

## **Conference at a Glance**



For detailed session information visit www.asee.org/osl.

ATURDAT, JUNE 15	RDAY, JUNE 15 SUNDAY, JUNE 16  ation Open - 4:00 pm - 7:00 pm  Registration Open - 8:00 am - 7:00 pm		MONDAY, JUNE 17  TUESDAY, JUNE 18		WEDNESDAY, JUNE 19 THURSDA		THURSDAY, JUNE 20
egistration Open - 4:00 pm - 7:00 pm			Registration Open - 7:00 am - 5:00 pm	Registration Open - 8:00 am - 5:00 p	gistration Open - 8:00 am - 5:00 pm		
	Exhibit Hall Open -	6:00 pm - 7:30 pm	Exhibit Hall Open - 9:30 am - 6:00 pm	Exhibit Hall Open - 8:00 am - 3:00 pr	n		
				Division Business Meetings Only (Optional) 7:00 am - 8:00 am			
ASEE Executive Committee Meeting 8:00 am - 10:00 am	Finance Committee Meetings 8:00 am – 9:30 am	Sunday Workshops	Monday Plenary - 8:00 am - 9:30 am	Technical Sessions & Business Meetings 8:00 am - 9:30 am 9:30 am 9:30 am	Technical Sessions & Business Meetings 8:00 am – 9:30 am	2019/2020 ASEE Board of Directors Meeting 7:30 am - 9:30 am	
ASEE Finance Committee Meeting 10:00 am - Noon	ASEE Board of Directors Meeting 9:30 am - Noon	9:00 am - Noon	Focus on Exhibits Brunch & NSF Poster Session 9:45 am - 11:15 am	Tuesday Plenary - Best Paper Recognition & CMC Industry Speake 9:45 am - 11:15 am		ned Lectures - 11:15 am	
ASEE Executive Committee Meeting 12:30 pm – 1:30 pm	PIC-V Business Metting & Lunch Noon - 1:00 pm	Greet the Stars! - New Members and First-Time Attendees Lunch Noon - 1:00 pm	Technical Sessions & Business Meetings 11:30 am - 1:00 pm	Focus on Exhibits Lunch & ASEE Divsion Poster Sessions 11:30 am - 1:00 pm  ASEE Town Hall Association Finances & Gene Body Meeting 11:30 am - 1:00 pm	*Business Meetings 11:30 am	ASEE Annual Awards Luncheon 11:30 am - 1:00 pm	ASEE Board of Directors Retr 8:30 am - 3:00 pm
ASEE Long-Range Planning 1:30 pm – 4:00 pm	ASEE Board of Directors	Technical Sessions Only 1:15 pm - 2:45 pm	Technical Sessions & Business Meetings 1:30 pm - 3:00 pm	Technical Sessions & Business Meetings 1:30 pm - 3:00 pm  Technical Sessions Technical Session 1:30 pm - 3:00 pm	& Business Meetings	ASEE 2020 Program Chair Orientation 1:30 pm - 3:00 pm	
ASEE Diversity & PIC I-V Meeting Meetings - 4:00 pm - 5:30 pm	Meeting Continued 1:15 pm - 4:00 pm	Technical Sessions Only 3:00 pm - 4:30 pm	Technical Sessions & Business Meetings 3:15 pm - 4:45 pm	Technical Sessions & Business Meetings 3:15 pm - 4:45 pm  Technical Session 3:15 pm 4:45 pm	Technical Sess	sions & Business i pm - 4:45 pm	
Taste of Tampa 6:00 pm - 9:00 pm Complimentary for All Attendees		n Mixer - 6:00 pm	Focus on Exhibits Summertime Social 5:00 pm - 6:00 pm	Division Business Meetings Only (Optional) 5:00 pm - 6:00 pm	International Forum	Farewell Reception & n Poster Presenations - 7:00 pm	
	Focus on Exhibits \ & Best Paper Nomi	Welcome Reception	Division Social Events (Optional)	Division Social Events (Optional)  Institutional Council Reception (by Invitation	on.		



## 2019 COMMUNITY SERVICE ACTIVITY: FLORIDA AQUARIUM

Date: Saturday, June 15 Time: 1 p.m. to 4 p.m.

**Location: University of South Florida** 

### Ticketed event: \$25 in advance, \$35 on-site registration

For the fifth straight year, the Community Engagement Division is coordinating a pre-conference community service event. This year, participants will join local students to explore the many exciting curricular and cocurricular links between the University of South Florida engineering faculty and the Florida Aquarium in Tampa. Community-service novices and seasoned hands alike will enjoy this opportunity to learn from experts about developing effective and transformative academic-community collaborations. Speakers include electrical engineer NATHAN E. CANNEY, P.E., a scholar of community engagement, social responsibility, and ethics, and MAYA A. TROTZ, a University of South Florida professor of civil and environmental engineering who has earned recognition for her work on nontraditional university partnerships locally and internationally, including with K-12 schools.

## ASEE 101 - HOW TO GET INVOLVED WITH ASEE

Date: Saturday, June 15 Time: 5 p.m. to 6 p.m.

Location: Room 10, Tampa Convention Center

Join us at this special session, hosted by ASEE President Stephanie Farrell, to learn what makes ASEE so unique and how you can get involved as a volunteer in our dynamic organization.

### BACK BY POPULAR DEMAND: TASTE OF THE CITY

Date: Saturday, June 15 Time: 6 p.m. to 9 p.m.

Location: Riverwalk, Tampa Convention Center

Now in its third year, this festival of local gastronomic delights has become an Annual Conference highlight. Get your conference off to a great start by gathering with friends to sample Tampa-created food and drink.

### **ASEE'S LIVING WALL**

Date: Saturday, June 15, to Wednesday, June 19
Time: Available during registration hours
Location: Exhibit Hall Landing,
Tampa Convention Center

Each year, conference attendees contribute their thoughts to ASEE's Living Wall by writing a response to a particular question or idea. The Wall is preserved and displayed from year to year, growing bigger and bigger while serving as a historical document of our conference attendees' insights, ruminations, and reflections. We hope you'll take a few moments to leave your legacy.

