

IMPACT

KANSAS STATE UNIVERSITY

FALL 2020

CARL R. ICE COLLEGE OF ENGINEERING



KANSAS STATE
UNIVERSITY

FROM THE DEAN

Nearly halfway through my first year as dean of engineering at Kansas State University, I remain deeply impressed with the dedication and service of our students, faculty, staff and alumni. My interactions with college stakeholders thus far have led me to believe in a future of positive collaboration and commitment.

That said, let me highlight some of the more recent accomplishments and thresholds we are proud to share.

The Engineering Leadership and Innovation, or ELI, Program continues on with 17 corporate partners and 41 ELI Scholars for 2020-21. We expect to have 14 companies participate over the fall and spring semesters, hosting virtual Career Spotlight events that include information sessions via Zoom with time for live Q&A following the presentations.

Our much-in-demand students had access to the All-University Career Fair, Sept. 21-24, a multi-industry event hosted this year online through the Handshake program.

Fall enrollment numbers for the college are a very respectable 3,073 undergraduate students, 186 master's students and 194 graduate students at the Ph.D. level.

We are pleased to acknowledge the remarkable philanthropy of our alumni and friends as we can now boast of having passed our Innovation and Inspiration campaign goal by more than \$70 million, 100 named faculty positions, as well as the addition of our fifth named department, the Carl and Melinda Helwig Department of Biological and Agricultural Engineering, which will be celebrated this spring.

You'll find additional news of this type of generosity in the pages to follow including a profile piece on the financial and time investments of Ray Dempsey, IE '90, as well as a story on members of the CHE class of '68 who have stepped out to establish an excellence fund for their department.

One of my core imperatives is that undergraduate and graduate student success be a top priority, for when students are successful, we all succeed. Two of our student leaders share how they've adapted within their respective team and organization, moving forward



with success during the pandemic. We think you'll find it interesting as well to learn of the scope of physical change and preparation our administrative support teams provided in advance of the fall semester.

And our faculty — a key component to any claim of student success — will undoubtedly leave a favorable impression as you read of the innovative programs being developed in the department of computer science; the approval of our 12th Bachelor of Science degree program, environmental engineering; the national recognition of our faculty research projects; and the impressive list of award winners honored at our fall convocation.

Be assured, even in times of some uncertainty, our goal remains to fill the pages of Impact magazine with a record of the continued success of our students, faculty, staff and alumni.

Matthew J. O'Keefe, Ph.D.
Dean and LeRoy C. and Aileen H. Paslay Chair

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ABOVE: EVEN OUTDOORS, MASKS ARE THE ORDER OF THE DAY AS STUDENTS CHECK NOTES FOR A SURVEY CLASS ASSIGNMENT.

ON THE COVER: DEAN MATT O'KEEFE VISITS WITH STUDENTS IN THE ENGINEERING HALL ATRIUM.

IN THIS ISSUE



EXCELLENCE



EDUCATION



INNOVATION



COLLABORATION

- 4 GIVING WITH 'CLASS'
- 6 COMPUTER SCIENCE FOR ALL
- 8 PREPARATIONS FOR IN-PERSON LEARNING
- 10 'K-STATE FAMILY'
- 12 STUDENT TEAMS AND ORGANIZATIONS
- 14 COMPANY OF THE YEAR
- 15 NSF CAREER AWARDS
- 16 COLLEGE NEWS
- 19 ALUMNI NEWS

CARL R. ICE COLLEGE OF ENGINEERING CAMPAIGN GOAL EXCEEDED



IMPACT

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Giving with 'class'

CHE grads support future engineers

Individuals and families, and even businesses and corporations have been known to generously support the Carl R. Ice College of Engineering and its programs. But an entire class of graduates establishing an excellence fund for their department may be a "first."

Gathering in Manhattan in fall 2019 for their 51st class reunion — having missed their 50th the year before due to scheduling conflicts, — 12 of the original 24 1968 graduates of chemical engineering met to reconnect with their department, former faculty members and one other.

By the end of the weekend an idea had been birthed, and in the following month a committee of three had reached out to their classmates by email proposing contributions to an endowment gift that would permanently support the Class of 1968 Department of Chemical Engineering Excellence Fund.

Those three, **Larry Schulte**, Leawood; **Larry Parrett**, Lake Jackson, Texas; and **John Driskill**, North Richland Hills, Texas, recently shared the story of how the fund came to be established, and why it is important for them to honor their educational experience in this way.

The endowment fund is open-ended, so as alumni are able and interested, they can continue to contribute and the cash flow to the chemical engineering department will increase in proportion to the total value of the fund. It's been suggested others could contribute in honor of their classmates, or for birthdays, anniversaries, memorials, etc.

Schulte, Parrett and Driskill have even challenged the graduates of 1967 and 1969 to set up a similar endowment in honor of their respective classes, or possibly join this fund as fellow K-State chemical engineering graduates.

Working on the Class of 1968 Department of Chemical Engineering Excellence Fund was not Schulte's first experience in philanthropy for K-State engineering.

"My wife Barbara and I had previously invested in a chemical engineering scholarship at K-State because we both believe our success in life was given a huge kick-start by my chemical engineering degree,"

he said. "We decided it would be good to provide current students with support while finishing their degrees."

Schulte's career had taken him from a stint in the USAF following a soon-after-graduation draft notice, to an MBA from the University of Utah, to nearly 40 years of employment with salt, mineral and chemical companies that involved projects and travel around the world.

"My Uncle Tom Schicktanz was a 1957 chemical engineering graduate of K-State and as I watched his accomplishments, I decided to try and follow in his footsteps," Schulte, originally from Maple Hill, said. "Over my career, I was able to hire a number of K-State engineers and always found them very capable."

