

# Liberal Education/Engineering & Society (LEES) Complete Conference Program -- 2018

*Sunday, June 24*

## U434A·Learning How to be Socially Responsible Engineers – A Comparison of Methods and Lessons Learned

Panel · Liberal Education/Engineering & Society Division; joint session with Community Engagement and Ethics

**Sun. June 24, 2018 1:15 PM to 2:45 PM**

**Room 151 F, Convention Center - Salt Palace**

As engineering students go through college and transition into the workforce, they assume significant responsibility for individuals and society based on their decisions. Problematically, multiple recent studies have shown that as they progress through college, many students become less engaged in the societal implications of their work, and their sense of social responsibility decreases. Therefore, we recognize the imperative of providing time and space for students to learn and engage with their future social responsibilities as engineers. Within ASEE, we have decades of experience teaching and researching about ethics, social responsibility, and social justice in engineering. Our students will face many more complex challenges in the future, and we feel it is time to have a conversation about best practices for various educational environments.

In this panel session, four faculty members who have significant experience teaching in this space at their various universities will share their methods to facilitate learning about social responsibility. They will have stories to tell about trying to integrate ethics into their core engineering courses, collaborating with community members in service-learning projects, teaching a course focused entirely on engineering for social and environmental responsibility, and delivering an engineering for social justice class. We also aim to have a variety of engineering disciplines and university contexts represented.

### Speakers

1. **Dr. Juan C. Lucena**, Colorado School of Mines, Engineering and Social Justice at Colorado School of Mines
2. **Dr. Nathan E Canney P.E.** Integrated social responsibility through service learning at Seattle University
3. **Dr. Angela R Bielefeldt P.E.**, University of Colorado, Boulder, Explicit engineering professional responsibility course at CU Boulder
4. **Dr. James L. Huff**, Harding University, Electrical engineering course with social responsibility considerations

## U434B·Diversity and Inclusion: Concepts, Mental Models, and Interventions

Technical · Liberal Education/Engineering & Society Division

Sun. June 24, 2018 1:15 PM to 2:45 PM

Room 151 C, Convention Center - Salt Palace

Moderated by Dr. Kathryn A. Neeley

Papers Presented

1. **Dimensions of Diversity in Engineering: What We Can Learn from STS** [[view paper](#)]Dr. Toluwalogo Odumosu (University of Virginia), Dr. Sean Ferguson (University of Virginia), Dr. Rider W. Foley (University of Virginia), Dr. Kathryn A. Neeley (University of Virginia), Dr. Caitlin Donahue Wylie (University of Virginia), Dr. Sharon Tsai-hsuan Ku (University of Virginia), and Prof. Rosalyn W. Berne (University of Virginia )
2. **Diversity and Inclusion in Engineering: Students' Perceptions of Learning and Engaging with Difference** [[view paper](#)]Mr. Sean M. Eddington (Purdue University, West Lafayette), Dr. Carla B. Zoltowski (Purdue University, West Lafayette), Dr. Andrew O. Brightman (Purdue University, West Lafayette), Dr. Rucha Joshi (Purdue University, West Lafayette), Prof. Patrice Marie Buzzanell (Purdue University, West Lafayette), and David Torres (Purdue University, West Lafayette) *Finalist for Best Diversity Paper*
3. **How Theater Can Promote Inclusive Engineering Campuses** [[view paper](#)]Dr. David DiBiasio (Worcester Polytechnic Institute), Kristin Boudreau (Worcester Polytechnic Institute), and Ms. Paula Quinn (Worcester Polytechnic Institute)
4. **Active Learning Group Work: Helpful or Harmful for Women in Engineering?** [[view paper](#)]Ms. Megan Keogh (University of Colorado, Boulder), Dr. Malinda S. Zarske (University of Colorado, Boulder), and Dr. Janet Y. Tsai (University of Colorado, Boulder)

## U434C·Learning Outcomes and Pedagogical Strategies: Problems of Alignment

Technical · Liberal Education/Engineering & Society Division

Sun. June 24, 2018 1:15 PM to 2:45 PM

Room 257 A, Convention Center - Salt Palace

Moderated by Dr. Jerry W. Gravander

Papers Presented

1. **Preparing Today's Engineering Graduate: An Empirical Study of Professional Skills Required by Employers** [[view paper](#)]Mr. Robert Graham (Johns Hopkins University) and Dr. Tobin Porterfield (Towson University)
2. **Faculty Perceptions of the Most Effective Settings and Approaches for Educating Engineering and Computing Students About Ethics and Societal Impacts** [[view paper](#)]Ms. Madeline Polmear (University of Colorado, Boulder), Dr. Angela R. Bielefeldt

(University of Colorado, Boulder), Dr. Daniel Knight (University of Colorado, Boulder), Dr. Nathan E. Canney (CYS Structural Engineers Inc.), and Dr. Chris Swan (Tufts University)

3. **A Broader Look at The Role of Andragogy in Engineering Education** [[view paper](#)] Col. Richard Melnyk (United States Military Academy), Lt. Col. Brian J. Novoselich (United States Military Academy), and Dr. Gregory Martin Freisinger (United States Military Academy)

