

THURSDAY, JUNE 15

- 7:00-8:00 a.m. Registration/Continental Breakfast** **Foyer**
Sponsored by Garver
- 7:15-7:45 a.m. Student Poster Contest & Visit with Exhibitors** **Foyer**
Attendees will have the opportunity to talk with students and judge the poster entries as well as visit with exhibitors
- 7:45-8:00 a.m. Welcome** **Ballroom ABC**
Richard Willoughby, P.E., OSPE VP of Education
- 8:00-8:30 a.m. OEF Projects Update (.5)** **Ballroom ABC**
Adrienne Covington Graham, Executive Director Oklahoma Engineering Foundation
Engineering Oklahoma One Student at a Time
- 8:30-9:30 a.m. Oklahoma State Capitol Exterior Renovation Update (1)** **Ballroom ABC**
Lynnsee Boyse, LEED, GA, Project Manager; JE Dunn Construction
An update on the exterior restoration of the Oklahoma State Capitol project, discussing the intricacies of historical restoration and the methods utilized to restore the 100 year old building exterior.
- 9:30-10:00 a.m. Sharpen Your Public Speaking Skills (.5)** **Ballroom ABC**
Chris Olson, P.E., PMP; PCES
Focus on tips and techniques to improve your personal and professional communication.
- 10:00-10:15 a.m. NETWORKING BREAK** **Foyer**
- 10:15-10:45 a.m. CONCURRENT SESSIONS (.5)**
- Oklahoma STEM Initiatives Panel Discussion** **Ballroom ABC**
Moderator:
Adrienne Covington Graham, Executive Director, Oklahoma Engineering Foundation
Panelists:
Darrel Cox, Pre-Engineering Instructor, Mid-Del Technology Center
Cole Atkinson, Pre Engineering Coordinator, Moore Norman Technology Center
Steven Fowler, Faculty, Engineering and Science Division, Rose State College

The Power of Networking

Rooms 111-112

Hayden Peer, GDH Consulting

We will step outside of our bubble and learn how to incorporate Networking into our work life balance.

10:45-11:11:45 a.m.

CONCURRENT SESSIONS (1)

Oklahoma STEM Initiatives Panel Discussion (cont.)

Ballroom ABC

How to Make Yourself More Marketable to Potential Employers

Rooms 111-112

Kelly Duke, Kelly Duke Staffing and Chrissy Conner, Recruiter

Looking to land that dream job? Need insight to today's market, the competition, and how to get noticed? Then this is for you! Join us for an overview of today's job market, the candidate pool, and how to rise to the top! Also, get some great tips on those tough to answer interview questions straight from 2 experienced recruiters...who ask those tough questions!

11:45 a.m.-1:00 p.m.

Awards Luncheon

Ballroom ABC

OSPE Awards Presentations Timothy Melton, PhD, PE; OSPE President Elect

Student Poster Awards Presentation Richard Willoughby, PE; OSPE VP of Education

1:00-2:00 p.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

Enabling Computational Science and Engineering for Oklahoma Researchers:

The OneOklahoma Cyberinfrastructure Initiative

George Louthan, Oklahoma Innovation Institute

Oklahoma is emerging as a national model for providing resources in service of computational science and engineering research. Specifically, the OneOklahoma Cyberinfrastructure Initiative (OneOCII) is a statewide all-inclusive advanced digital services collaboration that has been providing access to Cyberinfrastructure (CI) resources like supercomputers, as well as expertise and education, so far to over 100 institutions and organizations statewide (over 50 academic and almost 50 non-academic), including PhD-granting universities, primarily undergraduate institutions, community colleges, career techs and high schools. Mr. Louthan will present a survey of statewide supercomputing resources, activities, and applications of computational science and engineering in research.