"In talking with more than half of our classmates, I was amazed at the diversity of projects and locations where they had worked and lived, and the leadership positions achieved," he said.

"It seemed right that we help support our Kansas State students toward the same opportunities we found awaiting us."

Schulte had hoped one outcome of the reunion might be an additional scholarship for the department. But in discussing this option with his classmate prior to the event, Parrett had offered that they should ask those attending to fund an effort for the department.

"Larry Parrett made the pitch for the excellence fund at the reunion in honor of K-State's chemical engineering professors and that it be utilized at the discretion of the department head," Schulte said.

"Many there expressed their gratitude to our professors and K-State for the tools given them to achieve careers far beyond any of our expectations in June 1968!"



MEMBERS OF THE CHE CLASS OF '68 DOT THE WORLD MAP WITH STICK PINS OF EACH LOCATION THEIR COLLECTIVE CAREERS HAD TAKEN THEM OVER THE YEARS.

"As another one of my colleagues and I have discussed many times," he said, "coming from very small towns and working-class families — we had no idea how far and how many opportunities would come our way from our K-State engineering degree."

Parrett, originally from Topeka, spent more than 36 years with Dow Chemical before going into consulting. He believes strongly as well in the graduates of the K-State chemical engineering program.

"Where I worked, Dow Chemical had selected Kansas State as one of its 30 schools from which to recruit chemical engineers because of their work ethic and subject knowledge," he said. "The fund for me was a way to give back for what I had been taught and earned."

At the reunion it was noted that many of the classmates had accepted jobs outside of Kansas and in some cases out of the United States.

"I suggested we try to start an endowment fund in our class name since the majority of us had not been paying state taxes here over the years, which also helps fund academics at the state university level," Parrett said.

"Most of our classmates came from both small and larger towns, but almost all were from working-class families."

"A chemical engineering degree was a ticket to a professional career and to larger opportunities based on your job performance and contribution," he said. "It seemed right that we help support our Kansas State students toward the same opportunities we found awaiting us."



THE CLASSMATES GATHER FOR A REUNION AND SURROUND THEIR FORMER PROFESSOR, LARRY ERICKSON.

Driskill said Schulte and Parrett had already formulated the plan for the fund before he met with them at the reunion, but he was immediately on board.

"I had many excellent professors, including the late department heads Dr. Fan and Dr. Honstead, and the late Dr. Bates. The other faculty in the department at that time, Dr. Erickson, Dr. Matthews, Dr. Akins and Dr. Kyle, motivated me as well," he said.

"I had the pleasure of seeing Dr. Erickson during the reunion and told him I was grateful for him and my other professors for teaching me chemical engineering, as it led to a very productive and interesting career."

Driskill, who also has a master's in chemical engineering from Texas A&M and an MBA from McNeese State, spent the bulk of his career with PPG Industries in Texas and Louisiana, which involved extensive overseas travel and the publishing of three patents.

He said his high school chemistry teacher in Independence, Wendell Ferguson, had helped him to pick the career path of chemical engineering, motivated him to study and recommended his going to K-State.

"Getting a good education in high school and at K-State really helped me reach the goals I had set," Driskill said.

"K-State was always a very special place — helping me grow into manhood and to lead a productive life. This is what makes me want to give something back to the students attending here now."

by Mary Rankin



COMPUTER SCIENCE FOR ALL

The Computational Core Initiative

by Mary Rankin

The Computational Core Initiative, or CCI, a set of computer programming courses offered by the computer science department in the Carl R. Ice College of Engineering, is designed to provide students of any major with the fundamental knowledge to utilize programming in a variety of situations.

“Programming is the skillset that makes students stand out in the 21st century job market,” said Scott DeLoach, professor and department head of computer science. “Using computers to solve problems is a key part of the modern, technology-driven workplace.”

The initiative includes high-quality, modular and scalable state-of-the-art courses. Employing a cutting-edge online education framework, students work at their own pace, but are required to master basic concepts before advancing. Immediate feedback and guidance is available through automated assistance as well as personal interaction with faculty and teaching assistants.

DeLoach and computer science instructor, Russell Feldhausen, began developing the CCI in spring 2018, building the open source online courses with Codio, a cloud-based platform that supports creation of integrated text, video and graphic course content with a built-in programming environment for carrying out programming assignments. The two, along with computer science instructors, Emily Alfs-Votipka and George LaVezzi, have written a textbook, recorded instructional videos and created online assignments automatically graded for each course.

The first five computational core courses form the computer science certificate program, which can be taken by itself or in conjunction with other K-State degree programs. Certificate courses include the following:

- CC 110 – Introduction to Computing
- CC 210 – Fundamental Computer Programming Concepts
- CC 310 – Data Structures and Algorithms
- CC 315 – Data Structures and Algorithms 2
- CC 410 – Advanced Programming

“The certificate course is essentially equivalent to a minor in computer science,” DeLoach said. “It teaches skills needed to solve real-world problems as students learn to develop their own software programs. Each course is available 100 percent online, allowing students to move through the program as quickly or as carefully as they’d like.”

The certificate requires minimal mathematical background, instead focusing on the application of programming. When completed, a student will have a strong knowledge of suitable programming skills for a variety of jobs.

“The original goal of the initiative,” DeLoach said, “was to integrate computer science classes into other degree programs on campus. Our computer science degree in the college is ABET-accredited, while the computer science certificate and other related degree programs are not. The CCI courses focus less on theory so college algebra is sufficient with no calculus required.”

The team currently has additional CCI courses in development as part of a planned B.S./B.A. degree in integrated computer science. These will cover more advanced topics such as web development, data science, system administration and database systems.



“PROGRAMMING IS THE SKILLSET THAT MAKES STUDENTS STAND OUT IN THE 21ST CENTURY JOB MARKET.”

