

2023 Annual Conference & Exposition

The Harbor of Engineering Education for 130 Years

Conference PROGRAM





EDUCATION

NCEES Subject Matter Reports— Your Program Assessment Tool

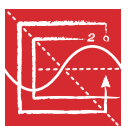
Access your NCEES Subject Matter Reports at institutions.ncees.org.

Hundreds of engineering educators successfully use NCEES Subject Matter Reports during the accreditation process to

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Reports contain summary results by subject area for all ABET-accredited engineering degree programs.

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2023 ASEE ANNUAL CONFERENCE PRESIDENT'S WELCOME



Welcome ASEE Attendees!

We are so excited to welcome each of you to the ASEE Annual Conference in Baltimore, kicking off ASEE's 130th year! This year's conference has broken records for abstracts and papers submitted and accepted. We are also on track to have one of the strongest attendance figures for an Annual Conference in years. And we have had to expand our exhibit space twice in order to accommodate all of the great partners interested in interacting with you, our attendees. We are most grateful to our ASEE Conferences and IT staff for their hard work to make this year's conference a huge success.

ASEE's mission is to *"advance innovation, excellence, and access at all levels of education for the engineering profession."* As we reflect on ASEE's first 130 years, many of you have commented to me that, spurred by the pandemic and challenges of this past year, you have come to realize and appreciate anew how important ASEE is to both our individual and collective work in engineering education. We have also grasped over the last few years what a privilege it is to be able to meet face to face at the Annual Conference, to support the work that we do.

So I want to encourage you to take full advantage of this year's conference. Try out some sessions and events that you haven't attended before. Make a point of reengaging with our divisions, councils, zones, sections, and committees. You will find great plenary speakers, panels, and paper presentations on a wide variety of topics, from those focused on the courses you teach and functions you lead to broader, cross-cutting themes that span engineering education nationally. There are interesting workshops, and the student poster session on Sunday, as well as business meetings and opportunities throughout the week through which you can connect with like-minded colleagues. We also have a number of Society-wide events, along with social opportunities and a range of great exhibitors in the Exhibit Hall, where you can further expand your ASEE networks.

As we start our yearlong celebration of ASEE's 130th anniversary, I want to close with a huge thank you to each of you for your strong support of ASEE this past year, and to ASEE's new HQ leadership and our member volunteers for their extraordinary dedication and service. I am confident that ASEE is now a stronger organization, poised to robustly lead engineering education forward in the 21st century. And I can't think of a better way to start our celebration than with a record-setting Annual Conference!

Best,

Jenna Carpenter

ASEE President 2022-2023

2023 ASEE ANNUAL CONFERENCE A MESSAGE FROM THE ASEE CEO



Building Together

For 130 years, ASEE has been a strong advocate for our members and the engineering education community at large. Our strength is built upon two unique aspects. The Society's membership spans the breadth and depth of the engineering education community. Members join from across all engineering disciplines and affinity groups and include those who impact future engineers from P-12 to undergraduate and graduate education, and through industry. In addition, ASEE builds strong partnerships across industry, government, and academia because we are all firmly focused on engineering education. Through ASEE, a broad and deep community comes together to create a solid and resilient structure.

In this special 130th anniversary year, I am especially proud to be the first woman to serve as ASEE's CEO or Executive Director. Like my fellow Society members, ASEE has been my community of practice as I navigated my transition from industry (as a truck engineer) to higher education (as a professor of engineering and academic administrator), while also taking on both appointed and elected positions

in government. Because I have worked so closely with many of you as we served the ASEE community together, it means so much to me to now have your support as I take on the role of CEO.

Together, ASEE is strong and accelerating in its impact. This is demonstrated by the historic numbers of abstracts and registrations for this year's Annual Conference. It is also demonstrated by the popularity of ASEE's wide and growing portfolio of programming and opportunities that help our members thrive.

Let us reflect upon our founders and history with pride as we come together this year to enjoy the 2023 Annual Conference and as we look toward our 130th Anniversary Gala in October. Together we are moving ASEE's mission forward to create a better world. See you at the Annual Conference! I am looking forward to saying hello.

Jacqueline El-Sayed

ASEE Chief Executive Officer and Executive Director

Work on advanced technology

Our teams are united in pushing the boundaries
of imagination and excellence. Join us.



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2023 ASEE ANNUAL CONFERENCE BOARD OF DIRECTORS



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Engineering Technology Department
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Assistant Dean for Internships
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Rowan University



Chair, Council of Sections, Zone IV

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Professor, Engineering Program Coordinator
Whatcom Community College



Chair, Professional Interest Council V

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Professor of Engineering Education and Leadership
College of Engineering
University of Texas at El Paso



Executive Director and CEO

Jacqueline A. El-Sayed
American Society for Engineering Education

2023 ASEE ANNUAL CONFERENCE

PROGRAM CHAIRS

ASEE would like to acknowledge and thank the 2023 ASEE Program Chairs for their tireless efforts and dedication to our organization.

Division	Name	Organization
Academy of Fellows	Frank Croft	The Ohio State University
Aerospace Division	Mary E. Johnson	Purdue University at West Lafayette (PPI)
	Waterloo Tsutsui	Purdue University at West Lafayette (COE)
Architectural Engineering Division	Eugene Kwak	State University of New York, College of Technology at Farmingdale
	Rachel Mosier	Oklahoma State University
ASEE Awards Policy Committee	Sylvie Nguyen-Fawley	American Society for Engineering Education
ASEE Board of Directors	Rachel Koroloff	American Society for Engineering Education
ASEE Campus Representatives	Tim Manicom	American Society for Engineering Education
ASEE Commission on Diversity, Equity, and Inclusion	Homero Murzi	Virginia Polytechnic Institute and State University
	Michelle Soledad	Virginia Polytechnic Institute and State University
ASEE Commission on P-12 Engineering Education	Melinda Zarske	University of Colorado Boulder
Biological and Agricultural Engineering Division	Qualla Jo Ketchum	Virginia Polytechnic Institute and State University
Biomedical Engineering Division	Rachel C. Childers	The Ohio State University
	Sarah Ilkhanipour Rooney	University of Delaware
Chemical Engineering Division	Janie Brennan	Washington University in St. Louis
Civil Engineering Division	Jennifer Retherford	University of Tennessee, Knoxville
College Industry Partnerships Division	Charles E. Baukal	Oklahoma Baptist University
Community Engagement Division	Elizabeth G. Jones	University of Nebraska-Lincoln
Computers in Education Division	Steven F. Barrett	University of Wyoming
	Mahnas Jean Mohammadi-Aragh	Mississippi State University
Computing and Information Technology Division	Mudasser Fraz Wyne	National University
Construction Engineering Division	Nicholas Tymvios	Bucknell University
Continuing Professional Development Division	Charles E. Baukal	Oklahoma Baptist University
Cooperative and Experiential Education Division	Mary Andrade	University of Louisville
Corporate Member Council	P.J. Boardman	MathWorks
Council of Sections	Christi Patton Luks	Missouri University of Science and Technology
Design in Engineering Education Division	Jeremy Edmondson	North Carolina State University at Raleigh
Educational Research and Methods Division	Catherine G. P. Berdanier	Pennsylvania State University
	Benjamin Ahn	The Ohio State University

2023 ASEE ANNUAL CONFERENCE

PROGRAM CHAIRS

Division	Name	Organization
Electrical and Computer Engineering Division	Kumar Yelamarthi	Tennessee Technological University
Energy Conversion, Conservation, and Nuclear Engineering Division	Sandip Das	Kennesaw State University
Engineering Accreditation Committee	Rafael Gerena	American Society for Engineering Education
Engineering and Public Policy Division	Elizabeth Cady	National Academy of Engineering
Engineering Deans Council	Vahid Motevalli	Pennsylvania State University
Engineering Design Graphics Division	Shaobo Huang	University of Saskatchewan
	Golnaz Mirfenderesgi	The Ohio State University
Engineering Economy Division	John D. Leonard	Virginia Commonwealth University
	Katie Leanne Basinger	University of Florida
Engineering Ethics Division	Alison J. Kerr	University of Illinois at Urbana-Champaign
	Azita Hirsra	Rensselaer Polytechnic Institute
Engineering Leadership Development Division	Kim Graves Wolfenbarger	University of Oklahoma
	Meg Handley	Pennsylvania State University
Engineering Libraries Division	Lisa Ngo	University of California, Berkeley
Engineering Management Division	Jena Shafai Asgarpoor	University of Nebraska-Lincoln
	Ekaterina Koromyslova	South Dakota State University
Engineering Physics and Physics Division	Carl K. Frederickson	University of Central Arkansas
Engineering Research Council	John Coulter	Lehigh University
Engineering Technology Accreditation Committee	Rafael Gerena	American Society for Engineering Education
Engineering Technology Council	John L. Irwin	Michigan Technological University
	Amitabha (Amit) Bandyopadhyay	State University of New York, College of Technology at Farmingdale
Engineering Technology Division	John L. Irwin	Michigan Technological University
	Amitabha (Amit) Bandyopadhyay	State University of New York, College of Technology at Farmingdale
Entrepreneurship and Engineering Innovation Division	Nicholas D. Fila	Iowa State University of Science and Technology
Environmental Engineering Division	Shannon L. Isovitsch Parks	University of Pittsburgh at Johnstown
Equity, Culture, & Social Justice in Education Division	Robin Fowler	University of Michigan
Experimentation and Laboratory-Oriented Studies Division	Dominik May	University of Georgia
	Natasha Smith	University of Virginia
Faculty Development Division	Homero Murzi	Virginia Polytechnic Institute and State University
First-Year Programs Division	J. Blake Hylton	Ohio Northern University

2023 ASEE ANNUAL CONFERENCE

PROGRAM CHAIRS

Division	Name	Organization
	Joshua L. Hertz	Northeastern University
Graduate Studies Division	Tilman Wolf	University of Massachusetts Amherst
Industrial Engineering Division	McKenzie Landrum	University of Florida
Instrumentation Division	Herbert L. Hess	University of Idaho
International Division	Gloria J. Kim	University of Florida
	Yanjun Yan	Western Carolina University
Liberal Education/Engineering and Society Division	Jenn Stroud Rossmann	Lafayette College
Manufacturing Division	Zhenhua Wu	Virginia State University
Materials Division	Alison K. Polasik	Campbell University
	Kaitlin Tyler	ANSYS, Inc.
Mathematics Division	Galen Papkov	Florida Gulf Coast University
Mechanical Engineering Division	Brian J. Novoselich	United States Military Academy
Mechanics Division	Geoffrey Recktenwald	Michigan State University
Military and Veterans Division	Bobby Crawford	Quinnipiac University
Minorities in Engineering Division	Gholam Ali Shaykhian	Florida Institute of Technology
Multidisciplinary Engineering Division	Lynn A. Albers	Hofstra University
New Engineering Educators Division	Rossana Villa Rojas	University of Nebraska-Lincoln
	Ahmed Dallal	University of Pittsburgh
NSF Grantees Poster Session	Amber Genau	University of Alabama at Birmingham
Ocean and Marine Division	Robert Kidd	State University of New York Maritime College
Organizations Outside of ASEE	Patti Greenawalt	American Society for Engineering Education
Pre-College Engineering Education Division	Jamie R. Gurganus	University of Maryland, Baltimore County
Professional Interest Council	John Estell	Ohio Northern University
Software Engineering Division	Afsaneh Minaie	Utah Valley University
Sponsor Technical Sessions	Ashley Krawiec	American Society for Engineering Education
Sponsored Workshops	Patti Greenawalt	American Society for Engineering Education
Student Division	Siqing Wei	Purdue University at West Lafayette (COE)
	Tiantian Li	Purdue University at West Lafayette (COE)
Systems Engineering Division	Jon Sticklen	Michigan Technological University

2023 ASEE ANNUAL CONFERENCE PROGRAM CHAIRS

Division	Name	Organization
Technological and Engineering Literacy/Philosophy of Engineering Division	Soheil Fatehiboroujeni	Cornell University
	Carl O. Hilgarth	Shawnee State University
Two-Year College Division	Philip J. Regalbuto	Trident Technical College
Undergraduate Experience Committee	Michelle B. Sabick	University of Denver
Women in Engineering Division	Brian P. Kirkmeyer	Miami University

2023 ASEE ANNUAL CONFERENCE

CONFERENCE-AT-A-GLANCE

EASTERN TIME

SATURDAY, JUNE 24

SUNDAY, JUNE 25

7:00 A.M.

ASEE Board of Directors
Oversight Meeting
7:00 A.M. – 8:00 A.M.

Registration Open - 10:00 A.M. – 7:00 P.M.

Exhibit Hall Open - 5:00 P.M. – 7:00 P.M.

Poster Viewing Open - 9:00 A.M. – 6:30 P.M.

8:00 A.M.

Finance Committee Meeting
8:00 A.M. – 11:00 A.M.

9:00 A.M.

10:00 A.M.

11:00 A.M.

ASEE Board of
Directors Meeting
8:00 A.M. –
3:00 P.M.

NEW! ASEE Job Fair
10:00 A.M. – 12:00 P.M.

12:00 P.M.

Executive Committee Meeting
11:05 A.M. – 1:00 P.M.

1:00 P.M.

2:00 P.M.

ASEE Long-Range Planning
Committee Meeting
1:00 P.M. – 4:00 P.M.

Sunday Workshops
1:00 P.M. – 3:30 P.M.

3:00 P.M.

4:00 P.M.

Division Mixer & Student Showcase Poster Session
3:30 P.M. – 5:00 P.M.

5:00 P.M.

Exhibit Hall Opening, Taste of the Town, and
Welcome Reception
5:00 P.M. – 7:00 P.M.

6:00 P.M.

Division Social Events

2023 ASEE ANNUAL CONFERENCE

CONFERENCE-AT-A-GLANCE

MONDAY, JUNE 26

Registration Open - 7:00 A.M. - 5:00 P.M.

Exhibit Hall Open - 9:00 A.M. - 6:30 P.M.

Poster Viewing Open - 9:00 A.M. - 6:30 P.M.

Monday Plenary
8:00 A.M. - 9:00 A.M.

Focus on Exhibits Networking Break & ASEE Division Poster Sessions
9:15 A.M. - 10:45 A.M.

Technical Sessions & Business Meetings
11:00 A.M. - 12:30 P.M.

ASEE General Body Meeting & Financial Town Hall
11:00 A.M. - 12:30 P.M.

FREE TIME & Exhibit Hall Bistro
12:30 P.M. - 1:30 P.M.

Technical Sessions & Business Meetings
1:30 P.M. - 3:00 P.M.

Greet The Stars! New Members & First Timers Orientation
1:30 P.M. - 3:00 P.M.

Technical Sessions & Business Meetings
3:15 P.M. - 4:45 P.M.

Interdivisional Town Hall
3:15 P.M. - 4:45 P.M.

Focus on Exhibits Summertime Social
5:00 P.M. - 6:00 P.M.

Division Social Events

TUESDAY, JUNE 27

Registration Open - 8:00 A.M. - 5:00 P.M.

Exhibit Hall Open - 12:30 P.M. - 6:30 P.M.

Poster Viewing Open - 9:30 A.M. - 6:30 P.M.

Tuesday Plenary
8:00 A.M. - 9:00 A.M.

Technical Sessions & Business Meetings
9:15 A.M. - 10:45 A.M.

CMC Industry Day Panel Sessions
9:15 A.M. - 10:45 A.M.

Technical Sessions & Business Meetings
11:00 A.M. - 12:30 P.M.

ASEE Fellows Lunch
11:00 A.M. - 12:30 P.M.

CMC Industry Day Panel Session
11:00 A.M. - 12:30 P.M.

FREE TIME & Exhibit Hall Bistro
12:30 P.M. - 1:30 P.M.

Technical Sessions & Business Meetings
1:30 P.M. - 3:00 P.M.

CMC Industry Day Panel Sessions
1:30 P.M. - 3:00 P.M.

Technical Sessions & Business Meetings
3:15 P.M. - 4:45 P.M.

CMC Industry Day Panel Sessions
3:15 P.M. - 4:45 P.M.

Focus on Exhibits Networking Break
5:00 P.M. - 6:00 P.M.

Division Social Events

Institutional Council Reception (by invitation only)
7:00 P.M. to 8:30 P.M.

WEDNESDAY, JUNE 28

Registration Open - 8:00 A.M. - 4:00 P.M.

Exhibit Hall Open - 9:00 A.M. - 12:00 P.M.

Poster Viewing Open - 9:00 A.M. - 12:00 P.M.

Topical Plenaries
8:00 A.M. - 9:00 A.M.

Focus on Exhibits Networking Break & NSF Grantees Poster Sessions
9:15 A.M. - 10:45 A.M.

Technical Sessions & Business Meetings
11:00 A.M. - 12:30 P.M.

ASEE Awards Lunch
11:00 A.M. - 12:30 P.M.

FREE TIME
12:30 P.M. - 1:30 P.M.

Technical Sessions & Business Meetings
1:30 P.M. - 3:00 P.M.

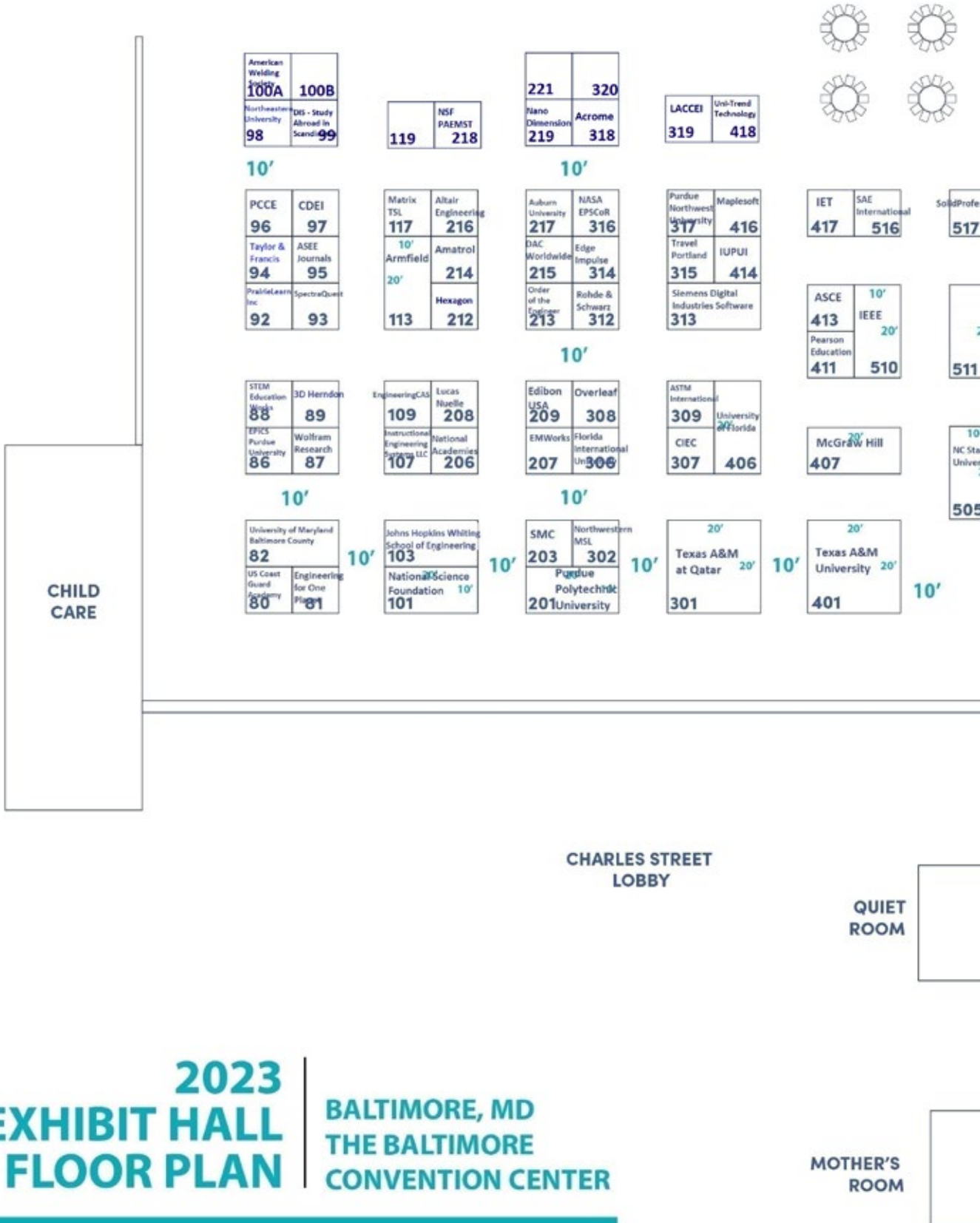
2023/2024 ASEE Board of Directors Meeting
1:00 P.M. - 3:00 P.M.

Technical Sessions & Business Meetings
3:15 P.M. - 4:45 P.M.

Program Chair Appreciation Celebration
5:00 P.M. - 6:00 P.M.

President's Farewell Reception
6:00 P.M. - 7:30 P.M.

