Ira A. Fulton Schools Of Engineering

Dean
Paul C. Johnson

Transcending the traditional
Focusing on the student experience and student success
Inspiring future engineers
Pursuing use-inspired research
Attracting top faculty

School of Sustainable Engineering and the Built Environment
School Director G. Edward Gibson, Jr.

Biofuels
Waste conversion to energy
Public health-technology-environment interactions
Microorganism-human health connections
Infrastructure and product lifecycle analysis
Earth systems engineering
Water purification
Resource-climate interactions
Indoor air quality
Sustainable Construction
Transportation Materials And Systems
Project Performance
Underground Infrastructure
Construction Management

School of Computing, Informatics, and Decision Systems Engineering
School Director Ronald G. Askin

Personalized learning
Educational gaming
Energy-efficient data storage and computing
Health informatics
Haptic interfaces
Assisting devices
Health care system logistics
Information assurance
Production logistics
Artificial intelligence
Transportation
Production logistics

School of Electrical, Computer and Energy Engineering
School Director Stephen M. Phillips

Photovoltaics
Power and energy systems
Biosignatures discovery automation
Wireless implantable devices
Sensors and signal processing
Flexible electronics
Power grid management and stability
Sensors and sensing

School for Engineering of Matter, Transport and Energy
School Director Kyle Squires

Personalized learning
Engineering education
K-12 STEM
Electrical energy storage
Thermal energy storage and conversion
Energy production separations
Therapeutics and bioseparations
Rehabilitation and robotics
Adaptive and intelligent materials
High-performance computing simulations
Atmospheric processes

School of Biological and Health Systems Engineering
School Director Marco Santello

Medical diagnostics
Rehabilitation
Neuroengineering
Biomaterials and therapeutics delivery
Synthetic and systems biology
Healthcare technology
At A Glance ........................................ iv
Message from the Director .......................... 1
Message from the Program Chairs
  Civil, Environmental and Sustainable Engineering ...... 2
  Del E. Webb School of Construction .............. 2
  Construction Engineering Program ............. 3
  Graduate Program .................................. 3

YEAR IN REVIEW
Faculty News
  New faculty join SSEBE ............................. 4
  Faculty honors and awards ....................... 5

Student News
  Facility management definition study .......... 10
  Engineering center courtyard enhancement .... 10
  Solar decathlon team creates power house ...... 11
  Engineers Without Borders ...................... 12
  Students study water scarcity .................. 13
  Scholarship awards ............................... 14
  Doctoral graduates ............................... 16
  Student awards ................................... 17

FEATURE STORIES
  World-class facilities .............................. 20
  College avenue commons ......................... 22
  New academic degree programs ................... 24
  ‘Nanoprospecting’ project ......................... 24
  Plant-based sustainable source of rubber and fuel .. 25
  Protecting cities from intensifying heat ........ 26
  Providing safer workplaces ....................... 26
  First vesting ceremony ........................... 27

INDUSTRY
  Industry News ........................................ 28
  Friends Of Civil Engineering ...................... 29
  Industry Advisory Boards ........................ 30
  In memoriam ........................................ 32
  Alumni achievement ................................ 31
  Faculty bios ........................................ 32
at a glance

- Undergraduate Degrees Conferred
  - Masters: 154
  - PhD: 107

- Civil Engineering Undergraduate Degrees Conferred
  - Undergraduate Enrolment: 938
  - 116 Masters
  - 68 PhD

- Civil Engineering Graduate Degrees Conferred
  - Graduate Enrolment: 261
  - 68 Masters
  - 16 PhD

- Construction Engineering Undergraduate Degrees Conferred
  - 3

- Construction Engineering Graduate Degrees Conferred
  - 3

- Tenured and Tenure-Track Faculty: 42
- Full-Time Lecturers: 5
- Professor of Practice: 1

- Research Faculty: 5
- Research Expenditures: $8,140,000

- School of Sustainable Engineering and the Built Environment
- Scholars:
  - Udall
  - Fulbright
  - Eisenhower

- Global Engagement
  - Engineers Without Borders
  - Bridges to Prosperity
  - US/Mexico Border Water Training Program

- National Academy of Engineering Members
  - Bruce Rittmann
  - Edward Kavazanjian, Jr.

- National Academy of Construction Members
  - G. Edward Gibson, Jr.
  - William Badger (emeritus)
Greetings! This annual report outlines change and progress over the past year as we strive to become a world changing enterprise, responsive to our students, faculty and community. We continue to focus our efforts on redefining how we approach and solve the problems that will challenge our future and are excited about the opportunities in front of us in 2014. Change has been most evident in terms of faculty, facilities and students. I am very proud of our faculty and staff members. They have done an outstanding job in supporting our students and programs during this time of transition.

We continue to actively recruit faculty members to help lead us toward our goals, and during 2013 we welcomed four outstanding new faculty members, with two additional hires beginning early in 2014. The coming year promises more hiring, as we are pursuing faculty members for as many as three additional positions.

Special kudos should go to Ed Kavazanjian on his election to the National Academy of Engineering.

The facilities component of our program is changing to meet the needs of the future. The support to teaching, research and service provided by these new facilities will allow our programs to expand and improve dramatically.

Last summer, a number of our faculty and several dozen graduate students consolidated into the ISTB II building, which currently houses most of our experimental laboratories for materials, structures, and geotechnical research and teaching. This will help facilitate collaboration in sustainable materials and enhance our research capabilities.

Our new facility, College Avenue Commons, will be substantially complete in late April and we will move in during July of this year, being fully operational in August. We will be the primary academic tenants in this new building, occupying most of the top three floors. The Del E. Webb School of Construction, SSEBE administration, some Civil Engineering faculty (including our transportation systems group), and the Alliance for Construction Excellence will all be shifting operations to this facility.

Combine this new facility with our laboratories in ISTB II and BioDesign/ISTB IV, and we will probably have among the best facilities of any program in the country.

In addition to jump-starting our on-line CM Masters program and installing a CM minor for undergraduates last year, we are developing on-line Masters degrees in Sustainable Engineering and Facilities Management for the coming year. We are also seriously exploring the possibility of instituting an undergraduate degree in Environmental Engineering.

As you can see in this report, our students have again won a number of prestigious awards and competed very successfully at regional and national competitions. During 2013, we matriculated 187 undergraduate and 87 graduate students with these students gaining employment with many of the best engineering and construction firms in the country. This is the largest number of graduates in our history. Best of all, our students are engaged in helping our community, region and the world in a number of outreach activities. I am sure that next year will be just as fruitful.

All of these changes are very exciting; if you are in Tempe, please contact me and come by for a visit in our new home on College Avenue.

G. Edward Gibson, Jr., PhD, PE
Professor and Sunstate Chair
Director, School of Sustainable Engineering and the Built Environment
message from the program chairs

Civil, Environmental & Sustainable Engineering (CESE)

Mike Mamlouk, PhD, PE, FASCE
Professor and CESE Program Chair

It is a pleasure to update you on the progress that we’ve been experiencing in the Civil, Environmental and Sustainable Engineering (CESE) program in the last year. Our academic programs have been growing with about 675 undergraduate students, 194 graduate students, and 32 teaching and research faculty. We graduated 116 undergraduate students last year and 56 Master and Ph.D. students.

As you may know, ASU was the first university in the country to embark on having a school of sustainability and a degree program specifically devoted to sustainability. Following this year’s theme of “change,” CESE embraced the sustainability momentum at ASU. CESE currently has a very strong sustainable engineering program with six faculty members teaching and conducting research in this area. We recently added a new Sustainable Engineering concentration in our undergraduate Civil Engineering curriculum. We have also been refining our curriculum to incorporate sustainability into several of our undergraduate and graduate courses.

I would like to congratulate Dr. Ed Kavazanjian for being elected to the National Academy of Engineering last year. Dr. Kavazanjian and Dr. Bruce Rittmann are our two current NAE CESE faculty members.

We have been hiring new faculty members for the past several years. I am pleased to introduce two new faculty members who joined our program last year: Dr. Xuesong Zhou and Dr. Yingyan Lou. Xuesong (formerly at the University of Utah) and Yingyan (formerly at the University of Alabama) are both in the transportation engineering area and have impressive resumes in teaching and research.

Last year, we started the Witczak endowment scholarship program focused on the pavement material program. We would like to encourage our alumni and industry groups to participate in this endowment in order to enhance our academic program and attract top students.

We would like to thank all of you who stand by our CESE program in so many ways. We always want to keep in touch with our alumni and get them involved in our academic activities. Please share with us your ideas for improving our academic program.

Del E. Webb School Of Construction (DEWSC)

Allan D. Chasey, PhD, PE, LEED AP
Associate Professor and DEWSC Program Chair

The Del E. Webb School of Construction and its various programs are building an exciting place to grow! We are looking forward to moving into our new space (College Avenue Commons), we continue to hire new faculty, and we are increasing our engagement with our Industry through our revitalized Industry Advisory Council (IAC). We established an OSHA Training Institute, and the Construction in Indian Country (CIC) has a new Program Manager.

First, our new building: Located on the corner of 7th Street and College Ave, across from the Fulton Center, the facility will house the DEWSC programs, new computer labs, BIM labs, research labs, and state of the art classrooms to enable DEWSC to expand beyond our borders. All are invited to visit us in our new home in the fall of 2014.

Second, our new faculty: DEWSC hired two new professors, one at a more senior level to help mentor our younger faculty and one who will provide the School with new research capability in the construction technology arena. You can find out more about them reading their bios and introductions in this report. You will also be able to meet them at our IAC meetings this year.

Third, our IAC: We re-engaged our industry partners through our Industry Advisory Council. They assisted us as we rewrote our Strategic Plan, engaged with our recruitment program, and are helping us develop a marketing plan to increase our enrollment. We continue to need your assistance as we make our program the best construction program in the US.

The School was awarded an OSHA Training Institute Education Center in January 2013. The Center is authorized to deliver occupational safety and health training to private and public sector personnel, organizations and agencies and is the first in Arizona. If you need update training, visit us at http://asuotiec.org. We even offer several Professional Certificates in Safety.

Finally, our Construction in Indian Country program continues to grow. We hired a new program manager and he is working hard developing new programs, scholarships, and continuing the long tradition of our annual conference.

Each year our students continue to perform very well at the annual Associated Schools of Construction Student Competition in Reno, NV. Your direct support is evident: in 2013, the School brought home trophies in five of the seven categories in which we competed: Design Build, Commercial, Heavy Civil, Concrete, and Project Risk.

Even with these program improvements, we still face our challenges: especially in increasing our student population. While we continue to graduate bright, young students into the profession, without a good recruiting class each year, the number of graduates could be reduced while the need for new hires increases.

Your support is vital to keeping the School strong—volunteers in the classroom, faculty associates, site visits, additional scholarships, and recruiting assistance. The challenges are great, but that is what has made the Del E Webb School of Construction even better, and I consider it a privilege to be the Program Chair at this very important time.

Come! Join us as we move the School to new heights!
Construction Engineering

Samuel T. Ariaratnam, PhD, PE, PEng

Professor and Construction Engineering Program Chair

The Construction Engineering program continues to grow as we work towards building a world-class degree offering at ASU. Just three years in existence, enrollment continues to increase exponentially at both the undergraduate and graduate level. Currently, we have 71 students and expect a significant increase in enrollment for Fall 2014. At this rate, we should be over 100 students in no time! The program provides an excellent educational experience combining the best of both worlds… courses in Civil Engineering and Construction Management. Exposure to engineering design and management of projects give our graduates a strong understanding of the entire construction process. We emphasize the planning, design, and management for the construction of infrastructure projects including bridges, airports, pipelines, and other systems that are vital to our nation.

Since its beginnings in 2010, we have graduated three Bachelor’s degree and eight M.S.E. students in Construction Engineering. I am pleased to report that all of our graduates are either gainfully employed in the industry or pursuing advanced degrees. This really bodes well for our upcoming graduates.

Our Industry Advisory Board consists of eleven individuals representing owners, engineering design, and construction stakeholders. This group of industry leaders plays a vital role in assisting me in shaping the Construction Engineering program to ensure that we produce the best possible graduates and leaders in the industry. It is important that all of our graduates are well positioned to pursue either employment or continue on with post-graduate studies.

Thanks to everyone who supported the program over the past year. I look forward to the upcoming year and the move to our new building. The future looks bright and I welcome feedback on how I can continue to improve Construction Engineering at Arizona State University.

Graduate Program

Peter Fox, PhD, PE

Professor and Graduate Program Chair

The School of Sustainable Engineering and the Built Environment graduate degree programs encompass Civil, Environmental and Sustainable Engineering (CESE), Construction Management (CON) and Construction Engineering (Con Eng) - CESE MSE, CESE MS, CESE PhD, CON MS, CON PhD and Con Eng MSE.

We continue to receive record numbers of applications – (>400), for the Fall 2013 semester, enabling us to select highly qualified applicants to our programs. The high quality of our applicant pool was most apparent through our successful pursuit of PhD Fellowships. The School of Sustainable Engineering and the Built Environment was awarded 9 Dean’s Fellowships and several Science Foundation Arizona Fellowships. Only 21 Dean’s Fellowships were awarded throughout all of the Fulton Schools of Engineering so this was quite an accomplishment.

Compared to 2012, the total number of graduate students increased by 16%. Currently we have 261 graduate students – 193 pursuing CESE graduate degrees, 57 pursuing CON degrees and 11 pursuing the Con Eng degrees. The largest increase in growth has occurred in the Construction Management program.

We also have more than 100 PhD students for the first time. We have continued to increase the number of enrolled under-represented groups and our goal to make our program more diverse and inclusive is being embraced by our faculty and research sponsors.

We expect to be over 50% ahead of our successfully funded research proposals by the middle of the 2014 calendar year and our research expenditures are projected to cross $10 million for the first time ever. This funding increase will enable us to financially support a large number of our MS and almost all of our PhD students either as research assistants or as teaching assistants.