### **ASEE ACTIVE: SUNRISE GENTLE YOGA**

Date: Sunday, June 16, to Wednesday, June 19
Time: 7 a.m. to 7:45 a.m.
Location: Exhibit Hall Landing,
Tampa Convention Center

Join your friends and colleagues as we jump-start our day with a renewing stretch and meditation class! (Mats and exercise clothes are not required.)

## ENGINEERING AND ENGINEERING TECHNOLOGY CHAIRS CONCLAVE

Date: Sunday, June 16
Time: 8:30 a.m. to 4:30 p.m.
Location: Grand Salon G. Tampa Marriott Waterside

## Ticketed event: \$200 in advance and \$250 on-site registration

The ASEE Chairs Conclave is an exclusive forum for engineering and engineering technology chairs to exchange ideas and experiences, talk through challenges, and build working relationships. Designed by chairs, for chairs, this one-day event provides academic chairpersons with the knowledge and opportunities to enhance their leadership skills and encourage the success of their institutional units. Learn more at https://chairsconclave.asee.org.

## GREET THE STARS! NEW MEMBERS AND FIRST-TIME ATTENDEES LUNCH

Date: Sunday, June 16
Time: Noon to 1 p.m.
Location: Grand Ballroom A,
Tampa Convention Center

Are you a new member as of Jan. 1, 2019 or a first-time attendee? Come hear what ASEE members and the Annual Conference are all about at this special luncheon presented by Gary Steffen, Vice President for Member Affairs, and the ASEE Board of Directors.

Seating is limited, and tickets will be sold on a first-come-first-served basis.

### **ASEE DIVISION MIXER**

Date: Sunday, June 16
Time: 4:30 p.m. to 6 p.m.
Location: Grand Ballrooms B & C,
Tampa Convention Center

One of our most popular events! Join your colleagues for music, refreshments, and networking at this special showcase of ASEE's various divisions.

This event is complimentary for all attendees.

# FOCUS ON EXHIBITS: WELCOME RECEPTION AND BEST PAPER NOMINEE POSTER SESSION

Date: Sunday, June 16 Time: 6 p.m. to 7:30 p.m.

Location: Exhibit Hall, Tampa Convention Center

Join your colleagues at the grand opening of the Exhibit Hall, which for the first time features a poster session for the best-paper nominees from 2018 along with a host of exciting new products, solutions, and technologies. Roam the expansive space while enjoying refreshments, catching up with old friends, and making new ones.

This event is complimentary for all attendees and will feature free beer and wine.

### **MONDAY PLENARY**

Date: Monday, June 17 Time: 8 a.m. to 9:30 a.m. Location: Grand Ballroom B & C, Tampa Convention Center

Join your friends and colleagues at our annual Monday Plenary, which will feature student winners of several national STEM contests as well as a keynote address. To close our "125 Years at the Heart of Engineering Education" anniversary celebration, an acting troupe will present a dramatic representation of ASEE through its recent years. The troupe is directed by Jeffrey Steiger, known for his unique theatrical presentations of academe-themed issues and who presented ASEE's early years at the 2018 opening plenary.



This year's keynote speaker is **EMILY BOYD**, a teaching professor in the department of mechanical engineering and materials science at Washington University in St. Louis. She will summarize the genesis, findings, and outcomes of the study she chaired on professional-track faculty in Washington

University's School of Engineering and Applied Science, share her experience leading university-level policy and cultural changes as co-president of WashU's Association of Teaching, Research, and Practice Faculty, and offer suggestions for how universities and engineering departments can create more welcoming, inclusive, and supportive environments for this increasingly important part of the professoriate.

## FOCUS ON EXHIBITS: BRUNCH & NSF GRANTEES POSTER SESSION

Date: Monday, June 17
Time: 9:45 a.m. to 11:15 a.m.
Location: Exhibit Hall, Tampa Convention Center

ASEE's exhibitors welcome you back for food and drink to start the day. Whether it's lab equipment, quality textbooks for your classes, or cutting-edge software, you'll likely find something interesting in the hall.

This event, which is complimentary for all attendees, also features the NSF Grantees Poster Session and the Two-Year College Division Model Design Competition.

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## FOCUS ON EXHIBITS: SUMMERTIME SOCIAL

Date: Monday, June 17 Time: 5 p.m. to 6 p.m.

**Exhibit Hall, Tampa Convention Center** 

Nothing says summer like a refreshing glass of sweet, cold lemonade. Escape Tampa's late-afternoon heat and see what's "hot" on the Exhibit Hall floor.

This event is complimentary for all attendees.

### **ASEE FELLOWS BREAKFAST**

Date: Tuesday, June 18 Time: 8 a.m. to 9:30 a.m.

Location: Florida Salon IV, Tampa Marriott Waterside

### Free ticketed event

This event is for ASEE Fellows only.

## TUESDAY PLENARY FEATURING ASEE'S INDUSTRY DAY SPEAKER

Date: Tuesday, June 18
Time: 9:45 a.m. to 11:15 a.m.
Location: Grand Ballroom B & C,
Tampa Convention Center

Join your friends and colleagues as we recognize the winners of the 2018 Best Overall PIC Paper, Best Overall Zone Paper, and Best Diversity Paper, and National Outstanding Teaching Award.

The Corporate Member Council Industry Day keynote speaker also will be featured.



SALISA L. BERRIEN Founder and CEO of COI Energy

With more than 25 years of experience in the electric power and smart-grid space, SaLisa Berrien has enjoyed a diverse career in the energy industry. She has worked in vertically integrated utilities

(PP&L and PECO Energy) prior to deregulation as well as ConEdison Solutions, a deregulated energy services company, and then on to smart grid, clean tech, big-data analytics, and software as a service (SaaS) solutions. She currently leads COI Energy, known as the "Lyft of energy" for creating a platform

that uses data analytics to identify sustainable ways for companies to conserve energy.

