Last year we had a record number of undergraduates receiving degrees, enrolled the largest number of doctoral students in our history and experienced several turnovers in our faculty ranks. This issue of Civil Matters summarizes departmental activities and accomplishments over that time period.

We are quite proud of our students who have won very prestigious and competitive scholarships and fellowships to help them pursue higher studies at K-State. Thanks largely to the support of our alumni and friends, we were able to disburse scholarships to 53 undergraduate students totaling more than $184,000. We are also pleased to introduce our first teaching faculty member as well as new staff who have recently joined our CE family.

To give you an idea of the depth and breadth of the research being conducted in our department, we’ve featured short stories on various research projects. Our creative inquiry teams have showcased our educational and professional service activities on numerous occasions. The department has continued to add excellent teaching and research capabilities in various laboratories in Fiedler and Engineering halls to emphasize our “hands-on” approach to civil engineering education. We’re also active in continuing education and technology transfer programs through K-State’s Global Campus.

I would like to extend my sincere appreciation and thanks to all who have supported us over the years. The future of our profession looks very promising and bright.

Our faculty, staff and students extend an open invitation to you for a visit. We’d love to have a conversation with you about new educational and research opportunities we offer, and show you our excellent facilities.
CE LOOKS AT BIOREMEDIATION TO REMOVE POLLUTANTS

Bioremediation is the use of microorganism metabolism to remove pollutants. Work is underway at K-State to investigate diverse microbial processes controlling the fate of contaminants under different redox conditions. Specifically, the focus has been on non-traditional, novel approaches called biologically mediated abiotic degradation, or BMAD, processes.

One major research thrust has concerned the BMAD processes acting on emerging contaminants such as bisphenol A, or BPA, a mass-produced chemical used in the manufacture of polycarbonate plastic and epoxy resins. It has been of concern in environmental systems due to weak estrogenic activity. BPA had been considered recalcitrant under anoxic conditions, but recent studies at K-State demonstrated that biologically produced manganese oxides mediated BPA transformation and mineralization.

In a research project funded by the American Chemistry Council, CE master’s student, Nusrat Shobnam, under supervision of Jeongdae Im, CE assistant professor, is trying to demonstrate the relevance of this BMAD process for the turnover of recalcitrant BPA in natural settings, and to generate some level of predictive understanding about the fate and longevity of BPA in the environment. Read more at bit.ly/bmad-ce.

Fiber-reinforced polymer composites are replacing conventional materials in various engineering applications due to their superior characteristics such as high strength-to-weight ratio, high stiffness-to-weight ratio, fatigue, corrosion resistance, etc. However, such composite laminates lend itself to more complicated anisotropic material behavior. Thus analytical solutions for such materials are highly challenging but essential to accurately benchmark numerical (finite element) results.

In a research study supported by K-State civil engineering, doctoral graduate, Rund Al-Masri, under the supervision of Hayder Rasheed, CE professor, successfully developed analytical solutions for buckling of anisotropic laminated plates subjected to in-plane compressive stresses. This was done through creative implementation of constitutive dimensional reduction by static condensation, which resulted in closed-form buckling-load formulas. These formulas were generalizations for the Euler buckling formulas for isotropic columns and plates.

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HIGH-EARLY-STRENGTH CONCRETE FOR RAPID REPAIR OF PAVEMENT

Of the 140,654 miles of public roads in Kansas, 13 percent are in poor condition. Kansas motorists annually incur $500 in extra operating costs from driving on roads in need of repair. Usually concrete slab patching and/or slab replacements are done with high-early-strength Portland cement concrete, or PCC. The Kansas Department of Transportation, or KDOT, had noticed these PCC patches were deteriorating quickly, needing to be replaced in less than 10 years.

While the patches were considered temporary, replacing/repairing them was common in the past. Now as funding has become limited, the need for a more permanent or longer lasting patch was desirable. In a research project funded by KDOT, CE master’s student, Yadira Porras, under the supervision of Mustaque Hossain, Munger professor, and Christopher Jones, associate professor, successfully came up with a long-life patching mix for use in the KDOT District V/Wichita area.

The mixture, with local aggregates and incorporating ASTM Type III cement (564 lb/yd³), a calcium chloride admixture (2 percent), an air-entraining agent and a water-reducer, met the minimum compressive strength of 1,800 psi in six hours as required by KDOT, as well as freeze-thaw durability requirements for 20 years. Read more at bit.ly/porras-ce.