— Scott DeLoach

But the vision has expanded even further than additional advanced coursework.

“We basically want to provide a set of highly modular educational components that can be integrated into computer-related education from middle school through college, and even adult education,” DeLoach said.

The CCI is multifaceted in that it uses the same basic courses to make computer science available to non-computer science majors online, on campus and throughout the state at smaller colleges lacking resources or expertise to offer their own classes in this area.

The first courses will be taught at Manhattan Christian College in spring 2021 through the CCI Academic Partner Program, with plans to offer these at other small colleges throughout the region.

The CCI Cyber Pipeline program also offers CCI courses at high schools and is being piloted at Manhattan High School this fall with 18 students enrolled in the first course.

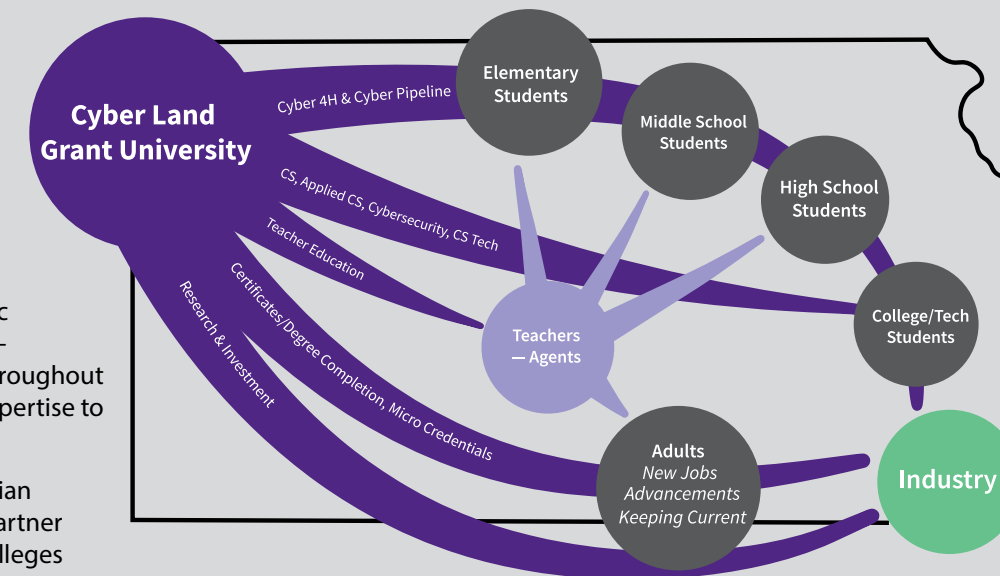
“This is a hybrid setup,” DeLoach said. “The students learn online but also have a teacher in their classroom to help when they have questions. Some of these kids have really taken off with it!”

“Our vision is for computer science to be taught in all high schools in Kansas at no cost to the students. Right now we are projecting a \$60 cost to school districts for each student in a course. Next year eight to 10 high schools across the state will be on board with possibly even a Missouri high school now that K-State is offering in-state tuition to Missouri residents.”

DeLoach also sees the possibility of the first CCI course being available in middle schools. Students will then take one of the four remaining classes each year of high school. A Spanish version of the CCI is being developed by Jorge Valenzuela, computer science teaching assistant professor, with plans to pilot it next year at a high school with a significant population of Spanish-speaking students.

“The Cyber Pipeline program is a recruiting tool for the college and university,” DeLoach said. “If someone were to take the CCI courses in high school, that person could enroll at K-State with 17 earned credit hours at almost no cost.”

Plans to integrate the program campuswide include partnering with the College of Arts and Sciences to create a new bachelor’s degree in integrated computer science, designed for those who



want computer coding skills but not an engineering degree. The proposed program will combine the CCI courses with preparation in a specialized content area within the arts, humanities, social science, hard-science or almost any degree area within the university.

“Arts and sciences is natural link,” DeLoach said, “as all research in the hard-sciences, sociology, psychology, etc. are predicated on data. Why not have the skills to gather, build and manipulate that data?”

The department is also collaborating with the College of Education on a professional development program for high school teachers to become certified to teach computer science.

The first bachelor’s degree program integrating CCI courses was launched this fall — the geographic information science and technology degree in the department of geography. Plans are also underway for a digital media bachelor’s degree within the department of journalism.

Looking to industry, DeLoach said the possibility exists for packaging and selling CCI courses to companies wanting to offer this certification and training to their employees.

The president and provost have expressed interest in the CCI becoming a key program for launching Kansas State University as the first cyber land-grant institution in the nation.

“We could become the ‘poster child’ of a cyber land-grant system,” DeLoach said, “one day educating and training all Kansas residents in computer-related technologies.”



PREPARATIONS FOR IN-PERSON LEARNING

by Mary Rankin

When the decision to once again hold in-person classes in fall 2020 was announced by Kansas State University this summer, administration, faculty and staff took on the sometimes daunting tasks of preparing for the safest possible on-campus return for students, yet making provisions for the option of hybrid learning, and if necessary, a return to all online learning.

Two units in the Carl R. Ice College of Engineering Dean's Office — computing services and facilities management — were heavily involved in this process.

COMPUTING SERVICES

From the complexities of expanded capabilities for virtual and on-site learning, to adding alcohol dispensers to labs and assisting with coordinating cleaning supplies and processes for public spaces, Raymond Clotfelter, information technology director, and his team met the challenge of preparing for additional online learning, expanding hybrid teaching preparedness and making accommodations for the safest possible return to in-person classes and labs.