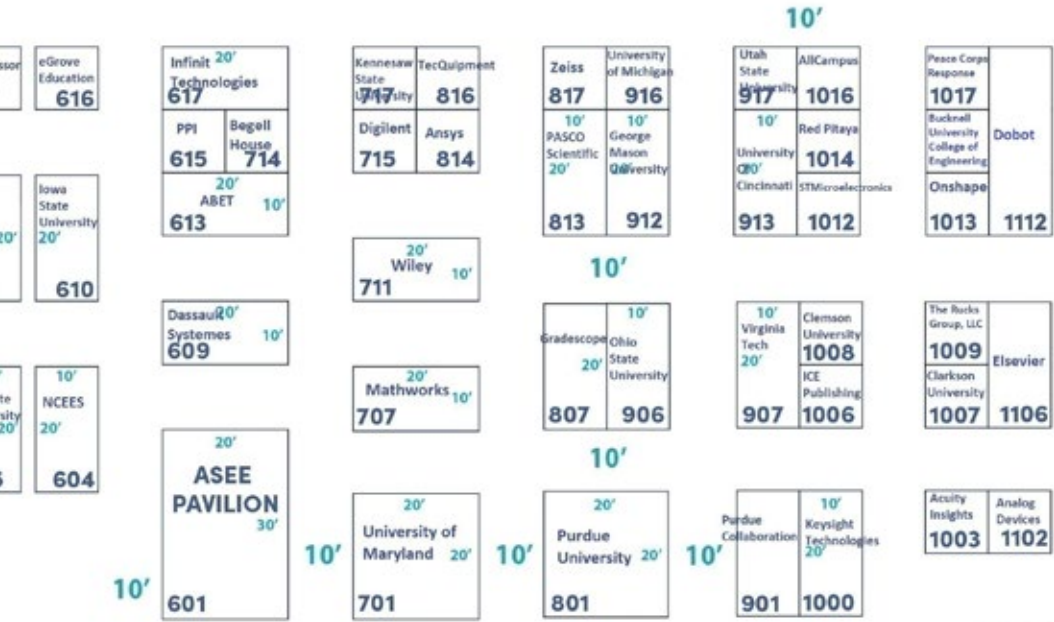
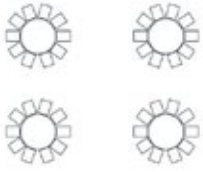
2023 ASEE ANNUAL CONFERENCE FLOOR PLAN



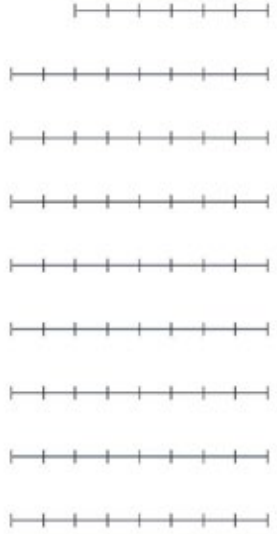
2023 EXHIBIT HALL FLOOR PLAN

BALTIMORE, MD
THE BALTIMORE CONVENTION CENTER

Two-Year College Model Design Competition



POSTER SESSIONS



20' ENTRANCE

20' LOUNGE

BOD OFFICE
EXHIBIT SUPPORT

ASEE AWARDS
ACCOUNTING

REGISTRATION EXHIBIT SALES

2023 ASEE ANNUAL CONFERENCE

CONFERENCE HIGHLIGHTS

SUNDAY, JUNE 25

Sunrise Yoga

7:00 AM – 7:45 AM

**Convention Center Garden - 2nd Floor,
Baltimore Convention Center**

NEW THIS YEAR! ASEE Annual Conference Job Fair

10:00 AM – 12:00 PM

Ballroom Foyer, Baltimore Convention Center

The ASEE Career and Graduate Fair debuts at the 2023 Annual Conference. This event will bring universities, companies, and organizations to recruit students, faculty, and others and allow them opportunities to enhance their careers or further their education. The fair will offer three different options for participants: 1) education opportunities at academic institutions for students from high school to postdocs, 2) job opportunities at academic institutions for professors, lecturers, etc., and 3) private sector jobs for students and graduates.

The fair will take place at the Baltimore Convention Center outside of the Ballroom. It will be a two-hour event where connections can be made, and futures can be sculpted.

Prospective employees are encouraged to bring several copies of their resume/CV to distribute at the Job Fair.

Participating employers include:

Schools

- Clarkson University
- Florida International University
- Indiana University – Purdue University Indianapolis
- Iowa State University of Science and Technology
- Johns Hopkins University
- Lehigh University
- New York University
- North Carolina State University
- Ohio State University

- Temple University
- Texas A&M University at Qatar
- University of Florida
- University of Illinois
- University of Wisconsin
- US Coast Guard Academy
- Virginia Polytechnic Institute and State University

Companies/Organizations

- Digilent
- LandDesign
- MathWorks
- NCEES
- Siemens Digital Industries Software
- SolidProfessor

ASEE Division Mixer

3:30 PM – 5:00 PM

Ballroom 1 & 2, Baltimore Convention Center

Mix and mingle with friends and colleagues as ASEE's various divisions showcase what they do at one of the ASEE Annual Conference's most popular events.

FOCUS ON EXHIBITS: Welcome Reception and Taste of the Town, Sponsored by MathWorks

5:00 PM – 7:00 PM

**Exhibit Hall ABCD, Baltimore Convention
Center**

Join your friends and colleagues as we kick off the ASEE Annual Conference Exhibit Hall.

Take advantage of this time to also peruse the poster boards on display in the Hall.

2023 ASEE ANNUAL CONFERENCE

CONFERENCE HIGHLIGHTS

MONDAY, JUNE 26

Sunrise Yoga

7:00 AM – 7:45 AM

Convention Center Garden - 2nd Floor,
Baltimore Convention Center

Registration and Poster Board Viewing

7:00 AM – 5:00 PM

Exhibit Hall ABCD, Baltimore Convention Center

Monday Plenary, Sponsored by Texas A&M Engineering

8:00 AM – 9:00 AM

Ballroom 1 & 2, Baltimore Convention Center

Join friends and colleagues at the Monday Plenary, which will feature national award winners and keynote speakers.

Moderated by:

Jenna P. Carpenter

Keynote Speaker:

Darryll J. Pines

University of Maryland, College Park

Darryll J. Pines became University of Maryland president in July 2020 and serves as the Glenn L. Martin Professor of Aerospace Engineering. He arrived on campus in 1995 as an assistant professor, then served as chair of the Department of Aerospace Engineering from 2006–09 and for the following 11 years as dean and Nariman Farvardin Professor of Aerospace Engineering at the A. James Clark School of Engineering.

As dean, Pines revamped teaching in fundamental undergraduate courses, encouraged participation in national and international student competitions, emphasized sustainability engineering and service learning, and expanded innovation and entrepreneurship activities. He made diversity a hallmark of his tenure, increasing the number of faculty and students from underrepresented populations. With his leadership team, he secured a historic \$219.5 million investment from the A. James & Alice B.

Clark Foundation in 2017 to fund need-based scholarships campus wide, as well as graduate fellowships, faculty positions, infrastructure, and other initiatives.

A member of the National Academy of Engineering, Pines focuses his research on structural dynamics; smart sensors; and adaptive, morphing, and biologically inspired structures as well as the guidance, navigation, and control of aerospace vehicles.

Pines is a Fellow of the American Institute of Aeronautics and Astronautics, American Society of Mechanical Engineers, and Institute of Physics. He chairs the Engineering Advisory Committee for NSF's Engineering Directorate, and sits on the Board of Trustees for UL Solutions' not-for-profit arm. Pines received a B.S. in mechanical engineering from the University of California, Berkeley, and M.S. and Ph.D. degrees in mechanical engineering from the Massachusetts Institute of Technology.

Exhibit Hall Open

9:00 AM – 6:00 PM

Exhibit Hall ABCD, Baltimore Convention Center

ASEE Bistro

9:00 AM – 6:00 PM

Exhibit Hall ABCD, Baltimore Convention Center

FOCUS ON EXHIBITS: Networking Break and ASEE Division Poster Session, Sponsored by the Premier Institutional Partners

9:15 AM – 10:45 AM

Exhibit Hall ABCD, Baltimore Convention Center

2023 ASEE ANNUAL CONFERENCE

CONFERENCE HIGHLIGHTS

ASEE Paper Management System Townhall

11:00 AM – 12:30 PM
Ballroom 3, Baltimore Convention Center

ASEE's Chief Data & Technology Officer will report out on the evaluation of major issues with the IT migration from 2019 to 2022, and ASEE HQ's plan of action to stabilize our member and conference experience through 2024.

Greet the Stars! ASEE New Members & First Timers Orientation

1:30 PM – 3:00 PM
Ballroom 3, Baltimore Convention Center

Join VP of Member Affairs Christi Patton Luks in this informative session about ASEE.

FOCUS ON EXHIBITS: Summertime Social, Sponsored by Campbell University

5:00 PM – 6:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

ASEE Campus Representative Member Recruitment Awards Reception

7:00 PM – 9:00 PM
Key South Foyer, Hilton Baltimore Inner Harbor

Annual campus representatives' reception and awards ceremony

TUESDAY, JUNE 27

Sunrise Yoga

7:00 AM – 7:45 AM
Convention Center Garden - 2nd Floor, Baltimore Convention Center

Registration and Poster Board Viewing

8:00 AM – 5:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

Tuesday Plenary—The 2022 Best Overall Papers and Corporate Member Council Keynote Speaker

8:00 AM – 9:00 AM
Ballroom 1 & 2, Baltimore Convention Center

This session will present the 2022 Best Overall PIC Paper Winner, "The Impact of Math and Science Remedial Education on Engineering Major Choice, Degree Attainment, and Time to Degree" by Joyce B. Main and Amanda Griffith (Educational Research and Methods Division);

2022 Best Overall Zone Paper Winner, "Flipping the Heat Transfer Classroom" by Jessica Lofton, University of Evansville; and 2022 Best DEI Paper Winner, "Integrating Race, Gender, and Indigenous Knowledge in the Introductory Physics Curriculum" by Prasad Venugopal.

The session will include remarks by CMC keynote speaker Prith Banerjee, chief technology officer, ANSYS, about "The Future of Engineering Education in the Hybrid World."

Moderated by:
Doug Tougaw, P.E.
Speaker:
Prith Banerjee

Prith Banerjee is chief technology officer at ANSYS, a leader in engineering simulation. Prior to that, he was CTO of Schneider Electric, CTO of ABB, managing director of R&D at Accenture, and director of HP Labs. Previously he spent 20 years in academia as professor, chairman, and dean at the University

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of Illinois and Northwestern University. He has founded two companies, AccelChip and Binachip. Banerjee currently serves on the Board of Directors of Turntide Technologies. In the past, he has served on the boards of Cray, CUBIC, and the Anita Borg Institute, and the technical advisory boards of Ambit, Atrenta, Calypto, Cypress, Ingram Micro, and Virsec. He is a Fellow of AAAS, ACM, and IEEE. Banerjee is the author of more than 350 papers and a book entitled *The Innovation Factory*. He received a B.Tech. in electronics engineering from the Indian Institute of Technology, Kharagpur, and an M.S. and Ph.D. in electrical engineering from the University of Illinois, Urbana-Champaign.

INDUSTRY DAY: Do We Need a Global Skills Development Framework to Build the Future Engineering Workforce?

9:15 AM – 10:45 AM

Room 304, Baltimore Convention Center

In the era of rapidly changing technology where humans and robots may work together and a digital twin may completely alleviate the need for a maintenance engineer, how do we develop the engineering workforce to sustain economic growth? World regions traditionally respond to such needs differently, though future global skills requirements in the engineering workforce are well charted. The panelists will discuss skills development strategies and processes in different world regions and offer opinions on whether a standard global framework of new skills will be beneficial in developing a global engineering workforce of the future.

Moderated by:

Soma Chakrabarti

ANSYS

Soma Chakrabarti leads and coordinates the education outreach efforts in the Office of the Chief Technology Officer at ANSYS. Earlier she led the materials education resources team in ANSYS Cambridge, UK. She is currently first vice president of the International Federation of Engineering Education Societies, president of the International Association for Continuing Engineering Education, and a director of the American Society for Engineering Education College Industry Partnerships Division Board. She has a Ph.D. in biochemical engineering and biotechnology from the Indian Institute of Technology, Delhi.

Speakers:

Elvira Osuna-Highley

MathWorks

Elvira Osuna-Highley is a principal customer success engineer with MathWorks, where she is part of a global team that supports faculty and researchers with integrating computational tools into their work. Before joining MathWorks, she was on the faculty of the Computational Biology Department at Carnegie Mellon University. She holds a doctorate in biomedical engineering from Carnegie Mellon University, where her research involved applying machine learning techniques to fluorescence microscope images.

Susannah Cooke

ANSYS

Susannah Cooke is a senior product manager at ANSYS, managing ANSYS Academic software. She works with universities to ensure that ANSYS tools can be deployed to best effect in teaching and research. She holds an MEng and DPhil in mechanical engineering from the University of Oxford, where her doctoral thesis focused on fluid flow around tidal turbine arrays. She has also previously worked for the UK's research funding agency, UKRI, and she began her engineering career in railway maintenance.

Shannon O'Donnell

Siemens Digital Industries Software

Shannon O'Donnell is the Americas Zone strategy lead at Siemens Digital Industries Software, Academic Programs. She is chair-elect of the College Industry Partnerships Division at the American Society for Engineering Education. Her career in international business facilitates enriching learning experiences for students, and her dedication to education is rooted in her belief that everyone should have access to the tools and resources they need to succeed.

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INDUSTRY DAY: Student and Industry Perspectives to Power Lifelong Learning

11:00 AM – 12:30 PM
Room 304, Baltimore Convention Center

Join ASEE's Corporate Member Council and Student Division for an interactive session discussing the future of engineering education for future and current workforce development. Hear from student and industry voices on critical topics needed to empower successful lifelong learning. Bring your voice and growth mindset to this important discussion.

Moderated by:
Shannon O'Donnell

ASEE Fellows Lunch (ASEE Fellows Only)

11:00 AM – 12:30 PM
Key South Foyer, Hilton Baltimore Inner Harbor

Exhibit Hall Open

12:30 PM – 6:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

ASEE Bistro

12:30 PM – 6:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

ASEE New Board Orientation

1:30 PM – 3:00 PM
Holiday 6, Hilton Baltimore Inner Harbor

Orientation for incoming ASEE Board members. Current Board Members are welcome to attend as well.

INDUSTRY DAY: Preparing Future Engineers through Academia/ Industry Collaboration

1:30 PM – 3:00 PM
Room 304, Baltimore Convention Center

Join this panel discussion sponsored by the ASEE Corporate Member Council to explore ways we can reimagine and design how we prepare students with both the technical and leadership skills needed for employability today and in the future. We will discuss trends fueling industry hiring demands and ways industry can collaborate with universities to address emerging areas for job opportunities, and better fill skills gaps through curriculum and co-curricular activities, capstone projects, and internships/co-ops to encourage and nurture the skills needed by students for the jobs of today and tomorrow.

Moderated by:
Eva Mejia

Speakers:
P.J. Boardman
MathWorks

P.J. Boardman is the director of STEM Outreach and Workforce Development at MathWorks, managing a team responsible for catalyzing, engaging, and inspiring the next generation of scientists and engineers to become our diverse workforce of tomorrow. Her team identifies, initiates, and supports scalable programs to connect to students and educators with training, content, and technology to advance their STEM initiatives. Boardman is the chair-elect of the American Society for Engineering Education Corporate Membership Council and the liaison for ASEE's P-12 Engineering Education Commission, as well as a member of the Executive Committee for the Global Engineering Deans Council. Prior to joining MathWorks in 2014, she was a vice president of Cengage Learning and Pearson Education. Boardman has a B.A. in mathematics from the College of the Holy Cross and an M.Ed. from the University of Massachusetts with a focus on instructional design and online learning. She is a Rotary International Ambassadorial Scholar and attended the Universidad de Santiago, Santiago de Compostela, Spain.

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Gregory E. Triplett

Virginia Commonwealth University

Gregory E. Triplett Jr. has been selected to serve as the inaugural dean of the School of Science and Engineering at Saint Louis University, effective July 1. He was senior associate dean for academic affairs at the Virginia Commonwealth University School of Engineering in Richmond. He joined the faculty at Virginia Commonwealth University in 2016 as a professor and associate dean for graduate studies. Triplett began his academic career in 2011 at the University of Missouri, where he was the James C. Dowell Associate Professor of Electrical and Computer Engineering, director of the Compound Semiconductor Research Lab, and associate director of the university's honors college. He is a graduate of Florida A&M University, where he majored in electrical engineering. He earned a master's degree in electrical engineering from Florida State University and a Ph.D. in electrical and computer engineering from the Georgia Institute of Technology.

Cindy Cooper

The Lemelson Foundation

As a senior program officer for The Lemelson Foundation, Cindy Cooper focuses on the foundation's higher education efforts, including Invention Education, which supports equitable and inclusive efforts to equip students with inventive skillsets and mindsets, and Engineering for One Planet, an effort to equip tomorrow's engineers with the skills, knowledge, and understanding to protect and improve our planet and lives.

For more than 20 years, she has fostered social and environmental impact through innovation, working across academic, philanthropic, business, and entrepreneurship fields. She co-founded and led award-winning organizations and programs in higher education and international development, including the world's first website for fair trade Spanish lessons through videoconferencing. Cooper received a 40 Under 40 Award in 2013, and her work has been featured in *Fast Company* magazine and *Stanford Social Innovation Review*, and on NPR.

A Brazilian American, she speaks English, Portuguese, and Spanish, and holds a Global MBA with distinction from Arizona State University's Thunderbird School of Global Management and a psychology/Spanish B.A. summa cum laude from Claremont McKenna College.

Eva Mejia

IDEO

Eva Mejia has been crossing borders her whole life. She is proud to have been born and raised in Tijuana, Mexico, and has lived most of her life on the San Diego-Tijuana frontera where innovation and ingenio Mexicano make things happen. She now serves as executive director of learning at IDEO, where her experience gives her a discerning eye for the intersection of equity and innovation. Designing with humans (instead of at them) and orchestrating collaborations make Mejia burst with joy. As executive director of learning, she is putting her full creative spirit into redesigning learning systems, organizations, and programs that uphold the dignity of all people.

Prior to IDEO, Mejia served as the chief program and strategy officer at Big Picture Learning, where she steered strategic thinking and programs for the network of innovative BPL schools dedicated to personalized, real-world learning. Before that, Mejia was director of networked improvement science for the Carnegie Foundation for the Advancement of Teaching, leading and mentoring coaching teams in design thinking, improvement science, systems thinking, network development, and collaboration. She has served as a curriculum designer and improvement coach for the Data Wise Project at the Harvard Graduate School of Education (HGSE), and as an institutional effectiveness consultant helping community college and university teams use data to inform their student success programming.

Mejia holds an Education Leadership Doctorate (Ed.L.D.) from HGSE, as well as a B.A. in psychology, and an M.A. in sociology from Stanford University. Her early experiences as a social worker and parent engagement coordinator and advocate were foundational to her strengths-based approach and commitment to bridging divides across systems and communities to support young people and their families.

Dora Smith

Siemens Digital Industries Software

Dora Smith directs the global education and startup strategies for Siemens Digital Industries Software. The strategic education initiative empowers lifelong learners to create a more innovative sustainable future through access to industrial strength software, industry-aligned learning resources, and an ecosystem of more than 1.5 million students at more than 4,000 institutions worldwide. The strategic startup program empowers entrepreneurs to make an impact on the world through cutting-edge tools and

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resources to take their innovations from digitalization to realization. She serves in academic-industry advisory roles, including chair of the American Society for Engineering Education's Corporate Member Council and vice president for Diversity and Inclusion on the International Federation of Engineering Education Societies' executive committee.

Smith is an accredited business communicator with more than 25 years of experience in the engineering and manufacturing industry with leadership roles across disciplines. Previously, she held executive management positions at CAD Potential (now Tata Technologies), where she developed the company's first academic and certification programs. Prior to that, she directed the Unigraphics Users Group (now Digital Enterprise Society), an independent, not-for-profit user advocacy organization supporting the engineering community. She also served as president on the board of directors of IABC St. Louis. She earned her bachelor's degree in journalism from University of Missouri-Columbia and a master's in business administration from Washington University.

INDUSTRY DAY: The Future of Upskilling and Lifelong Learning

3:15 PM – 4:45 PM

Room 304, Baltimore Convention Center

This session will explore the future of upskilling and lifelong learning, emphasizing the importance of technical and essential skills for personal and professional growth. We will discuss the significance of mentor training in effectively cultivating these skills. Participants will gain insights into the evolving landscape of upskilling in the digital age, recognize the value of both technical and essential skills in a rapidly changing world, and explore how mentorship facilitates the acquisition of these skills. The session will provide practical guidance on effective mentor training strategies and methodologies, with a focus on emerging trends, essential technical skills, and the transformative power of mentorship. By embracing continuous learning and mentorship, participants will be empowered to shape a successful future.

Moderated by:

Stephanie S. Harrington

Speakers:

Jeffrey Alderson

MathWorks

Jeff Alderson is the product manager for MATLAB's autograding solution, MATLAB Grader, at MathWorks in Natick, MA, where he leads the company's marketing efforts in teaching and learning. Prior to joining MathWorks, he was with Eduventures and was lead architect for Houghton Mifflin Harcourt and at ConnectEDU. Alderson has over 20 years of experience in deploying secure, standards-based data solutions for education and government, as well as five years of service as a commissioned officer in the U.S. Air Force. He received his B.S. in electrical and computer engineering from WPI in Massachusetts and his M.Ed. in education policy, organization, and leadership from the University of Illinois Urbana-Champaign.

