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### Upcoming Events

#### April

- 14 – April Luncheon Webinar
- 16 – EWRI Monthly Webinar

#### May

- 8 – Geo-Institute Meeting
- 12 – May Luncheon
- 21 – MSPE-ASCE May Joint Luncheon

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<http://sections.asce.org/st-louis/>



## April Luncheon Webinar

**Date:** Tuesday, April 14, 2020

**Time:** 11:00 AM - 12:00 PM

In lieu of the April ASCE luncheon, the St. Louis Section will provide a free continuing education webinar. You are invited to participate in the webinar remotely from your individual location.

### Topic

#### ***New and Emerging Technology for the Construction of Pavements***

**Instructor:** David K. Hein, P.E.

The need for investments continues to increase well beyond the available funding to improve our transportation infrastructure. In order to help close this gap, the ASCE has issued a "Grand Challenge" to significantly enhance the performance and value of infrastructure projects over their life-cycles by 2025, and foster the optimization of infrastructure investments for society. To reach this goal, infrastructure designers, constructors and managers must be challenged to focus on innovation, reduce life-cycle costs and drive transformational change.

Innovations can include manners in which contracts are awarded and administered such as design/build and end performance specification. More often, they include the use of new equipment to improve construction efficiency or the quality of the pavement layers and subgrade. They may also include the effective re-use of waste and by-products or rehabilitation methods to re-use part or all the original pavement materials to extend their service life. This webinar discusses various types of pavement construction. It also discusses quality assurance techniques.

### Time and Date

11:00 am to 12:00 pm, April 14, 2020.

### Cost

FREE to ASCE members. One (1) PDH available.

### Registration

**Please register by 9:00 PM on April 13, 2020.**

[Register here.](#)

A link will be sent the morning of the event to access the webinar.

## Officers & Directors 2019 - 2020

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## President's Message



I have long wondered what it would be like to “work from home”. Like most of you, I have dramatically shifted my daily routine to carry out the many tasks I need to take care for my regular job, take care of family and home, keep in touch with colleagues and other friends, and more, yet in a completely different setting. My greatest focus and challenge for my job has been to quickly shift what I would normally do face-to-face with students and colleagues into an online existence. Indeed, being forced to make the transition rapidly has meant that I needed to grow my remote

communications skills as quickly as I can, and that will continue going forward. I eagerly take on that challenge, to push through learning new technology, by recognizing that we can benefit from these other tools as long as we make it work for us.

You will notice that this newsletter has far fewer pages in it than normal. In all newsletters before this one, for as long as I can remember, there have been numerous announcements and flyers detailing events of all types that you and I would typically be looking forward to. ASCE leadership in Reston has announced that all in-person ASCE activities are to be cancelled. Simultaneously our local leaders were also announcing and evolving social distancing measures. Local ASCE activities, beginning with the EWRI St. Louis chapter's 2020 Spring Seminar scheduled for March 13 have been postponed or cancelled. This also includes cancellation of the 2020 Structures Congress that the St. Louis SEI chapter had diligently worked on for months. Registrants for those and other events that have been cancelled should already be aware of those changes. We will of course announce details of any of those or new events that will offered later.

Our face-to-face line-up of interesting, educational and social events and activities events will surely return. In the meantime, we do have the expertise and desire within our member community to continue to bring events to you via webinars. EWRI St. Louis Chapter continues its monthly webinar series for April (see [EWRI St. Louis Monthly Speaker Series Event](#) ). You have likely already received in your email inbox, and seen on the first page of this newsletter an invitation to a luncheon webinar on April 14. We offer this free of charge to any member to attend, and to do so from wherever they choose to view it since ASCE has agreed to share the link to multiple users. Events in May have been scheduled but it is reasonable to assume the location and format may change.

I am delighted to congratulate Geo-Institute St. Louis Chapter for receiving the 2020 Best Chapter Award. More on that story on page 4.

Hang in there everyone.

