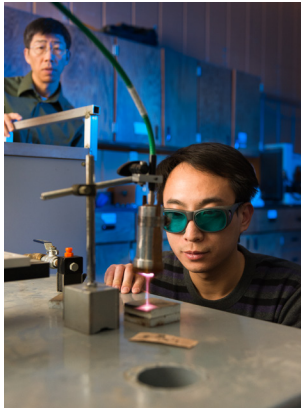


## By improving machining process, researcher transforms industry

For Shuting Lei, professor of industrial and manufacturing systems engineering, the term “advanced manufacturing” is a christening for the work throughout his career. Lei is a mechanical engineer by training and is applying industrial engineering techniques and computer and numerical modeling to optimize machining processes for advanced materials used in varied industries. “This is an exciting time to be involved in the manufacturing sector,” Lei said. “The convergence of attention and resources by industry and governmental entities could lead to significant advances that could renew the U.S. leadership position in manufacturing.”



### Laser focused

Lei’s research focus is using lasers to solve problems associated with the machining of advanced materials such as ceramics and thin films. These materials have applications in the aerospace, automotive, electronics

and energy industries. Yet current processes for machining these materials are expensive and cause significant degradation in material strength. In many cases, these issues have limited widespread use of these materials.

Lei’s goal is to develop innovative laser-assisted machining techniques and femtosecond laser micromachining processes that make machining of these materials cost-effective and lead to greater adoption of these materials by various industries.

Lei’s early research was conducted on laser-assisted machining, or LAM, and laser-assisted milling, or LAMill, of silicon nitride ceramic. Silicon nitride ceramics are used in a variety of applications, including material for automobile engine parts, bearings in machines such as wind turbines and skateboards, and insulators in manufacturing integrated circuits in electronics. They are light weight and desirable for their ability to withstand high temperatures and resistance to corrosion. When machined silicon nitride ceramic is prone to surface and subsurface cracks, it causes significant tool wear because of the hardness of the material.

To overcome these obstacles, researchers use a laser to soften the material. Experimentation has shown that the material temperature determines the surface quality of the machined workpiece.

*(Continued on page 4)*

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## Alumnus receives department recognition



Ryan McGuire, a 1992 IMSE graduate, was honored with the 2013 IMSE department Professional Progress Award during the Seaton Society celebration.

McGuire is vice president of pricing at J.B. Hunt Transport Inc., based in Lowell, Ark. He joined the company in 2001 and is responsible for network design, economic analysis and pricing for the truckload division, a \$470 million segment of the company. He began a transportation-related career

in 1993 with ABF Freight System Inc. in Fort Smith, Ark. In 1996 he joined Wal-Mart Stores Inc. in Bentonville, Ark., where he held roles in contract negotiation and business development.

McGuire is from Hutchinson, Kan. He is a past member of the IMSE advisory council and is currently a member of the IMSE Academy. McGuire and his wife, Debbie, and two sons live in Bentonville, Ark.

## From the department head

Greetings to all my fellow IMSE alums! It is truly an honor and privilege to continue to serve as the department head for this great program.

This past year has been outstanding! Once again, our department showed strong at K-State's All-University Open House and earned the Most Outstanding Departmental Display Award. That means we've won first prize in four of the last seven years. Congratulations to our student chapter of the Institute of Industrial Engineers, or IIE, for being named the Outstanding Student Association in the College of Engineering. The chapter also received the IIE Gold Award for the sixth year in a row.

Our programs are strong and growing. Undergraduate enrollment continues to climb, from 191 in fall 2012 to 216 in fall 2013. We also had 37 bachelor's degree graduates, 36 master's degree graduates and two doctoral graduates. Job offers continue to be strong. Kansas continues to be the No. 1 destination of both our bachelor's degree and master's degree graduates. Missouri is the No. 2 destination, followed by Texas and then Arkansas.

