



ANNUAL REPORT

OCTOBER 2016 - SEPTEMBER 2017

AMERICAN SOCIETY FOR
ENGINEERING EDUCATION



LEADERSHIP LETTER

The 2017 fiscal year, our 124th, was another successful one for the organization. We finished the year on solid financial ground, brought to completion a Strategic Doing process in which we gathered useful feedback from members, and remained a trusted partner of major Washington, D.C.-based funders such as the National Science Foundation and agencies within the Department of Defense. In addition, our core group of dedicated premier corporate sponsors continued to find value in working with ASEE to create durable relationships in our community.

The ASEE Annual Conference and Exposition, our showcase event, was held this year in Columbus, a great college town within driving distance for many ASEE members. In addition to the “fun stuff” like appearances from some of the Columbus Zoo’s animal stars, the Taste of Columbus food truck event, and a session on adapting toys for special needs children, the conference presented an exciting and well-received talk by NSF Director France Córdoba, hundreds of technical sessions, and the always-popular Distinguished Lecture series. Our event even rated a visit from the popular local morning show *Good Day Columbus*, which broadcast live from our exhibit hall.

The ASEE leadership team made a concerted effort to get in front of more members this year, with Board members and senior staff attending constituent meetings and events. We made it to section and zone meetings, giving updates on headquarters activities and, most important, listening to what you, our members, want and need from ASEE. In addition, we attended events and meetings in the Azores, Chile, Cuba, Japan, South Korea, and Norway.

Among items you’ll read about in this annual report are our continued efforts to diversify the engineering education community; ASEE’s increased activity in representing our members on important public policy matters; and our stewardship of reports, events, and fellowships. Our dedicated and passionate collection of members, along with our talented and hard-working headquarters staff, allows ASEE to continue to thrive.

While the fundamentals of engineering may only change slowly, we must continue to push the frontiers of engineering discovery, instruction, and application through our own work and through the work of our students and stakeholders. ASEE remains the intellectual laboratory, if you will, where we all develop, test, and share new ideas. We are inspired and driven by the knowledge that our collective efforts contribute to improving the human condition. ASEE is honored to be entrusted by our members with providing them the structure and support needed to be successful.

-Louis Martin-Vega and Norman L. Fortenberry



INTERNATIONAL ACTIVITIES

ASEE recognizes that our members operate in an increasingly interconnected world, with relationships and information-sharing across borders growing more important each year. In the United States, the students we teach and the colleagues we work with come from a variety of countries.

Many of our institutions have campuses on multiple continents, and our students frequently study abroad. In 2016-2017 ASEE continued to help our members build these bridges.

Our International Forum at the ASEE Annual Conference and Exposition had sessions on corporate-academic partnerships for deploying game-based learning around the world and forging a collaborative relationship between U.S. and Cuban engineering institutions, among many others.

ASEE once again held a Global Colloquium (last held in 2010 in Singapore) in the Azores, co-located with the European Society for Engineering Education (SEFI) annual meeting.

We sent representatives to engineering education meetings in Japan, South Korea, and Norway.

ASEE will be an engaged participant this year in developing the program for the November 2018 World Engineering Education Forum, in Albuquerque, N.M., the first time this event is being held in the United States.

Lastly, speaking of Cuba, several of our deans took a three-day trip to the island nation following the Engineering Deans Institute. They met with university faculty members and took part in a number of cultural events. Several of our members are scheduled to take a trip to Cuba in early 2018.



POLICY LEADERSHIP

ASEE was vocal in FY 2017 on public policy issues, educating policymakers and advocating for the interests of our individual and institutional members. As the only professional society concerned with engineering education at all levels and across all disciplines, our members' needs and desires are diverse, so ASEE targeted its focus here in areas related to:

- Funding for engineering and engineering technology education
- Furthering recognition and opportunities for engineering technology students
- Supporting institutions in their efforts to educate students from around the world

In late 2016, ASEE joined eight organizations in sending a letter to the transition team for President-Elect Trump to highlight the importance of investment in STEM education. ASEE's Norman Fortenberry said in the statement: "A quality STEM education is important for the continued prosperity and safety of the United States. With this letter, ASEE and our peer organizations strongly encourage the Trump administration—and Congress—to continue the momentum that STEM education has gained in the last several years, from funding sources to initiatives and legislation."