Six classrooms in three buildings — Seaton, Fiedler and Rathbone — were upgraded from basic technology, i.e., a computer and projector,

to full-recording-capacity classrooms. Two such classrooms were readied in Fiedler and Engineering halls, with upgraded recording systems installed in Durland 1027 and 1032, as well as transitioning to private recording studios in Durland 2026 and 2027.

"Most of the classroom upgrades and installations were handled by Erik Grimm, computer and systems specialist," Clotfelter said, "who spent nearly 200 hours on these projects."

Computer labs in four locations in the Engineering Complex were migrated to dual in-person and remote-access computer labs, while across the street in Seaton Hall the BAE computer lab was redesigned to keep it at near full capacity by moving equipment from departmental computer labs to facilitate social distancing, and enable better remote access and in-person use.

Also in Seaton, computers and projectors were added to four ARE/CNS classrooms as well as Mediasite Catch being installed in 15 classrooms to allow for software recording options.

"Kyle Evans, computer and systems specialist, tweaked and updated many of our web services to support tighter and more reliable integration with the K-State Mediasite system," Clotfelter said.

"Jason Richards, computer/systems specialist, and Amber Jacobs, information technology support specialist, both spent a number of hours supporting our team's projects," he said. "They moved equipment, posted signs, updated documentation and assisted faculty and staff with their own updates and changes."

FACILITIES MANAGEMENT

Ryan Zecha, program and project manager in the dean's office, focused many of his tasks on preparing the college's physical on-campus space to safely accommodate fall 2020 engineering students returning for in-person learning for the first time since March.

A large part of university-required regulations involved the installation of signage throughout the college's five buildings.

"Engineering classrooms, building and classroom entrances and exits, stairways, elevators and bathrooms — all had to be properly labeled with university-mandated messaging," Zecha said. "Then we had the added task of developing and posting additional signage in our study rooms, on study tables and throughout the student design suites."

With proper social distancing requirements heavily stressed for re-opening, Zecha also took on de-densifying common areas and

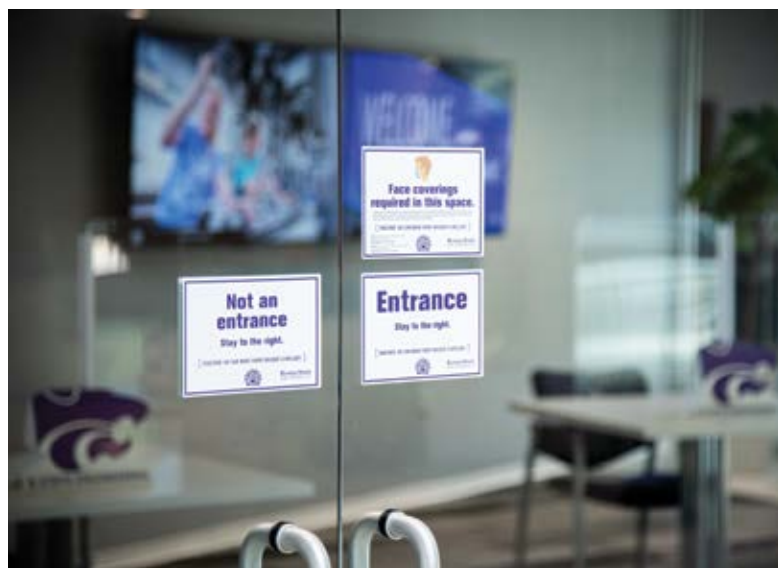
study rooms, which included ensuring physical distancing could be maintained in all common areas where folding tables and chairs had been placed to provide additional study spaces for students.

Regular classroom capacity numbers had been reduced due to social-distancing guidelines, so Zecha and his student workers also assisted with physically creating temporary classroom space inside the SAS tutoring and Fiedler Learning Commons areas.

"Here we brought in portable room dividers to help create a dedicated space for small groupings," Zecha said, "putting tables in an efficient and properly distanced pattern. We even had help from Gary Clark, senior associate dean, and Craig Wanklyn, associate dean for recruitment, who got physically involved with measurements and furniture placement to make sure this project came out right."



View fall 2020 preparation videos on our YouTube channel. bit.ly/engg-preparations





'K-State Family'

More than a slogan for the Dempseys

by Mary Rankin

Whether it be time and expertise, or financial support of faculty, scholarships and facilities, Ray Dempsey, IE '90, counts giving back to K-State as a "joy."

"I met my wife, Alysia, at K-State and so much of the life we've built can be directly tied to our education and experiences here," he said. "It was in Manhattan that we started to cultivate the hopes, dreams, values and determination that underpin the success we've enjoyed — as well as the resilience to keep pushing through the tough times."

Dempsey serves as chief diversity officer for BP America, and as chair and president of the BP Foundation in Washington, D.C. He joined the company, formerly Amoco, as a mechanical design engineer in 1990 and over the past 30 years has experienced a wide range of business and corporate functions that include operations, finance, investor relations, strategy, human resources, external affairs, and diversity and inclusion. His career has taken his family across the U.S. and twice to London, BP's world headquarters. He and Alysia, and their four daughters, now live in Vienna, Virginia.

"My engineering background was the foundation for what has been a great adventure of a career," he said. "In my current role as chief diversity officer, my team and I have been deeply engaged in supporting our company as we sharpen our focus on making BP a better place to work for everyone while tackling the issues of racial injustice in our communities."

Dempsey shared his experience in this arena with faculty, staff and students by serving as keynote speaker for the fourth annual Carl R. Ice College of Engineering 2020 Diversity, Equity and Inclusion Summit on Oct. 27.

"Across my company, we're now having the conversations that are hard, but necessary," he said. "We're listening to each other in a way

we hadn't before. And we're determined to make progress. I'm so glad to know that K-State is on this journey, too, and I was pleased to play a small part."