### *Our outstanding faculty:*

- Zhijian "ZJ" Pei, professor, was selected to serve temporarily as a National Science Foundation program director for the Manufacturing Machines and Equipment program. He also recently received the Dr. Ron and Rae Iman Outstanding Faculty Award from the K-State Alumni Association.
- David Ben-Arieh, professor, received the college's Larry and Laurel Erickson Public Service Award.

Furthermore, the IMSE faculty published 35 unique, refereed journal articles and 16 papers in refereed conference proceedings in 2013.

On the development side, we had generous alumni establish five new endowed accounts to support student scholarships. Those accounts include the Bernard/Margaret Veith Memorial Scholarship established by Tony and Denise Veith; the Benjamin and Jennifer Tryon IE Scholarship established by Ben and Jen Tryon; the Bradley Kramer IMSE scholarship established by Dennis and Andrea Rottinghaus; the Huschka Engineering Scholarship established by Bryce Huschka; and the Mark and Jean Miller IMSE Scholarship established by Mark and Jean Miller. These great gifts will truly make a difference in the lives of our students.

The department also received \$54,100 in philanthropic gifts from our alumni and friends. We have used these funds

to support students attending national society meetings, students traveling for class projects, faculty attending research conferences and renovating several offices and laboratories. These contributions are very much appreciated and will help us provide an outstanding educational experience.

As part of achieving Kansas State University's strategic vision for 2025 and accomplishing the University Engineering Initiative, our department is beginning to look at remodeling our building space. We plan to transform our manufacturing laboratories to support advanced manufacturing processes and materials.

We are also transforming the curriculum. IMSE faculty members are looking at centering all of our classes on a manufacturing systems design and analysis class that would engage our students from their sophomore year until their senior year. Accomplishing these feats and maintaining our family atmosphere will be a challenge, but I believe with your help, we can accomplish these goals.

### *Alumni Connections:*

- Hosted our first alumni reception in Northwest Arkansas at the Hog Haus Brewing Co. in Fayetteville. More than 30 people attended the event, including Mike Harnett, professor emeritus, and his wife, Carolyn.
- Hosted an alumni reception in Kansas City at Barley's Brewhaus and had more

than 100 people attend the event.

- IMSE advisory council met on Nov. 15. Chris Althoff, Kristine Amy, Catherine Boltz, Sara Coash, Darren Haverkamp, Lori Jester, Kerry Kaiser and Susan Van Houten joined the council this year, and we said farewell to Mark Miller and Julie Vick.

- Our IMSE professional academy met and hosted a Sept. 6 logistics workshop for our students. The academy inducted seven new members: Chris Althoff, Sara Coash, Doug Gish, John English, Kyle Grabill, Mark Miller and Justin Salmans. Special thanks to Patrick Hessini, Julie Vick and Kyle Grabill for speaking at the workshop.

We want you to be involved in strengthening and growing our department. Stay in touch! Go Cats!w



**Bradley A. Kramer**  
Department Head

## 2013-2014 Advisory Council

Chris Althoff  
Invoyent  
Chicago, Ill.

Kelly Foster  
Hormel Foods Corp.  
Dubuque, Iowa

Kristine Amy  
ExxonMobil Chemical Co.  
Houston, Texas

Kyle Grabill  
Garmin International  
Olathe, Kan.

Catherine Boltz  
Honeywell  
Kansas City, Mo.

Darren Haverkamp  
Hill's Pet Nutrition/Colgate-Palmolive  
Emporia, Kan.

Brian Brooks  
Lockheed Martin Aeronautics  
Fort Worth, Texas

Patrick Hessini  
CHS Inc.  
Inver Grove Heights, Minn.

Jay Christensen  
JCPenney  
Lenexa, Kan.

Bryce Huschka  
ExxonMobil  
Washington, D.C.

Sara Coash  
Hallmark Cards  
Kansas City, Mo.

Dan Janatello  
Blue Cross Blue Shield of Kansas City  
Kansas City, Mo.

