

AMERICAN SOCIETY FOR
ENGINEERING EDUCATION

Annual Report

OCTOBER 2017 – SEPTEMBER 2018

 **ASEE**
AMERICAN SOCIETY FOR
ENGINEERING EDUCATION

ASEE MEMBERS

We are honored to be writing to you during a very special year, one that saw ASEE turn 125 in June 2018. This marks our quasiquintennial—a big word for a big year.

ASEE celebrated this anniversary in a number of ways. At our Annual Conference in June:

- Monday plenary attendees were whisked back to 1893 as they entered the ballroom.
- To open the plenary session, a professional acting troupe explored ASEE's early years with an engaging, dramatic presentation, and ASEE's mascot Ed jumped out of a massive cake.
- We had a special 125th Anniversary Distinguished Lecture.

In addition, ASEE hosted a 125th Anniversary Gala at the Willard InterContinental Hotel in Washington, D.C., in October.

While we always evaluate where we are going as a Society, a landmark year like this gives us a reason to reflect on our place in history. Continuing a theme from the past several years, this year ASEE continued its efforts to be an inclusive organization, able to embrace all who want to be a part of our community. We'd like to highlight two efforts in particular.

First, at our Annual Conference we held six special-interest group working sessions focusing on issues relevant to the community across a broad range of topics, with facilitators guiding discussions. Each of the sessions focused on a cohort with unique needs within ASEE: veterans; first-generation, low-income persons; non-tenure-track persons; the LGBTQ community; persons with disabilities; and graduate students. The outcomes of these sessions are posted on the ASEE website and are under consideration by ASEE's leadership for integration into the activities of the Society.

Second, ASEE was the lead society at the CoNECD ("connected") conference in the spring of 2018. A first-of-its-kind event (and scheduled to run for future years), CoNECD is the only conference with a vision of providing a forum for exploring current research and practices to enhance diversity and inclusion of all underrepresented populations in the engineering and computing professions. Nearly 300 came to the D.C. region for this event, where they shared papers, presentations, and passion.

ASEE launched a Leadership Roundtable this year, tapping an esteemed set of advisers to provide guidance to Society leadership. Comprising high-level representatives from each of four key sectors—academe, business, private foundations, and government—the ASEE Leadership Roundtable serves three essential purposes:

- Provide outside perspectives and viewpoints to the ASEE President and Board of Directors on emerging and current issues important to the Society's long-term success.
- Advocate for the mission, vision, and goals of the Society.
- Advise and advance the Society's programmatic agenda.

We have much to celebrate from this year, beyond turning 125 years old. We thank you, our members, for your valuable time, input, and expertise. It is with your help and guidance that we will continue to be a viable and essential organization in the century to come. We hope you will take some time to review this report of the year's highlights.



Bevlee Watford
ASEE President 2017–2018



Norman L. Fortenberry
ASEE Executive Director



A DISTINGUISHED PANEL OF ASEE MEMBERS HELPED TO ORGANIZE AND PLAN ACTIVITIES AROUND THE 125TH ANNIVERSARY.

Walter Buchanan, Co-Chair
Texas A&M University

Wallace Fowler, Co-Chair
University of Texas at Austin

Shannon Ciston
University of California, Berkeley

Kelly Cross
University of Illinois, Urbana Champaign

John Estell
Ohio Northern University

Lyle Feisel
Retired

J.P. Mohsen
University of Louisville

Lucy Morse
Retired

Carol Mullenax
Wyle, Inc.

Gurlovleen Rathore
Texas A&M University

Tom Roberts
Kansas State University

Alexandra Strong
Olin College of Engineering

Darryl Williams
Franklin Institute

NEW EVENTS

ASEE held two major new events this year, further demonstrating our role as a key convenor in the engineering and engineering technology education community.

COMMUNICATORS CONFERENCE

ASEE organized a conference for communications directors and other staffers at colleges of engineering in the summer of 2018 in Washington, D.C. This first-of-its-kind event drew nearly 120 participants to a new hotel and meeting venue in the hip Adams Morgan neighborhood for a 1.5-day program.

D.C.-area experts in communications addressed attendees on topics of pitching stories to the media, general engineering communication, unique social media strategies, working with federal agencies, and more. Allowing for ample networking time and social activities, the event fostered the creation of a new peer community among ASEE's institutional members. The workshop will be held annually for the foreseeable future.

DOCTORAL ENGINEERING RESEARCH SHOWCASE

ASEE, along with the National GEM Consortium (GEM), hosted doctoral students, postdoctoral fellows, and new faculty to display leading-edge technical research and connect with potential agency sponsors and academic employers at an event in Washington, D.C., in January 2018. The event was held in conjunction with an Agency/University Fair featuring representatives from government research agencies and universities seeking faculty hires. This event was partially underwritten by the Alfred P. Sloan Foundation and NSF.