'Til next time,  
Brent M. Vaughn, PE

[brent.vaughn.asce@gmail.com](mailto:brent.vaughn.asce@gmail.com)

## Call for Local Award Nominations

Do you have an outstanding project or colleague who deserves recognition? Consider nominating them for an ASCE St. Louis Section award! These prestigious awards are presented at the Annual Awards Dinner in September and are a great way to showcase the civil engineering excellence in our Section!

The St. Louis Section is seeking nominations until **June 1, 2020** for the following Local Awards:

### St. Louis Section Project of the Year

This award is made annually for any engineering project that falls into the general category of civil engineering. The award is given to the owner, lead design engineer and general contractor of the project. Only engineering and construction achievements within the boundaries of the St. Louis Section are eligible. The project must have been completed and placed into operation within 5 years of the date the nomination is submitted. Basis for the Award is “an engineering project that demonstrates the greatest engineering skills, and represents the greatest contribution to civil engineering progress and mankind”.

### Professional Recognition Award

This award recognizes the importance of professional attainment in the advancement of the science and profession of engineering and is presented annually to a Member of the St. Louis Section who has made substantial contributions to the engineering profession and the St. Louis Section.

### Young Engineer Award

This award recognizes professional contributions of younger members to the Society and to the Section and is presented annually to a Member of the Section who is less than 35 years of age on February 1, 2020.

### Award to Service People

To bring public recognition to individuals who have performed outstanding service to people in their communities and to further public understanding and recognition of the identification “Civil Engineering - A People-Serving Profession”. The awardees need not be civil engineers but are selected based on their service to the general public that has some connection with the planning, design or construction of the people serving works of the civil engineering profession.

### Excellence in Journalism Award

This award is to honor journalists for outstanding articles that enhance public understanding of the role and impact of civil engineering in designing solutions for clean water, transportation, the environment, and other public works projects. Nominations will be accepted for journalists and producers from English-language, general-interest regional and national newspapers, radio and television stations, magazines, and electronic and Web-based news outlets.

Please submit nominations to Michelle Bresnahan at [MBresnahan@lochgroup.com](mailto:MBresnahan@lochgroup.com). Guidelines and forms for making nominations are available on our St. Louis Section website at: <http://sections.asce.org/st-louis/awards> under the “Awards” tab or the information can be emailed or mailed to you upon request. Email [MBresnahan@lochgroup.com](mailto:MBresnahan@lochgroup.com) or call 314-446-3795 with questions.

**Deadline for submittal is June 1, 2020.**

## Geo-Institute News

The next meeting will be held via conference call on Friday, May 8th at 7:30 AM. Additional details on the meeting will be distributed to members as the meeting date approaches. We will be discussing the proposed budget items for the next fiscal year, as well as preparation for the *Geo-Structures Confluence*.

The *Case Histories and Student Posters Presentations* event for April 28th has been postponed.

We are also hopeful that we will be able to reschedule the Dr. Fellenius seminar on *Basic Design of Driven Piles* later this year, pending the outcome of the events related to the spread of COVID-19.

Please contact [jschaeffer@millennia.pro](mailto:jschaeffer@millennia.pro) for more details.

### Geo-Institute St. Louis Chapter Receives 2020 Best Chapter Award

The Geo-Institute St. Louis Chapter was recently awarded the “2020 Best Chapter Award”.

The selection criteria from Geo-Institute includes “The Best Chapter Award was established in 2012 by the Geo-Institute to recognize Chapters’ accomplishments for its members and its community. Because of the successful efforts of the G-I Chapters, the Local Involvement Committee has added a second award, the Chapter Achievement Award, to recognize those accomplishments of a second Chapter. The Chapter Achievement Award is intended for smaller or newer chapters, or chapters that have shown significant year-over-year improvement or growth. Each winning Chapter will receive a visit from a nationally recognized speaker to present at a local meeting, and the Chapter’s accomplishments will be highlighted through an article in *GEOSTRATA* magazine.



Figure 1- Jake Schaeffer, Chair of Geo-Institute, receives the Best Chapter Award from Lyle Simonton on behalf of Geo-Institute.