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FORMULATING CLOSED-FORM ANALYTICAL SOLUTIONS FOR BUCKLING OF LAMINATED ANISOTROPIC COMPOSITE PLATES

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Analytical results obtained were successfully compared with finite element analysis and experimental testing. This work resulted in several publications in prestigious journals. Plans are underway to seek funding to extend this work in collaboration with the NASA Johnson Space Center in Houston Texas. Read more at bit.ly/buckling-ce.
I grew up in Haysville, Kansas, where my family operated a farming operation started by my grandparents that centered on growing peaches. About my junior or senior year in high school, after several years of freeze-out (no crop), my grandfather approached my brother and me, and asked if we wanted to continue to farm or do something else. We both chose “something else.” I remember my grandmother telling me that a lot of things “grow better than peaches.”

At the time, my dad was a county commissioner in Sedgwick County and introduced me to the director of public works there. Around the same time, my grandfather took me to a planning board meeting for a rezoning related to converting one of our orchards to a rural housing development next to an orchard. There I heard many people involved in public works that shaped who I wanted to be as a professional in both public works and engineering. With the city of Manhattan, I went on to serve in the capacity of city engineer and director of public works.

"Grow better than peaches." After graduate school, I went back to consulting for a short time and then on to the city of Minnetonka as a traffic engineer. My new plan became working toward the required credits, completing KDOT-funded research, and tackling my thesis. After graduate school, I went back to consulting for a short time and then on to the city of Manhattan as a design engineer. Here I met many people involved in public works that shaped who I wanted to be as a professional in both public works and engineering. With the city of Manhattan, I went on to serve in the capacity of city engineer and director of public works.

From those posts with the city, I joined SMH Consultants, where I have been ever since. I continue to meet great people that pave the path for my personal career, whether it be a small-town city administrator in Western Kansas or a big time public works director in the Kansas City metro area. It doesn’t matter who they are or what their position, if you listen carefully, relate and respond, much can be gained in personal development from a simple short conversation. It also doesn’t matter how old they are. I always believed that influence comes from those older than us. But as I talk to younger people starting careers in civil engineering, I find they are no less influential. Many of us serve in leadership capacities, but influence is not limited to leaders...nor is leadership. Leadership is influencing the right people at the right time in a positive manner. Each day, I try to remember that what I do, how I react, the words I choose and the importance I convey all exert influence on those around me. My grandmother was certainly right...lots of things grow better than peaches.

Jeffrey Hancock is a principal owner of SMH Consultants, P.A., with offices in Manhattan, Dodge City, and Overland Park, Kansas. He is a member of the civil engineering advisory council.
ENVIRONMENTAL ENGINEERING GRADUATE STUDENT LANDS RESEARCH GRANTS

Robert Weil, civil engineering graduate student in Prathap Parameswaran’s Advanced Wastewater Treatment and Resource Recovery Laboratory, recently received two sustainability grants from Kansas State University. The first, from the Green Action Fund, is being used to take initial steps toward recovery of resources from K-State’s wastewater flow. Potential resources include water for landscape irrigation, biogas in the form of renewable natural gas and nitrogen/phosphorus nutrients.

The idea for the grant grew out of a team project in the CE 565 Water/Wastewater Treatment class, and members of that team — Matthew Peterson, Trevor Spichal and Sam Brown — participated in the grant project, along with Amber Kelly, junior in agricultural communications and journalism.

The second grant is from the Center for Engagement and Community Development, and will be used to engage students, stakeholders, and policy makers regarding the potential to recover resources from agro-industry wastes in Kansas. Agro-industry wastewater flows contain a high level of digestible organic matter, which can be a large load on municipal wastewater plants receiving those flows. Anaerobic digestion technology presents an opportunity to generate biogas while significantly reducing organic loads. Weil will present the results of his research at the 10th Annual KWEA/KsAWWA Joint Conference in Topeka, Kansas, Aug. 28, 2016.
Last fall, civil engineering students voted two to one in support of a proposal to add a $15 per credit-hour fee for CE courses to fund a new faculty position, with the overall goal to enhance the excellence of CE programs at K-State.

Benefits of the fee presented to the students included the addition of one new faculty member next year, enhanced reputation of the CE program, further opportunities for undergraduate research, reduced class sizes and a reduced student-to-faculty ratio.

The fee has been approved by the Kansas Board of Regents and will be effective beginning fall 2018.