Laura Cranmer  
OtterBox  
Fort Collins, Colo.

Lori Jester  
Hospira  
McPherson, Kan.

Dave Dohrmann  
D.A.D. Manufacturing Inc.  
Hiawatha, Iowa

Kerry Kaiser  
J.B. Hunt Transport Services Inc.  
Lowell, Ark.



Jeff Kerbs  
Wal-Mart Stores Inc.  
Bentonville, Ark.

Michelle Schlie  
Frito-Lay  
Denver, Colo.

Kenneth Norton  
Deloitte Consulting LLP  
Kansas City, Mo.

Tony Veith  
Spirit AeroSystems Inc.  
Wichita, Kan.

Justin Salmans  
Cessna Aircraft Co.  
Wichita, Kan.

Susan Van Houten  
HD Supply Inc.  
Atlanta, Ga.

The IMSE advisory council held its annual meeting in November. Chris Althoff, Kristine Amy, Sara Coash, Darren Haverkamp, Lori Jester and Susan Van Houten joined the council. The council is a group of industrial, business and professional leaders who are interested in the vitality of Kansas State University's IMSE department. The group helps the department strengthen its learning, research and outreach programs; improve its facilities; expand its base of support; and serve its alumni.

## Research award helps undergraduate tackle energy cost issues

Thanks to a scholarship aimed at encouraging undergraduate research, an IMSE junior had the opportunity to help his hometown.

While at home in Meade, Kan., Levi DeLissa talked with his dad, Lance, about energy cost issues in the town. While the southwest Kansas town of 1,700 people has its own generation facility, it must purchase supplemental power from a locally based electric cooperative. As a member of the city council, Lance DeLissa wanted to cut the \$500,000 the city had spent on fines incurred by buying energy during peak hours in the summer months.

With encouragement from Todd Easton, associate professor of industrial and manufacturing systems engineering, the younger DeLissa applied for the Raj and Diana Nathan Undergraduate Research Award to develop a model for power purchasing and distribution for the city. The work led to analysis of contracts under consideration by the city to provide a recommendation for the most affordable energy for Meade.

Actual cost comparisons were only part of DeLissa's analysis.

"The contracts were all different in nature, so a simple cost comparison was not sufficient to make a decision," DeLissa said.

"The different risks associated with each contract also had to be taken into consideration."

DeLissa considered risk factors such as the loss and replacement of the city-owned generator during peak energy months and expenditures associated with new EPA regulations.

With these and other factors taken into account, DeLissa recommended the city choose a costlier contract because the risks outweighed the costs.

"I am grateful to Raj and Diana Nathan for funding this project," DeLissa said. "It allowed me to spend time working on something that applies toward my major and enabled me to put into practice concepts that I've learned in the classroom and apply them to a real-world problem."

The Raj and Diana Nathan Undergraduate Research Award encourages young researchers through financial support. Raj Nathan is a former Kansas State University professor of industrial engineering and is currently the executive vice president and corporate marketing officer of Worldwide Marketing and Business Solutions Operations. His wife, Diana, is a K-State Industrial Engineering graduate.

## By improving machining process, researcher transforms industry

*(continued from front cover)*

Lei uses experiments and numerical modeling and simulation with finite element analysis and distinct element simulation to develop, validate and use models to predict optimal operating conditions for LAM.

Lei's current research involves using the femtosecond laser to manufacture hard-to-machine materials. A femtosecond laser is a device that creates a burst of laser energy at an extremely fast rate. These ultra-fast pulses are very precise and can shape materials at a molecular level without damaging adjacent areas.

In his research funded by the National Science Foundation, Lei evaluated the machinability of silicon nitride by LAMill and found that laser assistance enabled the materials to be cut by milling without breaking the cutting tip and produced a very good surface finish. LAMill's success greatly depended on the material's temperature, which affected both tool wear and exit edge chipping. By controlling this variable as well as the exit angle, Lei determined that laser heating significantly improves the machinability of silicon nitride ceramics.