## Committee Chair Openings

*ASCE St. Louis Section is seeking dedicated members to open chair committees as briefly described below, with the opportunity that the incoming chair will “make it their own.”*

**Pre-College Outreach (formerly Career Guidance)** - The purpose of the Pre-College Outreach is to inform elementary, middle and high school students and staff about Civil Engineering. This information includes the requirements for becoming a civil engineer, and how civil engineers improve the quality of life for all citizens. The committee provides speakers and participates in Career Days, Shadowing Days, and other volunteering opportunities relating to Civil Engineering. They also maintain a database of school counselors, and keeps an inventory of materials (including brochures, pamphlets, videos) used by the Committee in their activities. The Society provides many resources and materials to be utilized by the Committee in their efforts.

**Student Involvement Chair** - The purpose is to serve as a bridge between the student chapters at SIU-Edwardsville, SIU-Carbondale, MUS&T, University of Missouri, and St. Louis University, keeping both the student chapter and the Section informed about the activities of each. The Student Involvement Chair also informs the student chapters of the Section funds available to them and assist them in requesting the funds, and assist the Past-President in soliciting scholarship nominees.

**Communications Co-Chair** - The Committee's primary goal is to communicate to all local members news of past, present, and future activities and programs for the purpose of stimulating greater interest and participation in section affairs. The Co-Chair is expected to work closely with the president and chairmen of other committees to obtain information of vital interest to the membership. Correct and timely information should be obtained from the program committee regarding forthcoming meetings. Valuable news will also be found in the Section Leader, a regular publication issued from ASCE headquarters. An informal but regular system of contacts or reporters is an essential ingredient to the collection of interesting news.

## St. Louis Section E-Week Participation

There were several events celebrating National Engineers Week that the Section participated in.

### 2020 SciFest Engineering Expo

The Section again participated at the 2020 SciFest Engineering Expo at the Saint Louis Science Center on February 22. This was one of the final events held to cap off National Engineers Week. Our display features a photo exhibit that mostly shows historic and other civil engineering works in the St. Louis Section area. ASCE members on hand to meet with visitors included Jeff Fouse, John Weiland, Jordan Pettibone, Melissa Rettig, Rebecca Reifel, Ryan Gueldner, Daniel Lee, Jennifer Rasbury, Gene Kenovskiy, Amanda Fisher, and Alicia Streetar and Brent Vaughn.



Jeff Fouse (left) and John Weiland (right) talk with visitors about civil engineering projects.

### Events sponsored by The Engineering Center

The Engineering Center had three events that we also participated in. The E-Week luncheon was held February 18th at the Clayton Park Plaza. We had a table of ten that included officers and Younger Members that joined with numerous engineering firms and practitioners to celebrate National Engineers Week. The Discovery Fair (February 19<sup>th</sup>) and The Career Fair (February 21<sup>st</sup>) were primarily aimed at letting younger people know about education and careers in a broad range of engineering fields.

## EWRI St. Louis Monthly Speaker Series Event



**ENVIRONMENTAL &  
WATER RESOURCES  
INSTITUTE**  
St. Louis Chapter



The St. Louis Section of EWRI is pleased to announce our monthly webinar **on Thursday, April 16, 2020 at 11:30 am-12:30 pm Central Time.**

This presentation will be broadcast live over a webinar. Registration is free to ASCE members. **Advance registration is required by Noon, Monday, April 13, 2020.** Please register online in advance at the following link:

[https://docs.google.com/forms/d/1QnIMH3q8UdCJqcmbSO8d\\_pNFHegUQgOeRJbhoBErlw8/edit](https://docs.google.com/forms/d/1QnIMH3q8UdCJqcmbSO8d_pNFHegUQgOeRJbhoBErlw8/edit)

Registrants will receive detailed login and dial-in information or directions for in-person attendance prior to the event.

### **Modeling, Missouri Style**

Couple new modeling technology, statewide LiDAR coverage, varied geography with improved big data management capabilities and we have exciting times across the Missouri Risk MAP program.