Soma Chakrabarti

ANSYS

Soma Chakrabarti leads and coordinates the education outreach efforts in the Office of the Chief Technology Officer at ANSYS. Earlier she led the materials education resources team in ANSYS Cambridge, UK. Chakrabarti is currently first vice president of the International Federation of Engineering Education Societies, president of the International Association for Continuing Engineering Education, and a director of the American Society for Engineering Education College Industry Partnerships Division Board. She has a Ph.D. in biochemical engineering and biotechnology from the Indian Institute of Technology, Delhi.

Patrick R. Kane

Cypress Semiconductor Corp.

Patrick Kane has been the director of the University Alliances at Cypress Semiconductor Corporation, An Infineon Technologies Company since 2006. University Alliances is dedicated to partnering with academia to ensure that professors and students have access to the latest Cypress and Infineon technology for use in education and research. Before joining Cypress, he spent over 13 years at Xilinx, Advanced Micro Devices, and Lattice Semiconductor. Kane was an affiliate professor in the CEPS department at the University of New Hampshire, Durham from 2013–2016. He holds ASEET, BSEE, and MBA degrees as well as a doctorate in educational leadership and technology.

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Jessica Silwick
ABET

As CFO, Jessica Silwick is responsible for developing ABET's financial management strategy, budget development, forecasting, and the integrity of the financial information. As COO, she is in charge of communications and marketing, professional assessment offerings, office operations, and overall management of Human Resources, and serves as lead internal auditor for ABET's Quality Management System to ensure continued ISO compliance and certification. Prior to ABET, she gained experience working for large organizations in the manufacturing, pharmaceutical, and energy fields. Silwick earned her bachelor's degree in accounting from Notre Dame of Maryland University, and an MBA from the University of North Carolina Kenan-Flagler School of Business. She is also an active CPA and CAE, and has earned professional certificates from Yale University and Cornell University.

FOCUS ON EXHIBITS: Networking Social, Sponsored by the Premier Institutional Partners

5:00 PM – 6:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

INDUSTRY DAY: Institutional Council Reception (By Invitation Only)

7:00 PM – 9:00 PM
University of Maryland, College Park Campus
A. James Clark Hall, 8278 Paint Branch Dr.,
College Park, MD 20742

By invitation only

WEDNESDAY, JUNE 28

Sunrise Yoga

7:00 AM – 7:45 AM
Convention Center Garden - 2nd Floor,
Baltimore Convention Center

Registration & Poster Board Viewing

8:00 AM – 4:00 PM
Exhibit Hall ABCD, Baltimore Convention Center

Topical Plenary—Advancing Antiracism, Diversity, Equity, and Inclusion in Engineering

8:00 AM – 9:00 AM
Room 308, Baltimore Convention Center

Ensuring that higher education incorporates Antiracism, Diversity, Equity, and Inclusion (ADEI) into its operations can make engineering education more accessible, meaningful, and engaging for students of all racial and ethnic backgrounds.

Speakers:
Karl Reid

Karl W. Reid is senior vice provost, chief inclusion officer, and professor of practice at Northeastern University. He also heads the Engineering PLUS Alliance, a national NSF-funded coalition that aims to increase the growth rate in the number of women and racially minoritized students obtaining undergraduate and graduate degrees in engineering. Prior to joining Northeastern, Reid was executive director of the National Society of Black Engineers (NSBE). He came to NSBE from the United Negro College Fund (UNCF), where he held the title of senior vice president for research, innovation, and member college engagement. Reid served on the Committee for Addressing the Underrepresentation of Women of Color in Tech and the National Council for Expanding American Innovation. He is a member of the Industry Leaders Council of the American Society of Civil Engineers, and a founding member of the American Council of Engineering Companies (ACEC) Research Institute Advisory Council and the 50k Coalition. Reid is a frequent contributor to the

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national discourse on advancing student achievement and fostering diversity and inclusion. He holds B.A. and M.S. degrees in materials science and engineering from MIT, and a doctorate in education from Harvard University.

Erick Jones

The University of Texas at Arlington

Erick Jones is a professor and associate dean for graduate studies in the College of Engineering at The University of Texas at Arlington (UTA). He is currently the George and Elizabeth Pickett Endowed Professor in Industrial, Manufacturing, and Systems Engineering. Jones returned from his three-year rotating detail at the National Science Foundation where he was a program director in the Engineering Directorate for Engineering Research Centers Program. Earlier he was the program director in the Education Directorate for the Division of Graduate Education, which led the INTERN and Graduate Research Internship Programs. He was also a program director for the prestigious Graduate Research Fellowship (GRF) Program. Jones was one of the few program officers who worked in two directorates as a rotating program director.

Prior to joining UTA, Jones worked at the University of Nebraska-Lincoln for eight years, where he initially received tenure. He served as deputy director of UTA's Security Advances via Nanotechnologies Center from 2013–15. He is currently the director of the RAID lab, a position he has held since 2011.

Jones is internationally recognized for this pioneering work with RFID technologies, Lean Six Sigma Quality Management, and autonomous inventory control. He has published more than 243 manuscripts and three textbooks, and has garnered more than \$10 million in grants and contracts. Additionally, he has advised 44 master's students and 18 Ph.D. students, and sponsored 32 undergraduate research projects.

He is an active member of ISCEA, NSF, AAAS, IISE, ASEE, and National Society of Black Engineers (NSBE). He has served in IISE, NSBE, and other organizations as faculty advisor for the past decade. He was appointed as president of the ISCEA International Standards Board (IISB) in July 2020. He was also appointed president of the IISE Work Systems Division Board in the same year. He served as an Alfred Sloan Minority Ph.D. Program director and is on the Sloan Mentoring Network Board. He worked with the National Action Council for Minorities in Engineering for over a decade and was also one of the initial founders and

past chair of Texas A&M's Black Former Students Network. He was recognized as an Alfred Sloan Underrepresented Minority Ph.D. Program Fellow and has been honored by the National Action Council for Minorities in Engineering three times.

Jones worked in the industry for over a decade before returning to academia to attain his Ph.D. He held engineering, management, and executive management positions while in the industry, including engineering supervisor, director of engineering, and executive manager for companies such as UPS, Academy Sports and Outdoors, Arthur Andersen, and LLP, respectively. He gained valuable engineering and executive experience that he brings to the university.

Jones earned his bachelor's degree in industrial engineering from Texas A&M University and his master's and doctoral degrees in industrial engineering from the University of Houston.

TOPICAL PLENARY: Engineering Education from the Perspective of Customers in the Government and Military

8:00 AM – 9:00 AM

Room 310, Baltimore Convention Center

Engineering education often focuses on preparing students to be product or service providers (in government-speak, working for a contractor). However, the government, as the customer for products and services, also needs engineers to focus on setting requirements (rather than design), maintaining (rather than building), operational testing, reverse engineering, and researching technology without a clear business case.

This session will survey the key differences between serving as an engineer and as a customer in the government, with application for educators preparing customers and solution providers alike.

Speaker:

Michael S. Warner

Colonel Michael S. Warner is the associate director of engineering and technical management, Air Force Sustainment Center (AFSC) Operating Location Hill Air

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Force Base (AFB), Utah. He develops, implements, and oversees technical policies, processes, databases, and goals/standards for the scientist and engineering workforce at Hill AFB and other resident AFSC and Air Force Life Cycle Management Center offices. Warner provides executive leadership and technical direction for an engineering and scientific workforce of more than 1,600 science and engineering professionals supporting the Ogden Air Logistics Complex's mission.

Warner received his Ph.D. in aerospace engineering in 1996 from the Georgia Institute of Technology. He was commissioned into the Air Force in 1997 through Officer Training School. In his 24 years on active duty, he has served in a variety of space science, technology, teaching, and staff assignments. His prior assignment was a division chief, deputy director, and then acting director of the Materials and Manufacturing directorate of the Air Force Research Laboratory.

Topical Plenary—From Changing Engineering Courses to Changing the Course of Engineering: Seizing Today's Sustainability Opportunity

8:00 AM – 9:00 AM
Room 309, Baltimore Convention Center

Engineering education produces highly skilled professionals, and engineers from all disciplines have an impact on the world in large and small ways every day. The work of engineers has increased life expectancy, produced life-saving technologies, improved the ability to connect with distant places and people, enabled communications around and beyond the ends of the Earth, and created joyful media and entertainment experiences, to name just a few.

However, many engineered solutions have also led to unintended negative social and environmental impacts. The negative effects of climate change, pollution, and health disparities have a disproportionate impact on people from historically marginalized communities. People of color and women are underrepresented in engineering, but their perspectives and lived experiences are critical to developing the best engineering solutions that no longer perpetuate environmental, economic, or social disparities.

Engineering educators are increasingly seeking to introduce sustainability into coursework. This session will provide teaching tools, capacity-building, and course buy-outs or resources to do so.

To both address and avoid negative impacts of the range of activities that engineers undertake, engineers must be prepared in a broad range of skills under the broad umbrella of sustainability. These include technical skills such as Life-Cycle Assessment and energy measurement, and high-demand professional skills such as communication, teamwork and leadership, and critical thinking to evaluate ethical issues and trade-offs.

As the aspirations of employers turn toward imbuing sustainability across engineering and business functions, the demand for sustainability skills is outweighing the supply.

Moderated by:
Jenna P. Carpenter

Speakers:
Cindy Cooper
The Lemelson Foundation

As a senior program officer for The Lemelson Foundation, Cindy Cooper supports the US Higher Education initiative to cultivate the next generation of impact-driven inventors and innovators and foster equitable and inclusive pathways for student inventors. She also leads Engineering for One Planet, the foundation's effort to equip tomorrow's engineers with the skills, knowledge, and understanding to protect our planet and the life it sustains.

Cooper joined The Lemelson Foundation as a program officer in 2017. During her tenure, she has served as judge for national and international innovation competitions, including the 2019 MacArthur Foundation 100&Change competition. Additionally, she has been a keynote speaker, panelist, and moderator for national and global events.

Cooper previously co-founded and served as the executive director of Portland State University's Impact Entrepreneurs Program, where she served as faculty teaching social innovation and entrepreneurship, co-led PSU's successful bid for recognition as an Ashoka U Changemaker Campus, developed social innovation incubation programs, and co-led the creation of the nation's first online academic and professional certificate in social innovation and entrepreneurship. Previously, she co-founded Speak Shop,

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a groundbreaking and award-winning social enterprise for learning Spanish online by video conferencing with teachers in Guatemala. She has experience in global strategic marketing and has served as a consultant to corporations, foundations, and NGOs on social innovation and environmental impact projects. She received a 40 Under 40 Award in 2013, and her work has been featured in Fast Company magazine and Stanford Social Innovation Review, and on NPR.

Cooper is a Brazilian American and holds a Global MBA with distinction from the University of Arizona's Thunderbird School of Global Management, and a B.A. summa cum laude in psychology/Spanish from Claremont McKenna College.

Michael K. J. Milligan, P.E.

ABET

Michael K. J. Milligan is executive director and chief executive officer of ABET, the global accreditor of over 4,500 college and university programs in applied and natural science, computing, engineering, and engineering technology.

Prior to joining ABET in 2009, Milligan was a systems director at the Aerospace Corporation, leading a team at the NASA Goddard Space Flight Center developing the next generation environmental satellites for NOAA. Milligan served over 24 years as a career US Air Force officer working in operations, engineering education, international research & development, and technology acquisition.

Milligan earned his Ph.D. from The University of Texas at Austin, his M.S.E. from the University of Massachusetts at Lowell, and his B.S. from Michigan State University, all in electrical engineering. He also earned an MBA in business administration from Western New England College, is a registered Professional Engineer in Colorado and Maryland, and is a Certified Association Executive. He is also a Master Naturalist for the state of Maryland.

Adebayo Ogundipe

James Madison University

Adebayo "Bayo" Ogundipe is a professor and department head of engineering at James Madison University. Prior to joining the department in 2010, he held the position of research fellow with the Center for Environmental Systems at Stevens Institute of Technology, where his DOD-sponsored research was on the environmental impacts of

munitions and the development of tools and protocols for assessing sustainable engineering designs using life-cycle assessment and industrial ecology methods. His work has resulted in research publications on environmental and sustainable engineering. He is the co-author of a textbook on sustainable engineering design as well as multiple guidance documents on the topic.

Since joining the department, his scholarly interests have expanded to include the development of synergistic activities between engineering and non-engineering disciplines with the goal of interdisciplinary, holistic approaches to problem-solving. His ongoing cross-disciplinary work involves international collaborations aimed at developing appropriate educational modules to help engineering students develop global cultural competencies, a necessity for sustainable problem-solving.

Ogundipe earned his bachelor's degree in chemical engineering from the University of Lagos, Nigeria, followed by a master's degree in chemical engineering and Ph.D. in environmental engineering from Stevens Institute of Technology.

Dora Smith

Siemens Digital Industries Software

Dora Smith directs the global education and startup strategies for Siemens Digital Industries Software. The strategic education initiative empowers lifelong learners to create a more innovative sustainable future through access to industrial strength software, industry-aligned learning resources, and an ecosystem of more than 1.5 million students at more than 4,000 institutions worldwide. The strategic startup program empowers entrepreneurs to make an impact on the world through cutting-edge tools and resources to take their innovations from digitalization to realization. She serves in academic-industry advisory roles, including chair of the American Society for Engineering Education's Corporate Member Council and vice president for Diversity and Inclusion on the International Federation of Engineering Education Societies' executive committee.

Smith is an accredited business communicator with more than 25 years of experience in the engineering and manufacturing industry, with leadership roles across disciplines. Previously, she held executive management positions at CAD Potential (now Tata Technologies), where she developed the company's first academic and certification programs. Prior to that, she directed the Unigraphics Users Group (now Digital Enterprise Society),

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an independent, not-for-profit user advocacy organization supporting the engineering community. She also served as president on the board of directors of IABC St. Louis. She earned her bachelor's degree in journalism from the University of Missouri-Columbia and a master's in business administration from Washington University.

Topical Plenary—I Know That's Right: The Importance of Critical Mentorship in Engineering Education

8:00 AM – 9:00 AM

Ballroom 1 & 2, Baltimore Convention Center

This topical plenary provides experiences of researchers, practitioners, and beneficiaries of critical mentorship in engineering education. The conversational-style session will expose attendees to the positive and negative experiences of minoritized individuals in engineering. Engineering is rife with examples of interventions that fail students from minoritized backgrounds. For decades, organizations and institutions have sought to diversify engineering talent at all levels by introducing programs that offer “mentorship” but fail to design, assess, and/or evaluate the impacts of those programs.

The session will look at critical mentorship as a way to address inequities in a way that is effective and rooted in anti-deficit notions for members of historically marginalized groups—a “nothing about us without us” approach that centers the voice of mentees. It offers a counternarrative to ideologies of knowledge and power, so students can take ownership of their personal and professional development.

This session seeks to ask and answer questions about what mentorship should be in engineering education, especially higher education. It will highlight scholarship in mentorship that is culturally relevant and intersectional, and involves a community-based participatory approach. It will offer effective mentorship strategies for developing a diverse engineering workforce, so access, equity, and inclusion in engineering can increase.

Speaker:

Jeremy A. Magruder Waisome

University of Florida

Jeremy A. Magruder Waisome earned her bachelor's and master's of science degrees and Ph.D. in civil engineering from the University of Florida (UF). During her studies, she became passionate about issues of equity, access, and inclusion in engineering and computing and worked to develop programs and activities that supported diverse students in these disciplines.

Today, she is an assistant professor in the University of Florida's Department of Engineering Education, where she conducts research on broadening participation in science, technology, engineering, mathematics, and computing (STEM+C). She is particularly interested in understanding how formalized mentoring programs impact student trajectories and self-efficacy. In her teaching, she utilizes the learner-centered approach to instruction.

In 2018, Waisome was appointed to serve as special assistant to the UF dean of the graduate school in the Division of Graduate Student Affairs. During her time in this role, she managed the UF chapter of the Edward A. Bouchet Graduate Honor Society, of which she is a founding member/inductee (2017). She is the recipient of several prestigious awards for her scholarship, leadership, and service, including the National Society of Black Engineers' Mike Shinn Distinguished Member of the Year Award, and is an inducted member of the UF Hall of Fame (2010).

Waisome is passionate about science-communication (sci-comm) and participates in several activities to bridge the gap between the general public and the STEM+C disciplines. She has been featured as a moderator and host of sci-comm events for such organizations as the National Academies of Science, Engineering, and Medicine and the National Center for Women & Information Technology (NCWIT). Along with her colleague, Kyla McMullen, she is co-creator and host of the conversational-style Modern Figures podcast. Through the generous support of iAAMCS, CRA-WP, and NCWIT, the Modern Figures podcast exists to elevate the voices of Black women in computing, to inspire the next generation of the advanced technology workforce.

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TOPICAL PLENARY: Leveraging Your Agency to Promote Diversity, Equity, and Inclusion (DEI) in the Engineering Education Ecosystem

8:00 AM – 9:00 AM
Room 307, Baltimore Convention Center

This session will discuss ways to leverage an agency to promote diversity, equity, and inclusion (DEI) in the engineering education ecosystem more effectively.

Speaker:

Tershia A. Pinder-Grover
University of Michigan

Tershia Pinder-Grover earned a B.S. degree in fire protection engineering from the University of Maryland in 1999, and M.S. and Ph.D. degrees in mechanical engineering from the University of Michigan in 2002 and 2006, respectively. She joined the Center for Research on Learning and Teaching in August 2005 and became the director of CRLT-Engin in 2016. In this role, Pinder-Grover leads a team focused on advancing engineering education in the College of Engineering (CoE) through innovative programming, strategic partnerships, and cultivating individual relationships. In collaboration with the associate deans in the CoE, she provides leadership on educational priorities, especially as it relates to Diversity, Equity, and Inclusion. She also works closely with department chairs to create customized programming to meet the needs of their faculty. Her current research interests focus on the adoption of inclusive teaching practices for engineering instructors.

TOPICAL PLENARY: Maritime Workforce Development with Industry

8:00 AM – 9:00 AM
Room 322, Baltimore Convention Center

This plenary will discuss workforce development at the intersection of engineering and the maritime trades. Time and conditions permitting, a one-hour tour of local facilities will follow the plenary.

Speaker:

Captain David Obermeier

Captain David Obermeier assumed command of the U.S. Coast Guard Yard on July 14, 2022. He is the 44th Commanding Officer in the Yard's 123-year history. Obermeier previously served as the industrial manager at the Coast Guard Yard, the only shipbuilding and repair facility of the U.S. Coast Guard. The Yard employs over 500 civilian employees and generates annual revenues over \$110 million. Prior to his Yard assignments, Obermeier served as deputy program manager for the Coast Guard's Boat Acquisition Program, where he managed six acquisitions with a combined life cycle cost estimate of over \$3 billion. He assumed that position following the System Design and Management Fellowship at the Massachusetts Institute of Technology (MIT), where he focused on sustainability and managing the complexity of socio-technical projects.

Previous tours include the business operations division chief at the Shore Infrastructure Logistics Center, facilities engineer at Base Portsmouth, supervisor at Sector Field Office Cape Hatteras, designer/planner at Civil Engineering Unit Providence, business manager at Base Boston's Industrial Division, and damage control assistant on USCGC POLAR STAR.

Obermeier holds a bachelor's degree in civil engineering from the U.S. Coast Guard Academy, a master of science in civil engineering, a master of business administration from the University of Illinois, and a master of science in engineering and management from MIT. He is a registered Professional Engineer (PE) in his home state of Rhode Island, and holds credentials as a Project Management Professional (PMP), Certified Facility Manager (CFM), Certified Energy Manager (CEM), and DHS Level III Program Manager. Obermeier was awarded the Society of American Military Engineers (SAME) Oren Medal in 2015 for Excellence in Civil Engineering and the Senator John Chafee Humanitarian Award in 2005 from the Rhode Island Federal Executive Council for mentoring and tutoring at-risk youth.

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TOPICAL PLENARY: Saying the Words: Centering Racism and Other Critical Frameworks for 21st-Century Engineering Education

8:00 AM – 9:00 AM

Room 319, Baltimore Convention Center

This session will provide historical context for diversity, equity, inclusion, and justice (DEIJ) efforts, and a moderated discussion of challenges and opportunities by scholars and activists representing pro-Black, Indigenous, queer, or disability perspectives on engineering education.

Speakers:

Amy Slaton

Drexel University

Amy E. Slaton is a professor in the Department of History at Drexel University. She holds a Ph.D. in the history and sociology of science from the University of Pennsylvania and has taught courses in the history of American science, technology, and architecture, as well as in U.S. labor history and race relations. Slaton directed Drexel's master's program in Science, Technology and Society from 2001 to 2009 and has been a visiting associate professor at Haverford College. She is an active scholar within the ASEE LEES community and formerly served as LEES program and division chair.

Slaton has long been interested in the social character of technical expertise and work. She has written on the history of building technologies and materials testing, with a focus on who gets credit when things go well, and who gets blamed when structures and materials fail. Her book, *Reinforced Concrete and the Modernization of American Building, 1900–1930* (Johns Hopkins University Press, 2001), integrated the histories of materials testing, construction labor, building codes and standards, and aesthetic change surrounding the introduction of commercial reinforced concrete in the United States. Slaton is also interested in understandings of technical aptitude in American manufacturing and engineering more generally, with particular emphasis on the role of race. Her most recent book is *Race, Rigor, and Selectivity in U.S. Engineering: The History of an Occupational Color Line* (Harvard University Press, 2010).