Breakout II

Rooms 109-110

Diversity for this Generation

Claudia Otto, Clinical Assistant Professor, Oklahoma State University

The community, whether school systems or work systems, is encountering a growing diverse population. Educators and Employers have their work cut out for them in helping today's young people navigate the diverse learning environments, whether in school or in the workforce, in today's globally changing society. The younger generation today is coming of age with very different and often

times conflicting attitudes and traits from those of previous generations. America has its own unique culture and other cultural factors can create issues in the classroom and in the workforce. This presentation will demonstrate how one may prepare a proactive and learning environment for a growing diverse population. Participants will be offered suggestions to begin working with the various generational divides (baby boomers, gen x, gen y, millennials, etc.). Participants will be offered suggestions to begin developing their critical awareness of different perspectives found in today's globally changing community.

Breakout III

Ballroom D

City of Oklahoma City Intermodal Transportation Hub Project

Jim Lewellyn, Program Manager, OKC Public Works

The City acquired the historic Santa Fe Train Depot and is renovating the building and surrounding site to restore the building, make improvements to the building and site to improve accessibility, provide dedicated areas for Amtrak passengers and provide a new connection to the Bricktown Entertainment District by constructing a tunnel under the elevated rail lines. The project is funded through multiple sources including a grant from the Federal Railroad Administration.

Breakout IV

Ballroom E

Communication: The Big Picture

Rhonda F. Green, P.E.

You will learn how communication and leadership skills will make a difference in any career.

2:00-3:00 p.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

Super Computing and the Missing Middle

George Louthan, Oklahoma Innovation Institute

Modeling, simulation, and data analysis are incredibly important tools to the modern practice of engineering. Although these tools are widespread and successful in many large industries, small- and mid-sized companies are often stuck with less sophisticated, entry-level systems. Addressing the gap between these two ends of the spectrum—the “Missing Middle”—is an incredible opportunity to enhance productivity in the country and Oklahoma. This talk will present some of the challenges related to the Missing Middle, approaches for bringing simulation and modeling to smaller companies, and the efforts of Tulsa's Tandy Supercomputing Center to build private-academic partnerships and support industry and startups with advanced computing.

Breakout II

Rooms 109-110

Strong Communities, Quality Infrastructure, and Impressive Parks Expedite Economic Development in OKC Metroplex

Steve Mason, P.E.

Breakout III

Ballroom D

Is There an EV in Your Future?

Scott Milanowski, OG&E

With increasing driving range, falling battery costs, and a quickly expanding array of models, electric vehicles are quickly moving from a small niche market to becoming mainstream. Their high efficiency, cleanliness, low operating cost, and zippy performance make EV's an attractive choice for many drivers. This presentation will discuss the basics of electric vehicle technology, the advantages of EV ownership, and market trends. Lastly, we will discuss OG&E's efforts to educate its customers on the EV value proposition and accelerate the adoption of EV's in Oklahoma.

Breakout IV

Ballroom E

How to Boost Your Value to Achieve the Career You Desire

Belinda Gates, Executive Coach, Author and Speaker

To achieve the career you desire, your employer and clients must recognize all that you can contribute. This session provides insight, techniques and tools for boosting your value and maximizing all that you have to offer so that you can achieve your career goals. Often times, we know we can offer more and earn more, but we don't have the right plan to put into action or we can't communicate our skills and talents well enough to be fully utilized.

3:00-3:15 p.m.

Networking Refreshment Break

Foyer

Sponsored by HALFF Associates, Inc

3:15-4:15 p.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

OSU Gasification-Syngas Fermentation Technology for Sustainable Production of Fuels & Chemicals

Hasan Atiyah, Associate Professor in BioSystes Engineering at Oklahoma State University

OSU hybrid gasification and syngas fermentation is a promising technology for sustainable production of fuels and chemicals from biomass, agricultural residues, municipal solid waste and industrial wastes. Through gasification, feedstocks are converted into syngas, which primarily consists of CO, CO₂, and H₂. The syngas, in turn, is converted by microbial acetogens into alcohols and organic acids. Major challenges exist in advancing the hybrid conversion technology, including reducing the cost of fermentation medium and enhancing mass transfer to improve alcohol productivity. This presentation highlights Oklahoma State University's efforts in addressing these challenges. Specifically, integrated studies are undertaken to improve medium formulation, microorganism performance, reactor design, and process development with the aim of producing higher amounts of targeted products.