ASEE's Public Policy Colloquium in February welcomed speakers from both sides of the political aisle, with Representative Bruce Westerman, a Republican from Arkansas, and Sen. Maggie Hassan, a New Hampshire Democrat, addressing attendees. As part of this event, deans from dozens of institutions visited their congressional representatives to advocate for their colleges and engineering education broadly.

ASEE continues to be engaged with the Alliance for Science and Technology Research in America, the Coalition for National Science Funding, STEM Education Coalition, STEM on the Hill, and other bodies that allow us to expand our reach and find effective ways to represent our members through relationships with similar-focused organizations.

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MISSION, VISION, GOALS, AND MEMBER COMMUNICATIONS

In 2016-2017 we saw the culmination of a multiyear "Strategic Doing" process, where our members thought through how ASEE can continue evolving as an organization, better serving members now and for the next several decades. Feedback gathered in these forums is leading to more active and ongoing communication from ASEE leadership, with an emphasis on transparency and openness.

From this process came the creation of our new Mission, Vision, Values, and Goals:

OUR VISION

**ASEE IS THE
PREEMINENT
AUTHORITY ON THE
EDUCATION OF
ENGINEERING
PROFESSIONALS.**

OUR MISSION

**ASEE ADVANCES
INNOVATION,
EXCELLENCE, AND
ACCESS AT ALL LEVELS
OF EDUCATION FOR
THE ENGINEERING
PROFESSION.**

OUR VALUES

**EXCELLENCE,
ENGAGEMENT,
INNOVATION, INTEGRITY,
DIVERSITY, AND
INCLUSION.**

OUR GOALS

ASEE recognizes the term "engineering education" to encompass the full academic spectrum of instruction, research, scholarship, practice, and service. ASEE also has an enduring commitment to continuous improvement.

In the context of the above two statements, ASEE pursues the following goals:

- *Innovation* - ASEE will advance the development of innovative approaches and solutions to engineering education.
- *Excellence* - ASEE will advance excellence in all aspects of engineering education while continuously improving the member experience.
- *Access* - ASEE will advocate for equal access to engineering educational opportunities for all.
- *Advocacy and Public Policy* - ASEE will be the leading advocate for advancing the broad interests of engineering education.
- *Communities* - ASEE will cultivate an inclusive community that engages all members and values the contributions of all stakeholders.
- *Communication* - ASEE will implement a robust and transparent communication strategy effectively linking all stakeholders.
- *Diversity and Inclusion* - ASEE will promote diversity, broadly defined, by modeling equity and inclusion through its policies and practices.
- *Internal Organization* - ASEE will be a strategic and dynamic organization, with a knowledgeable and responsive staff, that enhances stakeholder engagement.



IMPACT

ASEE has been the intellectual home for advances in academic education for over a century, with the seminal Mann (1918), Wickenden (1923), Hammond (1940), and Grinter (1955) reports. The 21st century has seen ASEE continue this contribution to the community with “Creating a Culture for Scholarly and Systematic Innovation in Engineering Education” (2009) and “Innovation With Impact” (2012).

ASEE is currently engaged in an ambitious project entitled “Transforming Undergraduate Education in Engineering,” a four-phase report that will identify 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 project, supported by the National Science Foundation, will catalyze change by building broad consensus within the community on a shared vision of the future of undergraduate engineering education, enumerating critical steps for the vision to be achieved.