## U534A·Communicating Across Cultural and Epistemological Boundaries

Technical · Liberal Education/Engineering & Society Division

**Sun. June 24, 2018 3:00 PM to 4:30 PM**

**Room 151 F, Convention Center - Salt Palace**

**Moderated by** Dr. Judith Shaul Norback

Papers Presented

1. **Engineering/Design Frictions: Exploring Competing Knowledge Systems via Efforts to Integrate Design Principles into Engineering Education** [[view paper](#)] Dr. Dean Nieuwma (Rensselaer Polytechnic Institute)
2. **From 'Empathic Design' to 'Empathic Engineering': Toward a Genealogy of Empathy in Engineering Education** [[view paper](#)] Dr. Xiaofeng Tang (Ohio State University)
3. **Where's My Code? Engineers Navigating Ethical Issues on an Uneven Terrain** [[view paper](#)] Dr. Cindy Rottmann (University of Toronto), Dr. Doug Reeve (University of Toronto), Dr. Robin Sacks (University of Toronto), and Mr. Mike Klassen (University of Toronto)
4. **Reimagining Energy: Deconstructing Traditional Engineering Silos Using Culturally Sustaining Pedagogies** [[view paper](#)] Dr. Gordon D. Hoople (University of San Diego), Dr. Joel Alejandro Mejia (University of San Diego), Dr. Diana A. Chen (University of San Diego), and Dr. Susan M. Lord (University of San Diego)

## U534B·Design, Assessment, and Redesign of Writing Instruction for Engineers

Technical · Liberal Education/Engineering & Society Division

**Sun. June 24, 2018 3:00 PM to 4:30 PM**

**Room 151 G, Convention Center - Salt Palace**

**Moderated by** Dr. Deanna H Matthews

Papers Presented

1. **Examining engineering writing instruction at a large research university through the lens of writing studies** [[view paper](#)] John Y. Yoritomo (University of Illinois at Urbana-Champaign), Nicole Turnipseed (University of Illinois at Urbana-Champaign), Prof. S. Lance Cooper (University of Illinois at Urbana-Champaign), Celia Mathews Elliott (University of Illinois at Urbana-Champaign), Dr. John R. Gallagher (University of Illinois at Urbana-

Champaign), Prof. John S. Popovics (University of Illinois at Urbana-Champaign), Prof. Paul Prior (University of Illinois at Urbana-Champaign), and Julie L Zilles (University of Illinois Urbana Champaign)

2. **Satisfaction: Intrinsic and Extrinsic Motivation in Engineering Writing Coursework** [[view paper](#)]Dr. Stephanie Pulford (University of California, Davis), Jiahui Tan (University of California, Davis), Michael Raymond Gonzalez (University of California, Davis), and Ms. Amanda Modell (University of California, Davis)
3. **Beyond Drag and Drop: Balancing Experience and Innovation in Online Technical Communication Course Development** [[view paper](#)]Jessica Livingston (Rose-Hulman Institute of Technology), Dr. Sarah Summers (Rose-Hulman Institute of Technology), and Mary Jane Szabo (Rose-Hulman Institute of Technology)
4. **Technical Communication Across the ME Curriculum at Rose-Hulman** [[view paper](#)]Dr. Rebecca Bercich (Rose-Hulman Institute of Technology), Dr. Sarah Summers (Rose-Hulman Institute of Technology), Dr. Phillip Cornwell (Rose-Hulman Institute of Technology), and James Mayhew (Rose-Hulman Institute of Technology)

*Monday, June 25*

## M334· Ethical Awareness and Social Responsibility in a Corporate/Team Context

Technical · Liberal Education/Engineering & Society Division

**Mon. June 25, 2018 11:30 AM to 1:00 PM**

**Room 355 A, Convention Center - Salt Palace**

**Moderated by** Prof. Rosalyn W Berne

Papers Presented

1. **Social Responsibility in Engineering Education and Practice: Alignments, Mismatches, and Future Directions** [[view paper](#)]Dr. Jessica Mary Smith (Colorado School of Mines) and Dr. Juan C. Lucena (Colorado School of Mines)
2. **Exploring Team Social Responsibility in Multidisciplinary Design Teams** [[view paper](#)]Katharine E. Miller (Purdue University, West Lafayette), Dr. Carla B. Zoltowski (Purdue University, West Lafayette), Prof. Patrice Marie Buzzanell (University of South Florida), David Torres (Purdue University, West Lafayette), Danielle Corple (Purdue University), and Dr. Megan Kenny Feister (California State University, Channel Islands)
3. **Project-based Learning as a Vehicle for Social Responsibility and Social Justice in Engineering Education** [[view paper](#)]Dr. Greg Rulifson P.E. (Colorado School of Mines), Dr. Carrie J. McClelland P.E. (Colorado School of Mines), and Dr. Linda A. Battalora (Colorado School of Mines)
4. **Developing an Integrated Curriculum-wide Teamwork Instructional Strategy** [[view paper](#)]Dr. Natasha D. Mallette P.E. (Oregon State University), Michelle Kay Bothwell (Oregon State University), and Dr. Christine Kelly (Oregon State University)

