The Department of Civil, Architectural and Environmental Engineering at Missouri S&T has a rich tradition of preparing the best “street-ready” engineers to address global challenges.

With our world-class facilities, renowned researchers and dedicated faculty, we are proud to be the only civil engineering program in Missouri to have been ranked as a top 25 undergraduate program by U.S. News & World Report. Educated in specialized areas such as materials, geotechnical and water resources engineering, and pollution control, our graduates recognize the importance of improving our national security, safeguarding human health and maintaining our country’s aging infrastructure.

By integrating research and teaching, our graduates will be equipped to excel in an ever-changing world. Whether they are designing an infrastructure with a zero energy footprint, bringing clean water to a remote village, leading a multinational team of social entrepreneurs, or building a suspension bridge with advanced engineering materials, they will have the flexibility, fluency and foresight to lead.

You are invited to browse the following pages and to discover the many accomplishments of our outstanding faculty and students.

"Investing in our faculty is a top priority. Our outstanding instructors and researchers are critical to our success as a university."

— S&T Chancellor Cheryl B. Schrader
**Dan Abbott**
*Lecturer, Mechanics*
*Education: M.S., Mechanical Engineering, Missouri University of Science and Technology*

**Bate Bate, Ph.D.**
*Assistant Professor, Geotechnical Engineering*
*Education: Ph.D. Civil Engineering, Georgia Institute of Technology*
*Research Interests: Bender element study on Vs anisotropy of geomaterials, Spectral induced polarization in geomaterials, Complex dielectric conductivity of surfactant modified soils, High volume reuse of fly ash in geotechnical engineering, Effects of biopolymers on the water retention behavior (soil water characteristic curve)*

**Stuart Baur, Ph.D., A.I.A.**
*Assistant Chair, Architectural Engineering, Assoc. Professor, Architectural Engineering*
*Education: Ph.D. Civil Engineering, Missouri University of Science and Technology*
*Research Interests: Design cost effective clean alternative energy, Develop new building technologies and practices through the use of materials and methodology, Generate intelligent responsive building systems*

**Jerry Bayless, P.E., FASCE**
*Associate Professor, Civil Engineering*
*Education: M.S. Civil Engineering, Missouri University of Science and Technology*
*Courses Taught: Structural Analysis, Reinforced Concrete Design, Elementary Fluid Mechanics*

**Joel Burken, Ph.D., P.E., BCCE, AAEE**
*Assoc. Department Chair, Civil, Architectural and Environmental Engineering Professor, Environmental and Civil Engineering*
*Education: Ph.D. Civil and Environmental Engineering, University of Iowa*
*Research Interests: Phytoforensics, Phytoremediation and natural treatment systems, Biological wastewater treatment, Constructed wetlands, Green remediation*

**Genda Chen, Ph.D., P.E., FASCE**
*Robert W. Abbott Distinguished Professor, Civil Engineering*
*Education: Ph.D. Civil Engineering, State University of New York at Buffalo*
*Research Interests: Structural health monitoring, Interface mechanics and deterioration of composite structures, Adaptive passive dampers and systems, Multi-hazards assessment and mitigation, Forensic study, Seismic analysis and retrofit, Soil-structure interaction, Bridge engineering*

**Wen Deng, Ph.D.**
*Assistant Professor, Geotechnical Engineering*
*Education: Ph.D. Geosciences, Iowa State University*
*Research Interests: Multiphase flow, Chemical and thermal transport, Microbial growth in porous and fractured media, Areas of geo-energy recovery, Waste sequestration, Environmental remediation*

**Mohamed ElGawady, Ph.D.**
*Associate Professor, Structural Engineering*
*Education: Ph.D., Structural Engineering, Swiss Federal Institute of Technology (EPFL) Lausanne, Switzerland*
*Research Interests: Seismic behavior of unreinforced masonry (URM) structures, Application of Fiber Reinforced Polymers (FRP) in strengthening and repair of masonry/reinforced concrete structures, Seismic behavior of reinforced concrete bridges, Damage-free bridge columns, Segmental construction, Rocking mechanics and the use of sustainable materials in seismic prone regions*

**Dimitri Feys, Ph.D.**
*Assistant Professor, Materials Engineering*
*Education: Ph.D., Civil Engineering, Ghent University, Ghent, Belgium*
*Research Interests: Behavior of highly workable concrete in the fresh state, Rheology of complex materials and suspensions, Suspension flow and sedimentation, Fluid mechanics and flow modeling, Concrete made with recycled materials and advanced sustainability*