Dempsey, a participant in various capacities within K-State's Multicultural Engineering Program in addition to this year's summit, has served as both a member and chair of the Carl R. Ice College of Engineering Advisory Council, and is currently a member of the KSU Foundation board of directors.

"It's always been rewarding for me to come back to campus, serving and supporting the university, and spending time with students," Dempsey said. "Being a member of the Foundation's board of directors has been great as I've had a chance to learn more about the university beyond the College of Engineering, which is my 'home.'"

"K-State is a special place. The 'K-State family' is a real thing — not just a slogan. We are blessed to be a part of it."

"My engineering background was the foundation for what has been a great adventure of a career."



In support of that 'family,' among their financial gifts has been establishment of the Ray and Alysia Dempsey Cornerstone Faculty Award and the Ray and Alysia Dempsey Multicultural Engineering Scholarship, both in the engineering college, as well the family's naming of the outdoor plaza at the university's new multicultural center.

"I was hugely influenced by many people at K-State," Dempsey said, "among them several faculty members, the minority engineering program director and even former Dean Donald Rathbone, who I supported as a grader for his Engineering Honors course."

Dempsey understands well the financial challenges faced by students and their families, having faced them once himself.

"The scholarship support I received was a lifesaver," he said, "and I was blessed with a great group of friends and classmates — the kind of 'extended family support' every student needs to thrive. We spent a lot of hours in a study center in the basement of Seaton Hall. That space was truly important — it felt like home."

He and his wife's giving priorities were shaped by these experiences, he said, "From our commitment to faculty support, a scholarship for multicultural engineering students, to support for community space — we believe these are the things that really make a difference."

2020 DIVERSITY, EQUITY AND INCLUSION SUMMIT

CARL R. ICE COLLEGE OF ENGINEERING

The Carl R. Ice College of Engineering hosted the fourth annual Diversity, Equity and Inclusion Summit, via Zoom, on Oct. 27.

Keynote speaker Ray Dempsey Jr., 1990 industrial engineering graduate of Kansas State University and chief diversity officer for BP America, brought the message, "Not just the right thing to do," subtitled "DEI: A business imperative," followed by a virtual question-and-answer time with attendees.

The two-hour event also included a breakout session, and a diversity, equity and inclusion panel discussion.

A video recording of the summit is available at



bit.ly/dei-summit-video



Student Teams and Organizations Forge Ahead

What happens when broad restrictions halt planned activities for a competitive creative inquiry team — do you build a race car when the races are canceled? Or how does a student organization proceed with its international service project when suddenly travel is banned?

ENGINEERS WITHOUT BORDERS

The K-State Chapter of Engineers Without Borders, or EWB, serves local and international communities through sustainable engineering solutions, while cultivating student leaders to be accountable to each other and their partners.

When classes went online-only last semester, EWB was in the midst of multiple projects that could only continue through Zoom meetings that extended over into summer as well.

“Our chapter meetings began again this fall via Zoom,” said Grace Wojcik, junior in mechanical engineering and the group’s vice president, “but we actually received more interest in our club as we are still actively working on projects.”

EWB teams taking on smaller projects had the option of collaborating in person, but most continued to meet remotely because of the effective work strategies created over the summer.

“We meet the same amount of times — every other week as a chapter and one to two times a week per project team,” Wojcik said. “Our activities never stopped.”

EWB recognized the needs of third world countries weren’t going to disappear just because the pandemic had created a new crisis. Members understood it was no time to push the “pause” button on planned projects.

“Travel out of country is not allowed right now,” she said, “so our water project team’s plans to go to El Cascabel, Nicaragua, this past summer had to be postponed. But because the communities and EWB want the projects to move forward, we are working remotely instead of on site.”

This team is in communication with the community in El Cascabel for remote assessment, i.e., gathering information from water testing and



surveying to use in planning for drilling a well. An agricultural project for the region, brand new this semester, also has a team meeting via Zoom with hopes of travelling to Nicaragua this summer.

Shifting tasks from engaging in person to engaging via Zoom or email does have its loss factor, Wojcik said, making personal connections among club members more difficult.

“It is impossible to meet everyone in a 30-person Zoom call, let alone have a one-on-one conversation,” she said. “We plan to hold smaller events within the club such as dinners and casual hangouts specifically for forming those connections.”

Something else unexpected was the number of new members this semester — a ‘positive’ from the pandemic.

“More people sought us out and asked to get involved,” Wojcik said, “and I believe it’s because we offer direct student engagement. Club activities were never put on pause and people have found us because of that. In spite of the switch to online meetings, students found purpose in joining a club that works to help others.”

Wojcik joined EWB the second semester of her freshman year and immediately started work on the Nicaraguan water project as financial lead. Soon after she was elected vice president.

“EWB is special. Leadership opportunities are plentiful for those with the drive to lead,” she said. “It inspires me in many ways and

has changed my perspective on engineering as I’ve found it to be an incredible tool for serving those in need — something I will definitely be looking for in future employment.

“I am proud of how far our chapter has come in the last year. Even in the midst of COVID-19, we continued to work with passion on engineering projects that will change people’s lives.”

POWERCAT MOTORSPORTS

Powercat Motorsports, K-State’s Society of Automotive Engineers, or SAE, Formula race team, has taken part in Formula SAE — the world’s largest and most prestigious design competition — every year since 1997.

Until March 2020 that is, when both of the team’s major SAE competition events, Michigan and California, were canceled due to COVID-19. Then this past September, the Sports Car Club of America Solo Nationals in Lincoln, Nebraska — a large non-SAE competition the team participates in — was put on hold as well.

“SAE did set up replacements for its two competitions where we performed all static events virtually,” said Mark Rowland, senior in computer science and president of Powercat Motorsports, “leaving us able to present our designs, costs and business reports.”



