The MSU Department of Civil and Environmental Engineering continues to grow with the hiring of four more new faculty members. (from left) Rebecca Lahr, Timothy Gates, Mehrnaz Ghamami, and Ali Zockaie.

CEE Continues to Broaden Expertise through Strategic Hires

The MSU Department of Civil and Environmental Engineering continues its expansion and dynamic growth with the addition of another four faculty members. Last year, the department welcomed six new faculty members to broaden the CEE research expertise.

Timothy Gates, PE, joined the department as an associate professor in August 2015. His research expertise relates to highway and traffic safety, traffic operations, geometric design, and transportation economics. He has directed research projects evaluating the effects of highway speed limits, driver behavior at signalized intersections, various roadway design and traffic control features, highway work zones, and pedestrians and bicyclists. Prior to joining MSU, Gates served as an assistant/associate professor at Wayne State University from 2007 to 2015. He received bachelor’s (1999) and master’s (2000) degrees in civil engineering from Michigan and Wisconsin. He is a licensed professional engineer in Michigan and Wisconsin.

Mehrnaz Ghamami joined the department as an assistant professor in August 2015. Her research is focused on transportation systems analysis, with applications in sustainable transportation, transit operations, and travel reliability. She has developed a comprehensive modeling framework for analyzing various policy and planning issues related to plug-in electric vehicles. She has also conducted research on urban travel reliability using consumer GPS data (funded by the Transportation Research Board) and operational reliability of bus routes for the Chicago Transit Authority (funded by the Center for Commercialization of Innovative Transportation Technology).

Ali Zockaie joined the department as an assistant professor in August 2015. His research expertise is in network modeling and urban transportation planning. He has worked on preparing networks for simulation-based dynamic traffic assignments tools for various research projects, analyzing simulation results, and extracting performance measures. He has conducted research on integrating traffic flow theory into dynamic networks. He has published papers on transportation research and optimization related to the airline industry, and facility location for alternative-fuel vehicles, specifically electric vehicles. He has also engaged in research on urban transportation planning and estimation of dynamic origin-destination travel demand through the integration of activity-based models and simulation. She was an adjunct faculty member in 2014–15 at Oakton Community College in Illinois. She worked as a research engineer at Rah Andishan-e-Pars Consulting Engineering Company in 2008–09, and as an engineering designer at Tehran Sazan Farabin Consulting Company in Iran in 2008. She received a bachelor’s degree in civil engineering (2008) from Iran’s Sharif University of Technology, and a master’s degree (2015) and doctorate (2015) in transportation systems analysis and planning from Northwestern University.

Forty-five years ago, civil engineer Michael E. Largo (’70, ’78) reached for his slide rule to do homework in his MSU concrete class. “To quote an Elvis song, ‘I reached out and you were gone,’” he said. In December 2015, Thomas F. Wolff, interim chair of civil and environmental engineering, had a chance to return the mechanical calculation tool to the Grand Ledge alumnus. Wolff “inherited” the slide rule from the department office about 20 years ago and has used it to demonstrate its principles to students through the years. When Wolff learned of the impending visit by Largo and discovered his name in the case, he returned it to its owner. “I still have no idea where I lost it. I’m just glad it’s found its way home,” Largo added.

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MICHIGAN STATE UNIVERSITY COLLEGE OF ENGINEERING
Alumni and friends of the CEE department,

As many of you are aware, I stepped down as associate dean of the College of Engineering last summer to begin my transition year to retirement. In an interesting turn of events, our previous chairperson, Neeraj Buch, succeeded me in that position, leading us to a national search for a new chairperson. As a result, Dean Leo Kempel asked me to serve as interim chairperson this year during the search. As I write this, we are doing on-campus interviews, and we expect to have a new chairperson in place for the fall semester.

Despite the transition, many exciting things are happening in the department. We are at record enrollments, graduating about 100 civil and environmental engineers this year. Our ASCE student chapter hosted the regional concrete canoe and steel bridge competitions (more on this elsewhere in this newsletter). Our Chi Epsilon chapter sent four delegates to the 44th National Conclave in Boston and named Dr. Buch as a chapter honor member. Students from our Environmental Engineering Society took first place in the Air and Waste Management Association’s Environmental Challenge International competition in June 2015. Finally, the college’s Engineers without Borders organization, advised by Dr. Susan Masten, sent a group of students to Dar-es-Salaam, Tanzania, in January 2016, where they completed an assessment trip for the construction of a rainwater collection system for a school.