Breakout II

Rooms 109-110

Internet of Things

Hazem Refai, Williams Professor, College of Engineering, University of Oklahoma

Internet of Things (IoT) is projected to reach 25.7 Billion of devices and systems connected to the Internet. These will be sensing and collecting data from surrounding environment, building, roadways, etc., and then pushing data into the cloud data-center for processing before extracting knowledge or

performing a specific action. This presentation describes two IoT systems— intelligent vehicle counting and classification sensor (iVCC) and Maintenance Activity Truck Tracking (MATT)— being developed and deployed to assist Oklahoma Department of Transportation in their efforts to monitor and classify traffic via iVCC and snowplow road clearing activities via MATT.

Breakout III

Ballroom D

Center of Excellence for Energy Technology-Fueling the Future

Alfred Vidaurri, Jr., FAIA, AICP, LEED AP, Vice President, Freese and Nichols, Inc.

Sustainability and resilience is changing the way today's technical workforce must be trained for the emerging trades in industries such as, renewable energy, heating ventilation, air conditioning and refrigeration. Learn how a community college became a leader in these areas with the development of a state of the art, \$42 million, LEED Platinum facility. The building itself is designed as a teaching and training tool that integrates renewable energy systems, energy reduction strategies, and stormwater management, making it one of the largest Educational Technology Centers of its kind.

Breakout IV

Ballroom E

Oklahoma Turnpike Authority: Driving Forward

David Murdock, Assistant Executive Director, Oklahoma Turnpike Authority

Introduction to the Oklahoma Turnpike Authority. Answering questions about how the Authority came to be, why turnpikes aren't free, and the Driving Forward Program as announced by Governor Fallon in October 2015.

4:15-5:15 p.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

Electro/Hydraulic

Dale Wraspir, Product Application Engineer, Danfoss Power Solutions

Breakout II

Rooms 109-110

Get Off the X: Leadership Tactics for Thriving, Not Just Surviving

Belinda Gates, Executive Coach, Author and Speaker

In the tactical world, getting off the X means survival. X marks the spot that you are currently occupying, and if you're stuck on that spot for too long, you make an easy target. Maneuvering off the X is essential for survival.

Breakout III

Ballroom D

Creating Memorable Spaces

Alan B. LaFon, AIA, LEED Fellow, Halff Associates

We will examine the characteristics of successful public spaces that contribute to the health and welfare of communities and how Halff's professional staff of architects, landscape architects, engineers, planners and urban designers collaborate to turn mundane engineering projects into memorable spaces using context sensitive design approaches.

Breakout IV

Ballroom E

Low Cost Bridge Abutment Construction and Rehabilitation

J. Reid Bailey, P.E., Senior Engineer, GeoStabilization International

Bridges throughout the United States are becoming unserviceable faster than they can be replaced. This discussion will present a new concept in mitigating this mounting crisis. Current practice includes removal and replacement of the abutments and superstructures. There is now an innovative approach where the old abutment is left intact and used as a form during construction of a new abutment. This process can take as little as a few days and environmental concerns and permitting are avoided or minimized. The concept limits traffic disruption while minimizing costs; traffic flow can continue during non-construction hours. Costs are half or less, compared with the typical full removal and replacement.

5:15-6:15 p.m.

OSPE Annual Membership Meeting

Ballroom D

6:15 p.m

OSPE Auxiliary Dinner

The Engineers Auxiliary is planning a dinner out for those attending the Oklahoma Engineering Conference with their spouses and/or singles. We will meet following the OSPE Annual Meeting on for an evening of relaxation and getting to know you. Each person will be responsible for their own dinner but the auxiliary will pay for one guest's dinner by drawing. Dinner will be at Red Lobster on I-240.

Please RSVP to Diane Bloodworth at 405-677-1821 or diane33@cox.net.