## M434·Panel: Embedding Writing in Experiential Learning

Technical · Liberal Education/Engineering & Society Division

**Mon. June 25, 2018 1:30 PM to 3:00 PM**

**Room 255 F, Convention Center - Salt Palace**

**Moderated by** Dr. Lindsay Corneal

### **Panel: Embedding Technical Writing with Experiential Learning Components into Engineering Curricula** [[view paper](#)]

Dr. Lindsay Corneal (Grand Valley State University), Ms. Debbie Morrow (Grand Valley State University), Dr. Tracy Volz (Rice University), Dr. Ann Saterbak (Duke University), Dr. Susan Conrad (Portland State University), Mr. Timothy James Pfeiffer P.E. (Foundation Engineering, Inc.), Kenneth Lamb (California State Polytechnic University, Pomona), and Dr. William A. Kitch (Angelo State University)

## M5112A·Impacts of Sexual Harassment in Academic Science, Engineering, and Medicine

Panel · ASEE Diversity Committee , Environmental Engineering Division, Instrumentation Division, Mechanics Division, Engineering Physics and Physics Division, Engineering Libraries Division, New Engineering Educators Division, Engineering Technology Division, Biomedical Engineering Division, Civil Engineering Division, Undergraduate Experience Committee , Faculty Development Constituency Committee, Energy Conversion and Conservation Division, Continuing Professional Development Division, Multidisciplinary Engineering Division, Military and Veterans Division, Liberal Education/Engineering & Society Division, Student Division, Minorities in Engineering Division, Engineering Ethics Division, International Division, Community Engagement Division, and Women in Engineering Division

**Mon. June 25, 2018 3:15 PM to 4:45 PM**

**Room 255 F, Convention Center - Salt Palace**

Responding to growing awareness of sexual harassment in academia, the Committee on Women in Science, Engineering, and Medicine (CWSEM) of the National Academies of Sciences, Engineering, and Medicine initiated a study on the impacts of sexual harassment on the career advancement of women in these disciplines in academia. The study committee conducted (1) a review of research on the extent to which women are victimized by sexual harassment, (2) an examination of information on the extent to which sexual harassment in academia negatively impacts the recruitment, retention, and advancement of women p ... (continued)

**Moderated by** Dr. Frazier Benya

Speakers

1. **Dr. Frazier Benya**, National Academy of Engineering
2. **Dr. Alice Merner Agogino**, Roscoe and Elizabeth Hughes Professor of Mechanical Engineering at the University of California, Berkeley
3. **Dr. Nicholas Arnold**, Professor of Engineering at Santa Barbara Community College
4. **Dr. Gilda A. Barabino**, Dean of Engineering at The City College of the City University of New York

## M534·2018 Interdivisional Town Hall Meeting: Who's in the Driver's Seat of Engineering Education?

**Panel** · Liberal Education/Engineering & Society Division, Aerospace Division, ASEE Board of Directors, Biological and Agricultural Engineering Division, Chemical Engineering Division, Biomedical Engineering Division, College Industry Partnerships Division, Community Engagement Division, Computers in Education Division, Computing and Information Technology Division, Construction Engineering Division, Continuing Professional Development Division, Design in Engineering Education Division, Cooperative and Experiential Education Division, Educational Research and Methods Division, Energy Conversion and Conservation Division, Engineering and Public Policy Division, Engineering Design Graphics Division, Engineering Deans Council, Engineering Libraries Division, Engineering Management Division, Engineering Physics and Physics Division, Entrepreneurship & Engineering Innovation Division, Manufacturing Division, Mathematics Division, Mechanical Engineering Division, Mechanics Division, Military and Veterans Division, New Engineering Educators Division, Ocean and Marine Division, Professional Interest Council, Student Division, Technological and Engineering Literacy/Philosophy of Engineering Division, and Women in Engineering Division

**Mon. June 25, 2018 3:15 PM to 4:45 PM**

**Grand Ballroom I & J , Convention Center - Salt Palace**

For this year's Interdivisional Town Hall Meeting, participants will be given an opportunity to share their experiences in transforming engineering education, while also contributing directly to a National Science Foundation-sponsored study on this topic. Unlike medicine, the engineering profession establishes new standards for engineering education through a distributed system of gove... (continued)

**Moderated by** Dr. Atsushi Akera and Prof. Joe Tranquillo

### Speakers

#### 1. **Dr. Atsushi Akera**, Rensselaer Polytechnic Institute

Dr. Akera is an Associate Professor in the Department of Science and Technology Studies at Rensselaer, and does research on the history of engineering education reform. He is author of /Calculating a Natural World: Scientists, Engineers, and Computers during the Rise of U.S. Cold War Research (2006) form MIT Press. He also serves as the Chair of the Ad Hoc Committee on Interdivisional Cooperation.

#### 2. **Dr. Donna M Riley**, Purdue University-Main Campus, West Lafayette (College of Engineering)

Dr. Riley is the Kamyar Haghghi Head of the School of Engineering Education at Purdue University, and has served as Program Director for Engineering Education at NSF. She is the author of two books, /Engineering and Social Justice/ and /Engineering Thermodynamics and 21st Century Energy Problems/, both published by Morgan and Claypool. She is a fellow of the American Society for Engineering Education.