Finally, our plan to retain our best undergraduate students is working well. There are currently 63 Accelerated Bachelor’s-Master’s (aka “4+1”) degree students. We expect this number to grow as Arizona State University is promoting Accelerated International Bachelor’s-Master’s programs and we are entering into agreements with several universities in China to share students in this type of program.

message from the program chairs

ssebe.engineering.asu.edu
New Faculty Join SSEBE

Amie Baisley, MS
Lecturer
Arizona State University
Joined SSEBE in August 2013
Areas of research: Multiphysics Design Optimization Model for Structural Walls Incorporating Phase Change Materials

Yingyan Lou, PhD
Assistant Professor
University of Florida
Joined SSEBE/CESE (Transportation) in August 2013
Areas of research: multi-modal transportation networks and systems, transportation planning and network operations and transportation safety

Oswald Chong, PhD
Associate Professor
University of Texas at Austin
Joined SSEBE in January 2014
Areas of research: sustainable design and project planning, eco-efficiency and technical metabolism, and sustainable engineering knowledge system and clusters

Wylie Bearup, PhD, PE
Professor of Practice
Beavers-Ames Chair of Heavy Construction University of Illinois
Joined SSEBE/DEWSC full time in July 2014
Areas of research: civil engineering and construction management

David Grau Torrent, PhD
Assistant Professor
University of Texas at Austin
Joined SSEBE/DEWSC in January 2013
Areas of research: Sustainable design and construction, information technologies, craft labor productivity, prefabrication & modularization, lean construction

Robert Stirling, MBA
Research Technologist (Techno-Economics Analyst), Duke University
Swette Center for Environmental Biology
Joined SSEBE in October 2013
Areas of research: Startup technology marketing expertise; entrepreneurship, including new product modeling techniques, licensing practices and product development practices

Xuesong Zhou, PhD
Associate Professor
University of Maryland
Joined SSEBE/CESE (Transportation) in August 2013
Area of research: dynamic network modeling and its applications to intelligent transportation systems planning and operation

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Arizona State University
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School of Sustainable Engineering and the Built Environment
Faculty Honors and Awards

Samuel Ariaratnam is among contributors to a new book published by the National Academies aimed at providing communities some of the best strategies for sustainable urban development. He worked on three chapters in “Underground Engineering for Sustainable Urban Development.”

The book was based on a study requested by the National Science Foundation and conducted by the National Research Council. Underground construction is a rapidly expanding field, fueled by the growing needs of cities to replace aging infrastructure or build new infrastructure using methods that will increase the efficiency, resiliency and safety of such facilities and utility systems.

Aaron Cohen
AGC Lecturer in DEWSC, passed the Level 2, Certified Professional Construction (CPC) Exam.

Kamil Kaloush was selected for the 2013 E-Week Outstanding Engineering Educator of the Year Award. He is being recognized for his teaching, student advising and research and for his efforts in providing continuing education for professional engineers through the Arizona Pavements and Materials Committee. He is co-founder and director of the National Center of Excellence on SMART Innovations (SMART stands for Sustainable Materials and Renewal Technologies laboratory), where he mentors students in research and development of sustainable building and pavement materials. Kamil was also one of 24 finalists for Professor of the Year award at ASU. He was the only engineering faculty member to make the finalist list.

The SSEBE Teaching Award, presented annually to a faculty member in the SSEBE who has demonstrated excellence and innovation in effective teaching and knowledge transfer, went to Mikhail Chester.

2013 Teaching Excellence and Top 5% Award
Quality and innovative instruction is one of the top priorities of the Ira A. Fulton Schools of Engineering. Excellence in instruction is recognized by awarding an annual Teaching Excellence Award and through selection to the Top 5% Teachers List. Top 5% Teaching Awards in the School of Sustainable Engineering and the Built Environment were awarded to Dean Kashiwagi, professor and Avi Wiezel, associate professor in the Del E. Webb School of Construction.

Narayanan Neithalath, associate professor in SSEBE, was honored by the Indian American Kerala Cultural and Civic Center for his outstanding achievements in his field of specialization. The awardees were honored at the Kerala Center’s annual banquet Nov. 3 in Long Island, NY.
Faculty Honors and Awards

The **SSEBE Service Award** went to **Kristen Parrish**. This award may be presented annually to a staff or faculty member in the School of Sustainable Engineering and the Built Environment who has demonstrated excellence and innovation in service to the School through leadership of teaching, research or outreach activities.

**Bruce Rittmann** was selected to receive the **Honorary Member status from the American Academy of Environmental Engineers & Scientists**. This award is presented to recognize a person who has attained a position of eminence in the environmental field. Rittmann is also among the 2013 class of new **Water Environment Federation (WEF) Fellows**. Rittmann’s work “is leading to new ways to clean up pollution, treat water and wastewater, capture renewable energy and improve human health,” wrote Rao Surampalli in nominating Rittmann for the fellowship. Surampalli is an engineer director for the U.S. Environmental Protection Agency.

**Kenneth Sullivan**, associate professor in the Del E. Webb School of Construction, has won the **International Facilities Management Association 2013 Educator Award**. The award recognizes exceptional contributions to the facilities management profession through excellence in developing curriculum and instructing students in subjects related to facility management at a college, university or institute.

**New Approach in Designing Sustainable Pavement**

Pavements have relatively short service lives when compared with those of other civil engineering structures. Extending pavement lives by several years would save billions of dollars to highway agencies around the country. Current design methods of asphalt pavement assume that cumulative damage occurs where each load application uses up a portion of the finite fatigue life of the asphalt layer.

Field experience suggests that damage that occurs due to traffic loading might be “healed” during the “rest periods” between load applications, if the strain in the hot mix asphalt (HMA) is small enough. This, in turn, increases the number of load applications before failure. Therefore, determining the strain value below which cracks can be healed (endurance limit) is an important step towards designing long-lasting and sustainable pavements. If the layer thicknesses and material properties are controlled so that the strain does not exceed the endurance limit for the expected load magnitude and spacing (rest period), the fatigue life of the pavement can be considerably extended. This concept has significant design and economic implications.

In an effort to design long-lasting pavements, Drs. Mike Mamlouk and Matt Witczak recently completed an $840,000 endurance limit study funded by the National Cooperative Highway Research Program (NCHRP). In this study, the ASU research team developed a mathematical model to predict the endurance limit for HMA based on healing. The project concluded that HMA exhibits endurance limit that varies depending on material stiffness and rest period between load applications.
Professor Edward Kavazanjian has attained one of the highest professional honors in his field, election to the National Academy of Engineering.

Kavazanjian is a professor in the School of Sustainable Engineering and the Built Environment and a senior scientist in the university's Global Institute of Sustainability. The academy made Kavazanjian a member for his outstanding achievements in geotechnical engineering for municipal solid-waste landfill design, reducing hazards presented by earthquakes and providing for safety in design and construction of transportation-related structures and facilities such as bridge foundations, roadways, tunnels, embankments and retaining walls.

Kavazanjian is widely recognized as a leading authority on the seismic analysis, design and performance evaluation of solid-waste landfills, as well as an expert in landfill containment systems, environmental safety of waste sites and development of waste sites after closure.

Edward Kavazanjian, Jr. is the seventh current ASU faculty member to be elected to the National Academy of Engineering.

Pavement advances have led to safer, ‘greener,’ more durable roads

Kamil Kaloush, an associate professor in the School of Sustainable Engineering and the Built Environment, was awarded the 2013 Outstanding Research Award from the Rubber Pavements Association in recognition of a decade of contribution to the field of asphalt rubber technology on the national and international levels, and for advancing the state of knowledge in the fields of performance testing and environmental benefits.

Professor wins Nathan Burbank Environmental Educator Award

Peter Fox, professor of environmental engineering and program chair of the SSEBE graduate program, is the recent winner of the AZ Water Association’s Nathan Burbank Environmental Educator Award for his significant impact on environmental education related to the water industry in Arizona.

Pavement advances have led to safer, ‘greener,’ more durable roads

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Faculty Honors and Awards

Professors win national environmental engineering awards

Paul Westerhoff and Amy Landis have won national awards from the Association of Environmental Engineering and Science Professors (AEESP).

Westerhoff is the recipient of the association’s Frontier in Research Award. Landis has won the Award for Outstanding Teaching in Environmental Engineering and Science.

Westerhoff is a professor and Landis is an associate professor in the School of Sustainable Engineering and the Built Environment. Westerhoff is also the associate dean for research for the Fulton engineering schools.

The association recognized Westerhoff for outstanding contributions to water-treatment technologies and study of the potential impacts of nanomaterials in water on ecosystems and human health. Westerhoff is also noted for important work in identifying the characteristics and the impacts of organic matter in water. He has published more than 140 peer-reviewed research papers in areas that are the focus of his work and holds five patents related to those areas of expertise.

AEESP recognized Landis not only for her teaching of environmental and sustainable engineering at ASU, but at the K-12 level, community colleges and other universities.

In recent years Landis has earned five educational excellence awards and more than $800,000 from such sources as the National Science Foundation and the National Collegiate Inventors and Innovators Alliance to support her education research and outreach efforts focusing on STEM subjects – science, technology, engineering and mathematics.

Wiezel named Assistant Dean for Facilities for Fulton Schools of Engineering

Avi Wiezel has been appointed assistant dean for facilities for the Ira A. Fulton Schools of Engineering and will begin working immediately in this capacity with Ed Hall, executive associate dean and Paul Westerhoff, associate dean for research.

In this position, Wiezel will be responsible for providing strategic direction for Fulton Engineering space needs; ensuring that all units have adequate space to meet their needs; providing guidance and input to the Schools for their space projects; providing continuous improvement for Fulton’s space; monitoring space utilization and productivity; and serving as the spokesperson for Fulton Engineering in university-level space planning discussions.

Wiezel joined ASU’s faculty in 1995. He served as interim chair of the Del E. Webb School of Construction Programs from 2011 to 2012, as coordinator of the construction school graduate programs from 2009 to 2011 and director of graduate studies from 2006 to 2009.
Innovative teaching earns professor place at prominent symposium

Mikhail Chester was among young faculty members from across the country selected to participate in the National Academy of Engineering’s (NAE) Frontiers of Engineering Education Symposium Oct. 27-30 in Irvine, California. Chester gave a presentation at the symposium about training ASU students to recognize sustainable infrastructure and how to transition existing infrastructure for future uses.

He is doing the work with ASU colleague Kristin Parrish, an assistant professor in the Del E. Webb School of Construction programs. Their project is supported by a grant they were recently awarded by the National Science Foundation.

First Annual Conference on Governance of Emerging Technologies

The Center for Earth Systems Engineering and Management, directed by Brad Allenby, professor in the School of Sustainable Engineering and the Built Environment, announced that they co-sponsored the First Annual Conference on Governance of Emerging Technologies: Law, Policy and Ethics held May 20-21, 2013 in Chandler, Arizona.

Tang’s accomplishments lauded by Carnegie Mellon

Progress in the research and development of remote sensing and information modeling technology for construction and infrastructure management is among accomplishments that led Pingbo Tang to be awarded the Recent Alumni Achievement Award from the Civil and Environmental Engineering Department of Carnegie Mellon University in Pittsburgh.

Tang is an assistant professor in the Del E. Webb School of Construction Programs in the School of Sustainable Engineering and the Built Environment.

He earned his doctoral degree from Carnegie Mellon in 2009. Since then he has helped advance building information modeling, which is critical to doing the spatial analyses necessary for effective management of construction sites, constructed facilities and civil infrastructure systems.

Carnegie Mellon’s award announcement also notes Tang’s work on three-dimensional data quality, spatial data processing workflows and bridge management. Tang has published more than 40 peer-reviewed conference and journal articles.

Assistant professor Pingbo Tang received a Carnegie Mellon University alumni award for his work in construction engineering and technology research. Tang joined SSEBE in 2012.
Students helping to define emerging branch of construction management

ASU graduate students Anna Thurston and Kristen Barlish spent the summer contributing to an international collaborative effort to further define and develop the emerging field of facilities management.

Thurston and Barlish were selected by the International Facility Management Association (IFMA) Foundation, IFMA Spain and the European Facilities Management Network (EuroFM) to participate in the Facility Management International Profiles Definition Study. They’ll work with 18 other students from 12 countries.

Kristen Barlish is pursuing a doctoral degree in construction management with a concentration in facilities management.

Anna Thurston is pursuing a master’s degree in construction management with a concentration in facilities management.

Student News

Student project enhances Engineering Center courtyard

When asked if students in the American Concrete Institute (ACI) student chapter would do some concrete work to fill in a space where a large tree had been removed from the courtyard of the Engineering Center building on the Tempe campus, associate professor James Ernzen brought the request to his senior-level Concrete Problems class in the fall of 2011.

The students were split into teams, each assigned to produce a design to fill a circular space 16 feet in diameter with a decorative concrete slab. Each team had to devise a construction plan and a cost estimate, and make a presentation to the director of facilities and space renovation for the engineering schools, Richard Martorano, who would choose one of the designs.

The result was recently unveiled: A nearly 10-ton, 200-square-foot, multi-colored concrete slab emblazoned with the combined logos of ASU and its Ira A. Fulton Schools of Engineering. Acid-etched into the slab artfully stained in ASU’s maroon and gold school colors, along with a copper-hued coating, is a quote from a speech by the engineering schools’ namesake, Ira A. Fulton: “What we dream, we can create; what we create, we can become.”
Arizona State University (ASU) and University of New Mexico (UNM) students have been hard at work for almost two years constructing a house that is entirely powered by the sun for the biennial Solar Decathlon. The Solar Decathlon is presented by the U.S. Department of Energy and showcases 20 solar-powered homes, each a collaborative effort in the area of design, engineering, architecture, public relations, and fundraising by twenty collegiate teams.

This year ASU and UNM joined forces as the ASUNM team to create their house, dubbed SHADE, an acronym for Solar Home that Adapts for Desert Equilibrium. In both Phoenix and Albuquerque, keeping homes cool is extremely energy-intensive and expensive, so the ASUNM team had to come up with a multi-layered strategy to harvest the sun while keeping the house at a cool temperature.

SHADE’s mission was to create a house that fits into the desert environment. The team was inspired by the saguaro cactus, and used this inspiration to develop a house that conserved water and energy, had low environmental impact, and adapted its function and size to meet its needs. When completed, the house had a full desert garden surrounding the decks. All plants are native and thus use minimal water, with irrigation coming from a gravity-fed hose connected to a rainwater collection system.

Several students in ASU’s Del E. Webb School of Construction Programs provided residential construction expertise for the SHADE project.

The group handled preconstruction logistics and determined what materials would be most effective for the home’s structural foundation and framework. They were also instrumental in determining how and at what size the structure could be built so that it could be efficiently disassembled for transport to the Solar Decathlon event in California, and then reassembled.