Research is an essential component in the college and CE department budgets.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree Cost</th>
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<tr>
<td>K-State</td>
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<tr>
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</table>

*K-State 2025 peer institutions

In recent years, analytical capabilities in the environmental engineering labs have dramatically improved through installation of a new ion chromatography Dionex ICS-5000+ Dual-Pump IC System coupled with an AS-AP Autosampler; two gas chromatography systems, Agilent 7890A FID-ECD GC System coupled with 7697A Headspace Sampler and Shimadzu 2010 Plus GC-TCD; and two high-performance liquid chromatography systems, Shimadzu 20A HPLC with multiple-wavelength detector and refractive-index detector, and Agilent 1200 Series HPLC with diode array detector and fluorescence detector coupled with an automatic fraction collector.

Chromatography instruments are generally used to detect and quantify chemical and biochemical components, and now we are capable of analyzing a wide variety of environmental samples — gas, liquid and solid phases. These new additions will not only promote exciting new areas of research in environmental engineering, but also strengthen our curriculum and learning resources.
CE STUDENTS PARTICIPATE IN ELI PROGRAM

The K-State student chapter of Engineers Without Borders, or EWB, organizes and leads international, domestic and local humanitarian projects. Its current international project involves a five-year commitment to the Guatemalan community of El Amate. Without Borders, or EWB, organizes and defines a personal leadership development path for each through engagement with mentors. Participants will then create and implement innovative solutions on creative inquiry teams. They will document their leadership journey using standard measurement tools interpreted in collaboration with professional industry mentors.

Primary program elements are coursework in leadership and business; leadership practice; engagement with an industry mentor; corporate partner interactions via on-site facility tours as well as on-campus corporate events; leadership portfolio development through a leadership development plan and essay (senior year); reflections, photos; and evaluation of skills development. Participants receive an annual scholarship of $3,000. In 2017-18, there were 17 corporate sponsors including BHC Rhodes, Black & Veatch, ConocoPhillips, Dolese, Exxon-Mobil, Koch Industries and Westar that have employed CE graduates. CE participants in the ELI program follow:

- Cohort 1 (just completed): Evan Heronemus, senior, Jacob Studebaker, senior
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CE RESEARCHES OGALLALA AQUIFER

Agriculture and livestock operations in Western Kansas depend largely on groundwater from the Ogallala Aquifer to maintain and increase production levels. Due to extensive use over the last few decades, groundwater levels are being depleted. This, however, has implications for current and future economies of the region and to a large extent, the nation. CE doctoral candidate Weston Koehn, under supervision of David Steward, professor emeritus of civil engineering, and Stacey Kulesza, assistant professor of civil engineering, is developing the hydrogeologic understanding necessary to quantify focused recharge from the Arkansas River to the Ogallala Aquifer. They will then create and implement innovative solutions on creative inquiry teams. They will document their leadership journey using standard measurement tools interpreted in collaboration with professional industry mentors.

Goals for the next trip, scheduled for January 2019, include construction of a retaining wall and fence to keep stray dogs and other intruders away from the property. Future plans are also to construct a kitchen on site so students can have access to healthy school lunches.

In January 2018, the EWB-KSU team flew to Guatemala for its fourth trip. Goals for this time included beginning a latrine structure and septic system, assessing for a future retaining wall and fence to keep stray dogs and other intruders away from the property. Future plans are also to construct a kitchen on site so students can have access to healthy school lunches.

CE doctorate student, Reza Shrzaimnejad, sang and played a native Iranian instrument called a tombak last fall during UPC’s Lunchtime Lounge Festival at the K-State Union.

A tombak is a single-headed goblet drum and principal percussion instrument of Persian music. Its shell is carved from a single block of wood, usually walnut, with the bottom somewhat thicker than the top for strength. An animal skin, sheep or goat, is stretched and secured at the top of tombak, allowing a full bass tone as well as various treble tones.

When not playing tombak, Reza is at work on a project sponsored by the Kansas Department of Transportation, “Safety evaluation of raised speed limits on the Kansas freeway,” under supervision of Sunanda Disanayake, professor of civil engineering. The study will determine whether the implementation of speed limit change has caused an increase in fatal and injury crashes in Kansas. It has identified various factors contributing to total crashes in Kansas after the change. Read more at bit.ly/reza-ce.