#### 3. **Dr. Alan Cheville**, Bucknell University

Dr. Cheville is Department Chair and the T. Jefferson Miers Chair in Electrical Engineering at Bucknell University. Active in engineering as well as engineering education research, he conducts work on Optoelectronically generated THz spectroscopy and imaging, and the study of engineering education systems and learning environments. He has served as the NSF



Program Director for Engineering Education Education (2010-2012), and holds the NSF Director's Award for Program Management Excellence (2012).

**4. Dr. Jennifer Karlin**, Minnesota State University, Mankato

Dr. Karlin is Research Professor at the Minnesota State University, Mankato. She holds a PhD in Industrial and Operations Engineering from the University of Michigan, and does extensive research in engineering education in the areas of student development, faculty development, organizational development, operational excellence, and regional economic development.

*Tuesday, June 26*

## T432·Globalizing Engineering Education? A Retrospective on the Newport Declaration

Panel · International Division

**Tue. June 26, 2018 1:30 PM to 3:00 PM**

**Room 355 A, Convention Center - Salt Palace**

Released in 2008 in the wake of a National Science Foundation-sponsored summit meeting, The Newport Declaration to Globalize U.S. Engineering Education was initially endorsed by 19 signatories and later attracted nearly 50 more signatures of support. The document built a strong case for enhancing the ability of all engineering students to span national and cultural boundaries, in turn calling on educators, administrators, and policymakers to “integrate global education into the engineering curriculum to impact all students.” Since the release of the Newport Declaration, the number of engineering s ... (continued)

**Moderated by** Prof. Brent K. Jesiek

**Speakers**

**1. Dr. Larry J. Shuman**, University of Pittsburgh

Larry J. Shuman is a Distinguished Service Professor of Industrial Engineering, University of Pittsburgh, having recently stepped down as Senior Associate Dean for Academic Affairs. In that latter position he led the development of a very successful cooperative engineering education program and an innovative study abroad program. This included the “Plus3” integrated field trip abroad for rising engineering and business sophomores, which received the 2005 Heiskell Award from the Institute for International Education for “Innovations in Study Abroad,” the INNOVATE program (initially with Rice Univ ... (continued)

**2. Prof. Kent J Rissmiller**

Kent Rissmiller, Ph.D., JD, is Dean, ad interim, of the Interdisciplinary and Global Studies Division at Worcester Polytechnic Institute, Worcester, MA. He has also been the Associate

Dean of the Division since 2006. As Dean, he is responsible for WPI's Global Projects Program which provides off-campus project opportunities for nearly 1000 students and their faculty advisers at 50 project centers in 26 countries. In addition, he is active in assessing student learning in the global program and has co-authored papers on the impact of program participation on WPI alumni. Prof. Rissmiller is also an associate professor in Social Science and Policy Studies at WPI.

**3. Dr. Niko Tracksdorf**, University of Rhode Island

Niko Tracksdorf joined the University of Rhode Island as Assistant Professor of German and Associate Director of the German International Engineering Program in June 2018. His research and teaching focuses on German for Engineers, intercultural competence, and online and blended learning. In his previous positions as coordinator for the German IEP at URI, and as assistant for the Eurotech program at the University of Connecticut, he helped prepare engineering students linguistically and culturally for international study, research, and internship opportunities. He is currently serving on the AATG ... (continued)

**4. Dr. Yannis C. Yortsos**, University of Southern California

Yannis C. Yortsos is the Dean of the USC Viterbi School of Engineering and the Zohrab Kaprielian Chair in Engineering. He received a BS degree from the National Technical University of Athens, Greece, and MS and PhD degrees from the California Institute of Technology, all in chemical engineering. He was elected to the National Academy of Engineering in 2008 where he also serves as a member of the NAE Council. Yortsos is an honorary member of the AIME (2011), of the Academy of Athens (2013), a recipient of the Ellis Medal of Honor (2014) and an honorary professor at Tsinghua University (2017). As d ... (continued)

**5. E. Daniel Hirleman**, Purdue University

E. Daniel Hirleman Jr. joined Purdue as Chief Corporate and Global Partnerships Officer in 2014 with responsibility for substantially growing research and education partnerships with the private sector, and for strategic global partnerships with nations, universities, NGOs and companies. He serves as Purdue's Senior International Officer, and in 2015 and 2016 was Senior Intellectual Property Officer. Dr. Hirleman has also served in faculty and administrative roles at Arizona State and University of California, Merced. He has received the INEER Int'l Achievement Award, the Hon. George Brown Award ... (continued)

**6. Prof. Gayle G. Elliott**, University of Cincinnati

Gayle Elliott earned undergraduate and graduate degrees at the University of Cincinnati (UC). She is a Professor of Experiential Learning and has been responsible for UC's International Co-op Program (ICP) for 25 years. She has extensive experience preparing students, developing international co-op jobs, and developing international exchange programs.