Our department’s funded research has grown to about $6 million annually, and we are most excited that we have hired three new faculty members in the transportation area to follow the retirements of Drs. Lyles and Maleck.

In reading the proof copy of this newsletter, I can’t help but be struck by the number of alumni now in leadership positions to whom I taught geotechnical engineering courses. Nothing excites professors more than seeing their students career achievements.

Next year, I will be officially retired, but I am planning to assist the department and the new chairperson on a part-time basis. It is exciting to have seen the changes and successes of the CEE department over 30 years. Spartans Will!
One hundred years ago, on Sunday, March 5, 1916, the Michigan Agricultural College (M.A.C., now Michigan State University) lost its Engineering Building to a devastating fire.

It is believed that the blaze began around 5 A.M. in the concrete labs in the southeast corner of the Engineering Building basement. There was no loss of life.

The fire quickly spread through the empty building and its engineering shops. The Engineering Building was among M.A.C.’s newest buildings. Built in 1907 next to M.A.C’s Mechanical Building, it had been dedicated on June 22, 1908. Both buildings were destroyed in the blaze.

The 1916 yearbook, The Wolverine, wrote: “…the ruins had scarcely ceased smoking before a new schedule of classes… was formulated for the 400 engineering students. When sessions began on Monday morning … not a class was missed.”

Acting President Frank S. Kedzie worked quickly and contacted automotive executive R.E. Olds, who contributed $100,000 toward the reconstruction of the new Engineering Building. It was built on the old foundation and was a near replica of the original structure.

The new building, Olds Hall, was dedicated on June 1, 1917. It served as the home for engineering for 45 years, until the growing college moved to its new building on Shaw Lane in 1962. Today, the College of Engineering serves 5,000 undergraduates and more than 600 graduate students.

MSU Works to Reduce Burden of Fire

The risk of a devastating fire on campus has diminished in the past 100 years, said Venkatesh Kodur, professor of civil and environmental engineering.

“Since the 1916 fire, we have come a long way in tackling fire hazard,” Kodur explained. “Continued research and development have reduced the adverse impact that fires cause to buildings and built infrastructure.”

MSU was the first university in the United States to host the world’s leading international workshop on performance, protection, and strengthening of structures under extreme loading when it hosted PROTECT2015 last June. The international conference attracted 140 professionals from 30 countries who shared research and technology to develop solutions and improve safety.

MSU also has unique structural fire testing facilities and a high-profile research program in structural fire engineering. The MSU Center for Structural Fire Engineering and Diagnostics, located on Jolly Road, currently has two undergraduates, five master’s degree, and eight PhD students, as well as five visiting scholars from India, UAE, China, and Japan working at the lab.

Changing the Course of Water Use in Tanzania

Tula Ngasala knows water resource management whether water is scarce or plenty.

As a girl growing up in Dar-es-Salaam, Tanzania, she lived with the constant frustration of too little water and ongoing water quality problems.

Now, the naturalist and humanitarian is hoping her life experiences and PhD studies in civil and environmental engineering cascade into sustainability solutions, whether the issue is too little or too much water.

“I have already lived in the middle of water scarcity in Tanzania,” she explained. “One of the sustainability solutions I’m learning about is optimizing water collection. There’s a lot of civil engineering that goes into that.”

She returns to Tanzania this summer when research for her dissertation will take her home to Dar-es-Salaam to examine water problems in both urban and rural settings.

“Whether it’s urban or rural issues, it’s the same problems—scarcity and water quality. We just have to look at them in different ways.”

Environmental engineering graduate student Tula Ngasala is hoping her life experiences and PhD studies cascade into water solutions in her home country of Tanzania.

MSU Power Plant to Stop Burning Coal

In a move that will reduce emissions at its T.B. Simon Power Plant and advance its Energy Transition Plan, MSU is taking steps to stop burning coal by the end of 2016. Its last delivery of coal arrived late in 2015.

The decision further helps MSU reliably meet its future energy needs in a sustainable fashion.
Field work and analysis by civil and environmental engineering students, including Gopi Musunuru (left) and Derek Hibner, collected the kind of pavement condition data that will help MSU with its road preservation practices.

Faculty and students in the Department of Civil and Environmental Engineering collaborated with MSU Infrastructure Planning and Facilities (IPF) to conduct a detailed pavement condition evaluation of campus roads and parking lots in 2015.

Directed by CEE associate professor Syed W. Haider, students were trained to collect pavement condition data and offer road preservation and maintenance recommendations using current budget levels.