Take Time to Visit Our Exhibitors



FRIDAY, JUNE 16

7:00-7:30 a.m. **Registration/Continental Breakfast and Visit with Exhibitors** **Foyer**

7:30-8:20 a.m.
BREAKOUT SESSIONS (1)

Breakout I **Rooms 111-112**

Geotechnical Polymer Application

Rex Klentzman, P.E., Engineering Support Manager, Uretek ICR

Introduction to URETEK Technologies

- Infrastructure Stabilization, Soil Erosion Remediation
- Storm/Wastewater Infrastructure Restoration
- Restore/increase soil bearing capacity for existing structural footings
- Halt settlement caused by weak load bearing soils
- Kentucky International Convention Center Remodel URETEK Deep Injection Grouting Case Study

Breakout II

Damage Prevention; Operation Outside Best Practices

Rooms 109-110

David Bural, Ditch Witch

Reported utility infrastructure damages occurred more than 240,000 times in 2015. Industry has best practices for locating and exposing these utilities. This session will briefly cover some of those best practices as they relate to vacuum excavation and review findings of Ditch Witch testing to learn what types of damages occur to common electric and pipe utilities.

Breakout III

Mine Subsidence Engineering: an Overview

Ballroom D

Dr. Generro Marino

This presentation covers key aspects of mine subsidence engineering, a subject that is not well understood, and embraces a number of engineering disciplines. It focuses on the causes of mine subsidence and how mine stability relates to the resulting ground movements. Different mining and geologic conditions determine the mode of failure of the mine. The mode of mine failure in turn affects the resulting subsidence movement. Prediction of subsidence and damage potential are also key aspects of subsidence engineering. Examples of expected subsidence damage as well as mine stabilization will be shown.

Breakout IV

Symbology Recognition on Decals for Machinery

Ballroom E

Stacy Long, Charles Machine Works

Susan Harmon, Charles Machine Works

This session will discuss how to create a product safety sign according to the applicable standards and one way to evaluate how well text free safety signs are being understood by use of comprehension testing. It will take you through some of the steps used to carry out the testing,

provide some results from the testing, explain lessons learned and how the information helped improve the product safety signs.

8:20-9:20 a.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

A Comparison of 1D and 2D Hydraulic Models for Floodplain Mapping

Brandon Claborn, P.E., CFM, Meshek & Associates, LLC

The release of HEC-RAS 5.0 with two-dimensional hydraulic modeling capabilities has provided additional options for performing hydraulic analysis. This presentation will discuss potential applications of 2D models, the difference between 2D and 1D applications and an example of a comparison between the two approaches on a bridge replacement project.

Breakout II

Microtrenching for Fiber Optic

Rooms 109-110

Steve Seabolt, Ditch Witch

Internet users are demanding high-speed internet connections and carriers are scrambling to deliver fiber-optic cable connections directly to homes, businesses, government facilities and educational institutions across the country. This presentation will discuss microtrenching as an emerging solution for fiber installation, reasons for its growth and associated benefits to the solution. It will cover Ditch Witch® innovations and developments around microtrenching systems including tractor, attachments, blades and vacuum excavators.

Breakout III

Natural and Man-Made Radiation and Radioactive Material

Ballroom D

Jeff Lux, P.E., Burns McDonnell

We live in a radioactive world. Not many of us know the kind of radioactive material to which we are all exposed. Even fewer understand how that relates to man-made radiation to which we are all exposed. This session describes the primary kinds of ionizing radiation, natural and man-made sources of radiation, how we measure radiation, and how the levels to which we are all exposed can impact our health.

Breakout IV

Ballroom E

OSHA Activities and Causes of Worker Fatalities in Oklahoma

Jorge Delucca, MS, MA, CAIH

A summary of what Regional and National Emphasis Programs the OSHA Oklahoma City Area Office is enforcing in Oklahoma, new developments with OSHA regulations, and a description of each occupational fatality that the OKC Area Office investigated last year.