**Mark Fitch, Ph.D.**
*Assistant Chair, Environmental Engineering Assoc. Professor, Environmental Engineering*
*Education: Ph.D. Chemical Engineering, University of Texas at Austin*
*Research Interests: Constructed wetlands/ Biochemical reactors for metals removal, Biofiltration/Membrane biofiltration, Nutrient uptake in streams*
Kamal Khayat, Ph.D., P.E., F.ACI
Vernon and Maralee Jones Professor, Materials Engineering
Director, Center for Infrastructure Engineering Studies
Director, Center for Transportation Infrastructure and Safety

Education: Ph.D. Civil Engineering, University of California, Berkeley
Research Interests: Design and performance of advanced structural materials, including high-performance concrete with adapted rheology, self-consolidating concrete and specialty grouts, Repair and rehabilitation of civil engineering infrastructure, Rheology and workability of cement grout, mortar and concrete, Physico-chemical interaction of chemical admixtures and modern hydraulic binders, Microstructure and properties of cement-based materials, Mechanical properties, visco-elastic properties and structural performance of specialty concrete, Durability and deterioration of cement-based materials in aggressive environments, Use of chemical admixtures, supplementary cementitious materials and fibers in concrete

Cesar Mendoza, Ph.D.
Associate Professor, Water Resources Engineering

Education: Ph.D. Civil Engineering, Colorado State University
Research Interests: Hydraulics, Hydrology, Fluid mechanics, Sediment transport, Stream mechanics, Environmental hydraulics, Mathematical modeling

Glenn Morrison, Ph.D., F.ISIAQ
Professor, Environmental Engineering

Education: Ph.D. Civil Engineering, University of California, Berkeley
Research Interests: Indoor air pollution, Indoor surface chemistry, Pollutant transport, Exposure analysis, Building science

NEW FACULTY:
• Wen Deng, Geotechnical Engineering
• Hefu Pu, Geotechnical Engineering
• Julian Wang, Architectural Engineering
• Grace Yan, Structural Engineering

John Myers, Ph.D., P.E., F.ACI, FASCE
Professor, Structural Engineering
Associate Dean for Academic Affairs, College of Engineering and Computing
Director, Structural Engineering
High-Bay Laboratory

Education: Ph.D. Civil Engineering, University of Texas at Austin
Research Interests: Structures/high performance concrete (HPC) behavior and durability performance, Fiber-reinforced polymers (FRP) in structural repair and strengthening applications with an emphasis related to concrete and masonry structures, and their durability performance, Development of environmentally sensitive construction materials, Hybrid materials and enhanced systems for blast resistant structures

Daniel Oerther, Ph.D., P.E., BCEE, AAEE, FASCE
John & Susan Mathes Professor, Environmental Engineering

Education: Doctor of Philosophy, University of Illinois, Urbana
Research Interests: Environmental biotechnology, Urban sustainability, Global development

Timothy Philpot, Ph.D., P.E.
Associate Professor, Structural Engineering

Education: Ph.D. Civil Engineering, Purdue University
Research Interests: Development of interactive educational software for the introductory engineering mechanics courses

Hefu Pu, Ph.D.
Assistant Professor, Geotechnical Engineering

Education: Ph.D. Geotechnical Engineering, University of California, San Diego
Research Interests: Energy-related geo-engineering, Coupled thermo-hydro-mechanical analysis, Numerical simulation in geomechanics, Ground improvement, Slope stability and retaining walls, Coupled flow and contaminant transport in deformable porous media Geo-environmental remediation

David Richardson, Ph.D., P.E.
Associate Professor, Materials Engineering

Education: Ph.D. Civil Engineering, Missouri University of Science and Technology
Research Interests: Properties of pavement materials (asphalt, concrete, granular base, stabilized soil, subgrades), Properties of building materials (concrete, masonry, aggregate), Pavement design and analysis, Materials testing (methods and evaluation)
William Schonberg, Ph.D., P.E., FASCE, FASME, Assoc F.AIAA
Department Chair, Civil, Architectural and Environmental Engineering
Professor, Aerospace Engineering
Education: Ph.D. Civil Engineering, Northwestern University
Research Interests: Armor/anti-armor and penetration mechanics, Spacecraft vulnerability/survivability, Spacecraft shielding against meteoroid and orbital debris impacts, Hypervelocity impact phenomena, Building collapse/rubble modeling

Eric Showalter, Ph.D., P.E.
Associate Teaching Professor, Construction Engineering
Education: Ph.D. Civil Engineering, Purdue University
Research Interests: Information technology applications in construction, Environmental remediation, Productivity simulation, Cost effectiveness of technology

Lesley Sneed, Ph.D., P.E.
Associate Professor, Structural Engineering
Education: Ph.D. Civil Engineering, Purdue University
Research Interests: Reinforced and prestressed concrete structural members and systems, Structural models and experimental methods, Innovative methods of repair and strengthening of structures subjected to seismic loading or other extreme hazards, Structural hazard mitigation, Design codes and construction specifications for structural concrete