Norman Fortenberry cochaired a workshop in late 2016 on “Enhancing Teachers’ Voices in Policy Making Related to K-12 Engineering Education.” The activity is a project of the National Academies of Science, Engineering, and Medicine’s Teacher Advisory Council (TAC) and the National Academy of Engineering (NAE). He co-led a committee that planned a two-day, national event that explored how to empower classroom teachers as leaders in policy decisions, identifying and strengthening pathways for teachers to be involved in policy without removing them from the classroom.

For decades, ASEE has managed a number of fellowship and research opportunities for federal agencies. These range from programs providing summer internships for high school students to research programs for faculty members. ASEE provides support that include outreach and promotion activities, application processing support, application review activities, and administration of stipend and tuition payments for program participants. Our successful oversight of these programs helps strengthen the future domestic engineering workforce.

**“MAKING
A PLEDGE
TO DIVERSIFY
THEIR FACULTY
AND STUDENT
BODIES.”**

ANNUAL CONFERENCE ATTENDEES

YEAR	ATTENDEES
2013	3753
2014	3619
2015	4062
2016	4401
2017	4063

IMPACT ON DIVERSITY

ASEE’s Engineering Deans Council members launched the Deans Diversity Initiative website in 2017, a follow-up to a 2015 White House letter now signed by over 200 deans, making a pledge to diversify their faculties and student bodies. The website showcases examples of how deans are following through on their pledge.

In the summer of 2017 ASEE won an award from NSF for a project, led by 2017-2018 ASEE President-elect Stephanie Farrell, to look at Virtual Communities of Practice for members and allies of the LGBTQ community. The project uses research to generate new knowledge about developing a community of practice to promote LGBTQ inclusion in engineering; how members of the community develop into change agents; and what strategies are effective in reshaping norms and increasing LGBTQ inclusion in engineering departments. The funded project will last for two years, with the hope that the activity will persist for much longer.



COMMUNICATING NEWS AND RESEARCH



PRISM MAGAZINE

Prism Magazine is ASEE's flagship publication and the way our members best stay in tune with the engineering education community and headquarters activities. The magazine's marriage of sleek design and solid, in-depth reporting on important topics makes it one of the best publications of its kind among peer organizations. Accordingly, it receives numerous awards each year.

- APEX 2017 Award of Excellence, Education & Training category: Feb. 2016 Teaching Toolbox "Made to Measure"
- APEX 2017 Award of Excellence, Design & Layout
- APEX 2017 Grand Award for Publication Excellence
- Communicator Awards include:
 - An Award of Excellence for Feature Article Writing
 - Five Awards of Distinction for Overall Design of a Feature Story
 - An Award of Distinction for Cover Design
 - Three Awards of Distinction for Writing of a Feature Article

ASEE launched the *Prism* Podcast this year, further exploring stories in *Prism* across a new media platform, reaching new and different audiences.

"THIS MAGAZINE FOR ENGINEERING PROFESSIONALS FEATURES AN ELEGANT, CONTEMPORARY FORM, WITH CRISP, CLEAN SPREADS AND APPEALING VISUALS AND TYPOGRAPHY - ALL OF WHICH SET THE STAGE FOR SOME VERY WELL WRITTEN, THOUGHT-PROVOKING FEATURE ARTICLES AND SHORTS. THE PACKAGE IS MUCH MORE THAN THE SUM OF ITS PARTS. A FIRST CLASS EFFORT."

— APEX GRAND AWARD CITATION FOR THE JANUARY 2016 ISSUE OF PRISM





DATA ANALYSIS

ASEE is the go-to source for extensive data on our member institutions, most notably presented annually in our “Profiles of Engineering and Engineering Technology Colleges,” produced by our department of Assessment, Evaluation & Institutional Research (AEIR). Data in “Profiles” is widely quoted in the media, used by *U.S. News and World Report*, and accessed and used frequently by government agencies.

ASEE has expanded its data publishing in recent years. “Small Engineering Schools by the Numbers” is of relevance to colleges of engineering with fewer than 10,000 students. AEIR is an evaluator for the University of the District of Columbia Community College Transportation Academy program. And lastly, we recently published a report on the experiences of the Maker community.