“And SAE has announced we will be doing all static events virtually again this year, but with an in-person portion added where we can take our car and compete in dynamic events of acceleration, skid pad, autocross and endurance.”

The team is currently working on designing a new car with plans to build it as long as shop access in the Alan and Jan Levin Student Design Team Suite is not restricted due to COVID. Members are beginning to reach out to sponsors for this year’s Formula-style car, hoping companies that have helped out in the past will do so again.

“Our meetings have changed pretty drastically due to the pandemic,” Rowland said. “Before last March we would meet in person, have a short presentation and head down to the shop area to work on the cars.”

“We can no longer do that. Meetings are entirely virtual with longer presentations to educate the team about each system. We still meet weekly but it’s definitely harder to engage with new members in this format.”

Unable to attend large in-person competitions has also hampered the team’s level of motivation normally present at the beginning of each year.

“Usually after the second competition we have a pretty large list of things that need to be addressed for the new car,” Rowland said, “but without that experience, it’s been harder to figure out where to focus our efforts this year.”

“Personally the pandemic has made me shift my priorities from trying to get as much testing time and data as we can about the car, to figuring out how to recruit and retain members so we’ll still have a solid team for next year,” he said.

Rowland joined Powercat Motorsports his freshman year and was elected to serve as the electrical lead for the next two years before becoming president this year.

“The team is really important to me because I think it’s the best way to get hands-on design experience at K-State,” he said. “And you also get to build a racecar from the ground up — I can’t think of anything more exciting than that!”

by Mary Rankin



Carl R. Ice College of Engineering 2020 COMPANY OF THE YEAR



The Kansas State University Carl R. Ice College of Engineering has announced Hallmark Cards Inc. as its 2020 Company of the Year. This annual selection is based on exhibited commitment to engineering education, as well as high standards and quality performance in the engineering profession.

Hallmark Cards Inc. is a private, family-owned American company based in Kansas City, Missouri. Founded in 1910 by Joyce Hall, Hallmark is the oldest and largest manufacturer of greeting cards in the United States. Its portfolio of businesses employ approximately 30,000 people worldwide and generate revenues of approximately \$4 billion a year.

"Hallmark has been a strong partner and we truly appreciate its investment of both time and finances in support of engineering education," said Matt O'Keefe, dean of the Carl R. Ice College of Engineering. "It is a privilege and honor to recognize Hallmark as our 2020 Company of the Year."

Hallmark is an Engineering Leadership and Innovation, or ELI, corporate partner in the college, taking part in the investment opportunity that includes hosting an annual Career Spotlight Day on campus and student tours at corporate sites, as well as mentoring and interacting with ELI Scholars throughout the school year.

The company also contributes to the Engineering Program Enhancement Fund that supports activities essential for growth and enhancement of the college. Hallmark executives have actively engaged with students and faculty in the industrial, mechanical and electrical engineering departments by speaking in classes and serving as mentors, as well as through its hiring practices. They have also served on advisory councils of industrial and electrical engineering, the Multicultural Engineering Program and the Carl R. Ice College of Engineering Advisory Council.

"Hallmark is thrilled to be named 2020 Company of the Year by K-State's College of Engineering. It's a tremendous honor and a reminder of our ability to make a positive impact in a year where there's been so much to overcome," said Beth Ward, senior vice president of supply chain at Hallmark.

"We take pride in our longstanding relationship with the College of Engineering and in our efforts to support so many of the program's bright students. We are consistently pleased with the quality of K-State interns and new hires who join Hallmark to help solve complex challenges and uncover a variety of new opportunities. It's a privilege to invest in young talent and we look forward to doing so for years to come," Ward said.

FACULTY MEMBERS EARN NSF CAREER AWARDS

Two Carl R. Ice College of Engineering faculty members are recipients of the Faculty Early Career Development, or CAREER, award — the National Science Foundation's most prestigious award in support of early-career faculty who have the potential to serve as academic role models in research and education.



RYAN HANSEN

Photodegradable hydrogels have been intensively studied for application in tissue engineering and targeted drug delivery. However, these materials are largely unexplored for use in microbiology, but have great potential for isolation of rare bacteria and on-demand delivery of therapeutic bacteria to targeted disease sites.

This will be the research focus of Ryan Hansen, assistant professor and Steve Hsu Keystone research scholar in the Tim Taylor Department of Chemical Engineering, who has been announced by the National Science Foundation as a recipient of its CAREER award.

Jointly funded by the National Science Foundation Biomaterials Program through the EPSCoR program, Hansen will receive more than \$500,000 for his project, "Understanding bacteria encapsulation, proliferation and release in photodegradable hydrogel materials."

"We will investigate the chemical and physical properties of hydrogels that lead to stable encapsulation of bacteria while keeping them alive, as well as the use of nanoparticle additives that enable controlled hydrogel degradation and bacteria release using a near-infrared light source," Hansen said.

The hydrogels will provide a new and versatile approach to isolating rare bacteria cells that show unique behavior for molecular study, enabling researchers to connect a microorganism's function with its genetic makeup.

Hansen will integrate his research into an educational plan through the Joint Microbe-Material Scholars program, which involves both undergraduate and graduate students in four areas: an international student exchange with collaborators in food microbiology, an

external outreach mechanism designed to engage and recruit minority students throughout the state of Kansas, a microbe-material course that uses an interdisciplinary guided-inquiry teaching method and public engagement.



DONG LIN

Due to their light weight and high strength, metal matrix composites are increasingly used in automotive, aerospace, electronics packaging and thermal management applications. However, attaining both high strength and high toughness in these composites is an essential requirement for their use in these structural applications.