Sepehr Vakil

Northwestern University

Sepehr Vakil is assistant professor of learning sciences in the School of Education and Social Policy at Northwestern University. Previously he was assistant professor of STEM education and associate director of equity and inclusion in the Center for STEM Education at the University of Texas at Austin. He received his Ph.D. in the Education in Mathematics, Science, and Technology program at UC Berkeley, and his B.S. and M.S. in electrical engineering from UCLA.

Stephanie Masta

Purdue University at West Lafayette (PPI)

An associate professor of curriculum studies in the College of Education at Purdue University, Stephanie Masta is also chair of ASEE's Equity, Culture, and Social Justice in Education Division. Her research forefronts the centrality of Indigenous education within curriculum studies through the development and use of Indigenous methodologies to study Indigenous student experiences in educational contexts. Masta's work builds on existing Indigenous theories (e.g. Tribal Critical Race Theory) to create methods that center Indigenous perspectives.

Meagan C. Pollock

Engineer Inclusion

Since 2018, Meagan Pollock has served as chair of the Professional Development Committee for the American Society for Engineering Education Commission on Diversity, Equity, and Inclusion, and she is now commission chair. In addition, she is an Associate Fellow at the Southern Methodist University Caruth Institute for Engineering Education. A past recipient of the National Science Foundation Graduate Research Fellowship, she holds a Ph.D. in engineering education from Purdue University, an M.S. in electrical engineering from Texas Tech University, and a B.S. in computer science from Texas Woman's University.

Kayla R. Maxey

Purdue University at West Lafayette (COE)

NSF STEM postdoctoral research fellow, visiting faculty member at Indiana University-Purdue, Ph.D. in engineering education from Purdue University

TOPICAL PLENARY: What We Learned at the Revolution: Insight and Impact in the Context of the 2015 and 2016 NSF RED Projects

8:00 AM – 9:00 AM
Room 320, Baltimore Convention Center

This topical plenary will explore the impact of the NSF Revolutionizing Engineering and Computer Science Departments (RED) program on the institutions that were funded in 2015 and 2016. Now that those projects are complete, we can learn a great deal about academic change and the transformation of engineering curricula in the middle years of undergraduate education.

Each of the RED project participants served on their institution's respective RED teams as PI, disciplinary faculty, or engineering education expert. Their perspectives will provide insights about the impact of RED on their departments and what non-RED departments can learn and apply to their own educational contexts.

The session will appeal to attendees in all disciplines of engineering and computer science, since the RED program is open to all disciplines. The session will encourage the dissemination of RED project products through collaboration between RED and non-RED departments and for individuals to learn more about the RED program and submit their own proposals as a result.

The following RED team members will participate:

Ann Gates (University of Texas at El Paso, computer science)

Tony Maciejewski (Colorado State University, electrical engineering)

Stephanie Farrell (Rowan University, civil engineering)

Ed Berger (Purdue University, mechanical engineering)

Susannah Davis (University of New Mexico, chemical engineering)

Susan Lord (University of San Diego, general engineering)

Luke Lester (Virginia Tech, electrical engineering)

Diane Rover (Iowa State University, electrical engineering)

Mary Lou Maher (University of North Carolina at Charlotte, computer science) (m.maher@uncc.edu)

The session will be moderated by Tom Martin (tmartin@nsf.gov), Virginia Tech/NSF rotator, and Julia Williams (williams@rose-hulman.edu), RED Participatory Action

Research Project (REDFPAR). Martin was co-PI for the Virginia Tech RED project and Williams serves as PI for REDPAR, which designed the academic change curriculum used by RED and supported their change efforts.

Also participating are Donna Riley (riley1@unm.edu), the program officer who initiated RED while she was at NSF, Julie Martin (martin.4071@osu.edu), who served as the program officer for RED, and Kemi Ladeji-Osias (jladejio@nsf.gov), current NSF program officer for the RED program.

Topical Plenary—The Coalition for Life Transformative Education: Preparing Students for a Lifetime of Wellbeing

8:00 AM – 9:00 AM
Room 327, Baltimore Convention Center

Over the past decade, colleges and universities have focused their efforts on student success as measured by increased graduation rates and reduced time to degree. These efforts have led to major gains, and they are ongoing. They have also naturally led to the next frontier in higher education where success is measured not only by graduation rates but also by impact on students' wellbeing long after graduation.

This greater goal is as appropriate to small liberal arts colleges as it is to regional and national public universities. If college is in fact meant to prepare students to achieve financial viability, find meaning in their human relationships and their work, contribute to the common good, and achieve lifelong wellbeing and satisfaction, higher education needs to establish which experiences during a student's education are most likely to lead to these life-transformative outcomes. This talk will describe some of the forces that are currently buffeting higher education as well as the work of the Coalition for Life Transformative Education in moving us toward a future in which students are empowered with identity, agency, and purpose.

Speaker:

Keith W. Buffinton

Bucknell University

Keith W. Buffinton is a professor of mechanical engineering and dean of engineering, emeritus, at Bucknell University. He received his B.S. in mechanical engineering summa cum laude from Tufts University and his M.S. and Ph.D.

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from Stanford University. Following his graduate studies, he worked as a postdoctoral researcher at the Swiss Federal Institute of Technology in Zurich, Switzerland. At Bucknell, he also served as co-director of Bucknell's Institute for Leadership in Technology and Management as well as special assistant to the provost for engineering collaborations.

Buffinton has received various awards for his teaching and leadership, including Bucknell's Lindback Award for Distinguished Teaching, the "Star Performers Award for Innovation" from the Small Business Development Center of Pennsylvania, the award for "Outstanding Achievement in Mechanical Engineering Practice" from the Tufts Department of Mechanical Engineering, the inaugural Kern Entrepreneurial Engineering Network Dean's Award in recognition of "leadership to advance entrepreneurial engineering," and the Charles H. Coder Entrepreneurial Leadership Award "in recognition of transformational leadership and vision for the ecosystem of innovation and entrepreneurship at Bucknell University."

Buffinton is a former member of the Rural Business Innovation Corporation Board of Directors and of the Executive Board of the ASEE Engineering Deans Council, and is past chair of the American Association of Engineering Societies Engineering Education Working Group. He currently serves on the Advisory Board for the Small College of Engineering at Ohio Northern University, the Advisory Board for the Mechanical, Industrial, and Manufacturing Engineering Department at the University of Toledo, the Advisory Board for the Tufts Center for Engineering Education Outreach, the Interim Executive Committee for the Grand Challenges Scholars Program Network, and the Steering Committee for the Coalition for Life Transformative Education.

Exhibit Hall Open

9:00 AM – 12:00 PM

Exhibit Hall ABCD, Baltimore Convention Center

FOCUS ON EXHIBITS: Networking Break and NSF Grantees Poster Session

9:15 AM – 10:45 AM

Exhibit Hall ABCD, Baltimore Convention Center

ASEE Awards Lunch, Sponsored by Dassault Systèmes & The Boeing Company

11:00 AM – 12:30 PM

Ballroom 3, Baltimore Convention Center

Ticketed event: \$50.00 advanced registration and \$60.00 on-site registration

DEI Roundtable

1:30 PM – 3:00 PM

Room 314, Baltimore Convention Center

This roundtable will discuss strategies for institutions where diversity, equity, and inclusion activities are being restricted or outlawed, along with issues regarding the legality of Affirmative Action in higher education.

Moderated by:

Stephen Secules, Homero Murzi, Darryl Dickerson, Julie P. Martin, Denise Rutledge Simmons P.E., and Laura Bottomley

Generative AI Roundtable

1:30 PM – 3:00 PM

Ballroom 3, Baltimore Convention Center

This roundtable is organized in response to many engineering programs' reactions to Generative Artificial Intelligence (e.g. ChatGPT). Some background context and responses from a number of participants will be provided. This interactive session will be focused on a discussion of ways ASEE can lead in helping engineering education programs navigate and address this rapidly changing field.

Moderated by:

Yannis C. Yortsos and John-David "JD" S. Yoder

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2023 Program Chair & Co-Chair Appreciation Celebration

5:00 PM – 6:00 PM
Convention Center Garden - 2nd Floor,
Baltimore Convention Center

ASEE invites all 2023 Chairs and Co-Chairs to this appreciation celebration.

ASEE President's Farewell Reception, Sponsored by NCEES

6:00 PM – 7:30 PM
Ballroom 1 & 2, Baltimore Convention Center

Join your friends and colleagues as we say farewell to President Jenna Carpenter and welcome in President-Elect Doug Tougaw.

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Exploring the Path of Becoming an ABET Program Evaluator: Is It the Right Fit for You?, Presented by ABET

Monday, June 26
11:00 AM – 12:30 PM
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

This presentation is specifically tailored for individuals who are considering becoming an ABET Program Evaluator (PEV) and would like to gain a comprehensive understanding of the responsibilities involved. The presentation will address the application process, the training process and commitment, and the intricacies of an ABET visit, as seen from the perspective of a PEV. Additionally, the presentation will cover mandatory documentation requirements, arranging travel, and what to expect.

Speaker:

Jennifer Brock, Associate Dean for Academics and Professor of Mechanical Engineering, University of Alaska Anchorage

SPONSOR TECH SESSION: What's New at ABET 2023 and Information Session, Presented by ABET

Monday, June 26
1:30 PM – 3:00 PM
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

This ABET-sponsored session aims to update engineering educators on the latest activities and news related to ABET accreditation. Whether you are new to ABET accreditation or seeking accreditation for the first time, this session is designed for you. The session will cover various topics, including the types of programs that are accredited, the accreditation criteria and procedures, the individuals responsible for writing and evaluating the criteria, and the decision-making process for final accreditation decisions. Additionally, the session will explore how assessment tools are utilized in the ABET process, as well as the significance of ABET and its impact. Participants are encouraged to come prepared with questions and feedback for senior ABET representatives.

Speakers:

Michael Milligan, Chief Executive Officer, ABET

Joseph L. Sussman, Chief Accreditation Officer, Chief Information Officer, ABET

Jane Emmet, Senior Director, Accreditation Operations, ABET

SPONSOR TECH SESSION: Preparation for an On-Site Visit, Presented by ABET

Tuesday, June 27
9:15 A.M. – 10:45 A.M.
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

This presentation aims to provide valuable insights into the visit process, which is undeniably one of the most crucial events in the accreditation cycle. The focus of the presentation is to guide institutions on how to effectively prepare for the visit, ensuring a smooth and successful process. Whether the visit is virtual or on-site, this presentation covers key aspects to consider. Leading the planning and execution of an on-site ABET visit necessitates establishing a supportive infrastructure involving multiple stakeholder groups. The presentation will offer best practices from the perspectives of both program evaluators and institutional representatives, making it relevant and beneficial for institutional representatives and anyone involved in preparing for on-site or virtual visits.

Speakers:

Leonard Bohmann, Associate Dean, Michigan Technological University

Raju Dandu, Professor; Director, Bulk Solids Innovation Center, Kansas State University

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Foundations for Successful Program Assessment, Presented by ABET

Wednesday, June 28
11:00 AM – 12:30 PM
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

This session provides an overview of the program assessment process, highlighting a few key elements of a successful and sustainable planning process. Learn components of, and how to organize, your assessment process to ensure efficient assessment and impactful results. Next, ask a question, listen, and learn alongside colleagues in an open discussion on best practices in program assessment.

Speakers:

James Warnock, Professor and Founding Chair, School of Chemical, Materials, and Biomedical Engineering, University of Georgia, and Adjunct Director of Professional Offerings, ABET

SPONSORED PANEL: Building a Sustainable Future for Engineering for US All (e4usa): Reflections on the Past and Insights for the Future, Presented by University of Maryland

Monday, June 26
11:00 A.M. – 12:30 P.M.
Room 314, Baltimore Convention Center

Join us for an engaging discussion on the Engineering for US All (e4usa) national initiative and its transition from an NSF-funded grant to a nonprofit 501(c)(3) organization. During this sponsored technical session, we will reflect on the past four years of e4usa and the achievements that were made possible through the support of NSF funding. We will also discuss the challenges and opportunities that lie ahead as we focus on ensuring the long-term sustainability and viability of the program under e4usa.org.

Our aim is to provide a view of the steps we are taking, including developing key partnerships, hiring professional staff, and exploring new services that can be offered for

payment. In addition, attendees will learn how to partner with e4usa to advance the goal of demystifying and democratizing engineering for all.

By attending this session, participants will have the chance to discover how e4usa intends to maintain this project once grant funding ends, and be offered insights into potential long-term strategies for sustaining their own projects. They will also have the opportunity to engage with the e4usa team and learn more about our mission to empower the next generation of engineers and drive positive change in our communities. Don't miss this chance to be a part of this exciting discussion and help shape the future of engineering education for all.

Speakers/Facilitators:

Bruk Berhane, Assistant Professor of Engineering Education, School of Universal Computing, Construction and Engineering Education, Florida International University, and Partnership Team Lead, e4usa

Kevin Calabro, Director and Senior Lecturer, University of Maryland, and Credit and Placement Team Lead, e4usa

Adam Carberry, Associate Professor, Arizona State University, and Research Team Lead, e4usa

Abubakr Hamid, Program Manager, e4usa, University of Maryland and CPO & Programs Manager, e4usa

Stacy Klein-Gardner, Adjunct Professor of Biomedical Engineering, Vanderbilt University, and co-PI and co-Director, e4usa

Jennifer Kouo, Assistant Research Scientist, the Institute for Innovation in Development, Engagement, and Learning Systems (IDEALS), Johns Hopkins School of Education, and Professional Learning Director, e4usa

Darryll Pines, President, University of Maryland, and PI and Co-Director, e4usa

Jim Zahniser, Assistant Dean, Strategic Operations and IT, University of Maryland, and CIO, e4usa

SPONSOR TECH SESSION: Engineering Student Success at Scale—Updates and Lessons from Texas A&M's "25 by 25" Growth Initiative, Presented by Texas A&M Engineering

Monday, June 26
11:00 AM – 12:30 P.M.
Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center

Texas A&M Engineering launched the ambitious "25 by 25" initiative as an intentional growth program to broaden access for qualified students to pursue engineering degrees

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at Texas A&M University, and grow our total enrollment to 25,000 students by 2025. Key elements of “25 by 25” include revamping the first-year academic experience by admitting all students to a common general engineering program, introducing a new first-year engineering curriculum, and enhancing academic advising. Co-curricular support and academic success programs have also been revised and expanded. Alternate pathway options are provided to students through the Aggie Gateway Program in Qatar, the Engineering Academies throughout Texas, and our engineering programs at Galveston and McAllen. In addition, practical hands-on training certifications are offered through the unique Bachelor’s+ partnership program with Texas State Technical College. A panel of speakers will share insights and reflections from these areas of the “25 by 25” program and our continuing efforts to offer a quality engineering educational experience at scale through our 22 engineering B.S. degree programs.

Speakers:

Andrea Ogilvie, Texas A&M University, College of Engineering

Angie Hill Price, Texas A&M University, College of Engineering

Ioannis Economou, Texas A&M University at Qatar

SPONSOR TECH SESSION: Empowering Engineering Excellence: Women Leaders Rising to the Top, Presented by University of Maryland, Baltimore County

Monday, June 26

1:30 PM – 3:00 PM

Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center

The International Federation of Engineering Education Societies (IFEES) and Global Engineering Deans Council (GEDC) are proud to present “Empowering Engineering Excellence: Women Leaders Rising to the Top,” a panel discussion based on a book series, supported and sponsored by the University of Maryland, Baltimore County, that celebrates and showcases the remarkable achievements of women in engineering leadership positions worldwide.

Engineering has traditionally been a male-dominated field, but the tide is turning as women continue to break barriers, shatter stereotypes, and rise to influential positions in academia, industry, and research. This panel brings together

a culturally diverse group of trailblazing women who have overcome obstacles, navigated challenging environments, and emerged as accomplished leaders in their respective fields.

The panelists represent a global perspective, hailing from different continents and cultural backgrounds, reflecting the international scope of engineering leadership. Their experiences will provide a multifaceted understanding of the challenges faced by women in engineering, while also illuminating the opportunities and progress that exist today.

This panel aims to inspire the next generation of female engineering leaders by showcasing the achievements of these extraordinary women. Their stories will highlight the importance of diversity and inclusion in engineering, encouraging aspiring engineers, educators, and professionals to pursue their ambitions, dissolve boundaries, and forge a path to leadership positions in engineering.

Join us for an insightful and empowering discussion as we celebrate the accomplishments of these outstanding women and explore how they have risen to the top in the engineering field, defying stereotypes and paving the way for future generations.

Speakers, Moderators, and “Rising to the Top” Authors:

Stephanie Farrell (US), Session Co-Chair, IFEES President, Professor, and Founding Department Head, Experiential Engineering Education at Rowan University

Renetta Garrison Tull (US), Session Co-Chair, Vice Chancellor, DEI at the University of California, Davis

Jamie Gurganus (US), Session Co-Chair, Faculty in the Engineering and Computing Education Program, Associate Director of STEM Education Research, Affiliate Faculty in Mechanical Engineering, Director for the Center for the Integration of Research, Teaching, and Learning in the Graduate School at UMBC, College of Engineering and Information Technology

Soma Chakrabarti (US), Session Co-Chair, Engineering Education Outreach Program and Partnership Developer | International Collaborator for Continuing & Online Education, ANSYS

Tagwa Musa (Sudan), Session Co-Chair, Researcher at Texas A&M University and Associate Professor of Petroleum Engineering at Sudan University of Science and Technology

Sushma Kulkarni (India), Global Engineering Deans Council Incoming-Chair, Vice Chancellor, NICMAR University

Loreto Valenzuela (Chile), Director of College at the School of Engineering, Pontificia Universidad Católica de Chile

Paloma Díaz (Spain), Dean of Computer Science and Engineering of Universidad Carlos III de Madrid

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Holistic Admissions to Meet Your Mission and Diversity Goals, Presented by Acuity Insights

Monday, June 26
3:15 P.M. – 4:45 P.M.
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

Gender imbalance and representation of other historically underrepresented minority groups have been some of the greatest challenges for engineering schools—and indeed the engineering profession—over the past few decades. While gains have been made in these areas, there is still a lot of progress needed to ensure diversity in the profession.

Join Kelly Dore, co-founder and vice president of science and innovation at Acuity Insights, who will share strategies that can support the widening of pathways into engineering so that engineering schools can create a world powered by engineers who bring a diversity of perspectives, and who represent and serve the whole of society.

Presenter:

Kelly Dore, Co-founder and VP, Science and Innovation

SPONSOR TECH SESSION: Tips for Enhancing Your Engineering Education Proposals, Presented by National Science Foundation

Monday, June 26
3:15 P.M. – 4:45 P.M.
Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center

In this highly interactive Sponsor Tech Session, NSF will spotlight topics critical to proposal success, including robust and effective project evaluation and knowledge generation (for example, through appropriate research questions and design methodologies), as well as other practical hints for enhancing engineering education proposals. Attendees will learn how to leverage new funding opportunities from recent national initiatives such as the CHIPS & Science Act of 2022, the National AI-Institutes Research Initiative, and the National Quantum Initiative. Exploration of the various topics will occur through dynamic mini-presentations by NSF program

directors and invited experts, followed by stimulating small group discussions and interactive Q&A sessions. This Tech Session will feature rich peer interactions and opportunities to engage directly with NSF program directors.

Speakers:

Abi Ilumoka, Program Director, NSF/DUE
Vinod Lohani, Program Director, NSF/DGE
Eric Sheppard, Program Director, NSF/DUE
Samir Iqbal, Program Director, NSF/TIP
Gwen Lee Thomas, Quality Measures, LLC
Frances Carter-Johnson, Program Director, NSF/EES

SPONSOR TECH SESSION: Bookending Engineering Education Through Interdisciplinary Experience with DEI Emphasis, Presented by Oregon State University

Tuesday, June 27
9:15 AM – 10:45 AM
Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center

Join Oregon State University College of Engineering representatives to learn how Oregon State is evolving its engineering curriculum through a freshmen Engineering+ three-course experience and a multidisciplinary capstone program. Recently the ASEE Diversity Recognition Program awarded Oregon State the Silver level for significant progress in increasing diversity, equity, and inclusion (DEI) within the college. Come learn how educators are increasing DEI content in these lower- and upper-division courses to develop a cohesive curriculum across the entire College of Engineering.

Speakers:

Rachael Cate, Senior Instructor, School of Electrical Engineering and Computer Science
Natasha Mallette, Director of Engineering+, College of Engineering
Sarah Oman, Senior Instructor, School of Mechanical, Industrial, and Manufacturing Engineering
Ingrid Scheel, Project Instructor, School of Electrical Engineering and Computer Science

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Presented by McGraw Hill

Tuesday, June 27
9:15 AM – 10:45 AM
Room 302 - Sponsor Tech Session Room,
Baltimore Convention Center

Tech session presented by McGraw Hill.