**7. Prof. Brent K Jesiek**, Purdue University-Main Campus, West Lafayette (College of Engineering)

Brent K. Jesiek is an Associate Professor in the Schools of Engineering Education and Electrical and Computer Engineering at Purdue University. He is currently chair of the Engineering Education graduate program at Purdue, and is a former Associate Director of Global Engineering Programs at Purdue. He also leads the Global Engineering Education Collaboratory (GEEC) research group, and is the recipient of an NSF CAREER award to study boundary-spanning roles and competencies among early career engineers.

## T434·Imagining and Reimagining Engineering Education as a Dynamic System

Technical · Liberal Education/Engineering & Society Division

**Tue. June 26, 2018 1:30 PM to 3:00 PM**

**Room 255 C, Convention Center - Salt Palace**

**Moderated by** Dr. Dean Nieusma

### Papers Presented

- 1. The Distributed System of Governance in Engineering Education: A Report on Initial Findings** [[view paper](#)]Dr. Atsushi Akeru (Rensselaer Polytechnic Institute), Dr. Donna M. Riley (Purdue University, West Lafayette), Dr. Alan Cheville (Bucknell University), Dr. Jennifer Karlin (Minnesota State University, Mankato), and Thomas A. De Pree (Rensselaer Polytechnic Institute)
- 2. Building Your Change-agent Toolkit: The Power of Story** [[view paper](#)]Dr. Jennifer Karlin (Minnesota State University, Mankato), Prof. Rebecca A. Bates (Minnesota State University, Mankato), Dr. Cheryl Allendoerfer (University of Washington), Dr. Dan Ewert (Anderson Industries), and Mr. Ronald R. Ulseth (Itasca Community College)
- 3. Scaling Up or Scale-making? Examining Sociocultural Factors in a New Model for Engineering Mathematics Education** [[view paper](#)]Dr. Janet Y. Tsai (University of Colorado, Boulder), Kevin O'Connor (University of Colorado, Boulder), Dr. Beth A. Myers (University of Colorado Boulder), Dr. Jacquelyn F. Sullivan (University of Colorado, Boulder), Prof. Derek T. Reamon (University of Colorado, Boulder), and Dr. Kenneth M. Anderson (University of Colorado, Boulder)

## T534·Imagining Others, Defining Self Through Consideration of Ethical and Social Implications

Technical · Liberal Education/Engineering & Society Division

**Tue. June 26, 2018 3:15 PM to 4:45 PM**

**Room 155 F, Convention Center - Salt Palace**

**Moderated by** Dr. Sara A. Atwood

## Papers Presented

1. **Examining the Relationships Between How Students Construct Stakeholders and the Ways Students Conceptualize Harm from Engineering Design** [[view paper](#)] Alexis Papak (University of Maryland, College Park), Dr. Ayush Gupta (University of Maryland, College Park), and Dr. Chandra Anne Turpen (University of Maryland, College Park)

**LEES Nominee for PIC 3 Best Paper:** The committee were impressed with the focus on student perspectives. The examination of student engagement with ethics and ethical reasoning builds on past work on the mismatch between engineering-science dominated engineering curricula and the assumptions students carry into their enrollment within an engineering school. This work provides an empirical depth to this observation, while also exploring other dimensions of the student's moral and ethical engagement and development. The methods are innovative and robust and the authors' theoretical argumentation based on the empirical results is also impressive.

2. **Engineers' Imaginaries of 'The Public': Dominant Themes from Interviews with Engineering Students, Faculty, and Professionals** [[view paper](#)] Dr. Nathan E. Canney (CYS Structural Engineers Inc.)
3. **Exploring Students' and Instructors' Perceptions of Engineering: Case Studies of Professionally Focused and Career Exploration Courses** [[view paper](#)] Dr. Idalis Villanueva (Utah State University), Dr. Louis S. Nadelson (Colorado Mesa University), Dr. Jana Bouwma-Gearhart (Affiliation unknown), Katherine L. Youmans (Utah State University), Sarah Lanci (Colorado Mesa University), and Dr. Adam Lenz (Oregon State University)
4. **Challenges and Opportunities in International Service Learning** [[view paper](#)] Dr. Tina Lee (University of Wisconsin-Stout), Dr. Devin R. Berg (University of Wisconsin-Stout), and Dr. Elizabeth A. Buchanan (University of Wisconsin-Stout)

## T634·LEES Business Meeting

Business · Liberal Education/Engineering & Society Division

**Tue. June 26, 2018 5:00 PM to 6:00 PM**

**Room 250 F, Convention Center - Salt Palace**

## T734·LEES Reception and Dinner

Social · Liberal Education/Engineering & Society Division

**Tue. June 26, 2018 7:00 PM to 9:00 PM**

**Good Grammar**

**69 East Gallivan Ave., Salt Lake City, UT 84111**

**Session Description**

Come eat, drink, and be merry with your LEES friends and colleagues. The division will provide appetizers and wine for the group, and you can certainly pay for additional food and beverages

yourself if you wish. See you there! Good Grammar, 69 East Gallivan Ave.,  
Salt Lake City, UT 84111