The team was made up of 25 full-time students, 15 from ASU including 5 from the School of Sustainable Engineering and the Built Environment and 10 from UNM. The teams were formed from interested students coming together through word of mouth or through a recommendation by a professor for their strong work ethic and useful talents. Being on the team involved a full-time, two-year commitment and came with the opportunity to earn college credit.

Professor Matthew Fraser and Assistant Professor Kristen Parrish, in the School of Sustainable Engineering and the Built Environment, served as advisors to this effort. Kristen Parrish joined the Del E. Webb School of Construction program in the School of Sustainable Engineering and the Built Environment as assistant professor in August 2012. Matt Fraser is the Executive Director of the Quantum Energy and Sustainable Solar Technologies Engineering Research Center as well as a professor in SSEBE.
Engineering students helping to sustain African villages

A group of Arizona State University students travelled to Africa this past summer to make progress on a five-year project to help improve the quality of life for residents of three rural villages in the country of Kenya.

Several members of the ASU chapter of Engineers Without Borders spent five weeks during July and August in the Bondo Rarieda district of Kenya to resurface one of several defective dams that are essential elements of the region’s water-supply system.

Water has been breaching the dams during the region’s rainy season. The spillover is preventing the communities from storing and making use of the water.

In 2012 the team installed a rainwater catchment system to help the communities manage their water resources. The project’s success to date helped draw $31,000 in grants earlier this year from corporations and philanthropic organizations such as the Alcoa Foundation, Bechtel, Boeing and Lockheed Martin. The funding will enable six of the more than a dozen ASU students involved in the Kenya Water Project to work at the project site. They will help repair the breach and construct a spillway to handle overflow from one of the dams.

The long-range goal is to equip villagers with the know-how to deal with the other dams that have structural problems, and then have them share that knowledge with neighboring communities.

ASU’s Engineers Without Borders chapter now has more than 25 active members and is working on several projects. The chapter’s faculty adviser is Edward Kavazanjian, a professor in the School of Sustainable Engineering and the Built Environment.

Other engineering projects, including some in partnership with Native American communities in Arizona are being advised by associate professor Amy Landis and assistant professor Kristen Parrish in the School of Sustainable Engineering and the Built Environment.
Students study water scarcity in Arizona-Sonora border region

Enrique Vivoni, associate professor in the School of Sustainable Engineering and the Built Environment and School of Earth and Space Exploration says economic, social, and political cooperation is needed to ensure a sustainable future for the southern Arizona and Sonora, Mexico region. To assist, Vivoni created the U.S. Mexico Border Water and Environmental Sustainability Training program (UMB-West) to bring together ASU and Mexican faculty and students to investigate major water scarcity issues and possible solutions.

Students researched water plant dynamics in a semi-arid climate and completed their own studies using civil engineering methods and community-based surveying.

“It was surprising to see how the research, or lack of research, can really have an impact on a whole community,” says Seth Morales, a civil engineering student. “It was amazing to see people living in the same hot summer climate as in Arizona, but without abundant water resources. Some homes only have access to water every three days for a two-hour window.”

The U.S. Mexico Border Water and Environmental Sustainability Training program established by ASU engineer Enrique Vivoni gathered students from ASU, the Instituto Tecnologico de Sonora, Universidad de Sonora and Universidad Autonoma de Ciudad Juarez to study water challenges in the Arizona-Sonora, Mexico border region.
## 2013 Scholarship and Fellowship Awards Recipients

<table>
<thead>
<tr>
<th>Scholarship and Fellowship</th>
<th>Recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advancing Women in Construction Mentorship Grant</td>
<td>Abby Boaz, Naomi Kartz, Lindsay Keever, Keila Lombardozzi, Kelsey Maris, Taylor Mount, Marlynn Radford-Brown, Mireya Ramirez, Miranda Retelle, Vanessa Sanchez, Alexa Tate, Anh Tuyet Truong</td>
</tr>
<tr>
<td>A.G.C. Construction ASU Student Scholarship</td>
<td>Jonathan Bittner, Justin Kinsler, Keila Lombardozzi, Nicholas Palmer</td>
</tr>
<tr>
<td>The Ames Family Scholarship</td>
<td>Nasrudin Ebrahim, Keithan Harris, Marlynn Radford-Brown, Sabrina Scott</td>
</tr>
<tr>
<td>Amy and Kent Geiser Honorary Scholarship</td>
<td>Andrea Appleyard</td>
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<tr>
<td>Andrew Hanneman Scholarship</td>
<td>Darrell Stanley, Kyle Weeks</td>
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<tr>
<td>Arizona Society of Civil Engineers (AzSCE) Scholarship</td>
<td>Ashley Welton, Miriam Woolley</td>
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<tr>
<td>The Beavers Heavy Construction Scholarship</td>
<td>Ailen Parkerson, Jesse Pruitt</td>
</tr>
<tr>
<td>Bechtel Group Foundation Award</td>
<td>Michael Gomlicker, Bryan Langdorf</td>
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<tr>
<td>Ben C. Griggs Memorial Award</td>
<td>Jess Daniels</td>
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<tr>
<td>Carl L. and Jean Wolcott Meng Memorial Scholarship</td>
<td>Todd Garner</td>
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<tr>
<td>Carter Opportunity Scholarship</td>
<td>Maria Alvarado</td>
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<tr>
<td>CFMA Joseph J. Quigley Memorial Scholarship</td>
<td>Daniel Tepovich</td>
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<tr>
<td>Charles and Nancy O’Bannon Scholarship</td>
<td>Vanessa Humphreys</td>
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<tr>
<td>Charles and Nancy O’Bannon Scholarship for Construction</td>
<td>Anh Tuyet Truong</td>
</tr>
<tr>
<td>CIRC Scholars Program</td>
<td>Matthew Aguayo, Melissa Archer, Erick Ponce, Ashley Welton</td>
</tr>
<tr>
<td>CIRC/METS Scholars Program</td>
<td>Joseph Owens</td>
</tr>
<tr>
<td>Civil and Environmental Engineering General Scholarship</td>
<td>Michelle Medina</td>
</tr>
<tr>
<td>Construction in Indian Country (CIIC) – Native American Construction Management Scholarship</td>
<td>Bias Alvarez, Deshane Cody, Christopher Guy, Kevin Jacobs, Gilbert Kearns, Joshua Litson, Ramon Littleman, Darrell Stanley, Kristen Tsoie</td>
</tr>
<tr>
<td>D. L. Withers Construction Company Award</td>
<td>Russell Intermaggio</td>
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<tr>
<td>Daniel and Katherine Mardian Award</td>
<td>Andrew Ortiz</td>
</tr>
<tr>
<td>Dave Clifton Memorial and ASPE Scholarship</td>
<td>Whitney Roberts</td>
</tr>
<tr>
<td>Del E. Webb Foundation Finance and Accounting Scholarship</td>
<td>Keegan Abele, Oswaldo Robledo</td>
</tr>
<tr>
<td>Del E. Webb Foundation Undergraduate Student Scholarship</td>
<td>Jeremy Mossi, Leo Schlinger</td>
</tr>
<tr>
<td>Del E. Webb Foundation Women in Construction Scholarship</td>
<td>Anh Tuyet Truong</td>
</tr>
<tr>
<td>Del E. Webb Memorial Scholarship</td>
<td>Matthew Halls, Myles Morton, Mychal Salvione</td>
</tr>
<tr>
<td>Del E. Webb School of Construction Scholarship</td>
<td>Casey Armbrust, Enrique Collazo, Aaron Curtis, Matthew Langford, Dylan Schweigert, Sterling Smith</td>
</tr>
<tr>
<td>DeTommaso Endowment (TAMU)</td>
<td>Daniel Coronado</td>
</tr>
<tr>
<td>Dr. Sandra L. Weber Memorial Scholarship</td>
<td>Marlynn Radford-Brown</td>
</tr>
<tr>
<td>Elyse and Paul Johnson Award</td>
<td>Matthew Hann</td>
</tr>
<tr>
<td>FNF Construction, Inc. Scholarship</td>
<td>Alen Parkerson</td>
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<tr>
<td>Frank M. Chandler Memorial Scholarship</td>
<td>Christopher Sauer</td>
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<tr>
<td>James Fann Memorial Scholarship</td>
<td>Justin Kilduff</td>
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<tr>
<td>Jan Bennett Endowed Scholarship</td>
<td>Carolina Gaxiola, Abram Joslin</td>
</tr>
<tr>
<td>Jan J. Tuma Memorial Scholarship</td>
<td>Cassandra Johnson</td>
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</tbody>
</table>
Congratulations to the following students on their achievement and a special thank you to the donors for their contributions. Total scholarships were awarded in the amount of $316,076

<table>
<thead>
<tr>
<th>Scholarship/Nomination</th>
<th>Recipient(s)</th>
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</thead>
<tbody>
<tr>
<td>Jason McElroy Memorial Scholarship</td>
<td>Gian Gonzalez</td>
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<tr>
<td>Jerry King Scholarship</td>
<td>Sterling Smith</td>
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<tr>
<td>Jim Bebout Memorial</td>
<td>Sterling Smith</td>
</tr>
<tr>
<td>John G. Colton Construction Study Fund</td>
<td>Daniel Coronado</td>
</tr>
<tr>
<td>Kimley-Horn and Associates, Inc. Scholarship</td>
<td>Andrea Appleyard</td>
</tr>
<tr>
<td>laveda Huitt Carpenter Native American Scholarship Initiative</td>
<td>Eric Johnson</td>
</tr>
<tr>
<td>Marilyn and James A. Schmidlin Scholarship</td>
<td>Gina Garza</td>
</tr>
<tr>
<td>Martin H. Rosness Memorial Scholarship</td>
<td>Heather McDonald</td>
</tr>
<tr>
<td>Marvin J. Sheldon Memorial Scholarship</td>
<td>Rachel Von Gnechten</td>
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<tr>
<td>Mike Kolling Memorial Scholarship</td>
<td>Ryan Sariego</td>
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<tr>
<td>Mike Kolling Memorial Scholarship Civil Engineering</td>
<td>Kevin Jacob</td>
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<tr>
<td>Mike Kolling Memorial Scholarship Construction</td>
<td>Ryan Sariego</td>
</tr>
<tr>
<td>Opus West Construction Corporation Undergraduate Scholarship</td>
<td>Justin Wilson</td>
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<tr>
<td>Paragon Structural Design, Inc. Scholarship</td>
<td>Jayson Buffkin</td>
</tr>
<tr>
<td>PENTA Building Group, Inc. Scholarship</td>
<td>Dustin Eads, Chase Roberts</td>
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<tr>
<td>Pulte Home Corporation Scholarship</td>
<td>Alexa Tate</td>
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<tr>
<td>R. Glen Schoeffler Memorial</td>
<td>Jess Daniels</td>
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<tr>
<td>Robert H. Johnson Undergraduate Scholarship</td>
<td>Laura Harrison, Michael Krejci, Taylor Mount, Mason Phillips</td>
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<td>Robert J. Wheeler Memorial Scholarship</td>
<td>John Lysiak, Cameron Peck, Paige Rosenberg</td>
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<tr>
<td>Rod J. McMullin SRP Water Resources Scholarship</td>
<td>Michael Albretsen, Michael Logan</td>
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<tr>
<td>Ron Pratte Memorial Scholarship</td>
<td>Sterling Smith</td>
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<tr>
<td>Samuel F. Kitchell Undergraduate Leadership Award</td>
<td>Gilbert Keams, Mario Ramirez</td>
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<tr>
<td>SMECA Scholarship</td>
<td>Wesley Scatena</td>
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<tr>
<td>S-STEM</td>
<td>Karston Lee, David Reyes</td>
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<tr>
<td>Stanley Consultants Scholarship</td>
<td>Jesus Canizales</td>
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<tr>
<td>Stanley D. Duke Applied Science Award</td>
<td>Stephanie Bone</td>
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<tr>
<td>Structural Engineers Association of Arizona Scholarship</td>
<td>Michael Logan, Drew Reasor</td>
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<tr>
<td>Terry Bourland Memorial Scholarship</td>
<td>Eric Lao</td>
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<tr>
<td>Betty Hum Graduate Fellowship</td>
<td>Natalia Hoogesteijn</td>
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<tr>
<td>Del E. Webb Graduate Foundation</td>
<td>John Cribbs</td>
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<tr>
<td>Kavazanjian Graduate Fellowship</td>
<td>Angel Gutierrez</td>
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<tr>
<td>L.C. Jacobson Graduate Fellowship</td>
<td>Kory Kilmer, Shereef Shereef, Siope Teumohenga</td>
</tr>
<tr>
<td>Phoenix/Scottsdale Groundwater Graduate Fellowship</td>
<td>Maurissa Charles</td>
</tr>
<tr>
<td>Ron and Sharon Thomas Graduate Fellowship</td>
<td>James Gifford</td>
</tr>
</tbody>
</table>

Students enjoy their education in Arizona at the Arizona State University, learning skills that will last a lifetime. Student success is important in the lives of all donors. Only the very best students get this recognition of achievement. Congratulations to all of our recipients of scholarships and fellowships. We are proud of our students and look forward to seeing great things happen in the future. Students receive this recognition for their hard work and dedication.
Doctoral Graduates in 2013

Civil, Environmental and Sustainable Engineering

Elizabeth Adams
Embedded Resource Accounting; with applications to the water-energy nexus in the Western U.S.
Chair: Dr. Braden Allenby

Elham Bani Hashem
Volume Change Consideration in Determining Appropriate Unsaturated Soil Properties for Geotechnical Applications
Chair: Dr. Sandra Houston

Anushree Bharadwaj
Effect of Soil Replacement Option on Surface Deflections for Expansive Clay Profiles
Chair: Dr. Sandra Houston and Dr. Bruno Welfert

Kristin McClellan
A New Approach to Groundwater Remediation Treatability Studies - Moving Flow-through Column Experiments from Laboratory to In Situ Operation
Chair: Dr. Rolf Halden

Kittinan Dhiradhamvit
Multi-Natural Hazard Protection for Low-Rise Wood Structures using CarbonFlex
Chair: Dr. Apostolos Fafitis and Dr. Thomas Attard

Daniel Rosenbalm
Volume Change Behavior of Expansive Soils Due to Wetting and Drying Cycles
Chair: Dr. Claudia Zapata

Arjunkrishna Venkatesan
Contaminants of Emerging Concern in U.S. Sewage Sludges and Forecasting of Associated Ecological and Human Health Risks Using Sewage Epidemiology Approaches
Chair: Dr. Rolf Halden

Fariya Sharif
Use of Ozonation and Constructed Wetlands to Remove Contaminants of Emerging Concern from Wastewater Effluent
Chair: Dr. Paul Westerhoff

Xu Shi
Single cell environmental sensing device development
Chair: Dr. Deirdre Meldrum

Construction Management

Jeffrey Stempihar
Development of the C* Fracture Test for Asphalt Concrete Mixtures
Chair: Dr. Kamil Kaloush

Diedrich Prigge
Optimization of Leadership Practices for a Voluntary Construction Workforce
Chair: Dr. Kenneth Sullivan

Jieying Wu
Integrated omics study of deep sea microbial community and new Pseudoalteromonas isolate
Chair: Dr. Deirdre Meldrum

Hongyu Zhou
The Development and Engineering Application of a Fiber Reinforced Hybrid Matrix Composite for Structural Retrofitting and Damage Mitigation
Chair: Dr. Apostolos Fafitis and Dr. Thomas Attard

Ryan Ekre
Source Zone Natural Attenuation of Chlorinated Aliphatic Hydrocarbons: Estimation of Mass Depletion Rates and Insight into Source Architecture
Chair: Dr. Paul Johnson

Kyle Doudrick
Environmentally Responsible Use of Nanomaterials for the Photocatalytic Reduction of Nitrate in Water
Chair: Dr. Paul Westerhoff

Kittinan Dhiradhamvit
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Chair: Dr. Apostolos Fafitis and Dr. Thomas Attard
Student Awards

Student’s freshwater study garners AAAS top award

A water forum sponsored by the American Association for the Advancement of Science Southwestern and Rocky Mountain Division (AAAS SWARM) brought top water experts to Arizona State University to discuss and network with water resource professionals, students and the public around the looming challenges to freshwater supply and use in the West.