In her early career, Berrien sold the first electric vehicle (G-Van) in the Northeast region. She later went on to help EnerNOC move to the No. 1 demandresponse company in the industry. She believes if you do the right thing for your customers, they will remember you for that. She and COI Energy practice the Platinum Rule: "Do unto your customers as they would have you do unto them."

Berrien is also the founder and board chair of STRIVE Inc., a charitable organization that focuses on STEM leadership development training for students in third through 12th grades. In 2013, she established the COI Ladder Institute to focus on delivering leadership and empowerment services to millennials and women. The institute hosts an annual Women's Business Leadership Retreat Conference on Martha's Vineyard. Berrien also established several scholarship funds for high school and college students, including the Karl H. Lewis Engineering Impact Endowment at the University of Pittsburgh, where she earned a bachelor's degree in mechanical engineering, for students of African descent enrolled in engineering. She also holds an executive M.B.A. from Saint Joseph's University. A guest speaker at various conferences and events, including SXSW, the National Society of Black Engineers, Florida's Women in Energy Leadership Forum, and Morgan Stanley's Sustainable Futures Summit. Berrien considers philanthropy a core value. She believes that to whom much is given, much is required, and her life's mission is to positively impact the space she occupies by leaving it better off than it was when she found it.

### **BEST OVERALL PIC PAPER: PIC III**

**Paper:** "Case Study of a Blind Student Learning Engineering Graphics"

Author: Steven C. Zemke, Whitworth University

### **BEST OVERALL ZONE PAPER: ZONE I**

**Paper:** "Assessment of Progressive Learning of Ethics in Engineering Students Based on the Model of Domain Learning"

**Authors**: Ivan E. Esparragoza, Sadan Kulturel-Konak, and Abdullah Konak, Pennsylvania State University; Gül E. Kremer, Iowa State University; and Kristen A. Lee, Menlo College

### **BEST DIVERSITY PAPER**

**Paper:** "Translating Theory on Color-blind Racism to an Engineering Education Context: Illustrations From the Field of Engineering Education"

**Authors:** Alice Pawley, Purdue University; Joel Alejandro Mejia, University of San Diego; and Renata A. Revelo, University of Illinois-Chicago

## FOCUS ON EXHIBITS: LUNCH & ASEE DIVISION POSTER SESSIONS

Date: Tuesday, June 18 Time: 11:30 a.m. to 1 p.m.

Location: Exhibit Hall, Tampa Convention Center

Poster presentations are available for perusing over lunch. And if there's a booth you've yet to explore, this closing Exhibit Hall session will be your last chance.

This event is complimentary for all attendees.

## GENERAL BODY & FINANCES TOWN HALL

Date: Tuesday, June 18 Time: 11:30 a.m. to 1 p.m.

Location: Exhibit Hall Tutorial Lab, Tampa

**Convention Center** 

Join us for a frank discussion in which ASEE Board members will present the results of a 2017 member survey on ASEE governance and member services and share feedback from fall 2018 and spring 2019 section meetings.

## GLOBAL FORUM INTERNATIONAL BREAKFAST

Date: Wednesday, June 19 Time: 8 a.m. to 9:30 a.m.

Location: Florida Salon IV, Tampa Marriott Waterside

### **DISTINGUISHED LECTURE SERIES**

Date: Wednesday, June 19 Time: 9:45 a.m. to 11:15 p.m.

## DISTINGUISHED LECTURE—2018 BEST PIC AND ZONE PAPER PRESENTATIONS

Please note that the best overall PIC, zone, and diversity paper winners are presented at the Tuesday plenary.

### **BEST PIC I PAPER:**

Immersive Virtual Training Environment for Teaching Single- and Multi-queuing Theory: Industrial Engineering Queuing Theory Concepts

**Authors:** Michael Andre Hamilton, Parker Jones, Emily S. Wall, Vidanelage Lakshika Dayarathna, Debisree Ray, Ginnie Shih En Hsu, and Raed Jaradat, Mississippi State University

### **BEST PIC II PAPER:**

Development of a Survey Instrument to Evaluate Student Systems Engineering Ability

**Authors:** Diane Constance Aloisio., Karen Marais, and Hanxi Sun, Purdue University

### **BEST PIC IV PAPER:**

Faculty Perceptions of Challenges to Educating Engineering and Computing Students About Ethics and Societal Impacts

**Authors:** Madeline Polmear, Angela R Bielefeldt, Daniel Knight, and Chris Swan, University of Colorado-Boulder; Nathan E. Canney, CYS Structural Engineers Inc.

### **BEST PIC V PAPER:**

Is There a Connection Between Classroom Practices and Attitudes Towards Student-Centered Learning in Engineering?

Authors: Lydia Ross, Eugene Judson, Casey Jane Ankeny, Stephen J. Krause, Robert J. Culbertson, Keith D. Hjelmstad, Lindy Hamilton Mayled, Kristi Glassmeyer, James A. Middleton, Kara Lea Hjelmstad, Arizona State University

### **BEST ZONE II PAPER**

Comparison of Student and Faculty Perceptions of Intent and Effectiveness of Course Evaluations in an Engineering Curriculum

**Authors:** John Michael Van Treeck and Thomas P. James, Rose-Hulman Institute of Technology

### **BEST ZONE III PAPER**

Using the SCALE-UP Method to Create an Engaging First Year Engineering Course

**Author:** David J. Ewing, University of Texas-Arlington

### **BEST ZONE IV PAPER**

Strengthening Community College Engineering Programs Through Alternative Learning Strategies: Developing an Online Engineering Graphics Course Authors: Amelito Enriquez, Cañada College; Erik Dunmire, Marin College; Thomas Rebol, Monterey Peninsula College; Nicholas Langhoff, Skyline College; Tracy Huang, Cañada College

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## DISTINGUISHED LECTURE—CREATING A CULTURE OF INCLUSION: LET'S DO IT!