SPONSOR TECH SESSION: Using the FE Exam for Effective Outcomes Assessment, Presented by NCEES

Tuesday, June 27
9:15 AM – 10:45 AM
Room 314, Baltimore Convention Center

This session highlights best practices in outcomes assessment using the NCEES Subject Matter Reports to provide participants with information about the strengths and weaknesses of students in a program. The presentation will specifically focus on using the FE results as one of a program's direct measures in assessing student outcomes. Attend and learn more about how the FE exam can be an effective tool for your program.

Speakers:

John Steadman, Professor and Dean Emeritus, University of South Alabama

Rhonda Young, Professor and Chair of Civil Engineering, Gonzaga University

SPONSOR TECH SESSION: Academic Integrity of Assessments in MATLAB- Based Courses, Presented by MathWorks

Tue. June 27, 2023
11:00 AM – 12:30 PM
Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center

Instructors using MATLAB to teach courses typically include programming assignments for learners to

demonstrate skills mastery. With the recent media coverage of ChatGPT as well as questions raised in communities of practice, instructors may have concerns about the potential for cheating on MATLAB-based programming assignments. In this tech session, Jeff Alderson, education product manager for MathWorks, will discuss how to use a combination of assessment design and academic integrity solutions to enforce existing academic integrity policies and reduce the motivation and ability for learners to cheat in MATLAB-based courses.

Speaker:

Jeff Alderson, Education Product Marketing, MathWorks

SPONSOR TECH SESSION: Designing Embedded Machine Learning Curriculum, Presented by Edge Impulse

Tuesday, June 27, 2023
11:00 AM – 12:30 PM
Room 302 - Sponsor Tech Session Room,
Baltimore Convention Center

Edge and embedded machine learning (ML) is a growing field that helps solve unique problems in medicine, agriculture, industrial maintenance, and consumer electronics. However, it can be a difficult subject to cover, as it requires students to have a diverse background in machine learning, data science, high- and low-level programming, embedded systems, and digital signal processing.

This session will provide insights into designing an embedded ML curriculum for undergraduate and graduate students. We will examine low-code solutions that make embedded ML approachable for newcomers, as well as look at topics and tools for stretching the skills of advanced students. Additionally, we will provide open-source curriculum content, scaffolding strategies, and example projects. Finally, we will invite any attendees with experience teaching embedded and edge ML to share their lessons learned in an open discussion format.

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SPONSOR TECH SESSION: Underrepresented Graduate Student Success through Professional Development and Enhanced Opportunities, Presented by University of Maryland, Baltimore County

Tuesday, June 27
11:00 AM – 12:30 PM
**Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center**

Panelists from the University of Maryland, Baltimore County will discuss several initiatives that leverage institutional funds, through the College of Engineering and Information Technology and Graduate School Department, and grant support, through the NSF PROMISE Engineering Institute, to enhance the sense of community, academic, and career success of underrepresented graduate students. Activities include shepherded conference travel, an ambassador program, engagement in recruitment initiatives, networking opportunities, and a unique approach to providing graduate students with teaching experiences. The session will be highly interactive, and attendees will be invited to share their own campus initiatives and action plan on how they may adapt some of the presented approaches to their campuses.

Speakers:

Robin Cresiski, Assistant Vice Provost of Graduate Student Development

Neha Raikar, Senior Lecturer, Chemical, Biochemical, and Environmental Engineering

Yarazeth Medina, Assistant Director of Graduate Student Development and Postdoctoral Affairs

Chinosa Ezeobi, Doctoral Candidate in Electrical Engineering

SPONSOR TECH SESSION: Integrating 3DEXPERIENCE into Classroom and Capstone Projects—Harnessing the Power of Digital Design, Presented by Dassault Systèmes

Tuesday, June 27
1:30 PM – 3:00 PM
**Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center**

Join us for an interactive technical session where we introduce 3DEXPERIENCE—a powerful, collaborative platform that unifies the product lifecycle from design to simulation to manufacturing. Learn how to harness the potential of the digital thread and seamlessly integrate it into your curriculum and/or capstone projects to enhance student learning experiences, from 3D modeling with SOLIDWORKS or CATIA to FEA with SIMULIA and manufacturing with DELMIA.

In this session, participants will:

- Gain an understanding of the 3DEXPERIENCE platform and its capabilities, with a focus on collaboration, the digital thread, simulation, and its role in streamlining engineering knowledge to develop skills;
- Discover how to leverage the platform's features to facilitate collaboration, data sharing, and project management in classroom settings and capstone projects;
- Explore real-world examples and case studies displaying the successful integration of 3DEXPERIENCE in engineering education, highlighting the platform's impact on student learning outcomes and industry readiness;
- Participate in hands-on activities and demonstrations, providing a firsthand experience of utilizing 3DEXPERIENCE in a classroom or capstone project context—activities can be done on any device in your possession during the conference: phone, tablet, computer, PC, or Mac

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- Engage in a Q&A session with Dassault Systèmes experts, addressing any questions or concerns about implementing the platform into your class or curriculum, and the extent of the scientific coverage of the solution.

By attending this session, you will be equipped with the knowledge and resources needed to effectively incorporate 3DEXPERIENCE into your teaching practices, transforming the way students learn and collaborate in the ever-evolving world of engineering.

Speaker:

Florent Salako, Senior Lead Consultative Academic Program Advisor and Ambassador

SPONSOR TECH SESSION: Real-World, Accessible Electronic Devices, Test Equipment, and Software Tools for Engineering Education, Presented by Analog Devices

Tuesday, June 27

1:30 PM – 3:00 PM

Room 303 - Sponsor Tech Session Room, Baltimore Convention Center

Analog Devices is the leading global high-performance analog technology company. The ADI University Program strives to make engineering education accessible through hundreds of free Active Learning lab exercises, affordable test instrumentation, low-cost parts kits, and hardware modules designed to back up a textbook theory with hands-on experience. In this session, we will discuss Analog Devices' educational offerings, including:

- Free, open-source lab exercises on basic circuits, data conversion (A to D and D to A), amplifiers, filters, oscillators, transmission lines, radio, and more;
- Affordable, student-accessible test equipment that is also at home on a professional's lab bench;
- A free, complete course on Software Defined Radio for Engineers;
- A power electronics learning module that exposes the operation of buck and boost converters, without requiring expensive test equipment; and

- An exciting new Artificial Intelligence Microcontroller with Neural Network Accelerator, bringing modern computer science to the physical world.

We will have hardware on hand for live demos and will encourage active discussion during the session.

Speakers:

Mark Thoren, Principal Engineer, System Design

Nathan Frey, Product Marketing Manager

SPONSOR TECH SESSION: Using the FE Exam for Effective Outcomes Assessment, Presented by NCEES

Tuesday, June 27

1:30 PM – 3:00 PM

Room 314, Baltimore Convention Center

This session highlights best practices in outcomes assessment using the NCEES Subject Matter Reports to provide participants with information about the strengths and weaknesses of students in a program. The presentation will specifically focus on using the FE results as one of a program's direct measures in assessing student outcomes. Attend and learn more about how the FE exam can be an effective tool for your program.

Speakers:

John Steadman, Professor and Dean Emeritus, University of South Alabama

Rhonda Young, Professor and Chair of Civil Engineering, Gonzaga University

SPONSOR TECH SESSION: Why Good Math Tools Make Engineering Education Even Better, Presented by Maplesoft

Tuesday, June 27, 2023

1:30 PM – 3:00 PM

Room 302 - Sponsor Tech Session Room, Baltimore Convention Center

Mathematics lies at the heart of all engineering, but it can be both a blessing and a curse when it comes to

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engineering education. Truly understanding the underlying mathematics can lead to a deeper understanding of fundamental engineering concepts, but the mechanics of the computations can also impede that understanding, as students get lost in the calculations and lose sight of why they are doing them.

Technology can help a lot. In this session, you will discover how a good math tool can:

- Help students learn important concepts by relieving the burden of tedious, error-prone calculations that can prevent students from focusing on what's most important when learning new material;
- Keep students engaged with motivating examples and realistic applications that would be too difficult or time-consuming to do by hand;
- Encourage experimentation and iterative designs by exploring the effects of changing parameter values and “what if” explorations, where calculations and graphs are done automatically; and
- Increase student understanding with illuminating explanations and visualizations that help make mathematical and engineering concepts more tangible.

In the process, you will get a close look at two math tools from Maplesoft: Maple, and Maple Flow, a new tool created specifically to make it easy for engineers to brainstorm, develop, and document design calculations.

Presenter:

Karishma Punwani, Director of Academic Product Management, Maplesoft

SPONSOR TECH SESSION: The AVEVA Academic Competition—Building a Sustainable Future through Simulation by Helping Your Students Develop New Simulation Skills While Working on a Sustainable Design Project, Presented by AVEVA

Tuesday, June 27

3:15 PM – 4:45 PM

Room 302 - Sponsor Tech Session Room, Baltimore Convention Center

As a faculty member, you play a crucial role in inspiring and preparing your students for the challenges of the future. One excellent opportunity to do so is by encouraging them to participate in the AVEVA Academic Competition. This competition is designed to promote sustainable development by challenging students to develop innovative solutions to real-world problems using AVEVA Process Simulation. By incorporating this solution, students can create a digital twin that delivers a seamless design, with modern software architecture and open-model writing, allowing them to switch between steady state, rating, and dynamic modes.

By promoting this competition to your students, you can help them gain valuable experience in sustainability and putting their ideas into practice, while also learning AVEVA Process Simulation. Additionally, this competition offers students the chance to win prizes and recognition, and network with excellent professionals, enhancing their academic and professional development.

Overall, the AVEVA Academic Competition is an outstanding opportunity for students to develop their skills and contribute to a better world. As a faculty member, you can encourage and support your students to participate in this competition by joining our workshop and learning more about it.

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Expanding the STEM Pipeline through Partnerships and Outreach, Presented by Texas A&M Engineering

Tuesday, June 27
3:15 PM – 4:45 PM
**Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center**

Texas A&M Engineering has a legacy of working with partners to deliver high-impact, innovative programs that engage and inspire students of all ages to pursue careers in engineering. This session will highlight programs such as SPARK! PK–12 Education Outreach, engineering academies, and Texas A&M University at Qatar’s pre-university engineering enrichment programs that broaden recruitment and matriculation of engineering students and support their success.

Speakers:

Ben Cieslinski, Texas A&M University at Qatar
Cindy Lawley, Texas A&M University, College of Engineering

SPONSOR TECH SESSION: Engaging and Innovative Tools Help Engineering Students Succeed, Presented by McGraw Hill

Wed. June 28, 2023
11:00 AM – 12:30 PM
**Room 302 - Sponsor Tech Session Room,
Baltimore Convention Center**

Please RSVP and register today at:
bit.ly/ASEE2023McGrawHillsessionRSVP

Lunch will be served!

Join McGraw Hill higher education and engineering faculty for an interactive demonstration to hear about best teaching practices and learn how your peers utilize digital tools to engage students in learning engineering concepts.

You will learn about and explore tools to: 1) ensure students come to class with a foundational knowledge of the topics being discussed that day; 2) maximize efficiency and scalability with auto-scored homework; 3) immerse your students in real-world scenarios connecting the concept to the application; and 4) gain insight into student performance with detailed assignment reports.

Bring your laptop and you will have the opportunity to get hands-on.

SPONSOR TECH SESSION: Transforming Engineering Education through Experiential Learning Opportunities, Presented by Texas A&M Engineering

Wednesday, June 28
11:00 AM – 12:30 PM
**Room 303 - Sponsor Tech Session Room,
Baltimore Convention Center**

Preparing the next generation of engineering leaders requires collaboration among academia, industry, and the engineering education community. Texas A&M Engineering works with industry partners to create a variety of impactful programs that teach teamwork, leadership, innovation, and global competencies in addition to technical engineering and design skills. This session will discuss industry partnerships for capstones, Women in Engineering project competition teams, entrepreneurship activities, the Zachry Leadership Program, and Halliburton Engineering Global Programs, including education abroad opportunities in partnership with Texas A&M University at Qatar.

Speakers:

César Malavé, Texas A&M University at Qatar
Harry A. Hogan, Texas A&M University, College of Engineering

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SPONSOR TECHNICAL SESSIONS

SPONSOR TECH SESSION: Creating Community Within Online Programs, Presented by Johns Hopkins University

Wednesday, June 28

1:30 PM – 3:00 PM

**Room 301 - Sponsor Tech Session Room,
Baltimore Convention Center**

Johns Hopkins Whiting School of Engineering's online graduate program includes more than 6,000 learners and 600 faculty in 22+ disciplines. In this session, participants will learn about a strategic approach to increase a sense of community (SoC) within such a large group. The approach was developed over two years in response to five years of annual survey data in which students indicated that they did not feel a SoC.

Improving a SoC for students is associated with other focus areas for the school, including increased retention and degree completion (Ehrenberg & Zhang, 2005; Jacoby, 2006; Jaeger & Eagan, 2011), greater commitment to the organization (Milliman et al., 2003), decreased work stress (Royal & Rossi, 1996), and increased collaboration, knowledge sharing, and communication (Andersen et al., 2013; Rovai, 2002). Early data and outcomes suggest that higher education administrators can implement specific strategies to increase a SoC for learners and teachers, facilitating engagement with the school, academic programs, and peers despite being geographically dispersed.

Speakers:

Paul Hockett, Assistant Dean of Learning Design and Innovation, Lecturer, Johns Hopkins University Whiting School of Engineering

Nathan Graham, Assistant Dean for Media and Technology, Johns Hopkins University Whiting School of Engineering

Heather Stewart, Director of Academic Affairs, Engineering for Professionals, Johns Hopkins University

SPONSOR TECH SESSION: Presented by Gradescope

Wednesday, June 28

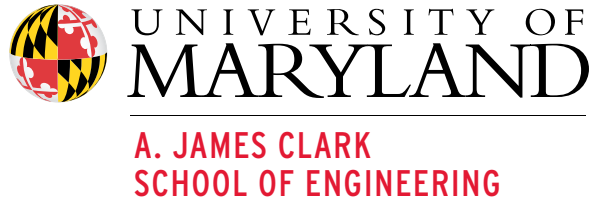
1:30 PM – 3:00 PM

**Room 302 - Sponsor Tech Session Room,
Baltimore Convention Center**

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2023 ASEE ANNUAL CONFERENCE
FUTURE ASEE ANNUAL CONFERENCES

2024

June 23 – 26

PORTLAND,
OREGON

2025

June 22 – 25

MONTREAL,
QUEBEC, CANADA

2026

June 21–24

CHARLOTTE, NORTH CAROLINA

2027

June 20 – 23

TORONTO,
ONTARIO, CANADA

2023 ASEE ANNUAL CONFERENCE

SUNDAY, JUNE 25th SESSIONS

U69 - Sunrise Yoga

7:00 A.M. - 7:45 A.M., CONVENTION CENTER
TERRACE GRADEN – 3RD FLOOR, BALTIMORE
CONVENTION CENTER

Sponsor: ASEE Headquarters

U269A - Registration

8:00 A.M. - 7:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

U492A - IFEES and GEDC Meeting

10:00 A.M. - 3:00 P.M., BLAKE , HILTON
BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

IFEES & GEDC Meeting

U269B - NEW THIS YEAR! ASEE Annual Conference Job Fair

10:00 A.M. - 12:00 P.M., BALLROOM FOYER,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

The ASEE Career and Graduate Fair debuts at the 2023 Annual Conference. This event will bring universities, companies, and organizations to recruit students, faculty, and others and allow them opportunities to enhance their careers or further their education. The fair will offer three different options for participants: 1) Education opportunities at academic institutions for students from high school to postdocs 2) Job opportunities at academic institutions for professors, lecturers, etc. and 3) Private sectors jobs for students and graduates.

The fair will take place at the Baltimore Convention Center outside of the Ballroom. It will be a two-hour event where connections can be made, and futures can be sculpted.

Prospective employees are encouraged to bring several copies of their resume/CV to distribute at the Job Fair.

Participating Schools include:

- Florida International University

- Iowa State University of Science and Technology
- North Carolina State University
- Ohio State University
- Texas A&M, Qatar
- The Johns Hopkins University
- Virginia Tech
- Clarkson University
- Lehigh University
- Temple University
- University of Illinois
- University of Wisconsin
Companies/Organizations
- Digilent
- Mathworks
- NCEES
- SolidProfessor
- LandDesign

U492B - Engineering Diversity Leadership Meeting (Please be advised this is not a student session)

12:00 P.M. - 3:30 P.M., HOLIDAY 2, HILTON
BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

This session is not for students; it is for those currently serving as diversity leaders within engineering/engineering technology/computing degree-granting schools and colleges.

Lunch will be provided for this meeting.

There is a limited number of seats available and they will be taken on a first-come, first-served basis. If the event is sold out, please email Conecd.program@gmail.com to be put on a waitlist.

Free ticketed event

2023 ASEE ANNUAL CONFERENCE

SUNDAY, JUNE 25th SESSIONS

U408 - SUNDAY WORKSHOP: The Use of Generative AI Tools for Engineering Education Research, Engineering Teaching, and Engineering Learning

1:00 P.M. - 3:30 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Mahnas Mohammadi-Aragh, Mississippi State University

Speakers: Dr. Aditya Johri, George Mason University; Dr. Andrew Katz, Virginia Polytechnic Institute and State University; Dr. Mahnas Jean Mohammadi-Aragh, Mississippi State University

The use of artificial intelligence (AI) based applications is increasing in all engineering disciplines. Higher education must keep pace with these developments and leverage them to conduct better research and training and, critically, ensure that students are prepared to use these tools in their work and for lifelong learning.

In particular, in recent years, the use of generative AI (GAI)-driven tools and applications such as ChatGPT, Dall-E, Midjourney, and CoPilot and Autodesk has become popular. GAI is a subfield of AI that uses deep learning and large language models to generate new content. Generative writing is being used to create copy, write job descriptions, and provide technical documentation. Generative design systems allow engineers to start with pre-designed models. Generation of code-based on a prompt is making the software development process more efficient.

This workshop will focus on several aspects of using GAI, including:

- (1) Research: Data Generation, Data Analysis, Data Reporting, Instrument Creation, Data Presentation, and Paper Drafting; and
- (2) Teaching: Assessment, Question Creation, Assignment Generation, Preparation for Teaching, Syllabi Generation, Topic/Concept Generation, and Topic Summarization.

Participants will work through some in-depth scenarios and discuss ethical issues related to the use of AI and GAI, and how to use these applications in a more responsible manner.

Attendees will be invited to create accounts on different

GAI application sites to experience them firsthand. A list of tools and applications will enable them to continue to explore features and evaluate the applications' usefulness for their research and teaching practices.

The speakers are currently PIs on separate NSF grants related to this topic and this workshop builds on that research.

Free ticketed event

U408B - SUNDAY WORKSHOP: Bring Your Own (mobile) Device (BYOD): An Android App for Active STEM Learning via Particle Image Velocimetry (PIV)

1:00 P.M. - 3:30 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsors: Computers in Education Division (COED); Mechanical Engineering Division (MECH)

Speakers: Dr. Angela Minichiello P.E., Utah State University; Mr. Jack Elliott, Utah State University

This workshop will engage attendees in conducting classroom-based flow visualization and measurement experiments using a new Android application (app) called mobile-Instructional Particle Image Velocimetry (mI-PIV).

Students often view fluid mechanics instruction as mathematically difficult, esthetically uninteresting, and lacking relevance to real-world applications. As a result, introductory courses in fluid mechanics can act as gatekeepers to fluids-related STEM career paths. When available, however, hands-on flow visualization and measurement activities have been shown to increase student interest in and intuition about fluid mechanics and related mathematical concepts.

PIV is a state-of-the-art laboratory technique for simultaneous visualization and measurement of fluid flows that has shown promise for enhancing STEM education. The new mI-PIV app enables STEM educators to safely guide students in conducting educational quality PIV experiments for less than \$100. Integrated micro-learning content, addressing fluid mechanics concepts and basic PIV techniques, and curricular resources help make the mI-PIV app a robust and accessible mobile learning tool.

In this workshop, attendees will be guided through two visually interesting flow experiments using the mI-PIV app

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SUNDAY, JUNE 25th SESSIONS

and embedded curricula, including a vortex ring experiment used as a hands-on undergraduate fluids laboratory activity at Utah State University. Workshop attendees will gain unlimited access to the mI-PIV Android app and the familiarity that comes from hands-on practice in using the mI-PIV app alongside its developers.

This work is funded by grant #N000141812770 from the Office of Naval Research (ONR) Navy and Marine Corps STEM Education and Workforce Program.

Free ticketed event

U413 - SUNDAY WORKSHOP: Beyond the Quiz and Exam: Achieving Rigor with Assessments in Quantitative Courses

1:00 P.M. - 3:30 P.M., ROOM 315, BALTIMORE
CONVENTION CENTER

Sponsor: Design in Engineering Education
Division (DEED)

Speakers: Dr. Julie Drzymalski, Western New England
University; Dr. Ruth Ochia P.E., Temple University; Cory
Budischak, Temple University; Eve Walters,

There is widespread concern that academic programs have become less demanding, resulting in graduates who lack the intellectual skills needed to thrive in their careers and as lifelong learners. The narrative about rigor has focused on workload demands, standards, and expectations. In contrast, a definition of rigor states that it is an “academic challenge that supports learning and growth in students” and includes “deep, inquiry- and equity-based learning that sufficiently challenges and encourages all students to achieve their full potential, including both academic and broader development.”