Among those presenting were ASU faculty member Enrique Vivoni along with graduate students from across the university who attended a student poster session and competition.

Thomas Volo, a doctoral student with Vivoni, is one of those whose research in hydrology is making a difference at the municipal level. His study, “Modeling Insights to Scheduling Landscape Irrigation in a Desert City,” examines the outdoor water usage on two different types of landscapes – xeric, with desert plants, and mesic, with turf grass and shade trees – in an attempt to determine true irrigation requirements and conserve municipal water. Volo compares his research findings to “Water: Use it Wisely,” a statewide partnership between various cities and organizations in Arizona that provides a landscape watering guide. Capturing the forum’s poster judges’ attention and votes, Volo won an all-expenses-paid trip to Chicago to present his work at the national American Association for the Advancement of Science (AAAS) meeting in 2014. Volo believes that taking his AAAS presentation to Chicago will give his research a wider audience and enhance his own experience, which is already quite broad.

In addition to his AAAS water forum win in November, Volo also received the 2013 Central Arizona Project (CAP) Award for Water Research this summer. This award recognizes excellence in student research addressing water issues facing central and southern Arizona and the Colorado River.

Maureen Cassin was selected by the North American Society for Trenchless Technology as one of the recipients of the 2013 Michael E. Argent Memorial Scholarship in the amount of $5,000. The certificate was presented at the NASTT’s 2013 No-Dig Show held in Sacramento, California.

Cassin is also the recipient of a National Science Foundation Graduate Research Diversity Supplement Award which enabled her to spend five weeks in China to observe some of the country’s large-scale trenchless technology projects. While in China, she observed three projects that are employing the horizontal directional drilling technique for installing major underground pipelines.

Kyle Doudrick was selected to receive a $2,000 scholarship from the AZ Water 2013 Scholarship Program. Scholarships were presented at the 2013 AZ Water Annual Conference.

Nikou Hesari was awarded first place during the AZ Water Annual Conference Poster Competition held May 1, 2013 in Glendale, Arizona. Her poster was titled “Biosensor Platform for Rapid Bacterial Detection in Drinking Water.”

Carolyn Mattick was chosen as one of a select number of ASU’s Graduate College Dissertation Fellowship awardees for the 2013-14 academic year. The fellowship is a one-year award and includes a $17,000 stipend; a tuition award for the 2013-14 academic year and ASU student health insurance coverage.

Akshay Gundla and Ryan Stevens were selected by the International Road Educational Foundation Nominating committee for the IRF Executive Leadership Fellowship for 2014.
Student Awards

Associated Schools of Construction (ASC) Student Competition 2013

The official results are in. ASU had another outstanding year at the 2013 Associated Schools of Construction (ASC) Competition in Sparks, NV (more commonly known as the Reno Competition) placing in 6 of the 7 problem categories they competed in.

**Region 6 Problems Categories (Southwest Region)**
- Heavy/Civil – 3rd place
- Commercial – 2nd place
- Design Build – 3rd place

**Open Problem Categories (Nationwide)**
- Concrete – 2nd place
- Determining Project Risk – 2nd place
- LEED – Best Presentation Award

Teams are typically comprised of six members but many teams will have a seventh member travel with the team as an alternate. Last year ACS created a new problem category where teams are randomly formed from the alternate team members and compete against one another in a construction problem. This year ASU had students on both the first and third place alternate teams.

Outstanding Engineering Graduates

ASU’s Ira A. Fulton Schools of Engineering bestows special recognition on a number of top-performing undergraduate engineering students receiving their bachelor’s degrees at the fall and spring semester commencements.

Students are selected by faculty members as Outstanding Graduates in recognition of their academic performance. In addition, others are selected as Distinguished Graduates for exemplary accomplishments and contributions beyond their academic studies.

The achievements of the honored graduates include maintaining high grade point averages in their classes, excelling in research and student engineering competitions, and demonstrating leadership through student organizations and community service projects.

Many have also broadened their experience through internships with engineering or construction companies, study abroad programs, serving as teaching assistants, and mentoring and tutoring fellow university students.

Six students in the School of Sustainable Engineering and the Built Environment have been selected for these honors in 2013.

Krista Mika, Outstanding Graduate in civil, environmental and sustainable engineering, December 2013

Myles Morton, Outstanding Graduate in construction management, December 2013

Elizabeth Barnes, Distinguished Graduate, December 2013

Joseph Harrington, Outstanding Graduate in civil, environmental and sustainable engineering, May 2013

Christopher Procopio, Outstanding Graduate in construction engineering, May 2013

Skyler Holloway, Outstanding Graduate in construction management, May 2013

Outstanding Engineering Graduates

Outstanding Engineering Graduates
Asce Annual Pacific Southwest Conference 2013

Each year in spring the ASU-ASCE chapter heads off to the annual Pacific Southwest Conference. This year the conference was hosted by LMU, USC, and Cal Baptist in the Los Angeles area and was attended by 18 colleges.

ASU took 1st place in the Surveying competition and was able to shine through in events such as Volleyball and the Mystery Event! Volleyball placed 3rd with Canoe and Steel Bridge placing 7th overall despite technical difficulties. The conference was a big success this year and ASU-ASCE would like to give a huge thanks to everyone who helped to make this trip possible.

The Friends of Civil Engineering (FOCE), a group of firms that support the civil and environmental engineering program in SSEBE, provided $2,000 towards the transportation costs.

‘Roadeo’ competition tested construction students’ skills

A group of Arizona State University construction management and construction engineering students took part in an entertaining and competitive event to demonstrate their skills at operating some of the heavy equipment used in the building industry.

Seventeen students in the Del E. Webb School of Construction Programs participated in the Arizona Equipment Safety Partnering Roadeo, organized by the Arizona Department of Transportation (ADOT). They were joined by a number of construction management students from Northern Arizona University for the event at the Arizona State Fairgrounds in Phoenix.

The Roadeo tested students’ knowledge and skills through a written test, an equipment diagnostic challenge, an obstacle course and safety training activities.

Students’ performances in each activity were judged by ADOT officials and representatives from the various construction equipment supply businesses. Awards were given for first, second, and third place.

ASU junior Bobby Scarsella earned the overall first-place award with the fastest time in the egg-and-excavator competition and perfect marks on three equipment inspections.

The event helped make the students more knowledgeable about the kind of equipment used by construction laborers who the students may someday have to manage during their future careers, says Aaron Cohen, the Associated General Contractors lecturer in the Del E. Webb School of Construction Programs.
The School of Sustainable Engineering and the Built Environment is housed in three clusters on the Tempe campus - ISTB2, ISTB4 and Biodesign and College Avenue Commons referred to as Block 12.

The Interdisciplinary Science and Technology Building 2 (ISTB2) is a 66,000-square-foot facility providing researchers with materials testing laboratories, high bay spaces, offices and conference rooms. ISTB2 supports research in transportation planning, geotechnical engineering, structural engineering and sustainable materials such as asphalt and concrete. Ten faculty members are housed in this building.

Housed in ISTB2, is the National Center of Excellence on SMART (Sustainable Materials and Renewable Technologies) Innovations for Urban Climate and Energy a premier laboratory developing solutions for a continually urbanizing planet, including cool pavement and roofing technologies to moderate growing temperatures in arid and dense urban areas.

ISTB2 earned a Silver rating through the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System™.

The Interdisciplinary Science and Technology Building IV (ISTB4) a seven-story, 293,000-square-foot building providing flexible laboratories is designed to advance research and discovery, and to encourage students to explore their futures as scientists and engineers. The building does this through a mixture of high-tech labs, interactive environments and open spaces that will allow the ASU community and the public to witness research and technology advancement as it happens.

Research at ISTB4 is reflective of Fulton Engineering’s core research themes of energy, health, security, sustainability and education, with five main research centers and programs housed in the building. Eleven faculty are housed in this facility focused on sustainable water initiatives.
The Biodesign Institute, housed in the Biodesign A and Biodesign B buildings, is Arizona’s largest investment in biosciences infrastructure to date. Completed in 2004, this institute has unlocked many doors to discovery, including the ability to study and construct systems at the nanoscale—a size 1,000 times smaller than a human hair.

Home to 10 research centers, the Biodesign Institute is a conduit for Fulton Engineering researchers in environmental engineering, materials science and engineering, electrical engineering and biomedical engineering, allowing them to merge their expertise with other ASU scientists. Research includes disease prevention and cures, reduction of injury-induced pain and physical limitations, and renewable and sustainable resources.

The Biodesign Institute is master-planned as four interconnected buildings that will comprise 800,000 square feet. Currently, two buildings (350,000 square feet) are complete and house nearly 600 faculty, staff and students. It is located adjacent to ISTB IV.

SSEBE faculty members Bruce Rittmann and Rosa Krajmalnik-Brown are housed in this building along with the Swette Center for Environmental Biotechnology.
A groundbreaking ceremony in early 2012 launched the Block 12/College Avenue Commons building project, the largest infrastructure investment in the Del E. Webb School of Construction program’s 54-year history. The building will create additional permanent space and state-of-the-art facilities needed to accommodate student growth and further DEWSC as a leader in construction management programs. The building project will serve as the new home for the Del E. Webb School of Construction, administrative offices for the School of Sustainable Engineering and the Built Environment and faculty offices for some faculty in the civil and environmental engineering program. The multi-use building will exemplify cutting-edge construction and best practices in sustainable design. Specialty mechanical and electrical teaching spaces will allow students to see how the building operates. Collaborative workspaces, teaching studios and social areas will enable students to work together on in-classroom and out-of-classroom projects. The Del E. Webb School of Construction and SSEBE administrative offices and faculty will be moving into the new College Avenue Commons Building in July 2014. The building will also be home to retail and auditorium space, fostering a connection to the community, as well as the new university student tours offices. The building is anticipated to have a LEED Gold rating.
New Initiatives

New academic degree programs

**MS/MSE Sustainable Engineering**
Sustainable Engineering is a revolutionary approach to long-lasting improvement of the human condition. The graduate curriculum in Sustainable Engineering in the School of Sustainable Engineering & the Built Environment emphasizes flexibility and individuality. Students from many different engineering and physical science backgrounds may enter this specialty area and design a plan of study that supports their original research and professional development goals. Faculty in Sustainable Engineering study topics at the intersection of multiple fields, including alternative energy, transportation, earth systems and the environment. This degree is expected to be available in 2015.

**Construction Management, Minor**
This minor will be comprised of course work in construction management processes incorporating the technology and industry practices required to ensure a quality built environment. Due to industry demands for increased numbers of skilled personnel, this minor will provide much needed supplementary knowledge for architects, engineers and business majors as well as students majoring in sustainability.

‘Nanoprospecting’ project seeks to reveal impact of nanomaterials

Growing use of nanomaterials in manufactured products is heightening concerns about their potential environmental impact – particularly in water resources. Tiny amounts of materials such as silver, titanium, silica and platinum are being used in fabrics, clothing, shampoos, toothpastes, tennis racquets and even food products to provide antibacterial protection, self-cleaning capability, food texture and other benefits.

Three Arizona State University faculty members will lead a research project to help improve methods of gathering accurate information about the fate of the materials and predicting when, where and how they may pose a hazard. Their "nanoprospecting" endeavor is supported by a recently awarded $300,000 grant from the National Science Foundation.

Paul Westerhoff is the lead investigator for the project. He will team with Pierre Herckes and Kiril Hristovski. Westerhoff is the associate dean of research for ASU’s Ira A. Fulton Schools of Engineering, and a professor of the School of Sustainable Engineering and the Built Environment.

Herckes is an associate professor in the Department of Chemistry and Biochemistry in ASU’s College of Liberal Arts and Sciences. Hristovski is an assistant professor in the Department of Engineering in the College of Technology and Innovation.

The effort will also include finding ways to extract nanomaterials from water and accurately measure the amounts of them in various kinds of waterways and water systems.
Forging path for plant-based sustainable source of rubber and fuel

Amy Landis has a pivotal role in a new potentially far-reaching effort to use biomaterial to produce rubber in a more environmentally and economically sustainable way.

She will lead the sustainability assessment for a four-year project teaming Cooper Tire & Rubber Company, Yulex Corporation, ASU and the U.S. Department of Agriculture (USDA).

The project has been awarded a $6.9 million grant through the Biomass Research and Development Initiative of the USDA and the U.S. Department of Energy.

The endeavor focuses on the guayule plant (pronounced why-you-lee), from which latex can be extracted and turned into rubber. It holds promise for being a feasible alternative for petroleum-based synthetics that are now the predominant form of rubber in tires and many other products using rubber.