- 1D or 2D hydraulic modeling?
- Regression, HEC HMS, Gage analysis or Excess Rain on Grid hydrology?
- Where does a NFIP floodplain stop compared to a 2D floodplain?
- How do you regulate in a 1D policy world with 2D modeling results?
- Is it possible to have a no rise discussion in the new 2D world?
- Does a 1D floodway actually meet the criteria of a floodway?
- Sinkhole modeling – 1D or 2D?
- What is the definition of a cross-section in a 2D model? Profile or no Profile?

This presentation will give updates to these questions in the ever-changing Risk MAP world. The only sure thing is that the absolute answers to these questions will most likely evolve with time. Attendees should learn some answers, tricks and at a minimum understand, some of the challenges we face.

### **Speaker**

**Josh Yarrow, PE, CFM** has worked as a water resources engineer for Wood since receiving his BS in Civil Engineering from Kansas State University in 2008. He is a registered Professional Engineer (PE) and Certified Floodplain Manager (CFM). Josh has managed the hydrology and hydraulic phases of various floodplain mapping projects in Kansas and Missouri. Josh has applied his experience to a wide range of water resources disciplines including hydrologic and hydraulic modelling and mapping, dam breach, dam assessments and levee certification.

Thank you to our joint seminar sponsor, **EDM Incorporated!**

Please contact **Len Madalon** ([ljm@edm-inc.com](mailto:ljm@edm-inc.com)) with any questions, if you are interested in presenting, or have an idea for a topic.



**Missouri Society of Professional Engineers (MSPE)  
and American Society of Civil Engineers (ASCE)  
May Joint Luncheon  
Thursday, May 21st, 2020**

**Morals, Ethics, and Integrity – Know Your Line in the Sand**

**Abstract:** In this presentation the speaker explores definitions of terms related to ethics in professional practice, presents current examples of ethically questionable situations, and discusses ways to recognize a slippery slope early in the process. Ethics is not just a list of rules – right and wrong are not always easy to discern. How do ethics and legality interplay in decision making? Cognitive dissonance is discussed in the context of making ethical decisions amid conflicting values and beliefs. When repeated, ethical decision-making becomes habitual and leads to a more reflexive process for our future decisions.

**About the Presenter:** DALE SMITH, P.E., F.ASCE, holds a bachelor's degree in Geological Engineering from the Missouri University of Science and Technology and a master's degree in Civil Engineering from the University of California, Berkeley. Smith is Geotechnology's south region geotechnical manager with 16 professional staff, currently located in their Memphis, Tennessee office. He worked for the U.S. Navy and three engineering firms before moving back to St. Louis for a position with Geotechnology where he has been employed since the summer of 1995. In his time with Geotechnology he has managed a wide array of projects and worn many hats, including managing the Illinois office for 9 years and project managing jobs ranging up to the recent MSD River Des Peres combined sewer overflow tunnel exploration. Currently he is managing projects for Tennessee and Arkansas DOTs. He was awarded the Geotechnology Ronald M. Eckelkamp Leadership Award in 2017.

**Time, Date, Location (tentative)**

11:30am to 1:00pm, Thursday, May 21<sup>st</sup>, 2020, at the Engineering Center, 4359 Lindell, St. Louis 63018. Registration starts at 11:30am and lunch is served at 11:45am. The program will begin promptly at 12:00pm. One (1) PDH is available.

**Cost:** \$20/person

**Registration :** <https://mspe.org/event-3788081>

Please register and pay online using the link above for reservations by 5:00pm, Thursday, May 14<sup>th</sup>.





### **Academic Employee: Research Engineer Position No. 00075187**

The Center for Intelligent Infrastructure at Missouri University of Science and Technology (formerly University of Missouri-Rolla) seeks to expand its research capabilities in autonomous inspection and maintenance of civil infrastructure (e.g., bridges and tunnels) by inviting applications for a research engineer position, commencing around October 15, 2019. The annual salary for this position with full benefits is around \$60,000, depending on candidates' background and experience.