ANNUAL CONFERENCE SUBMITTED PAPERS

YEAR	NUMBER OF PAPERS
2013	1669
2014	1729
2015	2077
2016	2080
2017	2032



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 (AEE)*. A unique attribute of *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 800 submissions, with an acceptance rate of approximately 20 percent and an increasing number of submissions from overseas. Two issues of the journal were published this year with a total of 18 papers. Topics addressed included “Thermodynamics in High Rhythms and Rhymes: Creative Ways of Knowing in Engineering,” “Selling Technical Sales to Engineering Learners,” and “Large Lecture Transformation: Improving Student Engagement and Performance.” Upcoming issues will feature the entrepreneurial mind-set, the mid-years’ education experience, and engineering ethics. Summaries of *AEE* articles now appear as “Advances from AEE” columns in ASEE’s *Prism* magazine.



JEE

Sharing quality education research in a way that reflects the diversity of experiences and perspectives of the engineering community is at the core of ASEE’s *Journal of Engineering Education (JEE)*—widely recognized as the premier journal in its field. Published quarterly, the journal receives about 300 new submissions annually from authors from more than 40 countries. The journal, published by John Wiley & Sons, has an international editorial board that coordinates the peer review process. In the first half of 2017, under the editorship of Michael Loui, the College of Engineering at the University of Illinois, Urbana-Champaign generously supported *JEE*. During the last half of the year, Lisa Benson took over as editor, and the College of Engineering, Computing and Applied Sciences and the Department of Engineering and Science Education at Clemson University picked up support of *JEE*. Last year the journal published articles on the need for faculty to receive comprehensive training in gender equity to advance engagement and learning among all students, not just those who traditionally succeed; how undergraduate engineering experiences relate to engineering students’ leadership skills; factors affecting graduate teaching assistants’ motivation to teach; and the challenges faced by engineering professionals who return for advanced study after significant time in the workforce. Summaries of these and other articles have appeared as “JEE Selects” columns in ASEE’s *Prism* magazine.

NEWS-MAKING ASEE MEMBERS

EACH YEAR NUMEROUS ASEE MEMBERS RECEIVE SIGNIFICANT RECOGNITION FOR THEIR CONTRIBUTIONS TO THE PROFESSION, THROUGH CAREER ADVANCEMENT AND HONORS.

ASEE MEMBERS WHO ASSUMED NEW UNIVERSITY LEADERSHIP POSITIONS:

- Persis Drell, former dean of engineering at Stanford, was named Stanford's provost.
- Debra Larson, former dean of engineering at Cal Poly San Luis Obispo, was named provost at California State University, Chico.
- Gary May, former dean of engineering at Georgia Tech, was named chancellor at the University of California, Davis.
- Nagi Naganathan, former dean of engineering at the University of Toledo, was named president of the Oregon Institute of Technology.
- Ian Waitz, former dean of engineering at MIT was named MIT's vice chancellor.

ASEE MEMBERS ELECTED TO THE NATIONAL ACADEMY OF ENGINEERING:

- David Allen, University of Texas at Austin
- Daniel Hastings, Massachusetts Institute of Technology
- Paul Turinsky, North Carolina State University

ASEE MEMBER NAMED A MACARTHUR FELLOW:

Rebecca Richards-Kortum of Rice University

PRESIDENTIAL EARLY CAREER AWARDS FOR SCIENTISTS AND ENGINEERS:

Shawn Jordan of Arizona State University and Randy Ewoldt of the University of Illinois, Urbana-Champaign received this award from President Obama, the highest honor bestowed by the U.S. government on science and engineering professionals in the early stages of their careers.

ASEE MEMBERS ELECTED AS FELLOWS IN 2017:

- Kristen P. Constant
- Ted Eschenbach
- Craig J. Gunn
- Michael T. Harris
- Beth M. Holloway
- Nelson A. Macken
- Lance C. Perez
- Stephen J. Ressler
- James R. Rowland
- Cheryl B. Schrader
- Susan E. Walden