In addition to producing rubber, guayule material could be used to make industrial, medical, consumer and energy products, as well as biofuels. Substantial use of the plant could reduce the United States’ dependence on products in other countries for the nation’s supply of rubber.
Engineers aim to protect cities from intensifying heat

Challenges are on the horizon for urban areas facing expectations of higher temperatures in the future. The situation could be particularly acute in the arid climate of the Southwest, where urban heat is already trending upward.

Mikhail Chester, an assistant professor in the School of Sustainable Engineering and the Built Environment, will team with physician David Eisenman, a professor in the UCLA Division of General Internal Medicine and Health Services Research, and Stephanie Pincetl, an adjunct professor and director of the UCLA Center for Sustainable Communities at the university’s Institute of the Environment and Sustainability in undertaking research to help cities take steps to lessen the impact of rising temperatures.

A National Science Foundation grant providing $480,000 over the next four years will support their study of two sprawling urban areas considered especially vulnerable to an increasing number of heat waves: the Phoenix/Maricopa County and Los Angeles County metro areas.

New training center teaching industries how to provide safer workplaces

Arizona State University is helping businesses, industries, public agencies and private organizations to create safer work environments.

In 2012, ASU was selected to open the Western Occupational Safety and Health Administration (OSHA) Training Institute Education Center as one of a network of such centers established by the U.S. Department of Labor.

The nonprofit center now offers courses and seminars on a wide variety of workplace safety and health topics. It’s housed in the Del E. Webb School of Construction Programs, which is part of the School of Sustainable Engineering and the Built Environment.

Construction is the largest of the industries that seeks out OSHA training for its managers and supervisors because it is a “high-risk industry that is aware of both the financial and emotional costs associated with accidents and injuries on job sites,” says James Rogers, director of the new center and a faculty associate in the Del E. Webb School of Construction Programs.

“Our courses can help people in all industries learn how to create a safer work environment,” Rogers says. In addition to employees of construction businesses, the center has drawn students from aerospace, chemical processing and manufacturing companies, among others.

ASU was chosen through a national competition to operate the center based on the experience of university’s faculty and staff in organizational education and administrative, marketing and recruitment capabilities, and the quality of university’s training facilities.

The Region IX center provides service to Arizona, California, Nevada, Hawaii and the island of Guam, and can also offer courses on a contract basis anywhere in the United States.

James Rogers, director of the new center in the Del E. Webb School of Construction programs.
New tradition shows students, industry and construction school are “vested” in each other

The Del E. Webb School of Construction Programs (DEWSC) hosted its first Vesting Ceremony on September 4 in the Carson Ballroom at Old Main on the Tempe campus. The ceremony, sponsored by the Bechtel Corporation, provided students the opportunity to receive a personalized safety vest and safety glasses – their first pieces of Personal Protective Equipment from ASU – and to be a part of a new tradition for the construction school.

“It is important that we impress on our students from the very beginning that safety is part of the culture at the Del E. Webb School, and having such a great company support the ceremony will provide the lasting impression that we want,” says Allan Chasey, DEWSC program chair and Sundt Professor of Alternative Delivery and Sustainable Development.

Bechtel has been a longtime supporter of the Del E. Webb School, providing scholarships and support for interns within the program for more than 20 years. Bechtel has been named by Engineering News Record as the top construction contractor in the United States for 15 straight years.

The construction school offers a large number of scholarships by industry partners. In addition, about 40 to 50 companies visit the school each year to meet and interview students. “The construction industry has always been very supportive of the school,” Chasey says.

Chasey says the Del E. Webb School plans to continue the Vesting Ceremony tradition. “Getting our students to realize the value of safety early on is a win-win for all,” he says.
William A. (Wink) Ames, a longtime supporter of the Del E. Webb School of Construction has been elected to the National Academy of Construction. The academy recognized him “for a lifetime of dedication to improving the efficiency and effectiveness of the construction industry through industry associations and education activities.”

Ames is a member of the Hall of Fame of the DEWSC. Along with his children, he endowed the school’s Ames Family scholarship program. He is the founder and primary supporter of the $1.5 million Beaver-Ames Chair in Heavy Construction at ASU which established a faculty position to bolster the construction school’s teaching of heavy civil construction and engineering. He also is a regular guest lecturer in construction classes at ASU.
Friends Of Civil Engineering (Foce)  
Industry and academia working together to train tomorrow’s workforce

The Mission of the Friends of Civil Engineering (FOCE) is to support the educational programs of the School of Sustainable Engineering and the Built Environment.

Annual donations provided by the Friends of Civil Engineering enables the CESE program to provide funds for student activities and travel to conferences including:

- Graduation luncheon each semester for students and their families
- Students attend the Transportation Board Annual Meeting in Washington, DC and the Pacific Southwest Conference
- Water project in Kenya with Engineers Without Borders
- Annual FOCE Student Industry Mixer where students hear firsthand about projects firms are working on and the prospect of future internships in their field of study
- Starting in 2014 FOCE will contribute $100 to each CESE student who passes the FE Exam to cover a portion of the exam fee

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Jeff Williamson, Division Manager-Heavy Civil, Sundt Construction
C. Roland Halden, recognized as a national role model in advancing engineering education and the profession passed away on August 24. As part of a long, distinguished academic career, Halden served in various positions at Arizona State University including dean of the College of Engineering and Applied Sciences from 1978 until 1987 and from 1989 to 1991. He was the youngest dean of engineering in the U.S. at the time. He later served as vice president for academic affairs and provost at ASU.

Alumni Achievement

Alumni Achievement Awards

Two ASU engineering alumni are among five current or former members of the U.S. military who were honored at ASU’s Founders’ Day awards. Navy Rear Admiral Barry L. Bruner and Air Force Brigadier General Mark C. "Marshall" Dillon received Alumni Achievement Awards recognizing those who excelled in their profession and made contributions to ASU and/or the ASU Alumni Association and the community.

Bruner graduated in 1980 with a degree in civil engineering. He later earned a master’s degree in oceanography and meteorology from the Naval Postgraduate School.

Shot Put Medalist

Ryan Whiting, a 2012 Olympian and indoor world shot-put champion who won five NCAA shot titles and one discus championship at Arizona State University, defeated an elite field on his final throw at the 86th annual Kansas Relays inside Douglas County Fairgrounds’ Community Arena. Whiting won his first World Outdoor medal, taking silver in shot put at the World Track Championships in Moscow.

In Memoriam

Dibble Engineering Welcomes Tim Wolfe

Dibble Engineering is pleased to welcome Tim Wolfe, PE, as Transportation Practice Leader. Tim worked for 27 years at ADOT where his positions included District Engineer, Assistant State Engineer, Project Director, Project Manager, Resident Engineer, and Project Supervisor. Tim served the last six years as the Phoenix Maintenance District Engineer where he managed over 5,000 lane miles of urban freeway and oversaw the delivery of a $50M operations and maintenance budget. Tim’s experience with the region’s urban freeway system and his close working relationships with municipal stakeholders improve Dibble’s ability to serve federal, state, county, local and private transportation needs. Tim holds a Bachelors’ Degree in Engineering from Purdue University and a Master of Science in Civil Engineering from Arizona State University. He is a registered civil engineer in Arizona.
Morteza Abbaszadegan, PhD
Professor, PhD, University of Arizona
Morteza.Abbaszadegan@asu.edu
(480) 965-3868

Research Expertise: Contemporary water quality issues related to health-related water microbiology including microbial detection methodologies, pathogens inactivation and removal mechanisms during water treatment processes, water quality in water distribution systems and microbial monitoring of source waters. He has developed many new techniques for the detection of viruses, bacteria and parasites in water environments.

Abbaszadegan is a professor of environmental microbiology/engineering and founding director of the National Science Foundation (NSF) Water & Environmental Technology (WET) Center at Arizona State University. The NSF Center provides a platform to address issues as diverse as water quality by capitalizing the strengths of partner organizations. He joined the school in 1999 after spending more than six years as a microbiology research manager in private industry. He developed three different courses for the program including an Environmental Microbiology course (CEE 467/567) for engineers.

Honors and Distinctions:
Abbaszadegan has authored more than 100 research manuscripts, book chapters and reports in the area of environmental microbiology and engineering. He serves as Editor of the Journal of Water and Health, an IWA publishing, and successfully established NSF Centers in Water Quality and Environmental Technology at ASU. He has also served on several national and international committees and currently is the Chair, Section 9510, Detection of Enteric Viruses for Standard Methods. Abbaszadegan received the Outstanding Research Team Award, University of Arizona.

Selected Publications:


Braden Allenby, PhD, JD
President’s Professor, PhD, Rutgers University
Braden.Allenby@asu.edu
(480) 727-8594

Research Expertise: Sustainable engineering, Design for Environment, industrial ecology, engineering and applied ethics, transhumanism and emerging technologies, and earth systems engineering and management

Honors and Distinctions:
Brad Allenby is the Lincoln Professor of Engineering and Ethics, and of Law, past President of the International Society for Industrial Ecology, ex-Chair of the AAAS Committee on Science, Engineering, and Public Policy, Chair of the IEEE Presidential Sustainability Initiative, an AAAS Fellow, an AT&T Industrial Ecology Fellow, a Batten Fellow at Darden Business School at the University of Virginia, and a Fellow of the Royal Society for the Arts, Manufactures & Commerce.

Allenby is also the founding chair of the Consortium for Emerging Technologies, Military Operations, and National Security; founding director of the Center for Earth Systems Engineering and Management.

Selected Publications:

Industrial Ecology and Sustainable Engineering (with Tom Graedel, published by Pearson/Prentice-Hall);
The Theory and Practice of Sustainable Engineering (published by Pearson/Prentice-Hall);
The Techno-Human Condition (published by MIT Press);
The Growing Gap Between Emerging Technologies and Legal/Ethical Oversight (co-edited with Gary Marchant and Joe Herkert, published by Springer).

Samuel Ariaratnam, PhD, PE, P.Eng.
Professor and Construction Engineering Program Chair, PhD, University of Illinois at Urbana-Champaign
araratnam@asu.edu
(480) 965-7399

Research Expertise: Sustainable urban underground infrastructure systems with an emphasis on horizontal directional drilling and trenchless pipe replacement technologies.

Ariaratnam has published over 200 technical papers, holds three patents, co-authored five textbooks, and is active in numerous professional organizations.

In 2003 he was presented with the Young Civil Engineer Achievement Award from the University of Illinois at Urbana-Champaign. He is a past recipient of the John O. Bickel Award from the American Society of Civil Engineers (ASCE) and was named to the Phoenix Business Journal’s prestigious “Top Forty under 40” list in 2006. Currently, he serves as the Chairman of the International Society for Trenchless Technology. Ariaratnam was named the “2012 Trenchless Technology Person-of-the-Year” by Trenchless Technology Magazine.

Ariaratnam is a registered professional engineer in the State of Arizona and the Province of Ontario (Canada).

Selected Publications:

Allan Chasey, PhD, PE
Associate Professor and Program Chair, DEWSC, PhD, Virginia Tech
achasey@asu.edu
(480) 965-7437
Research Expertise: Construction process for high-technology, controlled environment facilities, sustainable construction

Mikhail Chester, PhD
Assistant Professor, PhD, University of California, Berkeley
mchester@asu.edu
(480) 965-7437
Research Expertise: Energy and environmental assessment of large infrastructure systems, transportation systems and cities, evaluating life-cycle and supply chain effects and their associated human and environmental impacts

Oswald W. Chong, PhD, PEng, LEED A.P.
Associate Professor, PhD, University of Texas at Austin
ochong@asu.edu
(480) 727-6547
Research Expertise: Energy modeling and degradation, information technology and system, exergy, project management system, heavy infrastructural system

Selected Publications:

Selected Publications:

Selected Publications:

Selected Publications:

Honors and Distinctions:
Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), International Society of Pharmaceutical Engineers (ISPE), and the Semiconductor Environmental, Safety and Health Assoc. (SESHAA)

Honors and Distinctions:
Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), International Society of Pharmaceutical Engineers (ISPE), and the Semiconductor Environmental, Safety and Health Assoc. (SESHAA)

Honors and Distinctions:
Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), International Society of Pharmaceutical Engineers (ISPE), and the Semiconductor Environmental, Safety and Health Assoc. (SESHAA)

Chasey’s research expands the assessment boundaries of complex systems to understand comprehensive effects of policies and decisions, including infrastructure interdependencies. Ultimately, he is interested in determining the external control and damage costs of these impacts and how internalization of these costs may inform behavioral economics for sustainable policies and decisions. Chester applied these research interests as a consultant for the National Research Council of the National Academies’ Hidden Costs of Energy study.

Chasey is an associate professor and the Program Chair for the Del E. Webb School of Construction. He received his Ph.D. from Virginia Tech, M.S. in Engineering Management from the Air Force Institute of Technology, and B.S. in Civil Engineering from ASU. He is also the Sundt Professor of Alternate Delivery and Sustainable Development.

He serves a Director of CREATE, a research consortium of companies representing the Advanced Technology Facility design and construction industry.

Honors and Distinctions:
Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), International Society of Pharmaceutical Engineers (ISPE), and the Semiconductor Environmental, Safety and Health Assoc. (SESHAA)

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Honors and Distinctions:
Chasey is a registered Professional Civil Engineer in Arizona, an OSHA Construction Outreach Trainer, and a LEED AP. He is a member of the American Society of Civil Engineers (ASCE), the Association for the Advancement of Cost Engineering (AACE), International Society of Pharmaceutical Engineers (ISPE), and the Semiconductor Environmental, Safety and Health Assoc. (SESHAA)

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Mounir El Asmar, PhD
Assistant Professor, PhD,
University of Wisconsin-Madison
melasmar@asu.edu
(480) 727-9023

Research Expertise: Innovative project delivery systems such as integrated project delivery (IPD) and design-build (DB), performance analysis of sustainable construction practices, cost engineering

Mounir El Asmar joined SSEBE in 2012. He holds Ph.D. and M.S. degrees in civil and environmental engineering from the University of Wisconsin-Madison, and a B.E. in mechanical engineering from the American University of Beirut.