The successful candidate will be expected to demonstrate ability to work in laboratory and field environments and willingness to do heavy lifting and long distance travel. Candidates must have an earned undergraduate degree in civil engineering from an ABET/EAC accredited program or equivalent, and at least 1 year of practical experience in bridge inspection and maintenance, particularly with the state department of transportation. Superior communication and interpersonal skills, leadership capabilities, the ability to engage in collaborative and interdisciplinary research projects, and the ability to motivate and inspire undergraduate and graduate students are also required attributes. Licensure as a professional engineer in civil engineering is required or must be attained in the State of Missouri within 1 year of appointment. Knowledge about any bridge management software such as PONTIS is strongly encouraged. Familiarity to nondestructive evaluation and test of bridges is a plus.

The Center for Intelligent Infrastructure has recently been established at Missouri University of Science and Technology in recognition of nation's growing interests in infrastructure research using advanced technologies such as robots, remote sensing, nondestructive evaluation, structural health monitoring, data analytics, and asset management. The Center currently has expertise in civil engineering, computer science, economics, electrical engineering, engineering management and systems engineering, power engineering, and multi-hazards engineering (earthquake, tornado, flood, etc.). Its current research programs are focused on the preservation, safety, resilience, and sustainability of transportation infrastructure systems. The Center is envisioned to extend its autonomous inspection and maintenance capabilities from bridges to other infrastructures such as dams, building, levees, offshore platforms, pipelines, power plants, roads, transmission towers, and tunnels. The successful candidate will have the opportunity to interact with interdisciplinary research teams across campus, including the Tier I University Transportation Center (see <http://inspire-utc.mst.edu/>), Mid-America Transportation Center (see <https://matc.unl.edu/>), the National Center for Transportation Infrastructure Durability and Life-Extension, the Center for Infrastructure Engineering Studies (see <http://cies.mst.edu/>), the Wei-Wen Yu Center for Cold Formed Steel Structures (see <http://ccfssonline.org/>), the Intelligent Systems Center (see <http://isc.mst.edu/>), and the Materials Research Center (see <http://mrc.mst.edu/>).

Review of applications will begin on September 15, 2019 and will continue until the position is filled. Interested candidates should electronically submit an application consisting of a cover letter, a current curriculum vitae, a statement of research interests and goals, and complete contact information for three references to the Missouri University of Science and Technology's Human Resource Office using the following link <https://hr.mst.edu/careers/>. All submitted application materials must have the position reference number 00075187 in order to be processed. Acceptable electronic formats that can be used for email attachments include PDF and Word; hardcopy application materials will not be accepted.

Missouri University of Science and Technology participates in E-Verify. For more information on E-Verify, please contact DHS at 1-888-464-4218. The final candidate is required to provide official transcript(s) for any college degree(s) listed in application materials submitted. Copies of transcript(s) must be provided prior to the start of employment. In addition, the final candidate may be required to verify other credentials listed in application materials. Failure to provide official transcript(s) or other required verification may result in the withdrawal of the job offer. Females, minorities, and persons with disabilities are encouraged to apply. Missouri University of Science and Technology is an affirmative action / equal opportunity employer and is responsive to the needs of dual-career couples.



Horner & Shifrin is seeking a full-time Engineer to work in our Transportation division in our St. Louis or Poplar Bluff, MO office. This position requires **4+** years of experience. This position is assigned specific tasks on project teams; and is expected to resolve engineering problems and tasks with assistance, as needed, from more experienced staff.

**POSITION RESPONSIBILITIES/DUTIES:**

- Candidate will work under licensed engineer
- Responsible for the development of engineering plans, specifications and estimates (PS&E)
- Work as part of a team to complete general transportation engineering services for municipal, county and state agencies
- Provide good and effective written/verbal communication skills

**POSITION REQUIREMENTS:**

- Must have an Engineer Intern certification; Professional Engineer license is preferred
- Must have a valid driver's license
- Must be able to pass a background check
- Proficient in the use of Microsoft Office software (Outlook, Excel, Word, Project)
- Proficient in the use of MicroStation and GEOPAK SS4 or AutoCAD Civil 3D

**EDUCATIONAL REQUIREMENTS:**

BS in Civil Engineering

**SALARY RANGE:**

Salary will be commensurate with experience.