The research objective was to develop an efficient method to drill high-quality, high-aspect ratio microholes. Examples of microholes' uses occur in the automotive and aerospace industries where microholes are drilled into engines to aid cooling, efficiency and noise reduction.

Lei's experiment involved using a hollow-core fiber as a simple spatial filter to transmit the laser beam to the target position. He wanted to explore how the operating parameters affect the laser-fiber coupling efficiency and the ablation rate for microdrilling the material.

Lei found it is feasible to drill deep microholes using the femtosecond laser delivered through a hollow-core fiber. A high material removal rate could be achieved with high pulse energy, a short pulse duration and a focusing lens with long focal length. Lei concluded that optimization of the operating conditions is needed to obtain a maximum ablation rate while meeting the microholes' quality requirements, such as size, roundness and cylindricity.

The solar industry is another area that may benefit from the use of the femtosecond laser. Indium tin oxide, or ITO, is used widely as a transparent power conductor in the fabrication of thin film solar cells. Patterning or scribing of the ITO layer defines individual cells and interconnects adjacent cells electrically. This is done by removing part of the ITO to create grooves in the material. The better the quality and more narrow the grooves, the greater the solar cell power conversion efficiency.

In research funded by the U.S. Department of Defense and the National Science Foundation, Lei studied the roles of laser pulse duration, laser fluence and laser scanning speed in femtosecond laser patterning of the ITO layer. He particularly wanted to determine if optimal levels of these variables, either singularly or in combination, existed for creation of high quality, extremely narrow grooves a few microns wide.

Lei and his colleagues demonstrated that such grooves could be attained within prescribed parameters. The research team controlled the laser energy and scanning speed to achieve a high-quality, narrow groove with negligible damage to the glass substrate.

"This proposed scribing process could lead to a significant increase in conversion efficiency for thin film solar panels," Lei said. "Together with the potential of significantly reducing cost through roll-to-roll mass production, this project may contribute to the nation's clean energy future."

While the practical applications of his research are significant, Lei never loses sight of the broader implications.

"While my research aims to use the laser as a tool to solve selected challenging problems in manufacturing processes, in doing so it also advances our scientific understanding of the field and contributes to the revival of manufacturing in the U.S.," Lei said. "This not only has a positive impact on the country, but also to society and our environment."

## IMSE student chosen to represent K-State

Ava Clark, a sophomore in industrial engineering from Overland Park, Kan., was recently named one of the 2014 K-State Student Ambassadors. Clark and Chance Berndt, junior in marketing and international studies, Herington, Kan., will represent the student body at alumni and student events for one year. Clark and Berndt each received a \$1,500 scholarship, clothing from Borck Brothers and the official Kansas State University ring.

"Being selected as a student ambassador is an incredible honor," Clark said. "I can't think of anything more exciting than getting to be a representative of the most awesome college in the world."



As an ambassador, Clark hopes to relay to prospective students what makes K-State special.

"K-State doesn't push students through a conveyor belt of classes," she said. "Here the faculty and staff invest in each student individually and genuinely care about their success. This is a message I'm excited to communicate to high school students."

Clark is a 2012 graduate of Shawnee Mission West High School. Her parents are Patrick and Cheryl Clark.

The K-State Alumni Association sponsors the student ambassador program. Each year a male and female student are elected. Clark and Berndt were selected after completing a nomination and application process, followed by a first-round interview with a student panel and a second-round interview with K-State faculty and alumni. Both students were elected by a student ballot during K-State's Homecoming Week.

## National award honors professor's excellence in education

A paper co-authored by a Kansas State University assistant professor received a top award at a national conference dedicated to excellence in engineering education.

Jessica Heier Stamm, a faculty member in the IMSE department, received the New Industrial Engineering Educator Outstanding Paper Award at the 2013 American Society for Engineering Education conference. The award recognizes exceptional industrial engineering instruction among junior faculty members.