*Wednesday, June 27*

## W1112A·Revealing the Invisible: Engineering Course Activities that Address Privilege, -Isms, and Power Relations (Interactive Session)

*NOTE: The session information below is the most current information and differs from the printed program guide.*

**Panel** · ASEE Diversity Committee , Faculty Development Constituency Committee, Design in Engineering Education Division, Liberal Education/Engineering & Society Division, International Division, and Minorities in Engineering Division

**Wed. June 27, 2018 8:00 AM to 9:30 AM**

**Salon H, HQ Hotel - Marriott at City Creek**

Privilege is often not recognizable by those who benefit from the consequential unearned advantages (McIntosh, 2010). Undetected, this “invisible knapsack,” as defined by Peggy McIntosh, perpetuates through intergenerational inheritance, normalizing the resulting inequities. In the United States there are entrenched notions of superiority and inferiority tied to many socially constructed identities such as race, ethnicity, gender, and socio-economic status. The subsequent hierarchies place whiteness, European traditions, masculinity and middle-to-high socioeconomic status at the top, entitling the ... (continued)

### Speakers

1. **Dr. Odesma Onika Dalrymple**, University of San Diego, Assistant Professor, Industrial Engineering
2. **Dr. Susan M Lord**, University of San Diego, Professor & Chair, General Engineering
3. **Diana Chen**, University of San Diego, Assistant Professor, General Engineering
4. **Dr. Joel Alejandro Mejia**, University of San Diego, Assistant Professor, General Engineering

### Papers Presented

1. **Revealing the Invisible: Conversations about -Isms and Power Relations in Engineering Courses** [[view paper](#)]Dr. Joel Alejandro Mejia (University of San Diego), Dr. Diana A. Chen (University of San Diego), Dr. Odesma Onika Dalrymple (University of San Diego), and Dr. Susan M Lord (University of San Diego)

## W134· Seeking Resilience and Learning to Thrive Through Engineering Education

**Technical** · Liberal Education/Engineering & Society Division

**Wed. June 27, 2018 8:00 AM to 9:30 AM**

**Room 260 B, Convention Center - Salt Palace**

1. **Moderated by** Mr. Jared David Berezin

### Papers Presented

1. **Thriving for Engineering Students and Institutions: Definition, Potential Impact, and Proposed Conceptual Framework** [[view paper](#)]Ms. Julianna Sun Ge (Purdue University, West Lafayette) and Dr. Edward J. Berger (Purdue University, West Lafayette)
2. **Inner Engineering: A Convergent Mixed Methods Study Evaluating the Use of Contemplative Practices to Promote Resilience Among Freshman Engineering Students** [[view paper](#)]Mr. Mark V. Huerta (Arizona State University)
3. **Work in Progress: Understanding Student Perceptions of Stress as Part of Engineering Culture** [[view paper](#)]Dr. Karin Jensen (University of Illinois, Urbana-Champaign) and Dr. Kelly J. Cross (University of Illinois, Urbana-Champaign)
4. **Fostering Engineering Thinking in a Democratic Learning Space: A Classroom Application Pilot Study in the Azraq Refugee Camp, Jordan** [[view paper](#)]Mr. Claudio Cesar Silva de Freitas (Purdue University, West Lafayette), Zachary James Beyer (Purdue University, West Lafayette), Mr. Hassan Ali Al Yagoub (Purdue University, West Lafayette), and Prof. Jennifer DeBoer (Purdue University, West Lafayette)

## W2112·DISTINGUISHED LECTURE: A Voice for Change – Building an Inclusive Future with Local Policy and Engineers

**Dist. Lecture** · ASEE Diversity Committee , Environmental Engineering Division, Civil Engineering Division, Community Engagement Division, Energy Conversion and Conservation Division, Liberal Education/Engineering & Society Division, and Engineering Ethics Division

**Wed. June 27, 2018 9:45 AM to 11:15 AM**

**Room 155 E, Convention Center - Salt Palace**

Since the Year of Action on Diversity, the social and political landscape of the United States has changed significantly. Finding ways to bridge divides is more important now than ever. In 2015, the very conservative Salt Lake City elected its second female, and first openly gay, mayor. Mayor Jackie Biskupski brought a vision for the future that built on the best of the city's culture as a community that values the environment, mutual support, and high quality of life. She also brought her understanding of how important vibrant small and large business activity is for a thriving community. See ... ([continued](#))

Speaker

### **Jackie Biskupski**

Mayor, Salt Lake City

Jackie Biskupski took office as Salt Lake City mayor on January 4, 2016. Her political career also includes 13 years as a member of the Utah House of Representatives from 1998 to 2011, where she made history as the state's first openly gay elected official.

The Mayor's top priorities include economic development, homelessness, air quality, affordable housing, and creating an inclusive and welcoming city. She is focused on building a city that fosters equity, opportunity, and hope for everyone.

She has worked throughout her career to mentor others--particularly young women--in politics, publ ... (continued)

## W220·DISTINGUISHED LECTURE: It Takes More Than Good Intentions – Do Engineers Have Responsibility for Social In/Justice?