9:20-10:20 a.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

Infrastructure Inventories and Condition Assessments Using Mobile Devices: Advanced GIS Solutions in Action

Will Gustafson, Meshek & Associates

Traditionally, infrastructure inventories and condition assessments are performed using an expensive handheld GPS device, a stack of paper forms for recording the asset's attributes, and a digital camera for documenting reported condition issues. This method frequently means slow progress in the field and requires burdensome manual transcription and reconciliation of the collected data in the office. This subsequent office portion is often carried out by different people than those performing the field work, reducing project understanding and increasing the potential for human error.

By leveraging the latest advances in GIS technologies, inexpensive Android or Apple devices paired with a Bluetooth GPS can now be used to perform these projects – eliminating the need for paper forms, digital cameras, and in-office reconciliation of the field data. Field crews can work in both internet connected and disconnected environments, tracking their progress in real time from within the mapping application. Those paper forms, digital photos, and GPS positions are now all handled by the mobile GIS application, simplifying the job of field personnel. Field productivity is increased, capital investment in hardware is decreased, office time is eliminated, and the overall project costs are greatly reduced. One device, one set of personnel responsible for the data, and one happy project manager.

Breakout II

Rooms 109-110

SUE: Removing the Unknowns Associated with Utility Identification and Coordination

Michael Crain, P.E., Subsurface Utility Engineering Practice Leader, Half Associates Inc.

The utility infrastructure serving the public is complex. When locations of various infrastructure are unknown during projects, the result can be construction delays, interrupted service to customers, unfavorable publicity, damages, additional costs, safety hazards, and even injuries. SUE minimizes construction issues on multiple types of projects by accurately identifying the location of utilities early on. This allows better design decisions or design modifications prior to construction, which enhances construction safety, reduces contractor claims and delays, minimizes budget contingencies, and prevents service interruptions. Accurate utility information provides a foundation for a successful project.

Breakout III

Ballroom D

Innovative Hydraulic Matrices: Expanded BMP's Using Standard Equipment

Troy Duxbury, S.C., Applications Engineer, LSC Environmental Products, LLC

Learn how hydraulically applied tools are being used in the erosion control and vegetative rehabilitation spaces. Posi-Shell our mineral matrix has been featured in the Solid Waste and remediation sectors for years with its hydraulically applied curing properties. This unique material allows for innovative ways to think about Storm Water management and material containment. We will spend the first half of our presentation discussing the many uses and applications for this unique category of materials. We will then transition into the future of vegetation establishment with our Hydraulic Biotic Soil Amendment technology. Establishing vegetation has historically been a guessing

game and companies like ours have been investing heavily in applying scientists, agronomists, and engineers to develop product lines that synthesize natural topsoil into its individual components for manufactured control and quality. We will discuss site-specific revegetation procedures and their economic benefits.

Breakout IV

Ballroom E

Integration of 3D Surveying and Engineering into the Midstream Industry

Jared Canuteson, P.E., Vice President of Halff TriTex

Vasileios Kalogirou, RPLS, PLS, Survey Team Leader, Halff Associates

Discussion of 3D surveying technology, the collection of 3D piping and appurtenance data, and the utilization of this information for engineering design as it relates to the oil and gas midstream industry.

10:20-10:30 a.m. Networking Refreshment Break
Sponsored by Freese & Nichols

Foyer

10:30-11:30 a.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

OK Windfarm Projects

Dr. Shannon Ferrell, Oklahoma State University

Oklahoma has experienced explosive growth in the wind energy industry, starting with no utility scale wind power in 2002 and growing to over 6,000 megawatts of capacity in 2016. Our session will illustrate some of the opportunities and challenges associated with constructing and operating a wind energy project, as well as integrating wind energy into the Oklahoma electrical utility portfolio.

Breakout II

Storage Tank & Pressure Vessel Assessment for Brittle Fracture

Ballroom D

Rama Challa, Ph.D. P.E., Director, Strategic Initiatives, Matrix PDM Engineering

Aboveground storage tanks or pressure vessels are thin plate structures that are susceptible to brittle fracture. This presentation introduces the audience to the concept of brittle fracture and methodologies to design against brittle fracture. Post construction, these vessels are frequently modified. For certain conditions the plate material in the repaired region shall be evaluated for Brittle Fracture. This presentation discusses fitness for service Assessment for Brittle Fracture using concepts per API 579.