Richard Stephenson, Ph.D., P.E.
Chancellor's Professor, Geotechnical Engineering
Education: Ph.D. Civil Engineering, Oklahoma State University
Research Interests: Foundation design, Engineering behavior of soils, Embankment dams, Foundation engineering, Geotechnical engineering

Jianmin Wang, Ph.D., P.E.
Associate Professor, Environmental Engineering
Education: Ph.D. Civil Engineering, University of Delaware
Research Interests: Sustainable technologies for advanced wastewater treatment, Synergistic toxic effect of nanoparticles and heavy metals, Fate and transport of heavy metals in natural and engineered systems

Julian Wang, Ph.D.
Assistant Teaching Professor, Architectural Engineering
Education: Ph.D. Architecture, Texas A&M University
Research Interests: Building science and technology, Sustainable building design, Smart building and envelopes, BIM and Healthcare design

Grace Yan, Ph.D.
Assistant Professor, Structural Engineering
Education: Ph.D. Engineering Mechanics, Harbin Institute of Technology, China
Research Interests: Resilient infrastructural systems in multi-hazard environments, Structural health monitoring, Structural damage detection, Wireless sensor networks, Advanced signal processing, Nonlinear system identification and damage detection, Model updating of structural FEMs, Structural vibration control, Smart materials and structures

“LIKE” our FACEBOOK page
You never know what you will find: contests, news, event photos, alumni connections and more!
www.facebook.com/MissouriSandTCArE

FACULTY PROMOTIONS:
• Genda Chen, Robert W. Abbett
  Distinguished Chair in Civil Engineering
• Lesley Sneed, Associate Professor of Civil Engineering

Bate, B., and Burns, S.E., "Complex Dielectric Permittivity of Organically Modified Bentonite Suspensions (0.2 - 1.3 GHz)," **Canadian Geotechnical Journal**, Vol. 51, pp. 782-794, 2014.


(continued on next page)


Pictured below: Dr. Mohamed ElGawady and staff test a Hollow Core FRP-Concrete-Steel Column in the High Bay Laboratory. Department of Bridge Office Engineers from MoDOT were onsite for the testing.


(continued on next page)


**Myers, J.J.**, “Use of Self-Consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVAC) For A Bridge Implementation,” American Concrete Institute Fall Conference, (Co-presenter), Washington DC, October, 2014.  

**Myers, J.J.**, “Use of Passive and Wireless-Based RFID Sensors to Measure Chloride Ingress in Concrete,” American Concrete Institute Fall Conference, (Co-presenter), Washington DC, October, 2014.  


Carloni, C., Sneed, L.H., D’Antino, T., and Pellegrino, C., “Experimental Investigation of FRCM-Concrete Joints Subject to Fatigue and Post-Fatigue Quasi-Static Monotonic Loadings,” American Concrete Institute Fall 2014 Convention, Washington, D.C., October, 2014.


Technical Reports


---

Missouri S&T’s Big Beam Team

Missouri S&T’s Big Beam Team

Pictured from left to right:
Dr. John Myers (team co-advisor), Eli Hernandez, Hayder Alghazali and Kaylea Smith. Not pictured is Alex Griffin.

---

Space Debris

Dr. William Schonberg discussed the dangers of space debris in October at the Saint Louis Zoo.
The lecture was sponsored by the Academy of Science of St. Louis.
**Contracts, Grants & Fellowships**


**Khayat, K.H.** (PI), “RE-CAST: Economical and Crack-Free High Performance Concrete with Adapted Rheology,” Department of Transportation, May 2014 to December 2016; $80,000.


**Khayat, K.H.** (PI), “MoDOT: Economical and Crack-Free High Performance Concrete with Adapted Rheology,” Missouri Department of Transportation, July 2014 to June 2016; $80,000.


**Khayat, K.H.** (PI), “RE-CAST/Ultra-High Performance Fiber-Reinforced Concrete (UHPFRC) for Infrastructure Rehabilitation-Khayat,” Missouri Department of Transportation, June 2014 to June 2017; $ 90,000.


**LaBoube, R.** (PI), and Yu, W.-W. (Co-PI), “Center for Cold-Formed Steel Structures,” Metal Construction Association, January 2014 to December 2014; $5,000.

**LaBoube, R.** (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Metal Building Manufacturers Association, January 2014 to December 2014; $5,000.

**LaBoube, R.** (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Metal Building Manufacturers Association, January 2014 to December 2014; $5,000.
LaBoue, R. (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Metal Building Manufacturers Association, January 2014 to December 2014; $5,000.

LaBoue, R. (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Steel Deck Institute, January 2014 to December 2014; $5,000.