### **LAURA BOTTOMLEY**

Teaching Associate Professor of Engineering and Education and Director of the Women in Engineering and Engineering Place K-12 Outreach Programs North Carolina State University

The world faces ever increasing challenges, and engineering holds the key to the solution of many of them. But the nature of the challenges is such that they cannot be solved by the same kinds of minds that created them. Fortunately, the fields of engineering are ripe for a reformation that could lead to genuine change. Engineering education has opened up new horizons for interdisciplinary thinking, but more than a diversity of disciplines is not only necessary but also keenly wanting.

Gender and ethnic diversity in engineering has faced challenges over the past 50 years, with undergraduate engineering programs averaging about 18 percent women and less than 10 percent African-American/ Native American/Latinx over much of that time. Recruitment and retention of women and minorities in engineering has been the subject of research nearly as long. In fact, we know what to do to increase the percentage of women engaging in engineering. We have some pretty good ideas about what we need to do to change our field and ourselves so that we are welcoming to people of different ethnicities. What we need to do now is find ways to get people to convert the research into actual practice. Starting in prekindergarten, in both formal and informal education, and continuing to and through university programs, educators must embrace the techniques that our own research has shown are effective.

As an engineering educator and director of NC State's K-12 outreach program, Laura Bottomley has taught students in every grade, kindergarten to graduate school. At each of these levels, in and outside of class, she has made it a practice to use research-based practices aimed at encouraging gender diversity. For example, engineering summer camps she administers have between 35 percent and 50 percent women and 30 percent to 40 percent underrepresented minorities, while the proportion of women in NC State's incoming engineering class has risen to 28 percent with no change in admission processes.

DISTINGUISHED LECTURE—
"COME GET YOUR PEOPLE!" BREAKING
SILENCES ABOUT EQUITY IN ENGINEERING
EDUCATION RESEARCH



**ALICE PAWLEY** 

Associate Professor, School of Engineering Education Purdue University

To understand the persisting gender and race disparities among engineering students and professional engineers, researchers of engineering education equity have mostly

drawn on theories and methods of psychology. But increasingly, and from necessity, they are now applying theories from the humanities and cultural studies. These include gender, race, and class theories, and less commonly, queer, crip (disability), and intersectionality theories. Such boundary crossing between engineering education and cultural studies research provides a rich opportunity to rethink the direction of not only engineering education equity research but also engineering education research altogether. Not coincidentally, it occurs at a time of a global awakening to inequities spurred by the #metoo movement, #BlackLivesMatter organizing, and youth mobilizing against gun violence. But the ideas emerging from this work are profoundly unsettling in their questioning of assumptions long taken for granted and resulting in increased targeted harassment of STEM equity scholars.

Drawing on analogies from others fields and supported by her recent NSF CAREER research published in the *Journal of Engineering Education,* Alice Pawley will discuss the importance of turning our collective research attention on how we in the majority devastatingly maintain engineering education as a predominantly white, male, and inequitable space. Pawley, who was a principal investigator of Purdue's ADVANCE program from 2008 to 2014 and is an affiliate faculty member in Purdue's gender, women's, and sexuality studies program, has received several awards for her research on engineering undergraduates of color.

DISTINGUISHED LECTURE—
ALTERNATE-UNIVERSE ASEE: AN
ENGINEERING EDUCATION CONFERENCE
SESSION FROM A WORLD WHERE THE
MAJORITY OF ENGINEERS ARE DEAF



MEL CHUA Electrical and computer

engineer and engineering education researcher
Purdue University



IAN SMITH
Software engineer

What might engineering look like if deafness and signing were the norm? What different insights or approaches might deaf engineers have taken in developing it as a field? What would it be like if hearing/speech were an exception to be

"accommodated" in engineering classrooms built for visual communication?

Via the medium of interactive theater, experience a culturally deaf engineering education space conducted primarily in American Sign Language (ASL) by two deaf engineers. Audience members will explore how cultural assumptions, communication mediation, and other factors affect their Annual Conference as well as our own assumptions about what engineering education is, who is able to participate, and how participation is enabled. They then will have the opportunity to reflect on and discuss that experience together, extending the conversation beyond deafness/disability to broader issues of representation and engineering culture. This immersive session, presented by Mel Chua, a former *Prism* columnist who is pursuing a Ph.D. in engineering education from Purdue, and San Francisco software engineer Ian Smith, who recently served as the computer science content expert for an initiative to develop academic vocabulary in ASL for collegelevel subjects and beyond, drew top ratings at the 2018 Frontiers in Education conference.

DISTINGUISHED LECTURE—
SOCIAL DISRUPTION OF EMERGING
TECHNOLOGIES AND IMPLICATIONS FOR
ENGINEERING EDUCATION



EDWARD STRAUB
Director, SAE Office of
Automation
SAE International

Given the recent focus on emerging technologies, engineering education is expected to shift toward more socially relevant, outward-facing curricula. Such curricula

emphasize multidisciplinary learning, societal impact, experiential learning (within and outside of the traditional classroom), and a global mind-set. This discussion will focus on the value of a liberal arts education in developing solutions for 21st-century emerging technologies, particularly the implications for privacy, safety, workforce disruption associated with a driverless future, and the ethical, legal, and social impacts of autonomous vehicles. As director of SAE's Office of Automation, Edward Straub is tasked with coordinating industry and internal business units involved with issues and technology related to highly automated and connected vehicles. Prior to joining SAE, he served as technical program director and chief safety officer at the American Center for Mobility. His presentation will explore the growth in driverless technologies, the explosion of data-driven software development, innovation in vehicle design, including 3-D-printed composite bodies, and societal disruption involving vehicle ownership, parking, employment, privacy, and business models.

FEBRUARY 2019 CT7



DISTINGUISHED LECTURE—PIPELINE, PATHWAY, OR ECOSYSTEM: DO OUR METAPHORS MATTER?