Dong Lin, assistant professor, and Don and Linda Glaser Keystone research scholar in the industrial and manufacturing systems engineering department, has been awarded a \$500,000 National Science Foundation grant from its Faculty Early Career Development Program to investigate a novel manufacturing technique to engineer just such nacre- or bio-inspired, three-dimensional metal-graphene composites.

This CAREER project will establish a bio-inspired manufacturing technology to engineer high-strength, high-toughness metal-graphene composites.

"Nature-evolved, damage-tolerant materials such as nacre, bone and wood are both strong and tough because of their hierarchical composite structure," Lin said. "Unlike bone and wood, which have complex microstructures, nacre, more commonly known as mother of pearl, exhibits superior mechanical properties with a simple composite microstructure.

"The toughness of nacre is three orders of magnitude higher than that of its main constituent, aragonite," he said, "owing to its hierarchical 'brick-and-mortar' microstructure."

Lin's project, "Bio-Inspired Manufacturing of High-Strength, High-Toughness Metal-Graphene Composites," will develop both computational and experimental capabilities to understand the strengthening and toughening mechanisms of these materials, and is expected to greatly impact the metal matrix composites industry.



COLLEGE AWARDS

Front row, from left: **Garrett Peterson**, ECE academic advisor-instructor, Clair A. Mauch Steel Ring Advisor of the Year; **Trisha Moore**, BAE associate professor, Charles H. Scholer Faculty Award; **Bala Natarajan**, ECE professor, Frankenhoff Outstanding Research Award; **Anil Pahwa**, ECE professor, Engineering Distinguished Researcher Award; second row, from left: **Kevin Wanklyn**, MNE teaching associate professor, Dean's Award of Excellence in Service; **Aleksey Y. Sheshukov**, BAE associate professor, Larry E. and Laurel Erickson Public Service Award; **Gurpreet Singh**, MNE associate professor, Dean's Award of Excellence in Research; third row, from left: **Todd Easton**, IMSE associate professor, Myers-Alford Memorial Teaching Award; **Katie Loughmiller**, ARE/CNS assistant professor, Outstanding Assistant Professor Award; **Danita Deters**, CHE office specialist II, Engineering Support Staff Employee of the Year

Not pictured: **Ronald C. Brockhoff**, MNE teaching assistant professor, James L. Hollis Award for Excellence in Undergraduate Teaching; **Ryan Robert Hansen**, CHE assistant professor, Outstanding Assistant Professor Award; **Jessica Heier Stamm**, IMSE associate professor, Commerce Bank and W.T. Kemper Foundation Outstanding Teaching Award; **William B. Kuhn**, ECE professor emeritus, Robert R. and Lila L. Snell Excellence in Undergraduate Teaching Award; **Stacey Kulesza**, CE associate professor, Dean's Award of Excellence in Teaching; **Dong Lin**, IMSE assistant professor, Outstanding Assistant Professor Award; **Eric Patterson**, MNE IT director, Engineering Unclassified Staff Award of Excellence



NEW FACULTY

From left: **Constance Lare**, MNE instructor; **Kyle Larson**, ARE/CNS assistant professor; **Steve Schaffner**, ARE/CNS instructor

Not pictured: **Emily Alfs-Votipkal**, CS instructor; **Kari Bigham**, BAE instructor; **Chuanheng Duan**, CHE assistant professor; **Weston Koehn**, CE instructor; **George LaVezzi**, CS instructor; **Davood Pourkarger**, CHE assistant professor

ECKELS NAMED DEPARTMENT HEAD OF MNE



Steve Eckels, professor and director of the Institute for Environmental Research at Kansas State University, has been named department head of the Alan Levin Department of Mechanical and Nuclear Engineering, effective Aug. 9. He will also hold the title of the Steven M. and Kay L. Theede Chair in Engineering.

The announcement was made by Matt O'Keefe, dean of the Carl R. Ice College of Engineering. Eckles had been serving as the interim head of the department since July 1, 2019.

Having joined the faculty in mechanical and nuclear engineering in 1993, Eckles went on to become director of the Institute for Environmental Research in 2001. His research interests focus on the human interface with the built environment and the systems that make the environment sustainable. A primary interest involves modeling the heat transfer, mass transfer and fluid flow that

occur in and between the human body and the surrounding environment.

Active in the international ASHRAE organization, he was the first recipient of the ASHRAE New Investigator Award and in 2014 received the ASHRAE Distinguished Service Award. In another leadership role, he has served as chair of the graduate committee for mechanical and nuclear engineering since 2007.

Eckels has received the James L. Hollis Award for Excellence in Undergraduate Teaching, the President's Award for Excellence in Undergraduate Teaching and the Myers-Alford Memorial Teaching Award. He has also received two Faculty Appreciation Day Awards for Outstanding Leadership by a Faculty Member, awarded by the Student Advisory Council for the College of Engineering, as well as being a recipient of the department's Outstanding Educator Award.

DEVELOPMENT TEAM ADDS ASSISTANT DIRECTOR



Adam Jimison has joined the Carl R. Ice College of Engineering development team as an assistant director. He holds two degrees from Kansas State University, a B.S. in marketing and operations, and supply chain management, 2013; and an MBA completed in 2015.

Before joining the team at engineering, Jimison had spent two years on the universitywide development team where he helped locate the next generation of K-State philanthropists, connecting them

with development specialists across the KSU Foundation. Prior to that he had worked for Bartlett Cattle Company, Kansas City, Missouri, in the area of packer negotiations and data analytics.

Jimison and his wife reside in Manhattan with their two dogs, Chip and Charli.

2020-2021 CARL R. ICE COLLEGE OF ENGINEERING ADVISORY COUNCIL

Kevin Burke, ME '86, Burke Construction Group

Chrysta Castañeda, IE '85, The Castañeda Firm

Nick Chong, EE '90, Zoom Video Communications Inc.