This session will:

- Enhance awareness of alternate notions of rigor with the potential of creating more equitable learning environments
- Demonstrate effective examples of alternate assessments fostering creativity and growth, supporting diverse learners while assessing the necessary competencies
- Provide participants with the opportunity to consider their own assessments with alternate notions of rigor.

Free ticketed event

U413B - SUNDAY WORKSHOP: Is My Makerspace Meeting Students’ Needs? How to Gain Quantitative Information About Your Space Using a Student-Tool Network Model

1:00 P.M. - 3:30 P.M., ROOM 312, BALTIMORE
CONVENTION CENTER

Sponsor: Design in Engineering Education
Division (DEED)

Speakers: Dr. Astrid Layton, Texas A&M University; Dr. Julie S
Linsey, Georgia Institute of Technology

Makerspaces have proliferated on America’s college and community college campuses, with estimates citing more than 150 academic examples of 100 to more than 1,000 active student members and costs in the thousands to millions of dollars to create these spaces.

Educators argue that makerspaces democratize learning, engage students, and foster life-long learning. Research has shown that engaging in engineering makerspaces boosts students’ confidence, motivation, and technical skills. However, workshop presenters have found that a pathway into and persistence as a member of a makerspace is connected with a student’s self-confidence that they can be the expert.

What if we can design spaces to encourage persistence? Presenters have found that modeling these spaces as networks of interacting tools and students can be done through end-of-semester surveys, and that modularity and nestedness analyses can provide quantitative insights into student use of the space.

This session will share the findings of a three-year IUSE NSF grant and guide participants through data set creation, the network analysis, and interpretation of key findings. Participants can expect to be equipped with the knowledge to collect their own data to perform and interpret a similar analysis.

Attendees should bring their laptops to use the software in the session, and should download the 2022 version or more recent of MATLAB before the workshop with the “Statistics and Machine Learning Toolbox” add-on. A demonstration machine will be available.

Free ticketed event

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U414A - SUNDAY WORKSHOP: Dysfunctional Teams, Functional Teaching Approaches: Implementing Conflict Management Training in the Classroom for Engineering Teams

1:00 P.M. - 3:30 P.M., ROOM 321, BALTIMORE
CONVENTION CENTER

**Sponsor: Educational Research and Methods
Division (ERM)**

Speakers: Olivia Ryan, ; Lisa Schibelius, Virginia Tech
Department of Engineering Education; Mr. Mark Vincent
Huerta, Massachusetts Institute of Technology; Marin Jayne
Fisher, ; Susan Sajadi,

This workshop will train engineering educators in how to facilitate an activity that helps students develop conflict management skills. It will introduce conflict management theory and provide examples of activities instructors can integrate into their classes to ensure students are developing teamwork skills aligned with ABET.

An in-class activity is unique in leveraging instructional technology to foster engagement and encourage students to reflect on information about conflict management strategies and types of conflict. The activity also uses scenario-based learning to allow students to practice different conflict management strategies in a low-risk environment.

Participants will learn a unique way to develop conflict management skills in their students and how best to adapt these activities to their own course structures and needs. The team will also share additional research findings, including information about the development of the activity, student benefits from the activity, and other information relevant to the classroom for using of tools such as CATME.

Part of the workshop will be presented through the interactive presentation tool Mentimeter (Menti), with best practices and choices to consider in deploying the activity. A discussion about how the activity can be adapted for instructors also will be included.

Free ticketed event

U414B - SUNDAY WORKSHOP: Sharing Qualitative Research Data for Secondary Analysis: Why, How, and With Whom?

1:00 P.M. - 3:30 P.M., ROOM 322, BALTIMORE
CONVENTION CENTER

**Sponsor: Educational Research and Methods
Division (ERM)**

Speakers: Dr. Susan M Lord, University of San Diego; Dr. Lisa Benson, Clemson University; Dr. Jennifer "Jenni" M Case, Virginia Polytechnic Institute and State University; Dr. Shawn S. Jordan, Massachusetts Institute of Technology; Dr. Holly M Matusovich, Virginia Polytechnic Institute and State University; Dr. Rachel Louis Kajfez, The Ohio State University; Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University; Edward Tyler Young, ; Dr. Yevgeniya V. Zastavker, Franklin W. Olin College of Engineering

As a qualitative researcher, do you have data sets that you didn't have time to fully explore? Do you wish you or someone else could spend more time with the data? Have you considered making your data available for secondary analysis, but don't want to post it to a big public repository? This workshop provides a chance to explore these questions.

Since 2010, the National Science Foundation (NSF) EEC Division alone has funded more than 500 engineering education research projects, totaling over \$150 million, to enhance understanding and improve practice. The resulting archive of robust data represents a vast untapped potential to exponentially increase the impact of EEC funding and transform engineering education — but tapping this potential has been an intractable problem, despite ongoing calls for data sharing by public funders of research.

Concerns include ethics, participant confidentiality, misuses of data, and more, and are compounded by disciplinary and publication practices that value original data over integrative efforts based on secondary analysis. Institutional reward structures are based on individual accomplishments in ways that may discourage more integrated collaboration implied by broad based data sharing.

Funding priorities also stress the novelty of proposed work and, thus, imply a bias toward generating new data.

As a result, data sharing is complicated, especially for qualitative researchers concerned about participant confidentiality, the importance of deep context, and more. Changing the paradigm of single-use data collection

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requires actionable, proven practices for effective, ethical data sharing, coupled with incentives to both share and use existing data.

The workshop will draw on findings from an NSF-funded project on secondary data analysis (SDA), why and under what conditions they might consider making their own data available for SDA, and the philosophical considerations and practical steps in such data sharing.

The workshop will include detailed practical information from the research teams conducting two pilot SDA projects, and opportunities to explore aspects of SDA in the context of participants' existing or planned data sets. Panel discussions from two teams of scholars engaged in SDA collaborations will help participants understand the benefits and challenges of sharing data for secondary analysis. Hand-on activities will help participants examine their own existing or planned data sets and consider whether and how they might be amenable to data sharing. Rapid prototyping exercises will help participants envision what SDA with their data could look like.

Free ticketed event

U414C - SUNDAY WORKSHOP: Using Video to Promote Equity in Engineering Education and Understand Engineering Learning Processes

1:00 P.M. - 3:30 P.M., ROOM 346, BALTIMORE
CONVENTION CENTER

Sponsor: Educational Research and Methods
Division (ERM)

Moderator: Monica Cardella, Florida International
University

Speakers: Dr. Monica E. Cardella, Florida International
University; Dr. Milo Koretsky, Tufts University; Dr. Greses
Perez P.E., Stanford University; Dr. Stephen Secules, Florida
International University; Dr. Christopher George Wright,
Drexel University (Tech.) (MERGED); Dr. Monica E. Cardella,
Florida International University; Dr. Tamecia R. Jones, North
Carolina State University at Raleigh

Engineering education research has recently called on researchers to explore opportunities for expanding the methodologies and theoretical frameworks used in the field, with one of the most recent calls focusing on the “evolving need to capture complex phenomena in near-real-time” and advancing multi-modal approaches that would let

researchers study the complexity of the human experience.

This workshop will focus on video-based data sources as one way of addressing this call and contributing to the possibilities of expansive methodologies by providing researchers with additional tools.

The workshop builds upon long traditions in the learning sciences and the design cognition and practice communities to build capacity for video-based engineering education research.

There have also been calls for advancing equity and the ways that scholars think about equity, diversity, and inclusion in engineering education, particularly for more conversations about equity that move beyond access-only paradigms to consider how educational spaces and educator actions can be transformative for creating inclusive and humanizing spaces for engaging in engineering.

New and transformative opportunities for engineering education research can address expanding research methodologies, increased uses of multi-modal approaches, and increased attention to both broadening participation and advancing equity in engineering education.

Video analysis helps with understanding the process of engineering learning because learners participate in situ; learning processes are carried out moment by moment in social interaction. Many current approaches in engineering education research tend to treat processes of learning as a “black box” that can be packaged in the form of best practices and curricular materials, and then measured as outcomes in surveys, interviews, or test scores. Video can examine processes of learning through multiple co-existent dimensions (e.g., equity and inclusion, conceptual change).

Video analysis also helps with understanding processes of engineering learning from the perspective of the people in the learning settings.

Video data of learning environments also helps researchers investigate classroom events from an intersubjective perspective that

learners, instructors, and researchers share, which can provide

important epistemological and ontological weight to learners' views.

Video data also reveals, from the perspective of learners in the moment, the ways that microaggressions and other forms of oppression can show up in engineering learning.

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Video analysis, and particularly group analysis, helps participants appreciate interpretive complexity. It can widen the circle of those involved in research, with education researchers leveraging insights to help understand their own teaching and teachers of engineering being drawn into the process through shared interpretation.

Video analysis also helps expand definitions of what counts as education or learning. By refining and redefining what engineering learning means, video can help recognize, strengthen, and broaden educational pathways for all learners.

Free ticketed event

U421 - SUNDAY WORKSHOP: Research Proposal Writing for Librarians

1:00 P.M. - 3:30 P.M., ROOM 316, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Speakers: Mrs. Amy G. Buhler, University of Florida; Ms. Megan R Sapp Nelson, Purdue University at West Lafayette (COE); Ashley Sands, Institute of Museum and Library Services

Do you want to learn more about available grants for your research? Are you scared of approaching possible research collaborators? Do you know about the do's and don'ts of applying for state and federal grants? How much do you really know about the IRB process? Overall, how do you make sure that your proposal will sway a funder and convince an IRB that your research has value and possible impact?

This workshop will cover these topics:

- Identify possible grants for research
- Strategize how to find research collaborators
- Learn about do's and don't when applying for state and federal grants
- Identify what IRBs are and how they apply when conducting research
- Determine whether IRB approval is needed
- Learn key points to include when writing research proposal

Free ticketed event

U422 - SUNDAY WORKSHOP: Multidisciplinary Teaching Models in Higher Education: Implementation Strategies

1:00 P.M. - 3:30 P.M., ROOM 347, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Speakers: Dr. Ekaterina Koromyslova, South Dakota State University; Dr. Anna Sadovnikova, ; Mr. Gary Anderson, South Dakota State University

The fast-paced marketplace requires college graduates to learn how to integrate knowledge from multiple disciplines. The contemporary global challenges are so complex that no single branch of learning can adequately describe or solve them. Students trained in the standard structure are often technically competent but lack professional multidisciplinary collaboration skills.

Teaching multidisciplinary skills calls for innovative cross-disciplinary teaching methodologies.

In this workshop, participants will be introduced to the Multidisciplinary Curriculum Integration (MCI) framework and implementation of models developed and practiced over a three-year multidisciplinary and multi-university teaching initiative. Participants will learn practical approaches to developing project-based multidisciplinary teaching materials.

In this interactive session, participants will brainstorm approaches for implementing the discussed methodologies. The facilitators and participants will discuss challenges identified from the student and faculty perspective, and share strategies to overcome barriers to multidisciplinary teaching in higher education.

Free ticketed event

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SUNDAY, JUNE 25th SESSIONS

U429 - SUNDAY WORKSHOP: How to Disseminate Entrepreneurially Minded Best Teaching Practices Through the Scholarship of Teaching and Learning

1:00 P.M. - 3:30 P.M., ROOM 309, BALTIMORE
CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Speakers: Dr. Lisa Bosman, Purdue University at West Lafayette (PPI); Dr. Katey Shirey, EduKatey; Karoline Jarr, Jarr Consulting

This interactive workshop focuses on supporting engineering educators to augment their promotion and tenure objectives with Scholarship of Teaching and Learning (SOTL) opportunities. Engineering educators will receive the information and structure they need to implement innovative curriculum interventions aimed at integrating the entrepreneurial mindset.

SOTL is a powerful tool for disseminating knowledge that describes innovative curriculum interventions, and lessons learned from implementing these interventions. Equipped with SOTL tools and know-how, faculty can simultaneously elevate student learning and satisfaction while advancing their professional and academic career goals.

With the transdisciplinary nature of entrepreneurship in mind, this training will use the context of entrepreneurially minded learning to showcase innovative curriculum interventions. Participants will learn how to develop and implement curriculum interventions via SOTL, and critically reflect on and share lessons learned.

Participants will receive:

- (1) strategies for developing and implementing teaching and learning interventions integrating the entrepreneurial mindset,
- (2) a framework for conducting SOTL,
- (3) a list of SOTL-friendly dissemination outlets including conferences and journals,
- (4) a how-to guide for creating virtual writing groups supporting publication and dissemination of SOTL, and
- (5) information about applying for a SOTL-focused paid

professional development opportunity.

Free ticketed event

U429B - SUNDAY WORKSHOP: Systems Engineering Initiative for Student Success (SEISS) — Toolsets for Sociotechnical Systems Analysis of a College of Engineering

1:00 P.M. - 3:30 P.M., ROOM 308, BALTIMORE
CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Speakers: Dr. Arunkumar Pennathur, University of Texas at El Paso; Priyadarshini Pennathur, ; Prof. Nicholas A Bowman, ; Dr. Emily Gwen Blosser, University of Louisiana at Lafayette

The workshop will be a hands-on, activity-based, two-and-a-half-hour session. A brief draft outline of the workshop activities includes:

- Facilitator introductions and workshop mechanics
- Brief overview of the sociotechnical systems lens and framework
- Think-pair-share activities with the following toolsets (a booklet and electronic copies of these templates will be made available to the workshop participants before the conference):
 - oSystems boundary scan
 - Defining vision, mission, organizational boundaries, time boundaries, input, throughput and output boundaries
 - oExpectations matrices
 - oSocial systems modeling
 - Role networks and key role modeling
 - Social systems grid modeling
 - oTechnical systems modeling
 - Identifying key operations and activities
 - Modeling attributes of key operations and activities
 - oPivoting the social and technical systems analyses and putting it all together

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•Suggested next steps in using the tools and forming community of practice for Systems Engineering Initiative for Student Success (SEISS)

Free ticketed event

U433A - SUNDAY WORKSHOP: Task Interviews as a Research Tool: Cases from K-2 Computational Thinking

1:00 P.M. - 3:30 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Speakers: Prof. Tamara J Moore, Purdue University at West Lafayette (COE); Kristina Maruyama Tank, Iowa State University of Science and Technology; Ms. Barbara Fagundes,

This session will explore the value and use of task interviewing as a method for assessing and researching understanding among younger students.

This approach provides a structured environment that can be somewhat controlled and therefore allows for systematic and in-depth exploration of a specific topic. It uses the Rethinking Circle Time (ReCT) project to target student attributes of learning the CT concept, including how they develop CT knowledge, why they work through the tasks the way they do, and what happens when they get stuck or overcome challenges.

The session is geared toward educational researchers. It will take participants through the task interviews and put them in the role of assessor (whether a teacher or a researcher). Clips of task interviews and data from a researcher lens will illustrate looking for evidence that answers a specific research question. These practical opportunities will provide first-hand knowledge of the methodological usefulness of task interviews as both assessment and research tools.

The final discussion will provide a perspective on how to conduct these interviews to get the most out of subjects for either assessment or research without overwhelming them. Participants will gain resources and tools that they can implement and basic ideas about how to create tasks.

Free ticketed event

U434A - SUNDAY WORKSHOP: Addressing Educational Inequality in Data Collection

1:00 P.M. - 3:30 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Speakers: Dr. Bryce E. Hughes, Montana State University - Bozeman; Mr. Daniel Sanchez, ; Sidrah Watson,

The collection of sexual orientation and gender identity (SOGI) data and the provision of resources for the use of that data in research and data-driven decision-making serves a critical need in the field of engineering: a diverse engineering workforce is vital to address the complex, pressing concerns plaguing society. This requires the reversal of demographic inequities that have challenged the field of engineering for decades. To document and monitor these inequities, researchers and policy makers systematically gather demographic data to study trends in the participation and contributions of minoritized engineers. Data on gender, race/ethnicity, and other characteristics underrepresented in the engineering workforce have been widely used for some time to monitor well-established patterns of disparate participation in engineering. More recent research is starting to document disparities LGBTQ+ people face in engineering, though many academic and governmental institutions remain reluctant to collect data on SOGI to monitor progress toward addressing this problem [1].

An emerging line of research is demonstrating that attention needs to be focused on LGBTQ+ equity in engineering. LGBTQ+ students are more likely to leave STEM majors [2, 3], and LGBTQ+ employees are more likely to have considered leaving their STEM careers [4], especially because they face a greater degree of discrimination in the workforce than their heterosexual and cisgender colleagues. Despite increasing evidence of continued LGBTQ+ inequality in STEM, the federal government has been slow to begin collecting SOGI data. Most notably, although the National Science Foundation (NSF) collects data annually to monitor inequities in the engineering workforce, the NSF remains hesitant to collect SOGI data despite years of advocacy [5]. In response to this type of reluctance, the Biden-Harris administration recently issued the first-ever Federal Evidence Agenda on LGBTQI+ Equity, which details, in part, guidelines for SOGI data collection [6].

Given continued unwillingness to systematically collect

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SOGI data despite documented disparities facing LGBTQ+ communities, we have found it necessary to address concerns that underlie these actors' resistance. Some policy makers have expressed concern that people themselves might not be willing to disclose SOGI information to agencies, as this information had historically been considered private

and stigmatized as shameful. Administrators wonder whether SOGI categories that are fluid and dynamic lead to data that are unreliable over time [1]. Researchers are concerned with balancing the need to represent the diverse array of SOGI categories in an inclusive manner that can also be analyzed statistically, and trans advocates want to ensure gender identity is represented as a distinct aspect of identity separate from sexual orientation. Respondents to these prompts may also disagree with collecting these data, opting to provide protest responses instead of information about their identities. Yet the consensus of the work that has been performed to assess the performance of SOGI data collection has shown the data to be just as reliable, and often more so, than many forms of data currently collected, especially when compared with self-reported socioeconomic data.

The purpose of this workshop is to advocate for the collection of SOGI data and to provide resources for the utilization of SOGI data in research and data-driven decision-making. The intended audience for this workshop is researchers, instructors, policy makers, and administrators. We will discuss current research on the experiences of LGBTQ+ people in engineering that establishes the need for data collection and address common reasons that institutions and researchers raise for not collecting SOGI data. Additionally, we will provide examples for how to collect SOGI data in an ethical and authentic manner and demonstrate appropriate analysis and interpretation of SOGI data for monitoring LGBTQ+ participation in engineering. As this workshop is meant to be active and hands-on, we will invite participants to bring their own surveys to collectively workshop them into more LGBTQ-inclusive instruments. We will translate the key lessons from SOGI data collection to other types of demographic data collection when appropriate, explore how SOGI data collection lends itself for further intersectional analyses, and discuss how SOGI data collection differs for institutional and research purposes.

Ticketed event: \$25.00 advanced registration and \$35.00 on site registration

U434B - Transforming Engineering Students' Writing Experiences: Radical Collaboration

1:00 P.M. - 3:30 P.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Speakers: . Reza Tafreshi, ; Naqaa Abbas, Texas A&M University at Qatar; Prof. Patrick Linke, ; Mary Queen, Texas A&M University at Qatar

In this workshop, a cross-disciplinary team of Engineering and English faculty shares our experiences with redesigning a required Technical Professional Writing course. Participants will explore how cross-disciplinary collaborations may be implemented in their institutions to better prepare students for the professional communication competencies expected in engineering coursework and industry.

Clear and cogent writing and communication skills are critical competencies as identified by the Accreditation Board for Engineering and Technology (ABET), and the National Academy of Engineering. At Texas A&M University, Qatar (TAMUQ), the gaps between faculty expectations and students' communicative competencies led us to develop a cross-disciplinary collaboration to radically redesign the technical writing course, focused on the types of oral and written communication required in their upper-division and capstone courses.

An initial assessment of this ongoing faculty team effort in developing assignments, providing feedback to students throughout their projects, and assessing students' final products, indicates a considerable impact on students' writing and educational experiences at TAMUQ, as they learn effective and relevant professional communication skills in the field of engineering.

Participants will engage in activities to examine their experiences with students' professional writing and communication skills and develop specific plans for building their own potential "radical collaborations" of experience, knowledge, and levels of expertise that "bring together innovators with varied backgrounds and viewpoints to enable insights to evolve from this diversity" [3] with the goal of enhancing students' experiences with writing in engineering disciplines.

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Small group activities will include:

1. Identifying specific gaps in students' professional communication skills
2. Mapping underlying causes of or contributors to these gaps (e.g., disciplinary silos, curricular structures, etc.)
3. Categorizing potential collaborative partners who can contribute expertise in:
 - a. best writing practices
 - b. engineering disciplines
 - c. effective course/curricular planning
4. Devising a plan to address one of the identified gaps, including the detailed steps
5. Sharing findings and discussing steps towards making collaboration a model for courses in the engineering curriculum

Who Should Attend?

Junior and senior educators interested in exploring the value of “radical collaborations” across disciplinary, methodological, and theoretical boundaries to enhance students' engineering education.

Free ticketed event

U441 - SUNDAY WORKSHOP: Concept Mapping — Inspiring Students to Connect Concepts

1:00 P.M. - 3:30 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Speakers: Dr. Maria-Isabel Carnasciali, University of New Haven; Dr. Elif Miskioglu, Bucknell University; Dr. Cheryl A Bodnar, Rowan University; Dr. Elise Barrella P.E., Wake Forest University; Dr. Heather Dillon, University of Washington; Dr. Krista M Kecskemety, The Ohio State University; Dr. Juan M Cruz, Rowan University

Concept maps (cmaps) are a direct assessment method that can provide a snapshot or visual representation of students' conceptual understanding through nodes (concepts) and links (connections between concepts).