### **ALAN CHEVILLE**

Professor and Chair, Electrical and Computer Engineering Bucknell University

We all hold mental models of educational systems that to some extent affect both our day-to-day activities and the ways we envision the future of engineering education. Consider the metaphor of STEM education's leaky pipeline, which, along with engineering beliefs about rigor, gives rise to concerns about the efficiency of education—and leads to such views as believing retention issues (leaks) can be fixed through appropriate investments (patches).

DISTINGUISHED LECTURE—
COMMUNITY ENGAGEMENT ETHICS:
FIRST STEPS IN A CONVERSATION WITH
AFFECTED COMMUNITIES



NATHAN E. CANNEY P.E. Licensed civil engineer



YANNA LAMBRINIDOU
Adjunct Assistant Professor,
Department of Science and
Technology in Society

The body of literature about community engagement in engineering and the benefits for learning has grown significantly in recent years, as have the

numbers of students participating in engineering service projects that place them in direct contact with communities that often differ from their own. In some cases, these projects also end up assigning students to positions of authority as the technical "experts." Missing from the literature and practice, however, are the diverse voices of the community,

Virginia Tech

This panel is based on the premise that the engineering profession's systemic silencing of community voices can have severe and adverse impacts well beyond engineering education. These impacts can play a foundational role in shaping engineers' understandings of questions as basic as who "the public" is, who engineers are vis-a-vis "the public," and what it means and looks like to "hold paramount the safety, health, and welfare of the public." If engineers lack a platform that highlights community voices, a mind-set that supports engineers to listen to those voices, and a tool kit that allows engineers to refine their practice on the basis of those voices, they are left vulnerable to carrying out interventions that the very public they aim to serve deems inadequate, inappropriate, or even harmful. In this lively session, Nathan Canney, who taught civil engineering at Seattle University after earning his Ph.D. from the University of Colorado-Boulder, and Virginia Tech's Yanna Lambrinidou, a water-quality expert whose research has helped expose wrongdoing on the part of engineers and scientists in lead-tainted water crises in Washington, D.C., and Flint, Mich., explore how engineering education and, by extension, the culture of the engineering profession at large can leave engineers ill- equipped to engage with diverse communities.

DISTINGUISHED LECTURE—ENGAGEMENT
OF ENGINEERING SOCIETIES IN
UNDERGRADUATE ENGINEERING EDUCATION

Project Leadership and Steering Committee LEAH JAMIESON

(NAE) Steering Committee Chair, Ransburg
Distinguished Professor of Electrical and Computer
Engineering, and Dean Emerita, Purdue University

### STEPHANIE ADAMS

Dean, Frank Batten College of Engineering and Technology, Old Dominion University

### MARILYN BARGER

Principal Investigator and Executive Director, FLATE Hillsborough Community College

### **STEVEN BROWN**

Professor Emeritus, Counseling Psychology Program, School of Education, Loyola University

### **DON GIDDENS**

(NAE) Dean Emeritus, College of Engineering, Georgia Tech

### **ASAD MADNI**

(NAE) Former President, Chief Operating Officer, and Chief Technology Officer, BEI Technologies Inc.

### TOM PERRY, P.E.

Director, Engineering Education (ret.), ASME

### ANNE SPENCE

Clinical Associate Professor of Mechanical Engineering, Baylor University

### JOHN WALL

(NAE) Vice President and Chief Technical Officer (ret.), Cummins Inc.

### **GREGORY WASHINGTON**

Stacey Nicholas Dean of Engineering, University of California-Irvine

### **KENAN JARBOE**

**NAE Senior Program Officer** 

Over the past two years, through survey analyses and a series of workshops, the National Academy of Engineering (NAE), with NSF support, took an in-depth look at engineering societies' role and contributions to improving the effectiveness and quality of undergraduate education.

The project offered an opportunity to examine our understanding of the ways engineering societies are involved in undergraduate engineering education, including an opportunity for the societies, together with universities and industry, to share insights, learn what others are doing, and explore possible collaborations.

More in-depth workshops included planning a joint competition for undergraduate students based on the NAE Grand Challenges for Engineering—and resulted in an AAES database on competitions so societies know what others are doing. They also included the role of societies in defining "impact" on the engineering profession as a criterion for assessing faculty success, promoting diversity and inclusion, and helping align engineering education with the pace and direction of change in industry.

The lecture is relevant to the activities of academia, industry, and engineering societies, and advances the project's goal of sharing insights gained from a wide range of stakeholders and thereby stimulate possible follow-on activities.

DISTINGUISHED LECTURE—CAN
COMBATING CLIMATE CHANGE RESULT
IN A RENAISSANCE OF ELECTRIC POWER
ENGINEERING?



NED MOHAN

Professor of Electrical and Computer Engineering University of Minnesota-Twin Cities

This presentation will discuss the educational needs in electric power systems today. With climate change upon us, of our own making, how we produce,

transmit, and consume electricity must undergo a radical change. This climate crisis is a great opportunity, leading to the renaissance of electric power engineering.

IEEE Fellow and National Academy of Engineering member Ned Mohan argues for taking a holistic approach to "power systems" that recognizes that power electronics, electric drives, economics, public policy, etc. will all play crucial roles in next-generation power systems. Therefore, a large number of courses are needed that are synergistic. His presentation will argue for teaching a university-wide, climate-changerelated, first-year course on power/energy that could also be taught in high school, offering juniors and seniors only a handful of carefully designed courses to train them broadly, and being open to allowing graduates to take a few online courses for credit from outside of their home institutions, since no university has the required faculty or critical mass of students to teach certain courses.