“The goal of this collaborative is to use in-house faculty expertise in pavement design, rehabilitation, maintenance, and management of road and parking networks to enhance MSU infrastructure,” Haider said.

It also provides unique opportunities for students to obtain professional and field experience in pavement engineering and road preservation practices, he noted.

The Pavement Management Unit (PMU) will assist the IPF managers, engineers, and other technical staff in maintaining a cost-effective road network on campus. In this collaboration, the PMU mission is to provide services to IPF, including:

- coordinate and collect pavement condition data for roads and parking lots on the campus,
- conduct material testing (Portland cement concrete, hot-mix asphalt, and soil samples) in CEE laboratories, if needed,
- enhance IPF’s existing pavement management database, which would include inventory, traffic load, and condition data for the MSU campus pavement network,
- create structural and functional evaluations of the existing pavements,
- analyze the pavement condition data and integrate pavement maintenance and repair strategy by optimizing the pavement network condition and minimizing the associated costs,
- involve students in pavement related courses with assignments and projects tied in with the operation of the campus PMU (teaching),
- use the pavement performance data from the network to evaluate new paving materials such as crumb rubber asphalt mixes, glass concrete, and pervious asphalt materials.

“We will conduct research to advance the pavement maintenance and preservation practices and partner with state and local agencies to collaborate and foster our lessons learned,” Haider added.

2016 Withrow Award

Alison Cupples, an associate professor of civil and environmental engineering, was presented with one of the most respected awards in the College of Engineering during the 26th Annual Engineering Awards Luncheon on March 17. She received a 2016 Withrow Award, which recognizes faculty members for excellence in teaching, scholarship, and service.

She was chosen for a Withrow Teaching Excellence Award by a student selection committee that cited her excellence across all classes—from a 200-level class of more than 100 students, to 400-level and graduate classes in the major. Among the many positive comments included in student nomination forms, four qualities were consistently stated: caring for students and their learning; ability to clearly explain complex principles; excellent organization of her courses and course materials; and promoting an atmosphere of professionalism and respect.

As one student noted, “This was a great intro to environmental engineering and Dr. Cupples loves what she teaches.”
IN REMEMBRANCE

Three well-known members of the Department of Civil and Environmental Engineering passed away recently.


- Professor Emeritus Orlando (Andy) Andersland of East Lansing, Mich., died Sept. 27. He was 86. He taught civil engineering at MSU from January 1960 until his retirement in July 1994. He received the Distinguished Faculty Award in 1979. He was internationally known for his research and textbooks on the mechanical properties of frozen ground.

- Professor Emeritus James Leigh Lubkin of North Bethesda, Md., died Feb. 21. He was 90. He taught civil engineering and metallurgy, mechanics, and materials science from 1963 to 1993. His use of computers in teaching engineering courses earned him multiple awards for education innovation. In 1977, he received the John A. Curtis Award from the American Society of Engineering Education, and in 1992, he received the William Bradley Award from MSU.

AWARDS & SCHOLARSHIPS

Environmental Engineering Senior Headed to Peace Corps Peru

Ben Cooper is headed to the Peace Corps. The senior in environmental engineering from Wyandotte, Mich., leaves April 27 to spend 27 months in Peru working as a water and sanitation engineer. His first assignment is in Lima.

“I have always had an interest in international experiences, so I think this will be a great place to start my career,” he said.

Cooper said Americans underappreciate the country’s water resources. “Here in the States, we take water for granted. We assume our water should be high quality.”

That’s not what he’s expecting to find in South America.

Jorge Izaguirre, program manager for the water, sanitation, and hygiene program at Peace Corps Peru, said Peru is three times the size of California and home to about 29 million people of various cultures and backgrounds.

“Yet, for all its unique beauty and potential, the majority of Peruvians have limited access to water and suffer from poor sanitary conditions,” Izaguirre said. “Approximately 40 percent of the country’s population live in coastal areas that receive little or no rain, 32 percent of Peruvians do not have reliable potable water sources, and 24 percent lack latrines or other sources to properly dispose of human waste.”

Cooper is president of the MSU Environmental Engineering Society.

“I have a keen interest in humanitarian engineering, and I look forward to the Peace Corps helping me find environmental solutions in Peru,” he added.

Environmental Engineering Senior Headed to Peace Corps Peru

AWARDS & SCHOLARSHIPS

National Award for MSU CEE Students

CEE graduate students Ronell Eisma (right, top) and John Gondeck (right, and from top) were the first-place winners in the graduate category of the 15th International Data Analysis Contest. They were recognized at the 2016 Transportation Research Board (TRB) 95th annual meeting in Washington, D.C., in January. Their paper, “Evaluation of the Effectiveness of Diamond Grinding Treatments Due to Site Factors and Profile Characteristics,” will be published by The Federal Highway Administration and made available to researchers worldwide.