Heier Stamm shares the award with paper co-authors IMSE alumna Lesley Schafer Strawderman from Mississippi State University and Denise Bauer from the University of Idaho.



In the paper, "A review of capstone course designs used in industrial engineering programs," the trio presents the results of an examination of capstone, or senior design, courses offered by industrial engineering programs in the U.S. Results reported include information on course design, teams and disciplines, and relevance to the industrial engineering profession. A comprehensive understanding of various capstone course models will help determine if there is one best model or if it may depend on characteristics of the program such as geographic location, student body size and faculty size.

Within engineering curricula, capstone courses are an essential element of the undergraduate experience. In these courses, seniors use the knowledge gained throughout their studies to analyze design problems. Capstone courses are critical in ensuring students have the requisite knowledge before entering the engineering profession. They also serve as an important benchmark tool for engineering programs to ensure they are meeting academic outcomes.

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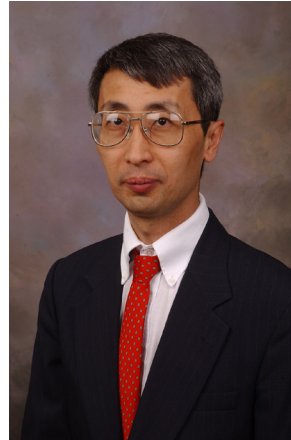
Industrial and Manufacturing  
Systems Engineering

Join the IMSE Community and connect with us online!

[imse.ksu.edu](http://imse.ksu.edu)

## Professor awarded for outstanding research, teaching

Zhijian "ZJ" Pei, professor of industrial and manufacturing engineering, was one of the 2012-2013 Dr. Ron and Rae Iman Outstanding Faculty Award winners. The honor recognizes outstanding research and teaching. The award, which comes with a \$5,000 honorarium, is supported by Dr. Ron and Rae Iman and sponsored through the K-State Alumni Association.



Pei is an international authority on advanced manufacturing processes. His primary research areas include developing efficient abrasive processes for difficult-to-machine materials used in advanced applications and rotary ultrasonic machining processes.

Since joining the IMSE department in 2000, Pei has obtained more than \$3 million in research funding from federal and industrial sources. He has published more than 129 journal and 84 peer-reviewed articles, authored two books and served on the editorial committees for 10 scholarly journals.

Pei also organizes an annual workshop to help young faculty members develop funded research. The National Science Foundation sponsors the annual workshop, and more than 800 professors nationwide have attended.

Pei has graduated nine doctoral students, and two students are in progress.

Pei is a fellow of the American Society of Mechanical Engineers. He has received several Kansas State University awards, including the Commerce Bank Distinguished Graduate Faculty Award and the Frankenhoff Outstanding Research Award from the College of Engineering. He is a National Science Foundation CAREER Award winner.

Pei earned his doctorate in mechanical engineering from the University of Illinois, then completed four years of industrial experience and one year of postdoctoral research before joining K-State.

## Bolton, Waldman receive national scholarships

Two IMSE students have earned national scholarships from the Material Handling Education Foundation. Tom Bolton, senior, Overland Park, Kan., received the foundation's Seismic Inc. Honor Scholarship. Andrew Waldman, Shawnee, Kan., was awarded the Lift Manufacturers Product Section Honor Scholarship. He is a senior in the IMSE department's concurrent bachelor's degree and master's degree program. Bolton and Waldman are among 28 students nationwide to receive a foundation award that recognizes superior academic achievements. To date, 34 IMSE students have received scholarships from the Material Handling Education Foundation.

## Scholarships recognize academic achievement

The IMSE department's scholarship reception honored students receiving scholarships for the 2013-2014 academic year. Alumni, donors and IMSE academy members joined IMSE faculty in recognizing student academic achievements. Chris Althoff, an industrial engineering graduate who has endowed a scholarship in the department, gave opening remarks. Scholarships totaling \$160,000 were awarded to 58 students for the 2013-2014 academic year.