## GLOBAL FORUM INTERNATIONAL LUNCHEON

Date: Wednesday, June 19
Time: 11:30 a.m. to 1 p.m.
Location: Florida Salon IV, Tampa Marriott Waterside

**Ticketed event** 

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Conference Highlights

### **Exposition Details**

### ASEE ANNUAL AWARDS LUNCH

Date: Wednesday, June 19 Time: 11:30 a.m. to 1 p.m. Location: Grand Ballroom D, Tampa Convention Center

ASEE offers awards in a variety of areas, from best paper, to teaching recognition, to professional and technical honors, to lifetime achievement. This event showcases some of ASEE's best and brightest, including our national award winners.

Complimentary for award winners and their guests; others can attend for \$50 in advance and \$60 onsite registration.

## PROGRAM AND DIVISION CHAIRS MEETING

Date: Wednesday, June 19
Time: 11:30 a.m. to 1 p.m.
Location: Grand Ballroom A,
Tampa Convention Center

This annual event provides a valuable opportunity for incoming and current program and division chairs to discuss topics of common interest and to share "best practices" not only with their own incoming program chairs but also across the divisions. It is separate from and is designed to complement the ASEE HQ session introducing new program chairs to Monolith and the ASEE review process. The proposed agenda includes:

- What was the "neatest thing" you saw at this year's Annual Conference?
- Highlights from last year's program/division chairs' meeting
- Organizing an ASEE report on "Engaging ASEE Sessions"
- Advice for incoming program chairs
- Report from the Town Hall meeting

## ASEE 2020 PROGRAM CHAIR ORIENTATION

Date: Wednesday, June 19 Time: 1:30 p.m. to 3 p.m.

Location: Room 3—Sponsor Tech Room,

**Tampa Convention Center** 

New program chairs or any current chairs who would like a refresher on ASEE's paper management system for the upcoming 2020 Annual Conference in Montreal, Canada, are encouraged to attend this session.

# PRESIDENT'S FAREWELL RECEPTION AND INTERNATIONAL FORUM POSTER PRESENTATIONS

Date: Wednesday, June 19
Time: 6 p.m. to 7:30 p.m.
Location: Grand Ballroom B and C,
Tampa Convention Center

Join your friends and colleagues as we bid farewell to Tampa. ASEE President Stephanie Farrell will pass the gavel to President-Elect Stephanie Adams as we look forward to Montreal, site of the 2020 Annual Conference & Exposition. This session will also feature the poster presentations from the International Forum.

This year's conference and exposition features an exciting schedule of activities in the Exhibit Hall, including refreshment breaks, product demonstrations, and interactive attractions.

### **EXPOSITION HOURS**

Sunday, June 16 6:00 p.m. - 7:30 p.m. Monday, June 17 9:30 a.m. - 6:00 p.m. Tuesday, June 18 8:00 a.m. - 3:00 p.m.

### 'FOCUS ON EXHIBITS' EVENTS

"Focus on Exhibits" events are exclusive; no sessions or other events will be held during these times. This allows attendees to visit the Exhibit Hall floor and provides an excellent networking opportunity in a dynamic atmosphere. The 2019 ASEE Annual Conference will feature more than four hours of "Focus on Exhibits" events, all of which include complimentary food and drinks.

See the Conference Highlights section (above) for details about important events in the Exhibit Hall.

Also of note, our popular **Two-Year College Model Design Competition** will take place on Monday, June 17, from 8:00 a.m. to 11:15 a.m. during the brunch. In this annual contest sponsored by ASEE's Two-year College Division, teams of first- and second-year engineering and engineering technology students put robots they have designed and built through a series of challenges.



Credit: Keir Magoulas

### **ABET Sessions**



ASEE is pleased to partner again with ABET (formerly the Accreditation Board for Engineering and Technology). The following ABET sessions are being offered at the 2019 Annual Conference:

## ACCREDITATION INFORMATION SESSION 2019

Date: Monday, June 17 Time: 11:30 a.m. to 1 p.m.

Location: Room 10, Tampa Convention Center

If you are new to ABET accreditation or have programs that are seeking ABET accreditation for the first time, this session is for you. Topics include what types of programs are accredited, what the accreditation criteria and procedures are, who writes them, who serve as evaluators and how they are assigned to your program, who makes final accreditation decisions and how assessment tools are used and misused in the ABET process, and to whom ABET matters (and why). Come ready with your questions and feedback for senior ABET representatives.

## LISTENING SESSION— ACADEMIC ADVISORY COUNCIL

Date: Monday, June 17 Time: 1:30 p.m. to 3 p.m.

Location: Room 10, Tampa Convention Center

Are you aware that ABET has an Academic Advisory Council (AAC)? Did you know that the AAC represents all four ABET commissions? Provosts, deans, and chairs from a variety of institutions across the United States populate the AAC. It is one of three councils that provide recommendations to the ABET board of directors on issues of importance, particularly to the academic community. This listening session will highlight the impactful work of the AAC, review its current initiatives, and invite you to present topics and issues for the AAC to consider working on to make meaningful and helpful changes to ABET processes and practices.

## HOW TO LEAD THE PREPARATION FOR AN ON-SITE VISIT

Date: Tuesday, June 18 Time: 8 a.m. to 9:30 a.m.

Location: Room 10, Tampa Convention Center

Leading the institutional planning and execution for an on-site ABET visit involves creating an infrastructure of support from many groups of stakeholders. This session features a panel representing both the engineering and engineering technology accreditation commissions and institutional representatives who hosted ABET visits during 2018. Best practices from the viewpoints of both program evaluators and institutional representatives will be of interest to institutional representatives and others preparing for on-site visits.

## BECOMING A PROGRAM EVALUATOR MIGHT BE FOR YOU!

Date: Tuesday, June 18 Time: 1:30 p.m. to 3 p.m.

Location: Room 10, Tampa Convention Center

Each year, more than 2,000 academic administrators and faculty, industry and government officials, and technical professionals serve as ABET program evaluators, making initial accreditation recommendations and working together to ensure quality in technical education worldwide. This session provides information for prospective ABET volunteers and covers:

- 1. ABET's need for new volunteers
- 2. The nature of program evaluator work
- 3. What's in it for you?
- 4. Threshold requirements for service and the program evaluator selection process
- 5. Training requirements
- 6. Program evaluator "life cycle"

### WHAT'S NEW AT ABET 2019?

Date: Tuesday, June 18 Time: 3:15 p.m. to 4:45 p.m.