El Asmar’s research activities focus on evaluating the performance of sustainable construction, innovative project delivery systems, and cost engineering. He recently completed studies involving the development of conceptual cost estimating tools now required for all high-profile Wisconsin Department of Transportation projects, as well as the development of mathematical models that support decision making for design-build team selection. Most recently, El Asmar completed the first quantitative performance assessment of the emerging Integrated Project Delivery (IPD) system.

El Asmar is teaching classes on innovative project delivery methods and sustainable construction at ASU. He also is the co-director of sustainable construction practices at the National Center for Excellence on SMART Innovations.

Honors and Distinctions:
El Asmar received the American Society of Civil Engineers (ASCE) 2010 Best Paper Award for the Journal of Construction Engineering and Management. He also received awards from the International Association for the Advancement of Cost Engineering in 2011 and the Wisconsin Transportation Builders Association in 2012.

Selected Publications:


James Ernzen, PhD, PE
Associate Professor, PhD,
University of Texas at Austin
james.ernzen@asu.edu
(480) 965-0389

Research Expertise: Concrete materials, production and construction operations; integrated project delivery methods

Jim Ernzen is an associate professor in the concrete construction emphasis area at the Del E. Webb School of Construction. He joined ASU in 1996 after a 21 year career in the Army Corps of Engineers.

Ernzen serves as the Academic Co-chairperson of the Project Delivery Methods Task Force in the Alliance for Construction Excellence where he teaches and performs research in integrated project delivery methods.

In 2004, he brought a new curriculum program to the Construction School entitled Concrete Industry Management. This program was funded with over $1.5M and created a significant industry-academia partnership that brought increased national recognition to DEWSC and formed the foundation for the current concrete construction emphasis area.

Honors and Distinctions:
In 2001 he was selected to participate on an FHWA-AASHTO sponsored International Scanning Tour to investigate innovative contracting methods in Europe. In 2002 he was designated as one of 75 charter Fellows of the Design Build Institute of America. He has received the “Distinguished Service Award” by American Institute of Steel Constructors, and the “Lifetime Achievement Award” from the Arizona Chapter of the American Concrete Institute. From 2005-2009 he was director of the Del E. Webb School.

Selected Publications:


Selected Publications:

Apostolos Fafitis joined the faculty at ASU in 1984. He received his Ph.D. from Northwestern University. Prior to joining ASU, Fafitis worked for 15 years for various structural consulting companies in South Africa, Greece and the USA. He has been involved in the analysis and design of reinforced and prestressed concrete bridges and buildings.

Fafitis’ teaching interests include: statics and strength of materials, reinforced and prestressed concrete design, nonlinear structural analysis and dynamics of structures.

Selected Publications:
Apostolos Fafitis, PhD, PE
Associate Professor, PhD,
Northwestern University
Fafitis@asu.edu
(480) 965-3389

Research Expertise: Constitutive modeling of brittle materials, elasto-plastic behavior of structures, time dependent nonlinear structural analysis and seismic isolation of structures

Selected Publications:
Peter Fox, PhD, PE
Professor and Graduate Chair, PhD, University of Illinois
Peterfox@asu.edu
(480) 965-1734

Research Expertise: Water reuse, biological treatment processes and brine disposal/desalination
Peter Fox has been a faculty member in Civil, Environmental and Sustainable Engineering at ASU for 20 years. He received his Ph.D. in Environmental Engineering from the University of Illinois in 1989, his M.S. in Environmental Engineering from the University of Illinois in 1985 and his B.S. in Chemical Engineering with Honors from the University of Illinois. His professional interests are primarily in water reuse, biological treatment processes and brine disposal/desalination. He has focused his most recent work on physical water treatment systems and sustainable technologies.

Honors and Distinctions:
Fox served on the National Academy of Science ad-hoc committee that published the National Research Council report entitled “Prospects for Managed Underground Storage of Recoverable Water” in 2008. He also authored the groundwater recharge chapter in the Metcalf and Eddy textbook on water reuse. In addition, Fox was an executive committee member for the development of the national roadmap for desalination and water purification. Fox was awarded the Quentin Mees Research Award from the AWWA Association in 1991, 1994, 1997 and 2003. He was awarded the Nathan Burbank Environmental Educator Award in 2013.

Selected Publications:

Matthew Fraser, PhD
Professor, PhD, Caltech
Matthew.fraser@asu.edu
(480) 965-3469

Research Expertise: Urban air quality, sources and control of air pollution, sustainability analysis of energy systems
Matt Fraser is the Executive Director of the Quantum Energy and Sustainable Technologies Engineering (QEST ERC), as well as a Professor in SSEBE and the School of Sustainability at ASU. The QEST ERC is an interdisciplinary team consisting of multiple universities, world-renowned companies, and leading PV entrepreneurs focused on building a strategic partnership to generate innovative solutions to sustainable electricity generation.
As a faculty member, Fraser directs his own research projects on urban air quality. His research focuses on using organic speciation and receptor modeling to apportion ambient pollutants to their original source. Prof. Fraser teaches courses related to energy and the environment.

Fraser received his Bachelors of Science in Chemical Engineering from Carnegie Mellon University and his Masters and Ph.D. in Environmental Engineering Science from Caltech.

Honors and Distinctions:
Presenter "University/City Partnerships in Promoting Urban Sustainability" presentation at the White House Office of Science and Technology Policy Workshop on Energy Efficiency; March 2011, Washington DC.
Panelist at the American Association for the Advancement of Science and Brookings Institute Forum on "Eco-Engineering: Building Sustainable Cities", Washington DC, October 2011.

Selected Publications:

G. Edward (Edd) Gibson, Jr., PhD, PE, NAC
Professor and Director of the School, Sunstate Chair of Construction Management and Engineering, PhD, Auburn University
GEDwardGibsonJr@asu.edu
(480) 965-7972

Research Expertise: Front end planning, alternative project delivery methods, risk management, dispute resolution
Edd Gibson joined ASU and the Del E. Webb School of Construction in August 2009 as its programs chair. He was named director of the School of Sustainable Engineering and the Built Environment in 2011. He is Professor and Sunstate Chair of Construction Management and Engineering in SSEBE.
Gibson has led over $9 million in funded research during his career from sponsors such as NSF, Construction Industry Institute, NRC, Alfred P. Sloan Foundation, and others. He has taught on the university level for over 20 years and has delivered more than 180 short courses to industry, receiving awards for university and continuing education instruction.
Gibson has several years of industry employment experience and is a licensed professional engineer in Texas.

Honors & Distinctions:

Selected Publications:
Honors and Distinctions: Grau graduated with both an MS and a PhD in Civil, Architectural, and Environmental Engineering from The University of Texas at Austin, and with an Industrial Engineering degree from the Universitat Politecnica de Catalunya. Previous to his affiliation with ASU, he taught at The University of Alabama as an Assistant Professor for four years. Currently Grau is a member of ASCE and ASEE professional societies. During his academic career, Grau has been the recipient of numerous teaching and research awards, including the Distinguished Professor Award by the Construction Industry Institute and the Celebration of Engineering & Technology Innovation (CETI) award by FIATECH. Complementing his academic career, he has worked in the private industry for more than seven years as head manager for heavy industrial projects and as director of a large engineering department. He has led large interdisciplinary and multicultural teams to deliver numerous capital projects in South America, Africa, and Europe. Grau holds a professional license as Industrial Engineer in Spain.

Selected Publications:


Rolf Halden, PhD, PE
Professor, PhD, University of Minnesota
Director, Center for Environmental Security
halden@asu.edu
(480) 727-0893

Research Expertise: Environmental monitoring and remediation, wastewater treatment, green chemistry, impact of anthropogenic activities on environmental quality and human health

Rolf Halden is Professor in SSEBE, Director of the Center for Environmental Security at ASU’s Biodesign Institute, and Interim Co-Director of the Center for Health Information and Research. Halden has led over $10M in funded research during his career at Lawrence Livermore National Laboratory, Johns Hopkins University and ASU, with sponsors including the NIH, EPA, DOD and DOE. He has published over 100 peer-reviewed journal articles, reports, book chapters, and patents as well as over 270 conference papers and presentations.

His works include a book on contaminants of emerging concern, the first map of the human cord blood proteome, and the whole genome sequence of a dioxin-degrading bacterium. The devices his team developed for groundwater monitoring and remediation have sparked startup companies and are currently being evaluated at hazardous waste cleanup sites across the nation.

Honors and Distinctions:
Congressional Briefing (2011); Leroy E. Burney Lecturer, Johns Hopkins School of Public Health (2011); Biodesign Impact Accelerator Program, Selected Startup Company, ASU (2010); Award for Research Excellence, Arizona BioIndustry Association’s BIOFEST 2010, Nominee and Finalist (2010); Invited Member of the NRC Committee of the National Academies (2006-07); Food and Drug Administration’s Nonprescription Drugs Advisory Committee (2005); Governor-appointed Maryland State Water Quality Advisory Committee Member (2003-05).

Selected Publications:


Keith Hjelmstad, PhD
Professor, PhD, University of California, Berkeley keith.hjelmstad@asu.edu
(480) 316-5988

Research Expertise: Computational mechanics, earthquake engineering, stability of structures, optimization, structural identification, nondestructive evaluation of large structures, and numerical simulation of complex structures

Keith Hjelmstad is Professor of Structural Engineering in the School of Sustainable Engineering and the Built Environment (SSEBE) in the Ira A. Fulton Schools of Engineering at Arizona State University. Hjelmstad previously served as University Vice President and Dean of the College of Technology and Innovation at ASU. As the Dean he was responsible for the applied science and mathematics, engineering, engineering technology, cognitive science and engineering, and technological entrepreneurship and innovation management programs. As University Vice President, he served on the University leadership team of ASU and he championed further academic development of programs, activities and community relations for the Polytechnic campus.

Honors and Distinctions:
Prior to coming to ASU Hjelmstad was on the faculty at the University of Illinois at Urbana-Champaign for 25 years where he was a professor, associate dean of academic affairs, and a member of the Science Steering Committee of the Center for Simulation of Advanced Rockets. As a professor, he was recognized for his excellence in advising and teaching.

Hjelmstad is the author of the book Fundamentals of Structural Mechanics (Springer, 2/e). He is a member of several professional associations for engineers and serves as associate editor of the Journal of Constructional Steel Research and the ASCE Journal of Structural Engineering.

Selected Publications:


Sandra Houston, PhD, PE
Professor, PhD, University of California, Berkeley
sandrahouston@asu.edu
(480) 965-2790

Research Expertise: Advancement of methodologies for dealing with arid region problem soils, particularly collapsible and expansive soils

Sandra Houston is a long-standing member of the Civil, Environmental and Sustainable Engineering faculty at ASU and former chair of the department. Her primary area of expertise is geotechnical engineering. Houston’s contributions to the field of geotechnical engineering focus on unsaturated soils, including in particular advancement of methodologies for dealing with arid region problem soils, particularly collapsible and expansive soils. She is the regular instructor of undergraduate and graduate level foundation engineering classes and teaches a graduate level course on Unsaturated Soil Mechanics.

A heavy emphasis on the advancement of unsaturated soil mechanics into the practice of geotechnical engineering is evident by her professional service activities, research, and publications.

Honors and Distinctions:
Houston has a long history of leadership in professional society organizations, particularly through participation in the American Society of Civil Engineers (ASCE), the Geo-Institute of ASCE, and the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE).

She is a recipient of the William H. Wisely American Civil Engineer Award, and serves as the chair of the Unsaturated Soils Committee of the Geo-Institute of ASCE, as a member of the ISSMGE Committee on Unsaturated Soils, and as chair of the ASCE Committee on Diversity and Inclusion.

Selected Publications:


Kamil Kaloush, PhD, PE
Associate Professor, PhD, Arizona State University
Kamil.kaloush@asu.edu
(480) 965-5509

Research Expertise: Pavements, materials characterization, crumb rubber applications, Urban Heat Island

Kamil Kaloush is an associate professor in the School of Sustainable Engineering and the Built Environment, affiliate faculty in the School of Sustainability, and Director of the National Center of Excellence on SMART Innovations (www.asuSMART.com). He holds a Ph.D. degree specializing in pavements and materials from Arizona State University. He is a registered Professional Engineer, and has over 25 years of experience in pavement research and management services. His areas of expertise include pavement materials design, thermal properties, advanced laboratory testing, field performance evaluation, and pavement management systems.

Honors and Distinctions:
Kaloush has been recognized with several awards in 2013: Greater Phoenix Area E-Week Outstanding Educator Award, Outstanding Research Award from the Rubber Pavements Association and a finalist, Faculty Excellence Awards – Professor of the Year Nominee at ASU. He was also recognized in the IRF Global Awards for R122 Highway Rehabilitation, Rio de Janeiro, Brazil. Kaloush is the chair of the Transportation Research Board subcommittee on Pavement Materials and the Urban Climate; a member of the Civil Engineering Examination Committee, National Council of Examiners for Engineering and Surveying; Vice Chair of the Technical Advisory Board of the Rubber Pavements Association, and Advisor for the ASU-ASCE student chapter.

Selected Publications:


Dean T. Kashiwagi, PhD, PE
Fulbright Professor, Director, Performance Based Studies Research Group
PhD, Arizona State University
Dean.Kashiwagi@asu.edu
(480) 965-4273
Research Expertise: Supply chain best value procurement risk minimization
Dean Kashiwagi is the worldwide expert in optimizing the delivery of construction and other services using performance information. His structures/processes simultaneously minimize project/risk management functions up to 90%, increased vendor profit as much as 100%, increased performance to 98%, and decrease costs.

Honors and Distinctions:
Kashiwagi is an accomplished author with over 206 refereed conference and journal papers and is a registered engineer in eight states. His research has been recognized by the industry and recently awarded the 2011 Silver Award for Procurement Excellence by NASPO. He was the 2009 International Facility Management Association Educator of the Year. In 2005, he was the recipient of the CoreNet Global Innovation of the Year Award for the research being tested at Harvard University and in 2001 his work received the Pono Technology Award for research work and results in the State of Hawaii. Kashiwagi’s research has also expanded to Finland, Netherlands, Africa, and Malaysia.

Selected Publications:

Edward Kavazanjian, Jr., PhD, PE, NAE
Professor,
PhD, University of California, Berkeley
edkavy@asu.edu
(480) 727-8566
Research Expertise: Biogeotechnical engineering, geotechnical earthquake engineering, waste containment, mechanical properties of municipal solid waste
Edward Kavazanjian is a geotechnical engineer with 20 years of experience in practice and 16 years of teaching and research experience. His research and teaching interests include earthquake engineering, waste containment systems, and biogeotechnical engineering.