## Research team explores camelina's bioenergy possibilities

Camelina is an oilseed crop that shows promise as an environmentally friendly commercial biofuel feedstock. A team of researchers that includes Shing Chang, IMSE associate professor, recently received \$5.08 million from the Department of Agriculture to study the potential bioenergy and bioproduct capacities of camelina.

Chang said the purpose of the research was to develop technical solutions to make camelina a cost-effective bioenergy and bioproduct feedstock. The researchers will evaluate two proposed solutions, which include optimizing crop systems in wheat-based crop rotations to enhance camelina production and developing high value co-products by using camelina meals and oils. Chang will use multiple response surface methodology to balance optimal process parameters and production costs with camelina life-cycle considerations.

Xiuzhi "Susan" Sun, university distinguished professor of grain science and industry, is leading the research team. In addition to K-State scientists, the team includes researchers from Montana State University, the University of Wyoming, StrathKirn Inc., BST LLC, Montana Gluten Free Inc. and Henkel AG & Co.

The camelina project funding is part of a \$25 million effort by USDA's National Institute of Food and Agriculture to fund research and development of next-generation energy and high-value biobased products from a variety of biomass sources.

## Research projects benefit veterans' health

The IMSE department recently has received several project awards from the U.S. Department of Veterans Affairs to improve health delivery to our nation's servicemen and women for many decades.

David Ben-Arieh, professor of industrial and manufacturing systems engineering and director of the Health Care Operations Resource Center at Kansas State University, has received a nearly \$86,000 grant to optimize telemental health services available to veterans. Telemental health care uses telecommunications technology to provide mental health services. It reduces costs, travel and time away from work. Telemental health care also improves access to care, removes barriers associated with ambulation and mobility for elderly veterans or those with handicaps, and lessens stigma associated with traditional mental health care.

The project's objective is to better understand how to provide telemental health services to veterans. The project's goal is to enable mental health service providers to develop the best combination of telemental health processes and on-site services to improve the level and quality of mental health care to veterans.

Ben-Arieh, along with Shing Chang and Malgorzata Rys — both associate professors of industrial and manufacturing systems engineering — have been awarded a grant to enhance the virtual learning environment for the Veterans Health Administration workforce. Chang is the principal investigator of the project.

## Student-produced video wins national competition

Kansas State University's Institute of Industrial Engineers, or IIE, chapter received first place and a \$1,000 grant for its student-produced video submission, "Choose My Major." The video is aimed at recruiting high school students and provides an overview of industrial engineering. It highlights industries where industrial engineers are employed and the type of work they do every day. K-State's submission competed against IIE chapters across the nation and was honored at the IIE annual conference.

Carl Specht, senior in industrial engineering, Overland Park, Kan., directed and edited the video with help from his IMSE classmates: Jordan Bever, senior, Hutchinson, Kan., Victor Cassone, senior, Overland Park; and Andrew Waldman, senior, Shawnee, Kan. Hannah Foil, senior in elementary education, Overland Park, helped with the production.



## IMSE student competes at IIE annual conference

Jordan Bever, a 2013 IMSE bachelor's degree and master's degree graduate, received second place in the technical paper competition at the 2013 Institute of Industrial Engineers national conference in San Juan, Puerto Rico.

Bever's paper, "Designing a palletization process for Heart to Heart International," outlines the evaluation, design and implementation of a solution to improve the warehouse performance of Heart to Heart International, a Kansas City, Kan.-based disaster relief agency. The paper was co-written by Lauren Cody and Brandon Mais, both 2012

IMSE graduates, as part of the team's senior design course. Jessica Heier Stamm, assistant professor of industrial and manufacturing systems engineering, was the project adviser.

Malgorzata Rys, associate professor of industrial and manufacturing systems engineering, is the faculty adviser for Kansas State University IIE chapter.