Dist. Lecture · Engineering Ethics Division and Liberal Education/Engineering & Society Division

Wed. June 27, 2018 9:45 AM to 11:15 AM

Room 155 D, Convention Center - Salt Palace

The idea that engineering makes a positive contribution to human well-being is a central aspect of engineering identity and a particularly important motivation to current undergraduate engineering students. The Grand Challenges put forward by the National Academy of Engineering, for example, take as their foundation the belief that the 20th century was a time in which “engineering revolutionized and improved virtually every aspect of human life.” From a historical perspective, however, the relationship between engineering and social justice is complicated, particularly to the extent that engineers work for employers and their clients under the demands of business environments.

Deborah G. Johnson, one of the leading experts in engineering ethics, has recently suggested that the social responsibility of engineers should be understood not as the product of a social contract between the profession and society, but rather as a form of accountability in which engineers and the organizations of which they are a part assume obligations to explain and justify behavior and share norms regarding what needs to be explained, what counts as an adequate explanation, and what consequences might follow. As Johnson aptly points out, “Engineers are not required to explain or justify their behavior to publics until something goes wrong or until engineers—in the act of whistleblowing—bring something to the attention of a public.” Johnson urges us to pay attention to the ways in which the “social responsibilities of engineers are constructed and manifested through concrete practice in which norms and expectations are manifested and enforced.” The integration of engineering ethics with the perspectives of Science, Technology, and Society (STS) provides a framework for understanding the interaction between norms, expectations, and practices. In this lecture, Johnson will provide a roadmap for such integration.

### Speaker

#### 1. Dr. Deborah Johnson

University of Virginia

Deborah G. Johnson recently retired as the Anne Shirley Carter Olsson Professor of Applied Ethics in the Department of Science, Technology, and Society in the School of Engineering and Applied Sciences of the University of Virginia. Johnson received the John Barwise prize from the American Philosophical Association in 2004; the Sterling Olmsted Award from the Liberal Education Division of the American Society for Engineering Education in 2001; and the ACM SIGCAS Making a Difference Award in 2000. Johnson is the author or editor of *iComputer Ethics/i*, *iComputers, Ethics, and Social Values/i* (co-edited ... (continued)

## W334A·Meeting for Incoming/Current Program Chairs and Division Chairs

**Business** · Liberal Education/Engineering & Society Division, Aerospace Division, Biomedical Engineering Division, Chemical Engineering Division, College Industry Partnerships Division, Community Engagement Division, Computers in Education Division, Computing and Information Technology Division, Construction Engineering Division, Continuing Professional Development Division, Cooperative and Experiential Education Division, Educational Research and Methods Division, Engineering and Public Policy Division, Engineering Design Graphics Division, Engineering Libraries Division, Engineering Management Division, Engineering Technology Division, Entrepreneurship & Engineering Innovation Division, Environmental Engineering Division, Faculty Development Constituent Committee Division, Faculty Development Constituency Committee, First-Year Programs Division, Graduate Studies Division, Industrial Engineering Division, Instrumentation Division, Mathematics Division, Mechanics Division, Military and Veterans Division, New Engineering Educators Division, Pre-College Engineering Education Division, Software Engineering Division, Student Division, and Women in Engineering Division

**Wed. June 27, 2018 11:30 AM to 1:00 PM**

**Room 251 F, Convention Center - Salt Palace**

### Session Description

The Incoming/Current Program Chairs & Division Chairs' Meeting continues provide a valuable opportunity for division chairs and program chairs to discuss topics of common interest and to share "best practices" not only with their own incoming program chairs, but with program chairs across the divisions. Given the regular rotation of officers, we have upheld this as an annual event, both to enha ... (continued)

## W334B·Undergraduate Peer Educators: Mentoring, Observing, Learning

**Technical** · Liberal Education/Engineering & Society Division

**Wed. June 27, 2018 11:30 AM to 1:00 PM**

**Room 151 C, Convention Center - Salt Palace**

1. **Moderated by** Dr. Rider Foley [change from published program]

### Papers Presented

1. **Successes and Challenges in Supporting Undergraduate Peer Educators to Notice and Respond to Equity Considerations within Design Teams** [[view paper](#)]Dr. Chandra Anne Turpen (University of Maryland, College Park), Dr. Ayush Gupta (University of Maryland, College Park), Dr. Jennifer Radoff (University of Maryland, College Park), Andrew Elby (University of Maryland, College Park), Hannah Sabo (Affiliation unknown), and Dr. Gina Marie Quan (University of Maryland, College Park)
2. **Motivational Factors of Undergraduate Engineering Students in Introductory Non-technical Courses** [[view paper](#)]Dr. YunJeong Chang (University of Virginia) and Dr. Rider W. Foley (University of Virginia)
3. **Peer Review and Reflection in Engineering Labs: Writing to Learn and Learning to Write** [[view paper](#)]Dr. Vanessa Svihla (University of New Mexico), Ms. Catherine Anne Hubka (University of New Mexico), and Prof. Eva Chi (University of New Mexico)
4. **Using Undergraduate Mentors to Scale the Teaching of Engineering Writing** [[view paper](#)]Mr. Michael Alley (Pennsylvania State University, University Park)