The students are advised by CEE associate professor Syed W. Haider and CEE professor Karim Chatti.

New Department Award Presented

The college has a new award, which will be presented each year at the Evening with Industry banquet in February. The inaugural Thomas F. Wolff Cooperative Education Student Leadership Award was presented Feb. 24 to Victor Ruiz, (right) a senior in civil engineering from Mexico, by the award’s namesake, who was also surprised with the honor.

Chi Epsilon Scholarship Awarded

Derek Hibner (right), a senior in civil and environmental engineering from Alpena, Mich., was presented the 2016 Chi Epsilon Great Lakes District Scholarship. Chi Epsilon is the national civil engineering honor society. Hibner, president of MSU’s chapter of Chi Epsilon, is an undergraduate research assistant for associate professor M. Emin Kutay.
Penny Wirsing (BS ’83, civil engineering) received the 2015 Civil and Environmental Engineering Distinguished Alumni Award at the annual College of Engineering Alumni Awards banquet in May 2015.

The first in her family to graduate from college, she went on to earn her MBA from the University of Washington.

A field engineer for ExxonMobil Corporation’s Torrance Refinery in Southern California, she has established a solid reputation within the facility, with the regulatory community, and throughout ExxonMobil.

Wirsing has been a strong and positive role model and mentor for women throughout ExxonMobil and beyond. She is committed to help others achieve success through careers in science, technology, engineering, and math.

She has been a speaker and panel member at various local and national conferences, and has recruited interns and engineers for ExxonMobil. Wirsing has organized and participated in Introduce a Girl to Engineering Day, Girl Scout Badge Day, “Invent It. Build It.”, and Read Across America activities. She has also served as director of emerging initiatives for the Society of Women Engineers.

Spartan Engineers in Leadership Positions

IPF Leader at MSU

Dan Bollman (BS ’84) is the associate vice president for strategic infrastructure planning and facilities at MSU. Bollman, PE, is a registered professional engineer with decades of experience in design—and construction-related activities.

He previously was director of Planning, Design and Construction at MSU, where he was responsible for all estimating, design, and construction activities on campus related to construction of new facilities, renovations, maintenance, and repair, infrastructure, and landscape. The annual construction volume for projects on campus ranges from $100 million to $150 million.

ASCE Leaders in Michigan

Therese Kline, PE, of Morrice, Mich., is president of the American Society of Civil Engineers (ASCE) Michigan Section. Kline (BS ’01) has worked for MDOT since 2002 and currently serves as Flexible Pipe Specialist, Special Structures, Bridge Design. She was also the Michigan advisor to the AASHTO Subcommittee on materials.

Flexible Metallic and Plastic Pipes.

Kline has been active in ASCE since 1999, current director and past president for the ASCE Lansing-Jackson Branch, and has served as a judge for the ASCE Steel Bridge competition.

Additionally, Christopher Owen, PE, (BS ’01) of Canton, Mich., was elected treasurer for ASCE Michigan Section for 2015–16.

The ASCE Michigan Section is in its centennial year. ASCE represents more than 146,000 members of the civil engineering profession worldwide and is America’s oldest national engineering society.

State Dam Safety Association

James T. Pawloski, PE, of Gaylord, Mich., was elected president of the Association of State Dam Safety Officials (ASDSO), a 3,000-member nonprofit organization dedicated to advocacy for safe dams worldwide in fall 2015. He has spent the past 27 years as a dam safety engineer with the State of Michigan. He earned a bachelor’s degree (1983) and a master’s degree (1985) in civil engineering.

New #2 at MDOT

Mark Van Port Fleet (BS ’79) became the new number-two executive at the Michigan Department of Transportation (MDOT) in August 2015. He is MDOT’s new deputy director and chief operations officer (COO).

He has more than 35 years in Michigan’s highway agency. He has been deputy chief engineer and director of the Bureau of Development for the past six years. MDOT credited Van Port Fleet with developing a more collaborative method for transportation projects that includes municipalities, state agencies, and others.

Class Notes

Longtime auto executive Larry Denton (BS ’72) joined Dearborn-based Ghafari Associates in August 2015 as president of the architectural firm’s process group.

