensors for airborne missile-launch warnings.”

Besides UV LEDs, the other main application for aluminum nitride single crystals is high-power, high-frequency electronics. Combined with the related compound gallium nitride, devices can be made that can handle much higher power more quickly than silicon-based devices.

Edgar, who holds a Ph.D. in chemical engineering from the University of Florida, is currently funded in his research by the National Science Foundation and the U.S. Office of Naval Research.

Since 1997 and currently has five chemical engineering graduate students working on this project.

“Interest in aluminum nitride as a substrate has really increased in the past two years,” Edgar said. “Even though it is already the basis for multi-billion dollar industries, only the surface has been scratched for potential applications of gallium nitride-based devices.”

“Further improvements in the crystal perfection, reductions in residual impurity and defect concentrations, and better control of the composition and structure will lead to new types of sensors based on the unique chemical, mechanical, and optical properties of gallium nitride and its alloys.”

—by Mary Rankin

Congressional visit

U.S. Congressman Jim Ryun, R-Kan., left, discusses ongoing research efforts in the nuclear reactor area with Dean Terry King, right, during a visit to the College of Engineering on March 3. The tour emphasized ongoing projects in the nuclear and chemical engineering programs that deal with national security and energy production and conservation efforts.

“The significance of making K-State’s work visible on the national level is an important task,” King said.
Academic excellence

Jonathan King, junior in chemical engineering, is the most recent College of Engineering recipient of the prestigious Goldwater Scholarship. Goldwater Scholars are selected on the basis of academic merit from a field of 1,051 mathematics, science, and engineering students nominated by the faculties of colleges and universities nationwide. The award provides up to $7,500 annually for a student’s final one or two years of undergraduate study.

“It was a surprise to be recognized for the efforts I have put forth in my classes and research,” King said, “and I will use the money to pay for tuition, and room and board next year.”

King plans to earn a Ph.D. in biomaterials engineering and conduct research at the university level. His Goldwater essay, “Composite Hydrogels for Cartilage Tissue Engineering,” was based on research he did with Anthony, assistant professor of chemical engineering, for his undergraduate research at K-State. As a student at K-State, King has volunteered at the Bureau of Air and Radiation at the Kansas Department of Health and Environment, and has volunteered at the K-State Pollution Prevention Internship, and is involved in research at the K-State air movement laboratory.

“The K-State community has been instrumental in helping me receive this award,” said King. “The engineering faculty have allowed me to see new ways to apply my engineering education in the field of environmental protection, and they have also given me the opportunity to further explore the subject through research.”

Woerman is active in the Student Governing Association and Kansas State University Student Foundation. He is a member of Blue Key Senior Honor Society, and Phi Kappa Phi, PhiEtaSigma, and Delta Upsilon fraternities. He has received a number of scholarships while at K-State, including the Foundation Scholarship, Byrd Scholarship, and the Presidential Scholarship. In his spare time, he is a member of a 1990s cover band, EWB. A 2002 graduate of Topeka High School, he is the son of Neil and Melodie Woerman, Topeka.

Matt Woerman, senior in mechanical engineering, natural sciences and environmental sciences, is among 80 national winners of the 2006 Goldwater Scholarship. The merit-based congressional scholarship honors Udall, a former congressman from Arizona, for his legacy of public service.

“It is truly an honor to be selected as a recipient of this prestigious award,” Woerman said. “I am thrilled to be considered a part of this group of scholars who have dedicated their careers to protecting our world.”

Woerman did an internship for the Bureau of Air and Radiation at the Kansas Department of Health and Environment last summer, has volunteered at the K-State Pollution Prevention Internship, and is involved in research at the K-State air movement laboratory.

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Logan deployed for Iraq War

Tom Logan has a dual career—assistant professor of architectural engineering and construction science at K-State, and Executive Officer of the Naval Mobile Construction Battalion 25. Following readiness training at Naval Base Ventura County, Logan and his unit left Port Hueneme, Calif., for western Iraq in March. While there, the reserve regiment will provide construction engineering support to the 1st Marine Expeditionary Force, managing joint coalition construction assets over an area the size of California.

Logan will be gone for at least nine months and perhaps up to two years. But Dave Fritchen, department head of ARE/CNS, said members of his faculty had “stepped up to the task” and were managing to cover Logan’s classes and advising duties until his return. “I believe Tom is likely the only faculty member on campus who is serving in the Iraq War,” Fritchen said. “His deployment is very proud of him and we are willing to pick up the load to support him.” The construction and engineering experience Tom is getting in Iraq will bring some interesting discussions to his classes when he returns.

Gallagher named Advisor of the Year

Dick Gallagher, professor of engineering, as the 2005-06 Student Organization Advisor of the Year. Gallagher, advisor to the Engineering Student Council, was one of 15 advisors nominated by student members. He received the award Jan. 31 at the Blue Key Recognition Ceremony. “Dr. Gallagher has accomplished the difficult task of finding a perfect balance between involvement and interference,” said Lisa Kitten, senior in mechanical engineering and president of Engineering Student Council. “His commitment to being an advisor rather than a group leader helps create an open atmosphere in our meetings where students feel free to express opinions, share ideas, or ask questions without being intimidated by his presence.” “Student organizations across the campus are blessed with great advisors,” she said, “but I cannot imagine a better one than Dr. Gallagher.”

2006 Company/Leader of the Year

GE Johnson Construction Co. was named 2006 Company of the Year at the Tau Beta Pi Spring Banquet, April 27. James M. Johnson, 1984 K-State graduate in construction science and president and CEO of the company, was named 2006 Leader of the Year at the same event.

Dyer named Fellow of the Association for Women in Science

Dyer is one of seven individuals recognized with fellow status by the association this year. The Association for Women in Science is dedicated to achieving equity and full participation for women in science, mathematics, engineering, and related fields. A K-State faculty member since 1983, Dyer earned the rank of full professor in 1997. She earned a bachelor’s and a master’s in biochemistry from K-State and a doctorate in mechanical engineering from the University of Kentucky.

Ruth Dyer

principal investigator of K-State’s ADVANCE Institutional Transformation Award from the National Science Foundation. The project has created various mentoring and professional development programs to enhance the recruitment, retention, and advancement of women faculty in the science, technology, engineering, and mathematics disciplines. A K-State faculty member since 1983, Dyer earned the rank of full professor in 1997. She earned a bachelor’s and a master’s in biochemistry from K-State and a doctorate in mechanical engineering from the University of Kentucky.
Seaton Society members are those who contribute $500 or more annually to funds in the College of Engineering. The college recognizes those members as Seaton Society members. Each has made a commitment in excess of $100,000 to engineering education excellence.

The Seaton Society awards lifetime membership to its founders. Each has made a commitment in excess of $100,000 to engineering education excellence.

Every effort has been made to provide a comprehensive listing of donors for the calendar year Jan. 1, 2005, through Dec. 31, 2005. We apologize for any incorrect listings, misspellings, or omissions.

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