This interactive workshop will introduce a research-based toolkit for designing cmap assignments and scoring cmaps

in undergraduate engineering classes. An example of scoring the cmaps will be provided. The toolkit includes short videos, instructional guides, and templates that: (1) introduce cmaps as a teaching and learning tool, (2) illustrate four types of cmap activities, (3) demonstrate multiple cmap scoring approaches, and (4) share lessons learned from implementing entrepreneurial-minded learning (EML) cmaps in different types of engineering courses (e.g., statics, first-year design, technical writing, electives) in five institutions.

Participants will learn how to develop and lead students through a concept mapping exercise and to select an appropriate scoring method(s). Participants will also have an opportunity to practice scoring previously generated cmaps.

After the workshop, participants can use the toolkit to continue refining their cmap assignment or experiment with different assignment types.

Although there has been a considerable increase in EML in engineering education, assessment of EM may be challenging. The EM Concept Map toolkit was developed specifically for assessing EM, but the workshop will present concept mapping methodologies that are broadly applicable beyond EML.

Ticketed event: \$10.00 advanced registration and \$20.00 on site registration

U441B - SUNDAY WORKSHOP: MATLAB Controls Workshop

1:00 P.M. - 3:30 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Speakers: Gen Sasaki, MathWorks; Dr. Stephen Andrew Wilkerson P.E., York College of Pennsylvania; Dr. Scott F. Kiefer, York College of Pennsylvania; Dr. Stephen Andrew Gadsden, McMaster University

This session has two segments. The workshop doesn't require prior knowledge of MATLAB or Arduino programming, but some knowledge of these technologies will benefit anyone taking the workshop. Participants should bring their own laptops.

The first segment will be presented by MathWorks personnel and show participants the basics of how to take advantage of MATLAB's functions when teaching Control Theory and related topics. Participants will get hands-on experience in

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building and running simulations on their laptops. All code examples and other materials will be provided. Participants will be guided through a subset of the controls related materials available in MATLAB.

The second segment will focus on interfacing MATLAB with hardware, in particular, using the Arduino interface to sense and control various devices. A standard Arduino kit (such as the ELEGOO UNO Project Super Starter Kit) will be provided to participants. Participants will be allowed to take the kit home with them.

The experiments will culminate in an actual control experiment. Activities will consist of some basic experiments with a particular input or output device, followed by a challenge (self-discovery) activity.

Finally, a simple control device will be introduced, and participants will be challenged to control it with the knowledge they have mastered. Hands-on simulation of typical control systems will be included.

The first segment will cover MATLAB control functions:

- MATLAB Basics
- Dynamics Systems
- State Space
- Laplace Transfer Function
- Building simulations
- Where to get help

The second segment will involve working in pairs or triplets:

- Sensing devices
- Controlling devices
- Controlling a system through an Arduino with MATLAB
- How to do this with Simulink (time permitting).
- How to find help

Ticketed event: \$40.00 advanced registration and \$50.00 on site registration

U442 - SUNDAY WORKSHOP: Funding for New Engineering Education Researchers: Applying to the NSF RIEF Program

**1:00 P.M. - 3:30 P.M., ROOM 329, BALTIMORE
CONVENTION CENTER**

**Sponsor: New Engineering Educators Division
(NEE)**

**Speakers: Dr. Kelly J Cross, University of Nevada, Reno;
Dr. Julie P Martin, The Ohio State University; Isabel Miller,
University of Michigan; Ms. Deepthi Suresh, ; Dr. Karin
Jensen, University of Michigan**

The NSF Professional Formation of Engineers Research Initiation in Engineering Formation (PFE: RIEF) provides an excellent funding opportunity for engineering faculty members with little to no experience in engineering education research to work with an experienced mentor on a funded project.

This session will:

- Review the RIEF solicitation and explain criteria specific for the solicitation.
- Identify strengths of funded RIEF proposals.
- Identify resources for developing project budget and writing an effective PI mentoring plan.
- Identify strategies to find potential mentors after the session.

The workshop's highly interactive structure is combined with tangible resources for prospective PIs, such as a sample PI mentoring plan, lists of questions to consider when developing their own, and information about developing a project budget. Participants will be able to network with potential mentors during the workshop.

Free ticketed event

U445A - SUNDAY WORKSHOP: Project-Based Arduino/ Raspberry Pi Experiential Activities

**1:00 P.M. - 3:30 P.M., ROOM 323, BALTIMORE
CONVENTION CENTER**

**Sponsor: Engineering Physics and Physics
Division (EP2D)**

**Speakers: Dr. Carl K Frederickson, University of Central
Arkansas; Dr. Bala Maheswaran, Northeastern University**

A basic knowledge of Arduinos, Rasperry Pis, or other similar systems is essential to any engineering program and project in the ever-evolving electronic world. Engineering

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and science students often use these control systems in class activities and projects. This workshop will introduce the Arduino and Raspberry Pi systems as the data acquisition platform in a freshman engineering physics and engineering courses. The workshop will emphasize how these systems can be used in the laboratory portion of the introductory physics and engineering courses. An overview of the systems will be presented, along with hardware necessary to interface with equipment already available in many freshman laboratories. A number of sample projects will be presented. Some interactive, hands-on activities will demonstrate how to apply the knowledge.

Note: Participants will need to bring a laptop with the Arduino IDE installed and use the Arduino sketch software. The software is available as a free download at <https://www.arduino.cc/en/Main/Software>.

Ticketed event: \$10.00 advanced registration and \$20.00 on site registration

U447 - SUNDAY WORKSHOP: Assisting International Graduate Students to Overcome Barriers in Life and Work: Co-Constructing a Handbook for Key Stakeholders

1:00 P.M. - 3:30 P.M., ROOM 305, BALTIMORE
CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Siqing Wei, Purdue University at West
Lafayette (COE)

Speakers: Mr. Siqing Wei, Purdue University at West
Lafayette (COE); Ms. Tiantian Li, Purdue University at West
Lafayette (COE); Mr. Cristian Eduardo Vargas-Ordonez P.E.,
Purdue University at West Lafayette (COE); Mr. Siqing Wei,
Purdue University at West Lafayette (COE)

This workshop is based on the presenters' previous research, "At the bottom of the food chain? Constructing our academic identity in engineering education as international graduate students," for the 2022 ASEE annual conference. Funds of identity serve as the theoretical framework to understanding international students' identities from three kinds of resources: socially distributed, culturally developed, and historically accumulated experiences. The previous and current work provided insights on the struggles of international graduate students from these three aspects. Workshop participants will be invited to suggest additional struggles of international graduate students

studying in the U.S. and come up with ways for faculty, staff, and other stakeholders to help international graduate students overcome these struggles. The workshop will also raise awareness about the lack of research on international graduate students' well-being and advocate for all to engage in research and conversation about this topic.

The tentative timeline is:

Ice-breaking activity [10 mins]

Introduction

Objective of the workshop

Share the guiding framework [10 mins]: Funds of Identity (and structure of the handbook)

[15 mins] Share research findings in WIP to provide examples under 3 aspects of FoI in the handbook.

[5 mins] Reflect based on your current status and role on your experienced and/or perceived struggles and issues as a faculty/student/administrator.

[30 mins: 5 min forming groups + 25 min discussion] Group Discussion 1: Group participants based on aspect. Have them think about the resources and struggles international students may rely on or meet under their assigned aspect. For example, difficulty making friends (socially distributed). These resources/struggles may later become chapters or topics.

[20 mins] Session report out: Share discussion results. Seek for consensus of the handbook chapters (allow additional aspects or chapters to emerge through session discussion).

[25 mins] Group Discussion 2: Pair participants up by (prescribed) role (faculty, staff, administrators). Have them pick 2 topics we generated in part e&f as a class and think of concrete ways of helping international students in those areas.

[25 mins] Gather pair notes. Place together based on roles. Have participants walk around and leave feedback to the notes.

[10 mins] Session Discussion and closing: What to do next? How to continue with this work? Lack of research in international students' well-being.

Free ticketed event

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U447B - SUNDAY WORKSHOP: A Strategic Literature Review Process in Engineering Education Research: Quantitative, Qualitative, and Mixed-Method Studies

1:00 P.M. - 3:30 P.M., ROOM 313, BALTIMORE
CONVENTION CENTER

Sponsor: Student Division (STDT)

Speakers: Dr. Olukemi Akintewe, University of South Florida; Taru Malhotra, ; Dr. Lizandra C Godwin, University of Texas at Austin

Participants will learn about databases for conducting research in engineering education that may include Engineering Village, Eric, Psycinfo, and Google Scholar. The session will focus on quantitative, qualitative, and mixed-method studies. Participants can bring in their own research questions or select from an available pool of questions. Activities will include hands-on review strategies, the selection of appropriate method(s) based on the selected research questions.

Free ticketed event

U452 - SUNDAY WORKSHOP: Partnerships, Collaboration, and Co-Creation in Community Engagement

1:00 P.M. - 3:30 P.M., ROOM 328, BALTIMORE
CONVENTION CENTER

Sponsor: Community Engagement Division
(COMMENG)

Moderator: Odesma Dalrymple, University of San Diego

Speakers: Dr. Odesma Onika Dalrymple, University of San Diego; Dr. Odesma Onika Dalrymple, University of San Diego

This workshop will engage participants in an exchange and critical analysis of ideas in principles and frameworks for establishing, cultivating, and enhancing democratic, reciprocal, and mutually beneficial university- community partnerships, particularly in engineering education. Facilitators represent both sides of the community-university collaboration and will present their partnership experiences, sharing their refined-over-time approaches for effectively facilitating collaborative design experiences among diverse

groups, along with their pitfalls and ongoing challenges.

Participants will be invited to share their related experiences. Facilitators will then guide the group in an exercise to synthesize the ideas that emerge from the exchange and apply them to co-creating a planning tool to the future development of community engagement partnerships.

Free ticketed event

U457A - SUNDAY WORKSHOP: Faculty Development for Infusing Diversity, Equity, and Inclusion into Engineering Curricula and Faculty Review for ABET Accreditation

1:00 P.M. - 3:30 P.M., ROOM 319, BALTIMORE
CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Speakers: Dr. Karen A High, Clemson University; Dr. Laura Ruth Grossenbacher, University of Wisconsin - Madison; Dr. Sarah E Zappe, Pennsylvania State University; Fatima Alleyne, University of California, Berkeley

This session will engage faculty developers and administrators in meaningful reflections and ideation about how to help faculty develop curricula that incorporate diversity, equity, and inclusion (DEI) principles, and understand DEI at their universities. The intended audience includes faculty developers and administrators seeking strategies and tools for curriculum development and personal understanding of DEI.

Facilitators will provide information and strategies gained from their experiences, followed by activities where participants consider mechanisms to apply what they learned to their institutional contexts. The session will:

- 1) Describe and discuss a 2022 BIG10+ conference about ABET, DEI, and the strategies developed there.
- 2) Share strategies for more effective teaching and assessment of both the teamwork and ethics outcomes through cases infused with identity/DEI challenges.
- 3) Share strategies for faculty development, including approaches for incorporating DEI into annual evaluation, promotion, tenure, merit raise, and other evaluative processes for meeting ABET criteria.

Free ticketed event

U457B - SUNDAY WORKSHOP: Inspiring Student Engagement by Harnessing the Power of Feedback Loops

1:00 P.M. - 3:30 P.M., ROOM 320, BALTIMORE
CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute
and State University

Speakers: Mrs. Tameka S Clarke Douglas, Purdue University
at West Lafayette (COE); Dr. Michelle Soledad, Virginia
Polytechnic Institute and State University; Cassandra
Wallwey, The Ohio State University; Dr. Homero Murzi,
Virginia Polytechnic Institute and State University

This workshop will show instructors how to leverage good feedback practices in their classrooms to improve student engagement with a course and its content. It will cover all aspects of a complete feedback loop — both instructional team to students, and students to instructional team — and connect feedback practices in this loop to empirical research about student learning, motivation, and engagement. Activities consist of three modules, focusing on similar structures: providing feedback from the instructional team to students; receiving and processing feedback from students; and synthesizing outcomes and reflections from the first two modules, with the goal of collaboratively developing strategies and best practices that will inspire student engagement. The output of the final module will be shared broadly and made available to all workshop participants beyond the conference through a publicly accessible web page.

Free ticketed event

U457C - SUNDAY WORKSHOP: Current Developments in Engineering Pedagogy: Updated IGIP Prototype Curriculum and Certification to Ensure Effective Engineering Teaching

1:00 P.M. - 3:30 P.M., ROOM 318, BALTIMORE
CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute

and State University

Speakers: Prof. Michael E. Auer, CTI Global; Tiia Rüttnann,
; Dr. Eleonore Lickl, PHSt; Dr. Homero Murzi, Virginia
Polytechnic Institute and State University

The 4th Industrial Revolution is bringing a significant transformation in the development of education. At least three essential elements of this transformation process have to be tackled, especially in engineering education:

- The impact of globalization on all areas of human life;
- The exponential acceleration of developments in technology and the global markets, and the necessity for flexibility and agility;
- The enormous (and accelerated) growth of engineering.

To face these real-world challenges, higher engineering education must find innovative ways to respond quickly to the new needs. One approach is to improve the qualifications of engineering educators in pedagogy.

The International Society for Engineering Pedagogy (IGIP) has been developing and promoting the ideas of engineering pedagogy as a branch of professional pedagogy for 50 years and offers an international professional development program for engineering and engineering technology educators that leads to the designation of Ing.Paed.IGIP and corresponding professional registration. The program is based on the scientific principles of engineering pedagogy that enable effective teaching engineering.

Traditionally, the IGIP program has been offered in Europe through a network of IGIP-accredited training centers and content providers. Continuing globalization and a lack of national professional faculty development and recognition programs in many other parts of the world, have created increased interest in opportunities to become a formally qualified and registered professional international educator. In response, IGIP and its partners are now active in Latin America and the U.S. Development of a shared modular online curriculum is the vision.

This workshop will cover:

- Historical and current reasons for an IGIP Prototype Curriculum for Engineering Educators
- The new IGIP Prototype Curriculum and its scientific basis
- How to apply for IGIP Certification as International Engineering Educator – Ing.Paed.IGIP
- Roundtable discussion

Free ticketed event

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U457D - Project-Based Teaching in Engineering

1:00 P.M. - 3:30 P.M., HOLIDAY 3, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Speakers: Dr. Benjamin Daniel Chambers, Virginia Polytechnic Institute and State University; Dr. Jennifer Lyn Benning, Virginia Polytechnic Institute and State University; Dr. Juan David Ortega, Virginia Polytechnic Institute and State University; Matthew James P.E., Virginia Polytechnic Institute and State University; Mrs. Natalie C.T. Van Tyne P.E., Virginia Polytechnic Institute and State University

Project-Based Learning (PjBL) has been widely used in engineering classrooms at all levels with varying yet consistently positive results. Gains in learning, critical thinking, teamwork, and communication skills are some of the aspects typically documented in educational literature as benefits of PjBL courses.

This approach highlights PjBL as experienced by students, but this workshop will explore PjBL from the perspective of faculty teaching such courses: Project-Based Teaching (PjBT).

The presenters would love to hear from those who teach PjBL engineering courses! Whether teaching in first-year or capstone design courses, your experience and questions will be valued here.

Those with no experience with PjBL who want to develop skills for facilitating it are also welcome.

Free ticketed event

U482 - UEC All Dean and Associate Dean Meeting

1:00 P.M. - 3:30 P.M., HOLIDAY 1, HILTON BALTIMORE INNER HARBOR

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Michelle Sabick, University of Denver; John-David Yoder, Ohio Northern University; Cynthia Paschal, Vanderbilt University

This session for deans and associate deans of undergraduate education provides an opportunity to discuss timely concerns related to delivering quality undergraduate engineering programs. It also provides a platform for networking across

the spectrum of engineering colleges. Recruiting and supporting diverse students is a primary focus for this year's meeting.

The ASEE Diversity Recognition Program has highlighted many of our institutions for their planning and work on Diversity, Equity, and Inclusion (DEI) plans. This session will discuss how to maintain that momentum in the face of external legal and political pressures, and will explore how ABET is planning to change criteria to include DEI.

Ticketed event: \$45.00 advanced registration and \$55.00 on site registration

U495B - SUNDAY WORKSHOP: The What and Why of Scrum: Making It Work for Engineering Students

1:00 P.M. - 3:30 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Prof. Branimir Pejcicovic, Portland State University; Dr. Melinda Holtzman, Portland State University

This workshop will help instructors implement a modern and flexible project management (PM) approach called Scrum.

Scrum is used in fields ranging from software development to urban planning. In academia, it is used extensively in software engineering and in electrical engineering courses.

Attendees will learn the main components of Scrum and how to apply them to their courses through hands-on activities. Attendees will also learn the basics of PM tools Trello and CATME, and ways to engage students in teamwork.

Free ticketed event

U495C - SUNDAY WORKSHOP: Postdoctoral Fellowships: Preparing for Positive Mentorship Relationships for Mentors and Mentees

1:00 P.M. - 3:30 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

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Speakers: Matthew Bahnson, ; Catherine G. P. Berdanier, Pennsylvania State University; Mrs. Monique S. Ross, The Ohio State University

Aimed at both potential and current postdoctoral scholars, and current and future postdoctoral advisors, this workshop will leverage three years of NSF-funded research results investigating mentorship in engineering and computer science postdocs and postdoc mentors. The session will generate community-wide discussion and promote individual reflection on the postdoctoral fellowship.

The facilitators will guide prospective mentors and mentees in considering often-overlooked questions and considerations in developing postdoctoral mentoring plans. Such plans are becoming required for grant submissions, but often are underused in shaping and supporting the experiences of postdoctoral scholars.

Free ticketed event

U495D - SUNDAY WOKSHOP: Weaving Students Into Engineering Versus Weeding Them Out (WINWO)

1:00 P.M. - 3:30 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Moderator: Elizabeth Cady, National Academy of Engineering

Speakers: Joanna Livengood, ; Dr. Elizabeth Cady, National Academy of Engineering; Dr. Sarah Rodriguez, ; Dr. Homero Murzi, Virginia Polytechnic Institute and State University; Dr. Sheryl A. Sorby, University of Cincinnati; Dr. Elizabeth Cady, National Academy of Engineering; Idalis Villanueva Alarcón, University of Florida; Dr. Jamie R Gurganus, University of Maryland Baltimore County; Dr. Bruk T Berhane, Florida International University

The NSF-funded National Academy of Engineering-ASEE WINWO Project is working to develop a framework of evidence-based practices designed to help institutions recruit, admit, onboard, and graduate a more diverse cohort of students in terms of pre-college preparation and opportunity.

At present, most institutions use pre-college opportunity and the preparation it provides as a proxy for ability in engineering, filtering out students who arrive less prepared, when in reality, opportunity and ability are not the same. Participants will learn about the framework and rationale

behind the project, and have the opportunity to help shape communication of the framework and suggest evidence-based practices that align with the framework goals.

Leaders:

Dr. Beth Cady, Senior Program Officer, National Academy of Engineering

Dr. Joanna Livingood, Senior Visiting Fellow, National Academy of Engineering; Senior Technical Advisor, US DOE Office of Science

Dr. Sarah Rodriguez, Associate Professor, Virginia Tech

Dr. Homero Murzi, Assistant Professor, Virginia Tech

Dr. Sheryl Sorby, Professor, University of Cincinnati

Free ticketed event

U495E - SUNDAY WORKSHOP: The Inclusive Professional Framework: Supporting Equitable Faculty Practices in the Classroom, Lab, Institution, and Beyond

1:00 P.M. - 3:30 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Donald L Gillian-Daniel, ; April Dukes ,

Excellence in engineering education requires an

institutional focus on diversity, equity, and inclusion

(DEI), which might include consideration of demographics (e.g., student, faculty, staff), recruitment and retention, the curriculum, institutional climate, etc. This session will introduce the Inclusive Professional

Framework (IPF), a research-informed, holistic,

professional development model created by Aspire, an

NSF Eddie Bernice Johnson INCLUDES Alliance.

The IPF enables department chairs and other

institutional leaders to consider their DEI-focused

policies, practices, and programs, and conduct a deeper examination of these departmental structural systems, to better promote sustained change.

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Participants will apply the framework to their departmental DEI work in support of faculty developing inclusive practices.

Free ticketed event

U495F - SUNDAY WORKSHOP: Machine Learning-Driven Robot Motion Design and Implementation in a Web-Based Mechanism Design Software

1:00 P.M. - 3:30 P.M., ROOM 333, BALTIMORE
CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Dr. Anurag Purwar, Stony Brook University

This workshop will introduce attendees to a new National Science Foundation (NSF)-funded computational framework for mechanism and robot motion design. The computational framework brings together machine learning with machine design to solve motion generation and path synthesis problems for mechanism design.

This work was funded by a SUNY Innovation in Instruction and Technology (IITG) award and a SUNY Research Foundation Technology Accelerator Fund award, and was subsequently funded by the NSF through three separate awards.

The session will be of interest to professors teaching engineering design, kinematics, robotics, and mechatronics. Undergraduate and graduate students interested in these subjects, and industry practitioners looking to rapidly prototype their motion ideas, also will benefit from this workshop.