2018 SOCIETY AWARDS

BENJAMIN GARVER LAMME AWARD

Arvind Varma
Purdue University–West Lafayette

CHESTER F. CARLSON AWARD

Marybeth Lima
Louisiana State University

FREDRICK J. BERGER AWARD

Gary D. Steffen
Indiana University Purdue University–Fort Wayne

ISADORE T. DAVIS AWARD

Alok K. Verma
Old Dominion University

JAMES H. MCGRAW AWARD

Scott Dunning
University of Maine

JOHN L. IMHOFF AWARD

John Jackman
Iowa State University

LIFETIME ACHIEVEMENT AWARD

James L. Melsa
Iowa State University

NATIONAL ENGINEERING ECONOMY TEACHING AWARD

William G. Sullivan
Virginia Polytechnic Institute & State University

SHARON KEILLOR AWARD

Donna C. Llewellyn
Boise State University

WILLIAM ELGIN WICKENDEN AWARD

Susan Conrad
Portland State University

NEW ASEE FELLOWS

Adrienne Minerick
Michigan Technological University

Jerome P. Lavelle
North Carolina State University

Nick M. Safai
Salt Lake Community College

Michael C. Loui
Purdue University–West Lafayette

Stacy S. Klein-Gardner
Vanderbilt University

Herbert L. Hess
University of Idaho–Moscow

Richard J. Freuler
Ohio State University

Xavier Fouger
Dassault Systèmes

Brian P. Self
California Polytechnic State University–San Luis Obispo

John Brocato
Mississippi State University

Niaz Latif
Purdue University Northwest

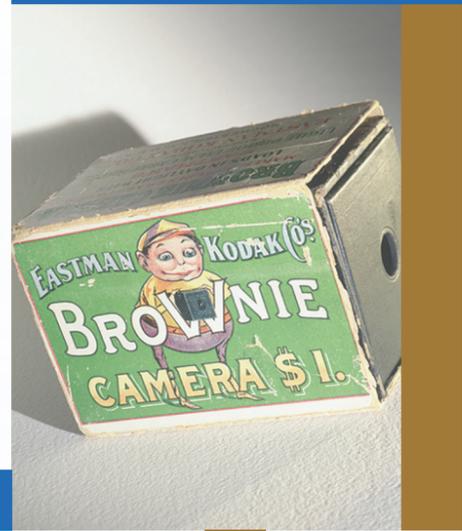
INTERNATIONAL ACTIVITIES

ASEE's members operate in an increasingly shrinking world, with knowledge-sharing across boundaries a growing necessity for the modern engineering educator. In addition to graduate programs featuring robust international student populations, an increasing number of ASEE member institutions have campuses around the world. ASEE has an active international profile, helping to connect our members to these experiences and people.

The International Forum at the ASEE Annual Conference and Exposition had the theme of "Engineering Education: Opportunities and Challenges at the Global Level" and featured a panel of experts representing five countries, with a keynote from José Carlos Quadrado, immediate past president of the Latin American and Caribbean Consortium of Engineering Institutions.

For the second year in a row, ASEE sent a member delegation to Cuba, developed in cooperation with the Cuban Ministry of Superior Education, for a unique opportunity to meet with Cuban counterparts and learn about challenges and opportunities in advancing engineering education in the island nation. The trip included visits to the Technology University of Havana and the Computer Sciences University. ASEE is currently arranging a trip for members to Chile in 2019.

ASEE sent a group of staff and board members to the World Engineering Education Forum in Malaysia in November 2017 for a meeting on the theme of "The Era of Synergistic Collaboration." Many ASEE members made presentations and gave talks. In addition, ASEE representatives attended engineering education conferences in Denmark, China, and Japan, and headquarters provided a three-week program of instruction for a visiting delegation of Chinese engineering educators.



POLICY LEADERSHIP

ASEE's institutional and individual members are deeply concerned with funding for engineering, engineering technology, and engineering education research; support for engineering and engineering technology education at all points in the education pipeline; and policies that further the technological literacy of Americans.

ASEE's annual Public Policy Colloquium of deans of engineering brought 150 participants to Washington for a two-day event for briefings on the federal landscape as it relates to STEM funding and support. Senators Cory Gardner (R-Colo.) and Heidi Heitkamp (D-N.D.) addressed the group during a day on Capitol Hill, after which deans met with their own representatives.

ASEE issued two statements related to public policy this year, one on the Higher Education Act reauthorization and another in support of educators doing scholarly research in diversity and inclusion in STEM education.

ASEE leverages partnerships inside and outside of Washington, D.C., to maintain our influence. These partners include Lewis-Burke LLC, our government relations firm; the STEM Education Coalition; the Alliance for Science and Technology Research in America; and the Coalition for National Science Funding.