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Learn more about us at [www.hornershifrin.com](http://www.hornershifrin.com).



**Prairie Engineers, P.C. is seeking a Structural Engineer to join their team.**

Prairie Engineers is a full services engineering, geospatial, and environmental science firm with a goal of delivering sustainable infrastructure solutions and maintaining our natural and built environment. We are a woman-owned firm with offices in Columbia, Hillsboro, Peoria, and Springfield, Illinois and Hazelwood, Missouri. The firm provides services to federal, state, and local governments, utilities, industries, and private businesses. Prairie Engineers is a growing company, looking to add a Structural Engineer to their team to assist primarily in the office with project planning, structural engineering design, and construction document development. This position will be a full time position with benefits and a competitive salary based on qualifications. This position is available to be filled in any of our office locations.

**Essential Job Functions:**

- Planning, design, and construction administration of transportation and building projects
- Ability to work both independently and as a team leader
- Focus on project delivery and customer service with attention to detail and deadlines

**Minimum Qualifications:**

- A minimum of five years' relevant design experience
- Current licensure as an Illinois Structural Engineer
- Good verbal and written communications skills
- Ability to work both independently and as part of a team
- Project a professional, positive attitude with a strong work ethic

**Preferred Knowledge, Skills, Abilities, and Experience:**

- Eight or more years of design experience
- Past project management experience
- Familiarity with Illinois DOT and CDB design standards, procedures, and requirements

We are an equal opportunity employer that recognizes the value of a diverse workforce. All qualified individuals will receive consideration for employment without regard to race, color, religion, creed, gender, national origin, age, handicap, marital status, veteran's status, sexual orientation, or any other legally protected status.

Preference will be given to applicants who reside in a HUBZone as defined by the US Small Business Administration. For a map of certified HUBZone areas, please refer to the following website:

<https://maps.certify.sba.gov/hubzone/map/>

For additional information regarding our company and benefits offered our employees, please visit our website at [www.prairieengineers.com](http://www.prairieengineers.com).



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The firm is an equal opportunity employer that offers competitive salaries, an excellent benefit package, great working environment in new office space, flex-time, opportunity for quick advancement and ownership potential. We seek to develop a more diversified workforce and encourage women and minority candidates to apply for this position.

### **Civil Engineer - Entry Level to 5+ Years**

The ideal candidate will also possess the following attributes:

- Bachelors in Civil Engineering
- EIT certificate or recently received PE license
- 0 – 5+ years civil engineering experience
- Work with both governmental and private clients in Missouri and Illinois is a plus
- Working knowledge of AutoCAD Civil 3D – proficiency is a plus
- Strong technical skills – presentation skills are a plus

Typical responsibilities will include:

- Drawing topographic surveys
- Laying out sites and developing grading plans in AutoCAD
- Coordinating utility service connections and relocations
- Developing of bid and construction documents
- Developing construction cost estimates
- Observing construction operations at work sites and performing material tests



**We are seeking an energetic Bridge-Structural Project Engineer to join our team!**

We currently have an opening for a Bridge-Structural Engineer to serve as a Structural Project Engineer in the St. Louis, Missouri region. This is an excellent opportunity to join a growing firm that is involved in a variety of projects, including highways and bridges for various local public agencies and state DOT's, miscellaneous structural design to support our other business units, and design-build pursuits. The ideal candidate must have a Bachelor's degree in Civil or Structural Engineering and be registered as a Professional Engineer; Structural Engineer registration is a plus. The candidate should also have 5 or more years of experience in bridge and structural design. In this position, you will:

- Develop calculations as necessary for structural engineering components on projects.
- Assist CAD technicians to develop structural plans and develop construction specifications for state and municipal transportation projects.
- Perform structural design and develop details as related to roadway bridges, various types of retaining walls, culverts, miscellaneous reinforced/prestressed concrete and structural steel design.
- Act as part of a team of professionals headed by a Project Manager. This position must be able to work independently or as part of a larger design team and interact well with other team members and the manager relative to assigned aspects of the project.
- Prepare cost estimates, calculate quantities, and assist in writing technical engineering and design reports.
- Utilize various structural design and rating software, spreadsheets, Microstation or AutoCAD to design and analyze structural components.
- Visit job sites as needed to support projects.
- Perform other duties as assigned.