Honors and Distinctions:
Professor Kavazanjian was elected to the National Academy of Engineering in 2013. He has been honored by the American Society of Civil Engineers with the Karl Terzaghi Award, the Thomas A. Middlebrooks Award, and the Ralph B. Peck Award. In 2012 he was the recipient of a Community Service Award from the Arizona Pavements and Materials Conference committee. In 2009 he was selected as the Greater Phoenix Area eWeek Engineering Educator of the year. He is lead-author of the Federal Highway Administration guidance document on LRFD Seismic Analysis and Design for Transportation Geotechnical Features and Structural Foundations. He is a Past President of the Geo-Institute of ASCE and sits on the Transportation Research Board Committees on Seismic Design and Performance of Bridges and on Foundations for Bridges and Other Structures. He currently serves on the Board of Directors of the US University Council for Geotechnical Education and Research (USUCGER).

Selected Publications:

Rosa Krajmalnik-Brown, PhD
Assistant Professor,
PhD, Georgia Institute of Technology
Dr.Rosy@asu.edu
(480) 727-7574
Research Expertise: Biotransformation and fate of environmental contaminants, bioremediation of soil, sediments, and groundwater, the use of microbial systems for bioenergy production with an emphasis on environmental applications of molecular microbial ecology
Rosa Krajmalnik-Brown is an assistant professor in Civil, Environmental & Sustainable Engineering (CESE). Before joining CESE she was a postdoctoral researcher at Biodesign working in the Center for Environmental Biotechnology. She received her B.S. (1996) in Industrial Biochemical Engineering from Autonomous Metropolitan University in Mexico City and her M.S. (2000) and Ph.D. (2005) in Environmental Engineering from Georgia Institute of Technology. Another area of research where she applies her molecular microbial ecology expertise is the human intestinal microbial ecology and its relationship to obesity.

Her research has been published in Proceedings of the National Academy of Science, Applied and Environmental Microbiology, Environmental Science and Technology, FEMS Microbiology Ecology and Environmental Microbiology.

Honors and Distinctions:
AEES Outstanding 2003 Ph.D. Candidate in Environmental Engineering Fulbright Scholar 1997-2000
Best GPA of 1996 class “Medalla al Merito Universitario” UAM-I Mexico

Selected Publications:
Amy E. Landis, PhD
Associate Professor, PhD, University of Illinois at Chicago
Amy.Landis@asu.edu
(480) 965-4028
Research Expertise: industrial ecology, byproduct synergies, biofuels for bioremediation on marginal lands, biofuels, biopolymers, development of sustainability metrics, Life Cycle Assessment

Amy Landis is an Associate Professor in Civil, Environmental & Sustainable Engineering (CESE). Before joining CESE in January 2012, she was an Assistant Professor at the University of Pittsburgh’s Department of Civil and Environmental Engineering.

Dr. Landis is dedicated to sustainability engineering education and outreach; she works with local high schools, after school programs, local nonprofit organizations, and museums to integrate sustainability and engineering into the undergraduate curriculum, communities, and K-12 education.

Honors and Distinctions:
Carnegie Science Post-Secondary University Educator Award (2012) and Honorable Mention (2011)

Selected Publications:

Yingyan Lou, PhD
Assistant Professor, PhD, University of Florida
Yingyanlou@asu.edu
480-965-6361
Research Expertise: Transportation network modeling and analysis, optimization of multi-modal transportation networks, transportation operations, implications of emerging technologies and travel behaviors in transportation planning and operations, statistical modeling of transportation safety.

Lou holds a B.S. and a B.A. Econ degree from Beijing University, and received her M.S. and Ph.D. degrees in Civil Engineering from the University of Florida. Before ASU, she worked at the Department of Civil, Construction and Environmental Engineering at The University of Alabama.

Honors and Distinctions:
In 2010, Lou received the Pikarsky Award for Outstanding Ph.D. Dissertations in Science and Technology from the Council of University Transportation Centers. Lou has served on the Editorial Board for four journal and conference publications. She is currently a member of three Transportation Research Board committees (Transportation Network Modeling, User Information Systems, and Highway Safety Performance), and is the vice chair of the Intelligent Transportation Systems Interest Group in the Transportation and Logistics Society of the Institute for Operations Research and Management Sciences. In 2012, she received an Outstanding Area Editor Award for her service to the 2012 COTA International Conference of Transportation Professionals.

Selected Publications:

Michael S. Mamlouk, PhD, PE, FASCE
Professor and CESE Program Chair, PhD, Purdue University
Mamlouk@asu.edu
(480) 965-2892
Research Expertise: Highway materials, pavement design and management, pavement evaluation, pavement maintenance and rehabilitation

Michael Mamlouk has over 30 years of research and teaching experience in the field of pavement/materials engineering. Prior to joining ASU, he worked at the State University of New York at Buffalo for 5 years. He received his Ph.D. degree from Purdue University in 1979.

He recently completed an $840,000 project funded by the National Cooperative Highway Research Program (NCHRP) dealing with the endurance limit of hot-mix asphalt.

Honors and Distinctions:
Mamlouk has published numerous technical papers and is actively involved in professional societies such as ASCE, AAPT, TRB and ASTM. He is the main author of the “Materials for Civil and Construction Engineers” textbook, which has been used by over 135 engineering schools worldwide. He has worked as a consultant and expert witness to many highway agencies and local industry and is a professional engineer in the State of Arizona. He received the community service award at the Arizona Pavements/Materials Conference in 2010.

Selected Publications:
Endurance Limit for HMA Based on Healing Concept Using Uniaxial Tension-Compression Fatigue Test, Accepted for Publication in the ASCE, Journal of Materials in Civil Engineering, (2013).
Larry Mays,
PhD, PE, PH, D.WRE, F.ASCE
Professor, PhD, University of Illinois
Mays@asu.edu
(480) 965-2524

Teaching and Research Expertise:
Hydrosystems engineering
Larry Mays has been a professor at Arizona State University since 1989, and former chair of the department from 1989-1996. He started his academic career at the University of Texas at Austin in 1976, and became Director of the Center for Research in Water Resources in 1988.

Research Expertise:
His areas of research interest are in the study of ancient water systems and the use of optimization methods for the analysis, design and operation of water infrastructure systems to promote water resources sustainability. His research has been published in over 95 refereed journal publications, over 100 proceeding papers, over 70 chapters in books he edited and another invited 8 book chapters. He has mentored 31 Ph.D. students.

Mays is the author, co-author, or editor-in-chief of 23 books including the well-known textbooks Water Resources Engineering; Groundwater Hydrology; Applied Hydrology; Hydrosystems Engineering and Management; and handbooks including Water Resources Handbook; Water Distribution Systems Handbook; Hydraulic Design Handbook; and others.

Honors and Distinctions:
Among his honors is a distinguished alumnus award from the University of Illinois at Champaign-Urbana. He is a Diplomat of the American Academy of Water Resources Engineers, a Fellow of ASCE and IWRA, and a past president of UCOWR.

Selected Publications:


Ground and Surface Water Hydrology, John Wiley and Sons, Inc., Copyright (2012).


Barzin Mobasher, PhD, PE
Professor, PhD, Northwestern University
Barzin@asu.edu
(480) 965-0141

Research Expertise: Mechanics of composite materials, development of new construction materials, durability of building materials, and performance based specifications

Barzin Mobasher, who joined the Ira A. Fulton Schools of Engineering faculty in 1991, has been involved in research and teaching in the area of cement and concrete engineering for more than 25 years. He received his Ph.D. in 1990 from Northwestern University. His specific expertise is in the mechanics of composite materials, the development of new construction materials and the durability of building materials.

Mobasher has published more than 150 peer-reviewed research papers on the mechanics and durability of concrete technology, and has delivered more than 120 technical presentations worldwide.

Honors and Distinctions:
In 2009 Mobasher was selected as a Fellow of the American Concrete Institute (ACI), one of the most prominent organizations in the concrete technology field.

He is a member of the American Society of Civil Engineers (ASCE) and American Ceramic Society and member of the International Editorial Board of Computers and Concrete.

Dr. Mobasher is the author of a recent book “Mechanics of Fiber and Textile Reinforced Cement Composites”, Taylor and Francis Group, CRC press, Sept, 2011, 451 pp. His paper titled: Mechanical behavior of strain-hardening cement-based composites (SHCC) under low and high tensile strain rates was selected among the top three papers in 2011 by the Japan Concrete Institute.

Selected Publications:


Narayanan Neithalath, PhD.
Associate Professor, PhD, Purdue University
Narayanan.Neithalath@asu.edu
(480) 965-6023

Research Expertise: Sustainable construction materials including high volume cement replacement materials for concrete, development of novel materials for desired performance levels such as pervious concretes, cement-free binder systems and lightweight aggregate concretes, and fundamental aspects of proper development in conventional and novel cementitious (and cement-less or alkali activated) systems

Narayanan Neithalath is an Associate Professor in the School of Sustainable Engineering and the Built Environment at Arizona State University. He received his PhD in Civil Engineering (specializing in Concrete Materials) from Purdue University in 2004.

He is also interested in transport properties of concretes, electrical impedance sensing and sensor systems for concrete, and non-invasive and non-destructive testing of concrete. He has published around 100 papers in peer reviewed journals and conference proceedings, and has received several awards for his work on novel concrete materials including the NSF CAREER award, Bengt Friberg award for outstanding paper, and PCA fellowship. (http://faculty.engineering.asu.edu/neithalath)

Honors and Distinctions:
NSF CAREER Award (2008)

Bengt Friberg Award (2005) for the Best Paper by a Young Author – 8th International Conference on Concrete Pavements, Colorado Springs, CO, Portland Cement Association (PCA) Fellowship (2003) for research on Enhanced Porosity Concrete Systems

Associate Editor – Journal of Materials in Civil Engineering

Member of the editorial board of Cement and Concrete Composites

Selected Publications:


Kristen Parrish, PhD
Assistant Professor, PhD, University of California Berkeley
Kristen.Parrish@asu.edu
(480) 727-6363
Research Expertise: Energy-efficiency in commercial buildings, lean construction, integrated project delivery, decision-making systems
Parrish joined the School of Sustainable Engineering and the Built Environment in 2012. She has a Sustainability Scientist appointment in the Global Institute of Sustainability. Previously, she was a Scientific Engineering Associate at the Lawrence Berkeley National Laboratory and a lecturer at the University of California Berkeley. Parrish's work focuses on integrating energy efficiency measures into building design, construction, and operations processes. Specifically, she is interested in novel design processes that financially and technically facilitate energy-efficient buildings. Her work also explores how principles of lean manufacturing facilitate energy-efficiency in the commercial building industry, through lean construction and innovative project delivery methods. Another research interest of Kristen's is engineering education, where she explores how project- and experience-based learning foster better understanding of engineering and management principles.
Kristen serves as the Faculty Adviser for the Construction Team of the Arizona State University-University of New Mexico Solar Decathlon team.
Honors and Distinctions:
Parrish received a Celebration of Engineering & Technology Innovation (CETI) award from FAITECH in 2007. She was awarded an Outstanding Performance Award at Lawrence Berkeley National Laboratory in 2010, and in 2012, she was awarded the Best Mentor Award for her work with Technovation, a program that seeks to develop math and science skills in high school girls.
Selected Publications:

Ram Pendyala, PhD.
Professor, PhD, University of California, Davis
ram.pendyala@asu.edu
(480) 727-9164
Research Expertise: Development and application of new methods for modeling and forecasting transportation demand and system performance under a wide variety of socio-economic, modal, and land use scenarios
Ram Pendyala joined ASU in 2006 after spending 12 years on the faculty at the University of South Florida. He received his Ph.D. from the University of California at Davis in 1992.
Pendyala teaches courses in transportation engineering, transportation systems analysis and modeling, and public transportation planning and design. He has conducted more than $5 million in sponsored research over the past 20 years for a variety of agencies including Federal Highway Administration, National Science Foundation, Florida Department of Transportation, Maricopa Association of Governments, Southern California Association of Governments, and Baltimore Metropolitan Council.
Honors and Distinctions:
Pendyala is currently Chair of the Transportation Research Board’s Travel Analysis Methods Section and Past Chair of the International Association for Travel Behavior Research. He has published more than 100 articles in refereed journals, books, and conference proceedings. Pendyala has mentored over 50 M.S. and Ph.D. students.
Selected Publications:

Subramaniam (Subby) Rajan, PhD
Professor, PhD, University of Iowa
S.Rajan@asu.edu
(480) 965-1712
Research Expertise: Finite element based design optimization, parallel computations, constitutive material modeling
Subby Rajan's teaching and research interests include solid mechanics with emphasis on constitutive modeling, finite element analysis, design optimization and high-performance software development. Currently he is working on research projects sponsored by the Federal Aviation Administration (FAA), the Army Research Office (ARO) and local industries. These projects involve characterization of materials for blast and ballistic mitigation, development of constitutive models and computer simulations, and design optimization to reduce the weight, thickness and cost of body, vehicle and aircraft armor.
Honors and Distinctions:
Rajan's awards include Outstanding Engineering Educator of the Year awarded during Greater Phoenix Area Engineer’s Week and Top Five Percent Faculty Award from Ira A. Fulton School of Engineering. He is a member of the Educator Advisory Board for the Kno Corporation, Board member for the Resource Center for Global Ecohappiness and Faculty Expert for the Indo-US Collaboration for Engineering Education.
Selected Publications:
T. Agami Reddy, PhD, PE
Professor, PhD, Thermodynamics and Energy Laboratory,
University of Perpignan, France
T.Agami.Reddy@asu.edu
(480) 727-7417

Research Expertise: Sustainable energy, building energy data analytics and knowledge extraction for efficient operation of building energy systems, green building technologies and solar systems

Honors and Distinctions:
Reddy is SRP Professor of Energy and Environment with joint faculty appointments with The Design School and the School of Sustainable Engineering and the Built Environment. He also holds courtesy teaching appointments in the School for Engineering of Matter, Transport and Energy and the School of Sustainability. Reddy is a licensed mechanical engineer, a Fellow of the American Society of Mechanical Engineers (ASME) and the American Society of Heating Refrigerating and Air-conditioning Engineers (ASHRAE), former Chair of the ASME Solar Energy Division, and incoming Chair of the ASHRAE Research Committee.