Jim Coen, CE '82, MVP Holdings LLC

Gib Compton, CNS '80, Compton Construction Services LLC

Darold D. Davis, CE '70, Garver – retired

Roger Farrell, CE '75, Natural Gas Industry

Richard A. Fornelli, CE '72 and '73, CH2M – retired

Kimberly “Kim” Gerard, CE '84, 360 Electrical LLC

Don Glaser, ME '74, Glendo LLC – retired

Chuck Grier, CNS '73, UCI – Industrial Construction Services

Deyona “Dee” Hays, EE '89, Excellence Engineering LLC

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Sabrina Schriener, EE '92, Business Excellence Consulting Inc.

Art K. Umble, CE '82, Stantec Consulting Services Inc.

Beth Ward, IE '93, Hallmark

Jerry Westhoff, CE '74, J.J. Westhoff Construction Co.

Mike Wiegers, EE '82, Garmin International Inc.



ZOOM WAS THE ORDER OF THE DAY FOR THE FALL 2020 MEETING OF COLLEGE ADVISORY COUNCIL MEMBERS.

ENVIRONMENTAL ENGINEERING ADDED AS 12TH DEGREE PROGRAM

The Carl R. Ice College of Engineering at Kansas State University, with approval from the Kansas Board of Regents, has added environmental engineering as its 12th Bachelor of Science degree program.

A combined effort of the biological and agricultural engineering, civil engineering and chemical engineering departments, the curriculum of 126 credit hours was officially available in the fall 2020 semester. Trisha Moore, associate professor of biological and agricultural engineering and Peggy and Gary Edwards Cornerstone teaching scholar, will direct the program.

Environmental engineering applies engineering and other scientific principles to solve complex environmental problems, which may include recycling efforts, public health initiatives, water quality management, pollution control and waste management.

The College of Engineering will be seeking accreditation from the Engineering Accreditation Commission of ABET for the environmental engineering program after the first graduates of the program have completed their degrees, which is the standard ABET process for accreditation of new programs.

IN MEMORIAM

1948

Bob L. Smith (CE, M.S.'53) died July 2, 2020, in Manhattan. He was a K-State professor emeritus of civil engineering, joining the faculty in 1953 and retiring in 1992. He held a Ph.D. in transportation engineering from Purdue University and was a part of the Texas A&M National Science Foundation Faculty Research Program and a Dartmouth University Visiting Professor at the Thayer School of Engineering. He served in the U.S. Navy from 1943-46, which included time in midshipmen's school at Princeton University where he met and was entertained in the home of Albert Einstein. His work in transportation engineering was published by both the KDOT and the ASCE. Active in professional associations he served as executive secretary of the Kansas Water Resources Board, directed the annual Kansas Transportation Engineering Conference from 1964-1992 and served as a consultant for a series of national seminars on highway safety. He was preceded in death by his late wife, Jean and son, Bill. He is survived by his wife, Mary; daughter, Jan; one stepson; eight grandchildren; nine great-grandchildren; and four great-great-grandchildren.

1950

Morey E. Oldweiler (CHE) died July 29, 2018, in Wilkes Barre, Pennsylvania. He was employed by Standard Oil Development Company (EXXON), where he enjoyed a 35-year career working in 22 refineries in the U.S. and throughout the world. He specialized in catalytic processes to deliver higher feedstock yield and process optimization. Upon early retirement, when Exxon moved its headquarters to Texas, he joined a group of engineers who formed a consulting company, ENCON, and continued the same type of work both stateside and abroad for the next nine years. He is survived by his wife of 60 years, Yolanda; a daughter, Helen; a son, John; and four grandchildren.

1955

John Weese (ME) died July 31, 2020, in Annapolis, Maryland. After graduating from K-State, he received a Standard Oil full scholarship to continue his engineering education at Cornell University where he received a Ph.D. in engineering mechanics. He served in the Air Force, teaching engineering at the U.S. Air Force Academy. He worked at Boeing in Wichita before resuming his teaching career at the University of Denver and Old Dominion University, eventually retiring as an Emeritus Regents Professor of Mechanical Engineering from Texas A&M University. He served as the president of the American Society of Engineering Education from 1999-2000 and is member of the K-State Carl R. Ice College of Engineering Hall of Fame. He is survived by his wife, Betty; daughters, Carol and Kathy; and two grandchildren.

1962

Richard Sewing (ARE) died Aug. 9, 2020, in Houston, Texas, the first Black graduate in architectural engineering at K-State. He served with the U.S. Army Corps of Engineers, assisting in building the Council Grove Lake Reservoir, next moving to Houston to work as an architectural engineer for the U.S. Department of Housing and Urban Development, later becoming regional director with the U.S. Department of Commerce. After retiring from that post in 1987, he opened Richard Sewing & Associates — an engineering and inspection company — with his son, John, retiring from this in 2020. He also taught real-estate, and construction and inspection classes at Houston Community College for nearly two decades. He is survived by his wife, Patricia; a daughter, Joy; a son, John; four stepchildren; 15 grandchildren and four great-grandchildren.

We are interested in the career paths and accomplishments, as well as death notices, of our alumni.

Please email your information in these categories to impact@engg.k-state.edu or send it to —
Impact Editor | Carl R. Ice College of Engineering | 1058 Rathbone Hall | 1701B Platt St. | Manhattan, KS 66506

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Revised Aug. 29, 2017.

BELOW: PLEXIGLASS DIVIDERS OFFER ANOTHER LAYER OF PROTECTION FOR STUDENTS AND TUTORS IN THE BURNS & MCDONNELL COLLABORATIVE LEARNING LAB.