**In addition**, experience on Missouri and Illinois local agency and DOT projects, and an understanding of the policies and procedures of these agencies, is preferred. Proficiency with Microsoft Office products including Excel, Word, and PowerPoint required. Experience using seismic analysis and design is preferred.

**Location:** Downtown St. Louis, St. Charles County, Missouri, or Troy, Illinois

**Benefits:** Lochmueller Group is now an Employee Owned Company and we would be excited to have you to join our talented group of employee-owners! In addition to our ESOP, we provide a 401(k) plan, rich coverage for major medical insurance, basic life insurance, short-term and long-term disability insurance, generous vacation and sick leave, and several others.

Check us out at [www.lochgroup.com](http://www.lochgroup.com) and submit your resume to: [jkelly@lochgroup.com](mailto:jkelly@lochgroup.com). EOE



# UMSL/Washington University Joint Civil Engineering Program Adjunct Instructor open positions

Adjunct Instructors are needed in 4 courses within the UMSL/Washington University Joint Engineering Program. Consider joining our team of instructors in providing academic instruction theory while also providing civil engineering application in practice to the students. Adjunct instruction is rewarding and allows engineers to give back to the profession.

- ***J C ENGR 3360 Civil Engineering Materials Lab: 1 semester hour***
- ***J C ENGR 1430 Introduction to Engineering Design: CADD & GIS 2 semester hours***
- ***J C ENGR 3430 Civil Engineering Design CAD & GIS: 2 semester hours***
- ***J C ENGR 4740 Economic Decisions in Engineering: 3 semester hours***

Course descriptions are provided on the UMSL Engineering website and provided for your convenience: <http://bulletin.umsl.edu/jointundergraduateengineeringprogram/#courseinventory>

It must be noted that J C ENGR 1430 Introduction to Engineering Design: CADD & GIS course description is provided below since Civil Engineering students are being directed to a Civil Engineering CADD & GIS course instead of the current introduction CAD course.

**J C ENGR 1430 Introduction to Engineering Design: CADD & GIS 2 semester hours:** An introduction to engineering design in the context of civil engineering problems and applications. Students will be introduced to the basics of GIS and computer-aided design and drafting concepts and techniques to learn the fundamentals of spatial reasoning and graphical representation. Freehand sketching, including pictorial and orthographic views, are applied to the design process as well. Topics in solving design problems, dimensioning, tolerancing, multi-view orthographic representation, auxiliary views, section views, working drawings, text creation, instrument usage, charts and diagrams, three-dimensional drawings, pictorial drawings, production drawings, engineering design concepts, and fundamental descriptive geometry. Design project: individual or small group assignments, the design process, preliminary drawings. This course is required for civil engineering majors.

**J C ENGR 3360 Civil Engineering Materials Lab** is taught in the Summer semester that begins June 8<sup>th</sup> and ends July 31<sup>st</sup>.

**J C ENGR 1430 Introduction to Engineering Design: CADD & GIS** and **J C ENGR 4740 Economic Decisions in Engineering** are both taught in the Fall semester.

**J C ENGR 3430 Civil Engineering Design CAD & GIS** is taught in the Spring semester.

Experience in the civil engineering field and instruction is considered for the appointment and compensation.

Send inquires to Gary Moore, Senior Lecturer and Civil Engineering Director at [gmoore23@wustl.edu](mailto:gmoore23@wustl.edu) telephone 314-935-2592.

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