Location: Room 10, Tampa Convention Center

ABET representatives will share findings from the Diversity and Inclusion Committee along with topics that are on the strategy horizon for ABET.

### **Corporate Member Council Industry Day**



### **INDUSTRY DAY: BREAKFAST**

Date: Tuesday, June 18 Time: 8 a.m. to 9:30 a.m.

Location: Grand Salon G, Tampa Marriott Waterside

### Free ticketed event

Corporate Member Council and College-Industry Partnership Division joint breakfast

### TUESDAY INDUSTRY DAY PLENARY

Date: Tuesday, June 18
Time: 9:45 a.m. to 11 a.m.
Location: Grand Ballroom B and C, Tampa
Convention Center

The Corporate Member Council keynote speaker is SaLisa L. Berrien, founder and CEO of COI Energy and a 25-year veteran in the electric power and smart-grid space.

### INDUSTRY DAY PANEL SESSION: INDUSTRY 4.0—OPPORTUNITY TO RETHINK AND RETOOL

Date: Tuesday, June 18 Time: 1:30 p.m. to 3:30 p.m.

Location: Room 21. Tampa Convention Center

The Fourth Industrial Revolution, known as Industry 4.0, is having dramatic technical and cultural impact as it disrupts socio-technical ecosystems around the world. Industry 4.0 (14.0) is an information revolution driven by the convergence of digital, biological, and physical technologies. Today, both industry and academia are grappling with the magnitude of change involved with I4.0. According to the World Economic Forum, 65 percent of children entering primary school today will end up working in completely new job types that currently do not exist. Future engineers will need cross-disciplinary skills for an era of ubiquitous innovation. The nations that develop and retain 14.0-ready talent will be strong contenders for local and global leadership. What is certain is that educators and industry must work more closely to harness these new technologies and create new educational models that address the opportunities and challenges associated with the 14.0 marketplace.

Moderated by David Pistrui, industry liaison and clinical professor of engineering at the University of Detroit Mercy, a select panel of experts from diverse industry backgrounds will share how they see 14.0 impacting their domains now, in the near term, and in the longer run.

# INDUSTRY DAY PANEL SESSION: BRAINSTORMING APPROACHES AND CHALLENGES TO DIVERSITY, EQUITY, AND INCLUSION IN INDUSTRY

Date: Tuesday, June 18 Time: 3:15 p.m. to 4:45 p.m.

Place: Room 21, Tampa Convention Center

The Corporate Member Council, in collaboration with the Committee on Diversity, Equity, and Inclusion, is excited to offer an interactive session on approaches and challenges for enabling a diverse, equitable, and inclusive workplace culture. Chevron, Siemens, and Northrop Grumman will facilitate a set of four roundrobin activities in which audience members participate and then share their takeaways. During the final half hour, the industry facilitators will report out on the trends and lessons learned, including what changes they intend to bring back to the workplace. A brief post-conference report based on notes from the activities will be shared with all participants.

## CORPORATE MEMBER COUNCIL BUSINESS MEETING

Date: Tuesday, June 18 Time: 5 p.m. to 6 p.m.

Place: Room 3, Tampa Convention Center

All attendees from CMC member companies are welcome and encouraged to attend this business meeting moderated by CMC Chair Howard Appelman. The agenda includes electing new board members, reporting on the past year's accomplishments, and planning future activities.

### INSTITUTIONAL COUNCIL RECEPTION

Date: Tuesday, June 18 Time: 7 p.m. to 9 p.m.

Sponsored by the Engineering Deans Council, Corporate Member Council, Engineering Research Council, and Engineering Technology Council, this free ticketed event is by invitation only.

### DISTINGUISHED LECTURE: ENGAGEMENT OF ENGINEERING SOCIETIES IN UNDERGRADUATE ENGINEERING EDUCATION

Date: Wednesday, June 19 Time: 9:45 a.m. to 11:45 a.m.

Location: Room 12, Tampa Convention Center

This CMC-sponsored session will feature panelists from the National Academy of Engineering and a discussion of NAE's two-year project analyzing the role of engineering professional societies—including ASEE—in improving undergraduate education. The findings are relevant to the activities of a variety of stakeholders in industry, academia, and engineering professional societies, and could stimulate possible follow-on activities.



Credit: Getty Images

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## Exhibitors (As of Jan. 25, 2019)



### THANK YOU TO OUR SPONSORS FOR THEIR OUTSTANDING SUPPORT!

**HOST** 





### **VISIONARY**





### **INNOVATOR**





### **PIONEER**





### **MENTOR**



### **LEADER**



ABET

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Altair Engineering
Amatrol Inc.

American Institute of Aeronautics

and Astronautics

American Society of Civil Engineers

American Society of Mechanical Engineers

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ASTM International Begell House Inc.

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Siemens Product Lifecycle Management Software Inc.