Denton previously served as president of the Troy-based North American headquarters for Nobel Automotive Group from 2010–2015. Prior to that, he was chairman, CEO, and president of Dura Automotive Systems, leading the company through a Chapter 11 bankruptcy in 20 months. Denton is board chairman at the Detroit-
Gene Gardella, PE, (BS '87) recently joined Barton Malow Co. as a director responsible for building relationships and projects in the energy and industrial markets. Gardella has nearly 30 years of experience that includes 25 years at Aristeo Construction Co. in Livonia. For two years, he was co-chair for the Michigan Minority Supplier Development Council’s Construction Sector Initiative, which helps minority-owned construction companies grow.

The Christman Company announced the promotion of Douglas J. Peters, PE, (BS ’92), former executive vice president of Christman Constructors, Inc. (CCI), to president of CCI. He brings 24 years of construction experience (15 with Christman) to the job, where he oversees all operations for CCI. Peters is an expert in concrete construction with a specialty in mass concrete. He also served four years with the U.S. Army Corps of Engineers as a commissioned officer.

Ian Peterson (BS ’94) is the new division president for Minneapolis/St. Paul for David Weekley Homes, America’s largest private home builder. Peterson is a former executive with Ryland Homes, Pulte Homes, and Centex Homes. Weekley builds homes in 20 markets in 12 states. Builder Magazine ranked it as the largest privately held home builder in the U.S. and 14th largest among all homebuilders, based on 2014 revenue. Peterson has been in the industry for two decades and won the 2013 Builders Association of the Twin Cities Advocate of the Year Award.

Phillip Bowman (BS ’95) became the new engineer for the City of Moab, Utah, in October 2015. Bowman has worked as an engineer in both the private and public sectors of engineering. His new duties will include planning a new wastewater treatment plant, as well as a new water tank.

Gregg Brunner, PE, (BS ’96) received the 2015 Michigan Department of Transportation (MDOT) Director’s Award in August 2015—the department’s highest honor for outstanding service. MDOT established the annual award more than 20 years ago to recognize employees who exhibit leadership and exemplary public service. He is the MDOT Bay Region associate region engineer for operations. He lives in Chesaning, Mich.

Jody Caldwell (BS ’98; MS ’99) was appointed Oakland County’s newest representative to the Detroit Water and Sewerage Department’s Board of Water Commissioners in September 2015. As the Oakland County water resources commissioner’s chief engineer, Caldwell is responsible for the management, operation, and maintenance of several public water supply systems in the county. He also serves as secretary for the North Oakland County Water Authority and represents the City of Pontiac on the authority.

Spicer Group in Saginaw promoted Michael G. Niederquell (BS ’98; MS ’99) to senior associate. He joined Spicer in 2013 as the director of transportation. He previously worked for Wade Trim, Michigan State University, and RC Associates.

student connections

MSU Hosts 2016 Regionals for Steel Bridge and Concrete Canoe

Teams of intercollegiate engineers from across Michigan and Ohio built 21-foot steel bridges and made technical presentations on their concrete canoes at the American Society of Civil Engineers 2016 North Central Student Conference, April 7–9, at the Breslin Center.

Hundreds attended this year’s competition, but neither the weather nor the final outcomes proved ideal for either MSU team. The Spartan Spanners won’t advance to nationals in 2016, and icy weather denied all the canoe teams a chance to race outdoors.

Conference chair Patrick Schwyn, a civil engineering junior from St. Joseph, Mich., said in spite of the final tallies the conference was a good culmination of a year’s worth of work for both MSU teams.

The winners: Michigan Tech and the University of Michigan won steel bridge. Michigan Tech, Ohio Northern, and the University of Michigan won concrete canoe this year.
**A First! MSU Engineering Tops 1,000 Female Students**

College of Engineering Dean Leo Kempel knows that these are exciting times in the college. There are more than 5,000 undergraduates, including 1,000 women (freshmen to seniors) for the first time in college history.

“In the fall, we welcomed one of the largest classes of freshmen in more than 25 years, with women students making up 20 percent of the incoming class,” Kempel said. “The college is well on its way to becoming one of the fastest rising engineering programs in the nation,” he added.

ABOVE: The College of Engineering hit an enrollment milestone this fall with more than 1,000 women (freshmen to seniors)—about 20 percent of the college’s student population. Among them are (from left) Amanda Morgott, a junior in chemical engineering from Clinton Township; Alexandria Burtt, a senior in civil engineering from Grand Rapids; and Ariel Rose, a senior in chemical engineering from Battle Creek. They were among the Spartan Engineers who recently volunteered at events during Engineers Week in February.