LaBoue, R. (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Metal Building Manufacturers Association, January 2014 to December 2014; $5,000.

LaBoue, R. (PI), and Yu, W.-W. (Co-PI), “Wei-Wen Yu Center for Cold-Formed Steel Structures,” Metal Building Manufacturers Association, January 2014 to December 2014; $52,500.


Sneed, L.H. (PI), “Shear Friction of Lightweight Aggregate Concrete,” Precast/Prestressed Concrete Institute, August 2014 to April 2016; $43,025.

Sneed, L.H. (PI), “Shear Friction of Lightweight Aggregate Concrete,” American Concrete Institute, August 2014 to February 2016; $10,000.


Graduate Students

Master of Science (with thesis)

Al-Karawi, S., “Comparison of Cost of Personal Protective Equipment for All Workers to Avoid Costs of Fall Accidents,” Advisor: W.E. Showalter


Griffin, A., “Shear Behavior of High Strength Self-Consolidating Concrete in NU Bridge Girders,” Advisor: J.J. Myers


Steele, A., “Bond Performance of Recycled Aggregate Concrete,” Advisor: J.S. Volz

Stuckmeyer, M., “Two Driven Pile Load Tests for Use in Missouri LRFD Guidelines,” Advisor: R. Luna

Voth-Gaeddert, L., “Assessment of Contributing Factors to the Reduction of Diarrhea in Rural Communities,” Advisor: D.B. Oerther

Zhao, X., “Measurements and Transient Multistep Outflow Simulation for Soil-Water Characteristic Curve (SWCC) for Soils Modified with Biopolymers,” Advisor: B. Bate

Doctor of Philosophy


Limmer, M., “Plant Uptake of Environmental Contaminants: Applications in Phytoscreening,” Advisor: J.G. Burken

Wu, C., “A Unified Bond Theory, Probabilistic Meso-Scale Modeling, and Experimental Validation of Deformed Steel Rebar in Normal Strength Concrete,” Advisor: G. Chen

Yang, Y., “Seismic Repair of Bridge Columns with Interlocking Spirals and Fractured Bars,” Advisor: L.H. Sneed
Honors & Other Recognition

AWARDS


Burken, J.G., Faculty Research Award, Missouri University of Science & Technology, 2014.


Fitch, M., Joseph H. Senne, Jr., Faculty Achievement Award, Academy of Civil Engineers, Missouri S&T, Rolla, MO, 2014.

Fitch, M., Best Reviewer Award, Air & Waste Management Association, 2014.

Khayat, K.H., ACI Arthur R. Anderson Medal for “energy and perseverance in developing and sustaining world-class research facilities and for solving highly significant problems on concrete design, materials, and construction,” American Concrete Institute, August 2014.

Khayat, K.H., The G.H. Tattersall Award for “sustaining and outstanding contributions in the area of sustainability and durability of concrete,” Reykjavik, Iceland, November 2014.

Myers, J.J., Elected to Fellow Member Rank by The Masonry Society (TMS), 2014.

Myers, J.J., ASCE Professional Recognition Award, St. Louis Section, 2014.


Oerther, D.B., Excellence in Environmental Engineering Education (E4) Award, American Academy of Environmental Engineers and Scientists (AAEES) and the Association of Environmental Engineering and Science Professors (AEESP), 2014.

Richardson, D.N., Fellow, American Concrete Institute, 2014.

Richardson, D.N., Outstanding Teaching Award, Missouri S&T, 2014.

Schonberg, W.P., Summer Faculty Research Fellow, NASA/Jet Propulsion Laboratory, Pasadena, CA, 2014.

Schonberg, W.P., Visiting Scholar, Department of Engineering and Computer Science, University College of the Cayman Islands, Grand Cayman, BWI, 2014.

Schonberg, W.P., Group Achievement Award, NASA Engineering and Safety Center (NESC), November, 2014.

Yan, G.R., Outstanding Research Performance Award, University of Texas at El Paso, June, 2014.
BY THE NUMBERS
Civil, Architectural and Environmental Engineering

UNDERGRADUATE STUDENTS: 400+
GRADUATE STUDENTS: 150+
FULL-TIME FACULTY: 25

NO.3: COLLEGE FACTUAL/USA TODAY LIST OF TOP ENGINEERING COLLEGES
(USA TODAY, AUGUST 2014)

NO.5: PUBLIC UNIVERSITY FOR 20-YEAR RETURN ON INVESTMENT
(IN-STATE TUITION AND OUT-OF-STATE TUITION), PAYSCALE.COM (JULY 2014)

20/22% PROJECTED 10-YEAR JOB GROWTH CIVIL AND ENVIRONMENTAL ENGINEERS (SEPTEMBER 2013) BUREAU OF LABOR STATISTICS