125 YEARS OF IMPACT

In his 1900 President's Address, Ira O. Baker told the assembled, "To this Society is entrusted more than to any other agency the future of engineering education in this country." Over the next several decades ASEE demonstrated this charge by writing seminal reports, expanding its membership base, and beginning to administer engineering-focused fellowships and internships for the federal government, launched in response to Sputnik.

Baker's comments hold true today. As ASEE considers its place in society and in the lives of our members, we can proudly point to many recent instances of impact.

In December 2017, ASEE Executive Director Norman Fortenberry spoke at a Capitol Hill event titled, "Increasing the Roles and Significance of Teachers in Policymaking for K-12 Engineering Education." This House STEM Caucus gathering highlighted results of a convocation at the National Academies of Sciences, Engineering, and Medicine that explored teachers' roles in advancing K-12 engineering education.

ASEE completed the fourth and final phase of the Transforming Undergraduate Education in Engineering project, which identifies critical components of undergraduate curricula, pedagogy, and educational culture necessary to support the education of engineers over the next decades of the 21st century. The fourth phase was published in 2018 and is titled, "View of Faculty and Professional Societies." It refines the profile of the "T-shaped" graduate, an engineer who is both technically accomplished and able to succeed in a team-driven, culturally and ethnically diverse, and globally oriented workforce.

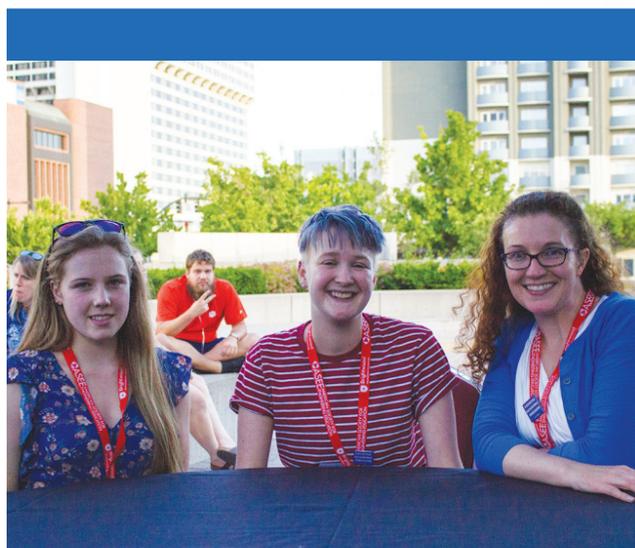
ASEE continues its robust management of numerous fellowship and research opportunity programs of the federal government, ranging from high school summer internships to faculty opportunities. As a trusted government partner in this area, ASEE helps strengthen the future domestic engineering workforce.



EXPANDING ENGAGEMENT

In the past year, ASEE hosted 10 webinars that attracted over 1,000 registrants. Topics included developing professional skills at the undergraduate level, engaging women more effectively, and increasing research impact. We also hosted the first multisession online program on course design facilitated by ASEE Fellows Karl Smith and Ruth Streveler.

Tau Alpha Pi is the honor society for engineering technology, administered by ASEE headquarters. Last year it inducted 365 new members and restarted five chapters that were previously inactive. It is currently undergoing a restructuring of its activities, with an increased emphasis on participation and service among its members.



JOURNAL OF ENGINEERING EDUCATION (JEE)

Cultivating, disseminating, and archiving quality research in ways that reflect the diversity of experiences and perspectives of the engineering education and engineering technology community is at the core of what ASEE is about. This is also the mission of ASEE's *Journal of Engineering Education*. The *Journal* is widely recognized as the premier journal for scholarly research on engineering education. Published quarterly, the *Journal* receives about 300 new submissions annually from authors in more than 40 countries. The *Journal* has an international editorial board that coordinates the peer review process and is published through John Wiley & Sons. Under the editorship of Lisa Benson, the College of Engineering, Computing and Applied Sciences and the Department of Engineering and Science Education at Clemson University have provided generous support of the *Journal*. During the past 12 months, the *Journal* published articles on best practices in mentoring and training engineering graduate teaching assistants; the challenges faced by engineering professionals who return for advanced study after significant time in the workforce; a new survey tool that can help understand key factors to student success, support, and integration into engineering programs; and how interdisciplinary approaches and biosensors can help gauge student engagement in engineering classrooms. Summaries of these and other articles have appeared as "JEE Selects" columns in ASEE's *Prism* magazine. The *Journal* launched new initiatives this year to expand its reviewer and author base, including a Star Reviewer program, and networking and workshops at international conferences to identify and train new reviewers and authors.