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The Order of the Engineer

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Utah State University - Engineering Education

Vernier Software & Technology

Virginia Tech

Wiley

Worcester Polytechnic Institute Zeiss Industrial Metrology

zyBooks

To view floor plan, please visit https://www.asee.org/

mobile/exhibits/7/expo\_map



### **REGISTRATION FEES**

Rate Type 2019	Early ends 04/08	Advance 04/09 - 05/16	Regular 05/17 - 6/19
Member	U.S. \$720	U.S. \$770	U.S. \$8 <mark>20</mark>
Nonmember	U.S. \$870	U.S. \$920	U.S. \$970
Life Member	U.S. \$105	U.S. \$105	U.S. \$105
Retiree Member	U.S. \$195	U.S. \$195	U.S. \$195
Student Member	Free	Free	Free
Student Nonmember	U.S. \$50	U.S. \$50	U.S. \$50
K-12 Teacher*	U.S. \$250	U.S. \$250	U.S. \$2 <mark>50</mark>
Industry Day**	U.S. \$290	U.S. \$290	U.S. \$290
Spouse/Guest	U.S. \$125	U.S. \$175	U.S. \$225
Child (7-16)***	U.S. \$35	U.S. \$35	U.S. \$35
Child (6 and under)***	Free	Free	Fr <mark>ee</mark>

### **INCLUDED IN YOUR REGISTRATION**

	Taste of Tampa	Division Mixer	Exposition & Focus on Exhibits Events	Plenaries	Technical Sessions	President's Farewell Reception
Member/Nonmember Full Registration	X	X	X	X	Х	x
Student	X	X	X	X	X	X
Life Member	X	X	X	X	X	x
Spouse/Guest	X	X	Χ	X		х
Child (ages 7 to 16)	X	X	Х	Х		X
Industry Day			Χ	X	X	
Retiree Member	Х	X	Х	X	X	X

### **AUTHORS**

Please be advised all registration fees must be processed by ASEE Headquarters on or before April 8, 2019, at midnight EST or your paper will be withdrawn. Please review the online Author's Kit for more details.

### K-12 TEACHERS

K-12 Teachers are eligible for a one-day FREE Exhibit Hall Pass. School ID is required

### \*\*INDUSTRY DAY

The industry day rate is only available to members of industry who otherwise would not attend the ASEE Annual Conference and is valid for Tuesday, June 18, 2019, only. ASEE members/(co)authors are not eligible.

### \*\*\*CHILDREN

Children under 12 are admitted FREE to the Exhibit Hall, but they must be accompanied by a registered adult at all times.

### **MILITARY**

Active and retired military are eligible for a one-day FREE Exhibit Hall Pass. Military ID is required.

### **ASEE MEMBERSHIP**

Please be advised that the nonmember professional rate does NOT include a one-year ASEE membership. The ASEE membership rates are as follows:

- 1. U.S. \$100 for United States residents
- 2. U.S. \$99 for Canadian residents
- 3. U.S. \$114 for all other countries
- 4. U.S. \$89 for online membership only

### **CANCELLATION POLICY**

Registration and ticket cancellations must be made in writing and received by ASEE Annual Conference via e-mail: conferences@asee.org on or before June 1, 2019. A \$50 processing fee will apply to all cancellations. On-site refunds of any ticketed events cannot be honored. There are no exceptions to this policy. If you require an ADA accommodation in order to attend, please e-mail us at conferences@asee.org.

### HOUSING LOCATIONS AND INFORMATION

Hotel	Room	Rates
	Single	Double
Tampa Marriott Waterside Hotel & Marina - Headquarters	\$189	\$189
Embassy Suites Tampa Downtown	<mark>\$1</mark> 97	\$207
Westin Tampa Harbour Island	\$177	\$177
Hilton Tampa Downtown	\$189	\$189
Sheraton Riverwalk Tampa	\$182	\$182
Aloft Tampa Downtown	\$189	\$189
Residence Inn Downtown*	\$189	\$189
Courtyard Tampa Downtown*	\$179	\$17 <mark>9</mark>
Barrymore Hotel Tampa Riverwalk*	\$120	\$120

Please note: Hotels will not be taking reservations directly for the ASEE conference. All reservations will be made through the housing bureau starting Jan. 7, 2019.

### INFORMATION FOR HOTEL RESERVATIONS

ASEE has negotiated discounted hotel rates for ASEE attendees. You must make your hotel reservation through Orchid Events. Hotel reservations are taken on a first-come-first-served space-available basis. Submit your request as soon as possible for the best opportunity of receiving your hotel choice.

### **DEADLINE**

All reservations must be received by May 24, 2019, to guarantee availability and conference rates. After this date, reservations will be made based on availability, and hotels may charge higher rates.

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<sup>\*</sup> These hotels offer a free courtesy shuttle that operates within a 2-mile radius on a first-come-first-served basis.

### **Tampa Map**

### WAYS TO BOOK HOTEL RESERVATIONS

**Online:** Go to https://book.passkey.com/event/49834881/owner/6893/home.

Telephone: Agents available 8:30 a.m. to 9:00 p.m. Eastern Standard Time, Monday through Friday.

**Toll-free: (U.S.):** 833-368-5261 **International:** +1 801-715-4410

### **DEPOSIT**

All reservation requests must be accompanied by a credit card guarantee or check equaling the amount of one night's room and tax for each room reserved. Your credit card WILL NOT BE CHARGED during this initial stage and will be held as a GUARANTEE only.

### **ACKNOWLEDGMENTS**

Orchid Events will send reservation acknowledgments within 24 hours via e-mail if booked online or by telephone; fax and mail acknowledgments will be sent within 72 hours of receipt. If you do not receive your acknowledgment in this time frame, contact Orchid Events. You will not receive a written confirmation from the hotel.

### **CANCELLATIONS & CHANGES**

Deposit of one night's room and tax will be forfeited entirely if cancellation occurs within 72 hours of arrival date: Through June 14, 2019, changes and cancellations can be made online or by contacting Orchid Events via e-mail at help@orchid.events. After June 14, 2019, contact your hotel to make changes and/or cancellations.

### **QUESTIONS OR SPECIAL REQUESTS?**

For questions or special requests, please contact Orchid Events at 833-560-5742 or e-mail to *help@orchid.events*. Special requests are not guaranteed. Hotels will assign specific room types upon check-in, based on availability.

### **HOTEL SUITES**

If you are interested in booking a hotel suite, please e-mail help@orchid.events. There are a limited number available at a discounted rate for ASEE attendees.





2020 June 21 - 24

**MONTREAL, QUEBEC** 

2022

June 26 - 29

MINNEAPOLIS, MINNESOTA

2021
June 27 - 30
LONG BEACH, CALIFORNIA

2023
June 25 - 28
BALTIMORE, MARYLAND