## W334C·Embedding Sociotechnical Systems Thinking I

Technical · Liberal Education/Engineering & Society Division

Wed. June 27, 2018 11:30 AM to 1:00 PM

Room 155 A, Convention Center - Salt Palace

Moderated by Dr. Amber Genau [change from published program]

### Papers Presented

1. **Measuring Change over Time in Sociotechnical Thinking: A Survey/validation Model for Sociotechnical Habits of Mind** [[view paper](#)]Dr. Jon A. Leydens (Colorado School of Mines), Dr. Kathryn Johnson (Colorado School of Mines), Dr. Stephanie Claussen (Colorado School of Mines), Prof. Jenifer Blacklock (University of Colorado, Boulder), Dr. Barbara M. Moskal (Texas Tech University), and Olivia Cordova (Colorado School of Mines)
2. **Engineering and Sustainability: The Challenge of Integrating Social and Ethical Issues into a Technical Course** [[view paper](#)]Dr. Natasha A. Andrade (University of Maryland, College Park) and Dr. David Tomblin (University of Maryland, College Park)
3. **Connecting with First-year Engineering Students' Interest in Social Justice Issues through Ethics Lessons to Sustain Student Retention in Engineering** [[view paper](#)]Ms. Kathryn Waugaman (University of Colorado Boulder), Dr. Janet Y Tsai (University of Colorado, Boulder), and Dr. Malinda S Zarske (University of Colorado, Boulder)

## W434·Maps, Metaphors, Tweets, and Drafts

Technical · Liberal Education/Engineering & Society Division

Wed. June 27, 2018 1:15 PM to 3:00 PM

Room 151 D, Convention Center - Salt Palace

Moderated by Dr. John W. Brocato

### Papers Presented

1. **Undergraduate Engineering Students' Use of Metaphor in Presenting Prototypes to a Technical and Non-technical Public Audience** [[view paper](#)]Mr. Jared David Berezin (Massachusetts Institute of Technology)
2. **Refining Concept Maps as Method to Assess Learning Outcomes Among Engineering Students**[[view paper](#)]Dr. Sean Michael Ferguson (University of Virginia), Dr. Rider W. Foley (University of Virginia), Mr. John Kofi Eshirov Jr. (University of Virginia), and Miss Catherine Claire Pollack (University of Virginia)
3. **Improving Senior Design Proposals Through Revision by Responding to Reviewer Comments**[[view paper](#)]Prof. Judy Randi (University of New Haven), Dr. Ronald S. Harichandran (University of New Haven), Dr. Joseph A. Levert P.E. (University of New Haven), and Dr. Bijan Karimi (University of New Haven)

4. **Classical Rhetoric and the Political Tweet** [[view paper](#)]Dr. Caroline Carvill (Rose-Hulman Institute of Technology) and Dr. Anneliese Watt (Rose-Hulman Institute of Technology)

## W4112A·Action on Diversity - Round Table Conversations on Diversity, Equity, and Inclusion

Panel · ASEE Diversity Committee , International Division, and Minorities in Engineering Division

**Wed. June 27, 2018 1:30 PM to 3:00 PM**

**Room 150 F, Convention Center - Salt Palace**

Bring your voice to the table. We will have multiple topics for small groups to discuss, including how to start a difficult conversation about diversity. Come ready to listen, learn and contribute. We will provide an opportunity to plan for next steps that all can take to support diversity, equity, and inclusion in engineering.

**Moderated by** Dr. Susan E. Walden

Speaker

1. **Prof. Rebecca A Bates**, Minnesota State University, Mankato

And other ASEE Diversity Committee members and delegates including Christopher Carr (NSBE), Tony Butterfield (University of Utah), and Kelly Cross (University of Illinois Urbana-Champaign)

## W534·Embedding Sociotechnical Systems Thinking II

Technical · Liberal Education/Engineering & Society Division

**Wed. June 27, 2018 3:15 PM to 4:45 PM**

**Room 151 F, Convention Center - Salt Palace**

**Moderated by** Prof. Dr. Bernd Steffensen

Papers Presented

1. **Measuring the Impact of an Interdisciplinary Experiential-learning Activity on Student Learning**[[view paper](#)]Dr. Anne-Marie Nickel (Milwaukee School of Engineering), Dr. Jennifer Kelso Farrell (Milwaukee School of Engineering), Dr. Alicia Domack (Milwaukee School of Engineering), and Ms. Gina Elizabeth Mazzone (Milwaukee School of Engineering)
2. **Exploring the Human Dimension of Engineering Through the Built Environment** [[view paper](#)]Dr. Jeffrey C. Evans P.E. (Bucknell University)
3. **Reclaiming General Education: History for Engineers** [[view paper](#)]Dr. Amber Genau (University of Alabama at Birmingham) and Dr. Andre Millard (University of Alabama at Birmingham)
4. **Science, Technology, Engineering, Art, and Math (STEAM) Diplomacy: Preliminary Results from an Initial Pilot Course** [[view paper](#)]Dr. Daniel B. Oerther (Missouri University of Science & Technology)