TRAFFIC SAFETY AND DRUMS – JOINT INTERESTS OF CE DOCTORAL STUDENT

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K-State Civil Engineering
STUDENT ORGANIZATIONS

ASCE STUDENT CHAPTER UPDATE
The 2017-18 academic year was exciting and engaging for K-State’s ASCE student chapter. The group welcomed Scott Schift, who joins Mustaque Hossain, as a new chapter faculty adviser. Both professors have been active in attending officer meetings and assemblies, answering students’ questions, and providing leadership guidance to officers. The chapter was represented at ASCE’s 2018 Multi-Regional Leadership Conference in Omaha. This event included the Workshop for Student Chapter Leadership where participants had the opportunity to network with other chapters and professionals, sharing ideas on how to make the most out of their ASCE chapters.

In the fall, the group hosted the annual joint banquet with the ASCE student chapters from the University of Kansas and Benedictine College, and the Kansas Section of ASCE. K-State civil engineering students enjoyed each other’s company at the K-State Union. ASCE students enjoy bowling event at their K-State Union.

CHI EPSILON UPDATE
K-State’s Chi Epsilon Civil Engineering Honor Society inducted 18 new members this past school year, seven in the fall semester and 11 in the spring semester. The chapter continued its Adopt-a-Highway commitment along Highway 24, performing a service project there each semester. Splitting coverage of the section between two Sundays, at both locations, chapter members and new initiates worked to clean up trash along the road. The officers also participated in CE recruiting events on scholarship, senior and transfer days.

The society’s new president, Aaron Karff, along with chapter officers William Radnor, Cody Vandevord, Elizabeth Motter, Garrett Pieper and Kerstin Brummett, and faculty adviser, Hani Melhem, hope to increase name recognition of the organization and create more outreach opportunities to help mentor CE underclassmen.

WOMEN IN CIVIL ENGINEERING
Members of Women in Civil Engineering, or WICE, strive to encourage female students in CE. They facilitate academic success by promoting mentoring and social events. Stacey Kulesza, assistant professor, resurrected this group last fall as the newly appointed adviser. Members elected new committees, met several times throughout the academic year for events such as an ice cream social, lunch, etc., and also coordinated the Girls Researching Our World (GROW) program last spring. GROW is a K-State outreach program for middle school girls.

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The K-State GeoWall Team participated in a regional competition at Southern Illinois University, Carbondale. CE students Jacob Studer, captain, and teammates Rachel Eisenbarth, Jared Fangman and Marshall Ruetti, were tasked with building a wrap-faced retaining wall from construction paper that was able to withstand a vertical and horizontal load with limited deformation.

Each year students on the steel bridge team manufacture a 1/10th-scale steel bridge according to unique rules modeled after real-world scenarios. The entire project is managed by students who do not receive any school class credit or scholarships in return; however, a great deal of knowledge and experience is gained by everyone involved.

The team is comprised of determined and eager students who want to become involved in a competitive design-build project. From concept to competition, all tasks are performed by members of the team, including designing, optimizing, drawing, detailing, locating and ordering material, fabricating, painting, assembling and competing. Students gain experience with programs such as RISA-3D, AutoCAD and Solidworks during the design process — all of which are commonly used by professionals.

The team competes first at a regional competition against approximately 12 teams. If the bridge performs well enough, it will be tested again at the National Student Steel Bridge Competition sponsored by the American Institute of Steel Construction and the American Society of Civil Engineers. The competition has several categories including construction speed, material weight, structural stiffness and display.

The 2017-18 bridge was built with a higher-strength steel and was modeled after an arched-over-truss design to increase stiffness and decrease weight while sacrificing construction speed. The team placed fifth overall at regionals, taking 2nd place in stiffness, 3rd place in efficiency and 2nd place in display. Three team members attended the national competition as guests to learn for the future and network with other schools. Hayder Rasheed, professor, served as adviser to this team.
DEPARTMENT NEWS

K-State Civil Engineering CIVIL MATTERS • Summer 2018

FACULTY AWARDS AND ACCOLADES

Stacey Kulesza, assistant professor, was appointed a Steve Hsu Keystone Research Faculty Scholar; received the Outstanding Assistant Professor Award, and MEP Faculty Engagement Award; and was recognized as ASCE Region 7 Outstanding Engineering Volunteer and KSPE Tri-Valley Chapter Young Engineer of the Year.

Sunanda Dissanayake, professor, accepted a full-time position as the associate dean of the Graduate School at K-State. She leaves after 16 years of service with CE.

RETIREMENTS AND TRANSITIONS

Bobb Stokes addresses attendees at his retirement reception at the K-State Union.