## Investing in IMSE

### Endowments

*Leave your legacy: Creating an endowed fund*

Endowments leave a permanent mark on K-State and provide greater opportunities for growth for generations to come. They may be established through an outright gift, a pledge, or a bequest or other form of planned gift.

You can designate your endowed funds to help the university through many opportunities, including scholarships, fellowships, faculty development, a specific program or a department. You can also make an unrestricted gift to the greatest needs of the College of Engineering or the university.

You can name a new endowment and many choose to honor a loved one, to recognize a favorite professor or to create the endowment in your name. The College of Engineering development staff will work with you on an individual basis to tailor both the type of asset and the administration of your endowed fund.

The purpose of an endowment is to provide ongoing support for the current and future activities of K-State. This perpetual, self-sustaining source of funding will benefit the university for years to come. Please contact the College of Engineering development office to discuss the options of establishing an endowed fund today.

For more information please contact the College of Engineering development team at 785-532-7609 or [danielley@found.ksu.edu](mailto:danielley@found.ksu.edu).

### Pledges

*Documenting your gift commitment through a pledge*

When considering a contribution to K-State, your gift may be made outright in a lump sum or through a pledge of up to five years. A pledge is a gift commitment you promise to fulfill for the designated pledge period and payments can be made monthly, quarterly, semi-annually or annually. Pledges can be designated toward establishing a fund or an existing fund. Creating a pledge can help you spread out your gift commitment and helps the college in budget forecasting and knowing areas they will be able to support through expected philanthropic gifts.

We appreciate you taking advantage of this opportunity to enhance your gift to K-State. Contact the College of Engineering development team at 785-532-7609 or [danielley@found.ksu.edu](mailto:danielley@found.ksu.edu) for more information.

### Matching

*Utilizing company matching gift programs*

Increase the impact of your gift to K-State by utilizing your company's matching gift program. Companies encourage philanthropic behavior by matching their employee's charitable donations to eligible organizations, including higher education institutions.

Find out if your company participates in a matching gift program by visiting [found.ksu.edu/match](http://found.ksu.edu/match). Here you also can find specific information on your employer's matching program, learn how to initiate a matching gift and contact your human resources department.

We appreciate you taking advantage of this opportunity to enhance your gift to K-State. Contact the College of Engineering development team at 785-532-7609 or [danielley@found.ksu.edu](mailto:danielley@found.ksu.edu) for more information.

### PLANNED GIVING

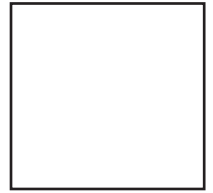
Did you know there are creative ways to support the IMSE department, including ways in which K-State, you and your loved ones all benefit at the same time?

Such giving techniques are called planned gifts, because with thoughtful planning, you create win-win solutions for you and K-State. For example:

- You can make a gift that costs nothing during your lifetime.
- You can give stock and realize larger tax savings.
- You can get quarterly income for life in return for your gift.
- You can donate your house, continue to live there and get a tax break all at the same time.

We appreciate your consideration. Contact the College of Engineering development team at 785-532-7609 or [danielley@found.ksu.edu](mailto:danielley@found.ksu.edu) for more information.





## Upcoming Events

IMSE Academy Meeting  
March 28  
K-State Alumni Center  
Kansas State University

Seaton Society Awards & Banquet  
March 29  
Kansas State University

Open House  
April 5  
Kansas State University

IMSE Scholarship Banquet  
Date TBD

Spring Commencement  
May 16-17  
Kansas State University

For more information on these and other  
events, visit our website:  
[imse.ksu.edu](http://imse.ksu.edu)



The IMSE Professional Academy was designed to help IE Alumni from K-State stay connected and facilitate student/alumni relations. Individuals who remain involved and give back to the department keep our alma mater strong. The Academy is currently accepting members. To learn more contact the IMSE department at 785-532-5606.