Breakout III

OKC River Rafting Course Operations Update

Ballroom E

John Riggs, Sr. Director of Operations at Oklahoma City Boathouse Foundation

11:30-12:30 p.m.

BREAKOUT SESSIONS (1)

Breakout I

Rooms 111-112

Constitutional Right to Own Automatic... Facility Controls

Vimal Nair, P.E. LEED AP BD+C, CCP, Associate, Freese and Nichols

Compliance of Army National Guard facilities with the Unified Facilities Criteria is becoming a challenge due to occupant diversity and the strain to provide building systems that satisfy varying conditions. This case study will focus on the building automation systems and utility monitoring and control systems that were put in place in multiple facilities; insight on how build controls can be used to operate building systems under varying occupant levels; and how utility monitoring and controls can be used to improve performance across multiple facilities. These technologies were implemented as part of the State of Texas Army Revitalization Campaign will lead to reduced energy consumption, improved facility performance, and compliance and the lessons learned are transferable to the State of Oklahoma Army National Guard.

Breakout II

Ballroom D

Specialty Storage Tanks

Golnaz Bassiri, P.E., Strategic Initiatives Engineer, Matrix PDM Engineering

Some standards such as API 650 address the structural behavior of storage tanks. Whereas products to be stored in these tanks may induce special consideration in design and construction of these tanks. Standards such as NACE address items that affect the functioning of storage tanks. This presentation briefly introduces Standards, Materials & Construction practices for specialty storage in steel tanks.

Breakout III

Ballroom E

Dam Breach Modeling; OWRB Dam Regulation

Zachary Hollandsworth, Dam Safety Engineer OWRB

Emma Moradi, E.I., CFM, Dam Safety Engineer, OWRB

Dam breach analysis using computer modeling to estimate the effects of potential dam breaches for dam hazard classification and the development of Emergency Action Plans (EAPs) is a common practice of dam safety engineers. The OWRB's regulations regarding hazard-potential evaluation and the applied methods for conducting dam breach analysis including: assumptions, equations, parameters, and considerations with emphasis on Hec-Ras 2D modeling will be discussed during this presentation.

12:30-1:45 p.m.

Ballroom ABC

OSPE Past President's Luncheon

Installation of New Officers

Sponsored by Garver

NSPE Update, David D'Amico, P.E., NSPE Director Northeast Region

1:45-2:30 p.m. (.75)

Ballroom ABC

ODOT Update

Mike Patterson, Director, ODOT

2:30-3:15 p.m. (.75)

Ballroom ABC

Update of Seismic Activity in Oklahoma

Dr. Jeremy Boak, Director, Oklahoma Geological Survey

Oklahoma experienced 1-2 Magnitude 3 or greater (M3.0+) earthquakes from 1980 - 2008. Since then, seismicity increased, peaking at 903 M3.0+ earthquakes in 2015, then declined to 623 M3.0+ events in 2016, and continues to decline in 2017. Despite this decline, 2016 saw three earthquakes of M5.0+, so the state remains at risk. This presentation will discuss evolution of the seismicity, actions taken to reduce deep injection (hence seismicity), and the role oil prices played in reducing injected volumes. It will also discuss action to respond to earthquakes potentially connected to oilfield completion practices in plays outside the Area of Interest (AOI).

3:15-3:30 p.m.

Refreshment Break

Foyer

3:30-5:00 p.m. (1.5)

Ballroom ABC

Ethical Disasters

Chad Davis, Instructor and Recruitment Coordinator, University of Oklahoma

This presentation will discuss 6 different ethical disasters that highlight the 6 fundamental canons of the NSPE code of ethics. Additionally, data are presented that show historical trends of how the ethical values of engineers are viewed by the public and how engineers' ethical values compare with other professions.

THANK YOU TO OUR SPONSORS



Thursday Morning Breakfast
Friday Luncheon

Friday Morning Break



Thursday Afternoon Break



Lanyards