David Steward, professor and Thomas and Connie Paulson Civil Engineering Outstanding Faculty, retired after 20 years of service. Steward will be moving to North Dakota where he will be the chair of the civil and environmental engineering department at North Dakota State University. He was accorded a retirement reception in May. More than 40 people attended.

Eric Fitzsimmons, assistant professor and his co-inventors have been awarded U.S. Patent No. 9,851,086: Heated Lens Lighting Arrangement.

Hayder Rasheed, professor, received the Charles H. Scholer Faculty Award from the College of Engineering.

DAVID STEWARD, FAR RIGHT, DELIVERS HIS PARTING REMARKS DURING HIS RETIREMENT RECEPTION.

Landon Marston, assistant professor, won first place in the Universities Council on Water Resources 2018 Ph.D. Dissertation Award in the water policy and socio-economics category.

Hani Melhem, professor, received the Faculty Engagement Award from the Multicultural Engineering Program of the College of Engineering.

Landon Marston, assistant professor, received the Myers-Alford Teaching Award from the College of Engineering.

Sunanda Dissanayake, professor, accepted a full-time position as the associate dean of the Graduate School at K-State. She leaves after 16 years of service with CE.

DAVID STEWARD, FAR RIGHT, DELIVERS HIS PARTING REMARKS DURING HIS RETIREMENT RECEPTION.
Asad Esmaeily, professor of civil engineering, passed away peacefully at the KU Med Center on June 3, 2018, after a short battle with lung cancer. Esmaeily was born in Kerman, Iran. He received his B.S. and M.S. in civil engineering from the University of Tehran, and two other master's and a Ph.D. degree from the University of Southern California. After graduation he briefly worked for the California Department of Transportation before joining K-State in 2002. Esmaeily rose through the ranks and became a professor in 2014. A prolific teacher, he was a recipient of many teaching and advising awards. His research focused on smart bridge systems, and he had supervised five doctorate students and more than 30 master’s students. He had authored and/or co-authored a book and numerous publications. He served on ASCE and ACI committees and co-edited a number of journals. He leaves behind his wife, Shokouh Nassri; son Amir, a junior at K-State; son Daniel, 15; and a daughter, Shokoufa, 8.

A scholarship fund for the younger children has been established at the Kansas State Bank — account name: Dr. Esmaeily Children Education Fund, bank routing number: 101101536, account no.: 1103350, email: amire@k-state.edu.

Ben Thurlow, a research technician, has an associate degree in electronic engineering technology from North Central Technical College in Beloit, Kansas. He previously worked for an aerospace company in Wichita.

Trisha Brown, office specialist II, has many years of experience in an office setting — bringing not only expertise in the inner working of daily business operations, but also skills in being a team player. A native of the Manhattan area, she previously lived in Germany for three years as well as upstate New York for four.

Dunja Perić, associate professor of civil engineering, spent AV 2017-18 on sabbatical leave. During this time she was active in teaching and research activities in Australia, Europe and the U.S. She taught and participated in research at the University of New South Wales in Australia. In the past, Perić had initiated research and teaching collaborations between K-State and University of Zagreb, Croatia, where she also spoke recently. Her other presentation locations during the sabbatical include the University of Ljubljana, Slovenia, Josip Juraj Strossmayer University of Osijek, Croatia; and Technical University of Vienna, Austria. She has also been appointed as an adjunct associate professor at the University of Colorado at Boulder where she did research this spring.

Civil engineering is pleased to announce the addition of new faculty member Scott Schiff, who joined the department last fall as a teaching professor – the only person in the college to hold this position. Schiff received his B.S. from the University of Cincinnati, and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign. After graduation, he was appointed as a visiting assistant professor at the University of Illinois, where he taught classes and worked on three funded research projects. In August 1989, he joined the civil engineering faculty at Clemson University as an assistant professor of civil engineering, and was promoted through the ranks to professor in 2003 and retired in 2015. In 1992, Schiff, along with his two co-authors, was awarded the ASCE Norman Medal for the best paper to be published in any ASCE journal in the prior year. In 1993, the Chi Epsilon Chapter of Clemson University awarded him the Outstanding Teacher Award. He was the faculty host of the 2001 National Student Steel Bridge Competition and also served as the faculty advisor to Clemson’s 2001 National Champion Steel Bridge Team. In 2008, he was a member of a faculty team that was given the Helen Plants Award for the best non-traditional session — Enhancing Student Learning Using SCALE-UP Format — at the 2008 Frontiers in Education Conference. Schiff’s primary research interests at Clemson were related to structural performance on highway and railway bridges, and performance of building and envelope systems in high winds — hurricanes and tornadoes.