Books:

Selected Publications:

Bruce Rittmann, PhD, NAE
Regents’ Professor, PhD, Stanford University Director, Swette Center for Environmental Biotechnology
Rittmann@asu.edu
(480) 727-0434

Research Expertise: Environmental biotechnology, or managing microorganisms to provide services to society
The services include bioremediating pollution of water and soil, and generating renewable bioenergy. This highly inter-disciplinary research links engineering fundamentals with microbial ecology, biochemistry, genetics, geochemistry, and materials.

Honors and Distinctions:
Rittmann’s awards include membership in the National Academy of Engineering (NAE), Distinguished Member of ASCE, a Fellow of the AAAS and the IWA, the Huber and Freese Awards from the ASCE, and appointment as a Regents’ Professor at ASU. He has more than 510 publications and is on the ISI’s List of Most Highly Cited Researchers.

Selected Publications:


Thomas P. Seager, PhD
Associate Professor, PhD, Clarkson University
thomas.seager@asu.edu
(480) 727-0531

Research Expertise: ultra-low energy community infrastructure, ethics education and life-cycle environmental implications of single-walled carbon nanotubes in energy applications

Tom Seager joined the School of Sustainable Engineering and the Built Environment in August 2010. Seager is formerly a founding faculty member at the Golisano Institute for Sustainability at Rochester Institute of Technology and led development of their PhD curriculum in sustainability.

He works at the leading edge of an integrative, transdisciplinary approach to engineering education and research and is currently leading projects related to ultra-low energy community infrastructure, ethics education for science and engineering graduate students, and the life-cycle environmental implications of single walled carbon nanotubes in energy applications.

Selected Publications:


Kenneth T. Sullivan, PhD, MBA
Associate Professor, PhD,
University of Wisconsin-Madison
Kenneth.Sullivan@asu.edu
(480) 965-4213

Research Expertise:
performance measurement and best value concepts to increase business efficiency and to minimize risk

Kenneth Sullivan has conducted his research across the project life-cycle including design, construction, and facility management. The research is applied at both organization and project levels, including contracts, risk management, project management, and accountability systems. ASU has applied many of his concepts internally and estimates a value impact of over $10M/year due to the realized efficiencies.

Honors and Distinctions:
Sullivan has a PhD, MS, and BS in Civil and Environmental Engineering and a MBA in Real Estate and Urban Economics all from the University of Wisconsin-Madison. Top 5% of Engineering Faculty Award 2009, Deputy Director of the PBSRG, Director of FMRI, Research Secretariat for CIB W117-Performance Measurement in Construction.

Selected Publications:


Pingbo Tang, PhD
Assistant Professor, PhD,
Carnegie Mellon University
tangpingbo@asu.edu
(480) 727-8105

Research Expertise: Automated As-Built Building Modeling and Spatial Analysis, Construction and Facility Management, 3D Imaging for Quality Control, Quality Assessment of BIM and Spatial Data, Scientific Workflow and Urban Systems Engineering

Honors and Distinctions:
Tang won one of the best paper awards of Construction Research Congress, ASCE, 2009, the best poster award of Construction Industry Institute’s 2011 Annual Conference, and the 2013 CEE Recent Alumnus Achievement Award of Carnegie Mellon University. He serves as a member of TRB Committee on Bridge Management, ASCE, and ASTM Committee E57 (3D imaging systems). Tang is an associate editor of ASCE Journal of Computing in Civil Engineering.

Selected Publications:


B. Shane Underwood, PhD
Assistant Professor, PhD,
North Carolina State University
Shane.Underwood@asu.edu
(480)965-1097

Research Expertise: Pavement materials characterization and design, performance modeling with multiscale constitutive techniques, advanced laboratory testing of construction materials, sustainable pavement strategies

Honors and Distinctions:
Underwood is a member of ASCE and TRB where he participates in the Engineering Mechanics Institute and Characteristics of Asphalt Paving Mixtures to Meet Structural Requirements committee respectively. He has received several fellowships and scholarships in support of his research including the prestigious Dwight D. Eisenhower Graduate Research Fellowship. His work has been published in more than 40 peer reviewed journal papers and conference proceedings.

Selected Publications:

Underwood, B.S., C.M. Baek, and Y.R. Kim (2012). “Use of Simplified Viscoelastic Continuum Damage Model as an Asphalt Concrete Fatigue Analysis Platform,” Transportation Research Record: Journal of the Transportation Research Board. Accepted for publication.


Enrique Vivoni is well known for his research in hydrology and its linkages with ecological, atmospheric and geomorphologic processes. As a surface hydrologist, he performs research in hydrometeorology, ecohydrology, geomorphology and surface-groundwater interactions. His teaching is centered on engineering hydrology, watershed modeling and ecohydrology.

Honors and Distinctions:
Vivoni is the recipient of several awards including the Presidential Early Career Award for Scientists and Engineers (2008), the U.S. Fulbright-Garcia Robles Scholarship (2009) and the Kavli Science Fellowship (2010). He is an active member of the American Geophysical Union, American Society of Civil Engineers and American Meteorological Society. Vivoni is a Senior Sustainability Scientist in the Global Institute of Sustainability at ASU and holds a joint appointment in the School of Earth and Space Exploration.

Selected Publications:


Zhihua Wang, PhD
Assistant Professor, PhD, Princeton University zhwang@asu.edu
(480) 727-2933

Research Expertise:
Sustainable urban environment under the changing climate

Wang conducts research in urban meteorology and hydrology, including soil-land-atmosphere-climate interactions, turbulent transport of energy and water, mitigation strategies of urban heat island effect, and the long-term sustainability of cities.

Honors and Distinctions:
Wang is an active member of the American Meteorological Society (AMS), American Geophysical Union (AGU), American Physical Society (APS) and International Association for Urban Climate (IAUC).

Selected Publications:


Paul Westerhoff, PhD, PE
Professor, SSEBE, Associate Dean of Research, IAFSE, PhD, University of Colorado pwesterhoff@asu.edu
(480) 965-2885

Research Expertise:
detection and treatment of emerging pollutants in water and wastewater

Paul Westerhoff has a strong publication and research record, has garnered wide recognition for his work related to treatment and occurrence of emerging contaminants in water, and has been active in multidisciplinary research. He has lead research funded by WRF, WERF, USEPA, NSF, and local organizations investigating the fate of nanomaterials in water, use of nanomaterial-based technologies for water and reuse treatment, reactions and fate of oxo-anions (bromate, nitrate, arsenate) during water treatment, characterization, treatment and oxidation of natural organic matter in watersheds, formation of disinfection by-products, removal of taste and odor micropollutants.

Selected Publications:


A faculty member of ASU since 1995, Avi Wiezel holds a M.Sc. degree in structural engineering and a M.Sc. and Ph.D. in building science.

Prior to becoming a professor, Wiezel held several managerial positions with construction and engineering firms in Europe and the Middle East. His activities resulted in continuous productivity improvements averaging 15% per year for the units in which he was in charge. Wiezel taught in four languages on three continents (Asia, Europe, and America) to students of all levels, ranging from vocational education to doctoral students.

Wiezel is a true interdisciplinary researcher, with interests ranging from computer modeling of human skills in construction, to engineering education, and leadership. He served as the President of the Faculty Senate in the School of Engineering and as the Chair of the Education Committee of the Technical Council on Computers and Information Technology (TCCIT) in the American Society of Civil Engineers (ASCE).

Honors and Distinctions:
Wiezel ranks among the top 5% of best teachers in the Ira A. Fulton Schools of Engineering and is the recipient of the Outstanding Faculty Member Award. He served as the Coordinator of Construction Graduate Studies and the Interim Chairman of the Del E. Webb School of Construction Management Programs.

Selected Publications:

Claudia E. Zapata, PhD
Assistant Professor, PhD, Arizona State University claudia.zapata@asu.edu (480) 727-8514

Research Expertise: Characterization and modeling of fluid flow and volume change behavior of unsaturated soils and lab/field instrumentation

Claudia Zapata received her PhD from Arizona State University in 1999. She has particularly focused on the characterization of problem soils; applications related to the behavior of pavement subgrades due to dynamic loading and environmental conditions; and the assessment of fluid flow and volume change of soils under slabs on-ground residential foundation systems.

She has actively participated in several NCHRP research projects, including the development of the Mechanistic-Empirical Pavement Design Guide; the development of models to incorporate environmental effects into current pavement design practice; and the creation of a national database of unsaturated soil properties. She has also worked on NSF projects related to the determination of unsaturated properties of cracked clay soils, and characterization/modeling of swell behavior of expansive soils.

Honors and Distinctions:
She is the author of more than 40 technical papers and multiple research reports in the areas of unsaturated soil mechanics, expansive soil behavior, environmental effects in pavement design, and prediction of unbound material behavior.

Selected Publications:

Xuesong Zhou joined the School of Sustainable Engineering and the Built Environment at Arizona State University in 2013. Previously, he was an associate professor at University of Utah.

Dr. Zhou's research work focuses on dynamic traffic assignment, traffic estimation and prediction, large-scale routing and rail scheduling. He has been assisting the Federal Highway Administration (FHWA) to develop and provide technical support for large-scale simulation-based dynamic traffic assignment systems, for the past 10 years. He is the Co-Chair of the IEEE ITS Society Technical Committee on Traffic and Travel Management, Public Relations Officer for Institute for Operations Research and the Management Sciences, Railway Applications Section (RAS). He also serves as the Chair for the Network Equilibrium Modeling Subcommittee in TRB Committee on Transportation Network Modeling (ADB30). He is also the co-inventor of Key2SafeDriving technologies, which has been reported by more than 300 media outlets including New York Times, Wall Street Journal and National Public Radio.

Honors and Distinctions:
Zhou and his students received the Best Paper Award in the 15th IEEE International Intelligent Transportation Systems Conference for a paper on data-driven car-Following model for predicting the safety effects of distracted driving in 2012.

Selected Publications:
Research faculty

**Absar Alum, PhD**  
University of Arizona  
Assistant Professor Research,  
Civil, Environmental & Sustainable  
Engineering  
alum@asu.edu  
(480) 965-6268  
**Expertise:** Health related  
environmental microbiology, microbial  
pathogen survival and detection, and  
endocrine disrupting chemicals in water

**Paul Dahlen, PhD**  
Arizona State University  
Assistant Research Professor,  
Civil, Environmental & Sustainable  
Engineering  
Paul.Dahlen@asu.edu  
(480) 965-0055  
**Expertise:** Assessment and  
remediation of hydrocarbon  
impacts to soil/groundwater

**Thomas Schleifer, PhD**  
Heriot-Watt University, Scotland  
Assistant Research Professor,  
Del E. Webb School of Construction  
Thomas.schleifer@asu.edu  
(480) 945-7680  
**Expertise:** Construction  
management and economics

**Robert Stirling, MBA**  
Duke University  
Research Technologist (Techno-Economics Analyst),  
Swette Center for Environmental Biology  
Robert.stirling@asu.edu  
**Expertise:** Startup technology  
marketing expertise;  
entrepreneurship, including new  
product modeling techniques,  
licensing practices and product  
development practices

**Della M. Roy, PhD, NAE, WAC**  
Research Professor, part-time joint  
appointment in the School of Sustainable  
Engineering and the Built Environment  
and the School of Mechanical, Aerospace,  
Chemical and Materials  
Della.Roy@asu.edu  
(818) 865-1196  
**Expertise:** Materials synthesis, processing  
characterization in inorganic, ceramic,  
cement and mineral systems

Lecturers

**Amie Baisley, MS**  
Arizona State University  
Lecturer,  
Amie.baisley@asu.edu  
Teaching focuses on the engineering  
mechanics courses. Research areas  
include design optimization and finite  
element analysis.

**Aaron Cohen, MS, CPC**  
DePaul University  
Associated General Contractors (AGC)  
Lecturer  
Aaron.cohen@asu.edu  
(480) 965-6628  
Teaching focuses on courses in the  
heavy/civil concentration for the  
DEWSC Construction Management  
degree program.

**Kraig Knutson, PhD**  
Arizona State University  
Senior lecturer in the DEWSC program,  
Kraig.knutson@asu.edu  
(480) 965-1402  
Teaching and research include  
historical construction methods,  
infrastructure security and application  
of industrial engineering techniques to  
construction processes.
Lecturers

Christopher Lawrence, PhD
Arizona State University
Lecturer in CESE and DEWSC programs,
Chris.lawrence@asu.edu
(480) 965-2893
Teaching areas include engineering mechanics, civil engineering materials, geotechnical engineering and civil engineering project management. Research and engineering focus on unsaturated soils theory and the design, development and fabrication of advanced soil testing systems.

Edwin C. Weaver, BS, MCE, PE
North Carolina State University
Senior Lecturer in DEWSC program,
Edwin.weaver@asu.edu
(480) 965-8366
Teaches and develops graduate and undergraduate courses in the concrete construction safety and project management and Construction Management degree programs
Research Areas of Interest: Contracts and specifications for concrete construction, concrete paving for airfields and roadways and safety during concrete and masonry construction operations.

Staff Awards

Each year the Ira A. Fulton Schools of Engineering recognize the outstanding work of Fulton Engineering staff through the IMPACT and Fulton Difference awards. The teamwork award which recognizes a team that strives for the highest possible standards and distinguishes themselves by exemplifying teamwork, communication and positive interaction was won by the Fulton Research Advancement team. Nancy Osgood, research advancement administrator in SSEBE, is a member of the team.

SSEBE Adjunct/Affiliate Faculty and Faculty Associates

Christopher Aulerich, Faculty Associate, Construction
Edward Fancher, Faculty Associate, Construction
Mark Felder, Faculty Associate, Construction
Danielle Feroleo, Faculty Associate, Construction
Samuel Hanna, Faculty Associate, Civil, Environmental & Sustainable
Shawn Morman, Faculty Associate, Construction
Eric Petrie, Faculty Associate, Construction
Matthew Pierce, Faculty Associate, Construction
David Sabers, Faculty Associate, Civil, Environmental & Sustainable
Michael Smith, Faculty Associate, Construction
Clinton Wilkins, Faculty Associate, Construction

This year Soyoung Ahn, assistant professor in CESE, accepted a position with the University of Wisconsin-Madison in the Department of Civil and Environmental Engineering. We wish to thank Sue for her hard work and dedication in supporting the CESE transportation program over the past year. We wish her well in her new position.