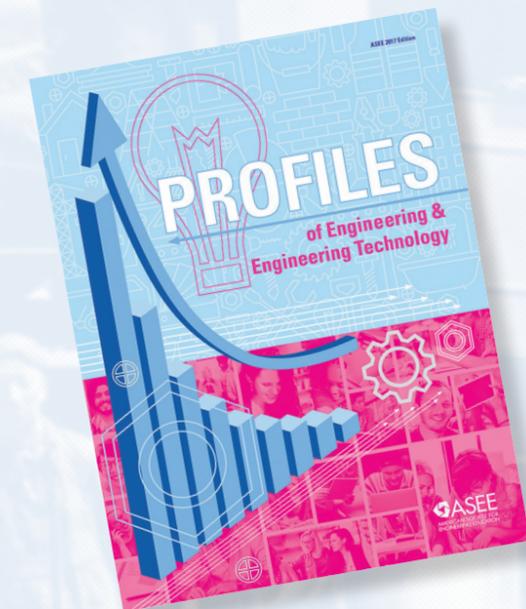
ADVANCES IN ENGINEERING EDUCATION (AEE)

Documenting and disseminating true "advances" informed by research into engineering education practices and pedagogy is the purpose of the peer-reviewed *Advances in Engineering Education*. Of particular uniqueness to *AEE* is that authors are encouraged to submit papers incorporating the creative use of media, including animation, audio, graphics, and video. This marked *AEE*'s seventh year; the journal has received over 900 submissions, with an acceptance rate of between 20 percent to 25 percent and an increasing number of submissions from overseas. Two issues of the journal were published this year with a total of 19 papers. Topics ranged from the entrepreneurial mindset to graduate teacher training. At the first-year level, papers addressed a flipped calculus course, problem-based learning, and experiential learning. Summaries of articles have appeared as "Advances From AEE" in ASEE's *Prism* magazine. Upcoming features will explore the midyears' education experience, engineering ethics, social entrepreneurship, and most innovative engineering programs.



DATA ANALYTICS AND INSTITUTIONAL RESEARCH

ASEE is the premier source of information for industry, academic, and government leaders who need to know what the potential engineering and engineering technology workforce looks like today and could be tomorrow. ASEE data help our industry partners to identify new recruits for employment and areas where the graduating workforce can support new technological expansion. ASEE data give institutional leaders the tools to show government stakeholders progress and identify new targets of opportunity. ASEE data enable local, state, and federal decision makers to make sound judgments to develop the current and future engineering workforce.



COMMUNICATING FOR THE COMMUNITY

Continuing their successful collaboration on *Prism*, the art and editorial departments produced a special issue of the magazine to mark ASEE's 125th anniversary. Based on a theme of engineering as an ever expanding field, the special edition was sent free to subscribers and distributed in a hard-bound collectors' format to attendees at ASEE's 125th anniversary gala. Regular issues of *Prism* highlighted the work of 20 trailblazing young faculty members and explored such topical issues as ocean pollution, urban farming, cybersecurity education, a surge in demand for computer science, designs to aid homeless populations, and the struggle to make biotechnology a profitable industry. The teams collected a number of awards for design and editorial content, including an APEX Grand Award for an entire magazine issue, an award for cover design by Creative Director Nicola Nittoli, three additional design prizes, four feature-writing awards, and an association newsletter award for the weekly Capitol Shorts.

Assisting other departments, Nittoli and his team designed and executed all the signage for ASEE's Annual Conference as well as a number of promotional materials. The editorial staff produced a report for the National Science Foundation on the biennial Engineering Research Centers meeting and edited the Annual Conference program.

APEX

Grand Award for Publication Excellence:

- *Prism*, Entire Issue (art, design, writing) September 2017

Award of Excellence:

- Jennifer Pocock, *Prism* Feature Writing. "A Grand Challenge? Maybe Not." Cover story on engineering for the homeless, December 2017

Association Trends All-Media Contest

- Mark Matthews, Bronze Award for Daily or Weekly Communication: "Capitol Shorts Weekly Public Policy Newsletter"

The 24th Annual Communicator Awards

Award of Excellence:

- Nicola Nittoli, Design Features, Cover Design. "Tying the High-Tech Knot" Cover illustration on China's AI for September 2017

Awards of Distinction:

- Francis Igot, Design Features, Overall Design. "Course Correction" Overall design for layout on feature story in March + April 2017
- Nicola Nittoli, Design Features, Overall Design. "Building Boom" Overall design for layout on cover story for Summer 2017
- Francis Igot, Design Features, Overall Design. "Rx for Superbugs" Overall design for layout on feature story for October 2017
- Mark Matthews and Jennifer Pocock, Feature Writing. "More Than Talk: Engineering for Extreme Weather" Feature story on wicked weather, January 2018
- Mary Lord, Feature Writing. "Down to Earth" Cover story on National Science Foundation Director France Córdova, February 2017
- Mark Matthews, Mary Lord, and Alice Daniel, Feature Writing. "Brain Gain" Cover story on international students and the travel ban, March + April 2017