The department is pleased to announce the addition of two new staff members.

Trisha Brown, office specialist II, has many years of experience in an office setting — bringing not only expertise in the inner working of daily business operations, but also skills in being a team player. A native of the Manhattan area, she previously lived in Germany for three years as well as upstate New York for four.

PERIĆ MAKES INTERNATIONAL IMPACT DURING SABBATICAL

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DEPARTMENT NEWS

K-State Civil Engineering

Julia Renae Keiter
Daniel James Hutchison
Kara Olivia Hinshaw
Tanner Victor Higgins
Justin Edward Harris
Jacob Daniel Harms
Bryan James Harkrader
Seth Gotchey
Yizhe Ge
Andrew Stephen Foerster
Katlyn Hall Dotson
John McArthur DeVault
Ian Michael Deggendorf
William Paul Daniels
Lauren Katherine Braun
Jan Vosahlik — major professor, Sunanda Dissanayake
Jan Vosahlik — co-major professors, Kyle Riding and Christopher Jones

PH.D. GRADUATES AND DISSERTATIONS (AY 2017-2018)

Rund Al-Marsi — major professor, Hayder Rasheed
Dissertation: Analytical and Finite Element Buckling Solutions of Anisotropic-Laminated Composite Columns/Plates under Axial Compression with Various Boundary Conditions

Ibrahim Alfalla — major professor, Sunanda Dissanayake
Dissertation: Crash Analysis and Survey to Identify ‘Young Drivers’ Distractions in Kansas

Uditha Galgamuwa — major professor, Sunanda Dissanayake
Dissertation: Estimating Crash Modification Factors for Lane-Departure Countermeasures in Kansas

Reza Shirzadianj — major professor, Sunanda Dissanayake
Dissertation: Safety Evaluation of Raised Speed Limits on Kansas Freeway

Jaz Vasili — co-major professors, Kyle Riding and Christopher Jones
Dissertation: Pumping of Concrete Mixtures: Rheology, Lubrication Layer Properties and Pumping Pressure Assessment

M.S. GRADUATES AND MAJOR PROFESSORS (AY 2017-2018)

Youssif Alhammoosh-Alqena
Jack Cunningham
Koby Daily
Ya Gao
Hanwen Liu
Caleb Mitchell
Tyrer Penfield
Yadira Porras
Benjamin Nye
Mahdi Sahafnia
Tracy Spade*
Kailey Younkin
Nader Zad

Asad Esmaily
Eric Fitzsimmons
Christopher Jones
Mustaque Hossain
Hani Melhem
Hayder Rasheed
Prathap Parameswaran
Mustaque Hossain
Eric Fitzsimmons
Asad Esmaily
Hayder Rasheed
Stacey Kulesza
Asad Esmaily

*Global Campus

CE GLOBAL CAMPUS COURSES

K-State CE offers graduate-level courses leading to a Master of Science degree in civil engineering, and transportation engineering graduate certificate off-campus students residing both in and out of the United States. Kansas State University’s online engineering master’s programs are the best in the nation according to Best College Reviews, which annually ranks the top academic degrees and programs. It puts Kansas State University’s programs No. 1 on its list of the top 25 best online master’s degree programs in engineering for 2018. All courses needed for the degree are offered online. More details can be found at: global.k-state.edu/engineering/civil.

The following classes are scheduled for the next academic year.

Fall 2018

CE 654 – Design of Groundwater Flow Systems
CE 732 – Advanced Structural Analysis I
CE 742 – Advanced Steel Design
CE 745 – Structural Dynamics
CE 751 – Hydrodynamics of Open Channels I
CE 766 – Wastewater Engineering/Biological Processes
CE 773 – Hot-Mix Asphalt Mixture Design and Construction
CE 786 – Land Development for CE and Planners
CE 816 – Design of Deep Foundations
CE 822 – Shear Strength and Slope Stability of Soils

Spring 2019

CE 680 – Economics of Design and Construction
CE 728 – Advanced Geotechnical Design
CE 741 – Civil Engineering Materials II
CE 743 – Advanced Reinforced Concrete Theory
CE 762 – Water Treatment Processes
CE 774 – Pavement Design
CE 818B – Environmental Biotech I
CE 827 – Computational Applications in Geosystems
CE 837 – Structural Stability
CE 872 – Transportation Safety
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