Attendees will get hands-on exposure to MotionGen Pro, a web-based motion design software tool, and SnappyXO Design, a robot hardware, both developed at Stony Brook University. The hardware serves as a reference hardware and the software allows for exporting robot part geometry for laser-cutting or 3D printing.

Attendees will receive a special robot kit at no cost.

Free ticketed event

U495G - SUNDAY WORKSHOP: Mentoring Undergraduate Research Assistants with an Entrepreneurial Mindset

1:00 P.M. - 3:30 P.M., ROOM 343, BALTIMORE
CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Anastasia Marie Rynearson, Campbell University; Ms. Christina A Pantoja, Purdue University at West Lafayette (COE)

Undergraduate research experiences are high-impact activities, providing exceptional value for students and faculty alike. Underrepresented students typically have an even greater benefit from participating in undergraduate research. This workshop is for faculty, postdocs, and graduate students who mentor undergraduate research assistants and would like to improve their mentoring practices. Ways to discuss research and engage with undergraduates will be presented. Recruiting and onboarding practices will be included with particular focus on recruiting and onboarding underrepresented and nontraditional students. Participants will have an opportunity to reframe their research using the KEEN Entrepreneurial Mindset Framework to discuss it with undergraduate students. Participants will also develop basic recruiting and onboarding strategies and materials. This workshop has been developed as part of a grant from the Kern Family Foundation.

Free ticketed event

U495H - SUNDAY WORKSHOP: The Sustainability of Change: A Process and Framework

1:00 P.M. - 3:30 P.M., ROOM 335, BALTIMORE
CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Kathleen Cook, SU NSF RED Team; Dr. Yen-Lin Han, Seattle University; Dr. Jennifer A Turns, University of Washington; Dr. Teodora Rutar Shuman, Seattle University; Dr. Gregory Mason P.E., Seattle University

Higher education invests considerable effort in program, curriculum, and educational reforms. The National Science Foundation (NSF) and other funding agencies that support reforms naturally expect resulting successes to be

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disseminated and sustained, but sustaining these reforms can be difficult. How can we know whether a potential change is sustainable or what impedes the sustainability of a current change? How do we assess how, or even if, to make a change last?

Based on systemic study of their current and previous work on educational reform and the literature, the panelists will present a process and framework that assesses the sustainability of any program, curricular, or pedagogical change to help educators, researchers, and funding agencies strategically determine whether to continue with or embark on a change. They have shared a proposed framework with attendees at the 2022 NSF Revolutionizing Engineering Departments (RED) Conference, 2022 Frontiers in Education (FIE) Conference, and by invitation at the 2022 NSF RED grantees monthly meeting. Attendees provided feedback to improve its clarity and comprehensiveness, and the resulting process and framework will be shared with ASEE workshop attendees.

During the workshop, attendees will receive detailed examples of curricular and cultural changes as guides for assessing the sustainability of their own changes. They will participate in testing and further improving the sustainability process and framework to make it even more useful. Finally, attendees will discuss how funding agencies and institutions can support the continued changes they initially support.

Free ticketed event

U495I - SUNDAY WORKSHOP: Parametric Teaching Tools for Early Engineering Design Education

1:00 P.M. - 3:30 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Stephanie Bunt, ; Dr. Nathan C Brown,

Engineering analysis concepts can be challenging to comprehend and complex to integrate into design, particularly when potential design variables are conditional on each other and students are still learning professional design tools. Parametric tools, however, can allow students to explore a complex model with ease and learn how engineering design variables can affect a final solution. Using parametric tools in teaching engages student learning

beyond lectures without the constraints of lab limitations, which can be helpful at many scales. This workshop will help educators understand the structure of a parametric model, learn how to build a parametric model of their own, and consider ways to apply parametric tools in their own teaching plans as an approach to engaging student learning.

Free ticketed event

U495J - SUNDAY WORKSHOP: Preparing Engineers for the Workforce of the Future

1:00 P.M. - 3:30 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Kristi J. Shryock, Texas A&M University; Dr. Karan Watson P.E., Texas A&M University

Increasing the success of students involves a complex network of strategies and tools. Participants will evaluate approaches for recruiting, retaining, and graduating engineering students. Attendees will evaluate current technologies, such as ChatGPT, and discuss their impact on the learning process.

Through discussion, workshop participants will develop a roadmap of appropriate strategies to implement specific to their level of students.

Free ticketed event

U495K - SUNDAY WORKSHOP: Making the Move: Navigating a Transition from Disciplinary Engineering into Engineering Education Research

1:00 P.M. - 3:30 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Sarah A Wilson, University of Kentucky; Sindhia Jimenez,

The workshop will provide a pathway for navigating the development of an engineering education research project. Faculty will have the opportunity to work through a scaffolded activity to identify a research area of interest and brainstorm potential research methods. By the end of the

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workshop, faculty should understand the steps necessary to establish a rigorous and ethically sound study in engineering education.

Free ticketed event

U495L - SUNDAY WORKSHOP: Including Empathy in the Capstone Design Process: Engineers Have Feelings, Too

1:00 P.M. - 3:30 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Ms. Annie Abell, The Ohio State University; Dan Wisniewski,

Participants will become familiar with decision-making approaches beyond the typical rational, optimized engineering tools. The workshop will include collaborative discussion and activities to explore how empathy can or should play a role in decision-making during the engineering design process in a capstone course.

The participatory workshop would be appropriate for anyone looking to explore empathy in the design process in general. It is designed for capstone educators, teaching assistants, and staff members interested in learning how to infuse a capstone course (or any engineering design project) with a broader range of decision-making approaches and a focus on empathy.

Free ticketed event

U495M - SUNDAY WORKSHOP: Mindful Mentoring

1:00 P.M. - 3:30 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Dr. Jennifer R Brown, Montana State University - Bozeman

Effective mentorship is a key factor for success in the academic environment, but how to mentor in an effective and inclusive way is typically not part of academic training. In this workshop, participants will explore how to mentor with authentic connection and compassion. Participants will be guided in mindfulness, listening, and reflection

practices that will facilitate an understanding of functional mentoring relationships and how to apply this knowledge in their individual contexts.

Free ticketed event

U495N - SUNDAY WORKSHOP: Overview of Science, Technology, Engineering, and Math (STEM) Funding Programs at the National Science Foundation and Techniques to Prepare Competitive STEM Research and Education Proposals

1:00 P.M. - 3:30 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Christine S. Grant, North Carolina State University at Raleigh; Dr. Margret Hjalmarson, National Science Foundation; Dr. Abiodun A. Ilumoka Nwabuzor, University of Hartford; Dr. John Jackman, Iowa State University of Science and Technology; Allyson Kennedy, ; Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University; Dr. Vinod K. Lohani, Virginia Polytechnic Institute and State University; Jill Nelson P.E., California Polytechnic State University, San Luis Obispo; Joel Schildbach, ; Dr. Eric J. Sheppard, Hampton University; Prof. Huihui H Wang, St. Bonaventure University; Jennifer Ellis, ; Mr. Jose Colom, University of Puerto Rico, Mayaguez Campus

Session Description

Several Program Directors (PDs) from the National Science Foundation will conduct a 2.5-hr workshop to discuss funding programs that support cutting-edge research targeted at advancing the understanding of learning, teaching, and equitable participation in Science, Technology, Engineering, and Math (STEM), as well as institutional change at all education levels and in diverse settings. Selecting the NSF program that best fits a proposal's creative ideas and articulating a compelling project description are two critical steps in ensuring that research proposals are competitive. These steps will be addressed, and illustrative examples provided.

Funding opportunities in various divisions of four directorates — Engineering (ENG); STEM Education (EDU); Technology, Innovation, and Partnerships (TIP); and Computer, Information Science, and Engineering

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(CISE) — at the NSF will be discussed. Abstracts of selected awards from different programs will be distributed, along with funding program solicitations, to help participants identify appropriate programs. Participants will also engage with the Principal Investigators (PIs) of previously funded NSF projects representing a variety of programs to better understand the process of planning, crafting, submitting, and implementing research proposals. Attendees will leave the workshop with a better

understanding of the STEM funding programs available at the NSF, as well as strategies for developing compelling proposals for advancing STEM research and education. NSF PDs will also (i) manage an NSF Booth and (ii) host a Special Technical Session in the ASEE Exhibition Hall during the conference, thus providing additional opportunities for one-on-one meetings with prospective PIs.

Free ticketed event

U4950 - SUNDAY WORKSHOP: Individual Development Plan: A Valuable Tool for Academic Mentoring of Undergraduate Engineering Students

**1:00 P.M. - 3:30 P.M., ROOM 345, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsored Workshops

Speakers: Dr. Aidsa I. Santiago-Roman, University of Puerto Rico, Mayaguez Campus; Dr. Luisa Guillemard, University of Puerto Rico, Mayaguez Campus; Dr. Sonia M. Bartolomei-Suarez, University of Puerto Rico, Mayaguez Campus

This workshop will benefit faculty and mentors who are exploring additional options for mentoring, increasing their toolbox of activities to help students accomplish career milestones, and excel in their performance. The Program for Engineering Access, Retention, and LIATS Success (PEARLS) developed an Individual Development Plan (IDP) for undergraduate engineering students as one of the mentoring tools designed to increase retention and graduation rates of participating low-income students. The main objective of completing an IDP was to assess, design, and execute a plan to reach the professional goals set by each student. Mentors and mentees worked together, considering the mentee's self-assessment of skills, abilities, and knowledge, and identified strategies and actions to reach the student's goals. Through the IDP, students were encouraged to apply to summer programs, cooperative

education, or industry internship. Data collected from students and mentors via self-reports show its advantages. [1]

[1] Bartolomei-Suárez, S. M., et al. (2021, July). Work in Progress: Building Career Goals and Boosting Self-efficacy in Engineering Students. In 2021 ASEE Virtual Annual Conference Content Access.

Free ticketed event

U495P - SUNDAY WORKSHOP: An Approach to Integrating Data Science into multiple STEM+C undergraduate courses

**1:00 P.M. - 3:30 P.M., ROOM 317, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsored Workshops

Speakers: Dr. Erin Henrick, Vanderbilt University; Dr. Kang Xia, ; Dr. Steven X. Jiang, North Carolina A&T State University (CoE)

As data-driven work is becoming increasingly important across all disciplines, undergraduates in all domains can benefit from an understanding of data science. We formed a project that brings together instructors and researchers in science, technology, engineering, mathematics, and computing (STEM+C) disciplines and an education research and consulting group. Over the course of six semesters, we have collected instructor interview data, student surveys and student work and received feedback from a panel of industry members to analyze how data science modules, integrated with existing domain specific-curriculum, support students' learning of data science and to identify key considerations for integrating data science concepts across STEM+C disciplines. In this workshop, instructors from three different universities who developed and implemented these data science modules will share their experiences integrating data science into their courses. Participants will receive resources including access to the developed modules and facilitation guides. This will be followed by guided table discussions among the participants to share their own barriers to and ideas about integrating data science into their courses.

Free ticketed event

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U495Q - SUNDAY WORKSHOP: The Art of Conducting Interviews in Education Research

1:00 P.M. - 3:30 P.M., ROOM 310, BALTIMORE
CONVENTION CENTER

Sponsor: Sponsored Workshops

Speakers: Dr. Sindia M. Rivera-Jiménez, University of Florida;
Dr. Jerrod A Henderson, University of Houston; Dr. James L.
Huff, Harding University

In this workshop, participants will learn about best practices for conducting individual interviews on research studies. The session will go beyond practical tactics, such as developing interview protocols, to include the many key nuances of how interviewers adapt to the interview to collect high-quality data. Topics to be addressed include personal interactions, creating an accessible environment, and other subtleties that talented interviewers employ to ensure meaningful conversations. Through case studies, participants will become familiar with how to successfully begin an interview, develop a rapport with participants, strategically probe, assure a high-quality audio capture, mitigate difficult situations, and wrap up while leaving the door open for future correspondence.

There will also be a discussion of when it is appropriate to deviate from initial objectives or protocol and why.

After this workshop, participants will feel more confident about preparing for and moderating conversations. This confidence will translate into more meaningful discussions and, in turn, improve the data collection process in qualitative research.

Although there are crossover skills for facilitating individual interviews and focus groups, the focus of this workshop will be on interviewing individuals.

The workshop might include creating case studies or an interactive role-play scenario, and might leverage real interview data.

Free ticketed event

U495R - SUNDAY WORKSHOP: The Change-Maker's Toolkit

1:00 P.M. - 3:30 P.M., ROOM 314, BALTIMORE

CONVENTION CENTER

Sponsor: Sponsored Workshops

Speaker: Dr. Julia M. Williams, Rose-Hulman Institute of
Technology

Many engineering faculty, administrators, and graduate students wish to make academic change at the course, department, college, or university level, but lack the specific tools and training to achieve the changes they desire. This workshop will introduce a set of practical change-making tools, based in academic change research, that can equip individuals with the skills necessary to accomplish their academic change goals. This workshop is ideal for faculty who are working to change their courses, administrators who lead such change work to support their faculties, and graduate students who plan to enter an academic position upon graduation. Each attendee will receive a practical workbook that can be used throughout their change project and shared with others.

Free ticketed event

U569 - ASEE Division Mixer

3:30 P.M. - 5:00 P.M., BALLROOM 1 & 2 ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

U592 - Student Showcase Poster Session

3:30 P.M. - 5:00 P.M., BALLROOM FOYER,
BALTIMORE CONVENTION CENTER

Sponsor: Organizations Outside ASEE

U669 - FOCUS ON EXHIBITS: Welcome Reception & Taste of the Town Sponsored by Mathworks

5:00 P.M. - 7:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

Join your friends and colleagues as we kick off the ASEE Annual Conference Exhibit Hall.

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Take advantage of this time to also peruse the poster boards on display in the hall.

U705 - JHU ChE Unit Ops Lab Tour (Must Provide Own Transportation)

**7:00 P.M. - 9:00 P.M., OFFSITE, RIDESHARE
DROPOFF POINT: MASON HALL LAB LOCATION:
MARYLAND HALL, ROOM B29, 3101
WYMAN PARK DR, BALTIMORE, MD 21218**

Sponsor: Chemical Engineering Division (ChED)

Moderators: Neha Raikar, University of Maryland Baltimore County; Janie Brennan, Washington University in St. Louis; Sakul Ratanalert, The Johns Hopkins University; Nagma Zerin,

Dr. Sakul Ratanalert and Dr. Nagma Zerin of the Johns Hopkins Department of Chemical and Biomolecular Engineering department will host this tour of their unit operations teaching laboratory. Attendees will have to find own transportation to the site, but ridesharing is encouraged. For help with finding a carpool group, contact ChED Program chair Janie Brennan.

Drop-off point for rideshare: Mason Hall

Lab, Maryland Hall, Room B29, 3101 Wyman Park Drive, Baltimore, MD 21218

Free ticketed event

U705B - Chemical Engineering Division — Social Hangout Time: Board Games and More!

**7:00 P.M. - 9:00 P.M., HOLIDAY 4, HILTON
BALTIMORE INNER HARBOR**

Sponsor: Chemical Engineering Division (ChED)

Moderators: Chris Barr, University of Michigan; Amanda Simson, The Cooper Union

Come hang out with your pals (or soon-to-be new pals) in the Chemical Engineering Division! There will be board games and other activities to enjoy. The Unit Ops lab tour is scheduled for the same time. If you plan on attending the tour, the social time should be still be going afterward.

U721 - Engineering Libraries Division Social

**7:00 P.M. - 9:00 P.M., OFFSITE, THIS EVENT IS
HELD OFF-SITE BY INVITE ONLY. ELD MEM-
BERS SHOULD CHECK THE MEMBER LIST-
SERV FOR EVENT DETAILS.**

Sponsor: Engineering Libraries Division (ELD)

This event will be held off-site by invitation only. ELD members should check the member listserv for details.

Free ticketed event

U747 - Student Division Social Event

**7:00 P.M. - 9:00 P.M., OFFSITE, LOCATIONS
FOR THE SOCIAL EVENT WILL BE UPDATED
IN STUDENT DIVISION NEWSLETTER., PLEASE
LOOK OUT FOR THIS INFO!**

Sponsor: Student Division (STDT)

This informal hangout is for student conference attendees to meet and make connections. The awards for best paper and best diversity paper in the Student Division will be announced and celebrated. Note: Attendees may have to pay for their food and/or drinks. The location will be announced in a future Student Division newsletter and by email to those who have RSVP'd. Watch out for a future announcement.

Free ticketed event

U759 - Postcard Talks

**7:00 P.M. - 9:00 P.M., HOLIDAY 1, HILTON
BALTIMORE INNER HARBOR**

**Sponsor: Equity, Culture & Social Justice in
Education Division (EQUITY)**

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SUNDAY, JUNE 25th SESSIONS

U773 - PNW Section Mixer

7:00 P.M. - 9:00 P.M., OFFSITE, PRATT STREET ALE HOUSE, 206 W. PRATT ST. BALTIMORE, MD

Sponsor: Council of Sections (COS)

Please join your colleagues for the 15th Annual Pacific Northwest Section Mixer. This ever-popular event includes food, drinks, and fun with your Pacific Northwest colleagues. This year's mixer is taking place at Pratt Street Ale House, steps away from the convention center. <https://www.prattstreetalehouse.com/>

Ticketed event: \$10.00 advanced registration and \$20.00 on site registration

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MONDAY, JUNE 26th SESSIONS

M169A - Sunrise Yoga

7:00 A.M. - 7:45 A.M., CONVENTION CENTER TERRACE GRADEN – 3RD FLOOR, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M194 - SPONSOR TECH SESSION: Presented by McGraw Hill

7:00 A.M. - 7:00 P.M., ROOM 302 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

M69 - Registration & Poster Board Viewing

7:00 A.M. - 5:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M150 - Two-Year Model Design Competition Poster Session

7:30 A.M. - 9:00 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderators: Philip Regalbutto, Trident Technical College; Pamela Silvers,

Two-Year Model Design Competition Poster Session

M143 - MONDAY PLENARY Sponsored by Texas A&M Engineering

8:00 A.M. - 9:00 A.M., BALLROOM 1 & 2 , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Board of Directors

Moderator: Jenna Carpenter, Campbell University

Speaker: Dr. Darryll J. Pines, University of Maryland, College Park

Join friends and colleagues at the Monday Plenary, which will feature national award winners and keynote speakers.

M269A - Exhibit Hall Open

9:00 A.M. - 6:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M69B - ASEE Bistro

9:00 A.M. - 6:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M202 - Architectural Engineering Division (ARCHE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Board 1: WIP: Biophilic Design and Its Effects on Mental and Physical Health

Alexandria S. Lahman, Western Kentucky University

Ms. Shahnaz J. Aly, Western Kentucky University

Sheila Sullivan Flener, Western Kentucky University

Board 2: WIP: Mind-mapping to Improve Architecture Students' Skills in Navigating Hands-on and Lecture-based Pedagogies

Ignacio Guerra P.,

Juan Sebastian Andrade, Universidad San Francisco de Quito

Nicole Janine Villacís, Nicole Villacís

Board 2A: WIP: Opportunities in Cultural Dimensions between Architecture and Civil Engineering students in Ecuador

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito USFQ

Board 2B: WIP: What architects should learn according to the industry in seismic countries

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito USFQ

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M269B - FOCUS ON EXHIBITS: Networking Break & ASEE Division Poster Session Sponsored by the Premier Institutional Partners

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M204 - Biomedical Engineering Division (BED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Biomedical Engineering Division work-in-progress extended abstracts are presented as posters.

Board 3: WIP - Bachelor of Science in Engineering Technology with Biomedical Concentration (BMET) Curriculum Development

Dr. Iftekhar Ibne Basith, Sam Houston State University
Vajih Khan, Sam Houston State University
Dr. Faruk Yildiz, Sam Houston State University
Prof. Sumith Yesudasan, Sam Houston State University
Melinda Holt,
James Harper,
kevin lord,

Board 4: WIP: An Integrative Remote Patient Monitoring Industry-Classroom Program for Undergraduate Biomedical Engineering Students

Dr. Alexis Ortiz-Rosario, The Ohio State University
Ali Kaveh Rahimi,

Board 5: WIP: An Interdisciplinary Project Development Pipeline Connecting Undergraduate Biomedical Engineering and Medicine Students

Dr. Anthony E. Felder, University of Illinois at Chicago
Dr. Michael Gordon Browne, University of Illinois at Chicago
Department of Biomedical Engineering
Dr. Miiri Kotche, University of Illinois Chicago

Board 6: WIP: Development and Implementation of a Makerspace Class for BME Undergraduates to Enhance Skills in Senior Design

Dr. Miiri Kotche, University of Illinois Chicago
Dr. Anthony E. Felder, The University of Illinois at Chicago
Dr. Michael Gordon Browne, University of Illinois at Chicago
Department of Biomedical Engineering
Dylan Lynch, The University of Illinois at Chicago

Board 7: WIP: Leaders or Co-leaders? How Shared Leadership Takes Place in an Undergraduate Biomedical Engineering Design Program

Dr. Constanza Miranda, Johns Hopkins University
Dr. Elizabeth A Logsdon, The Johns Hopkins University
Amadea Martino Smith,

Board 8: WIP: Proposing a Novel Nested-Team Approach for a Biomedical Engineering Capstone Design Project

Dr. Alexis Ortiz-Rosario, The Ohio State University

Board 9: Work in Progress: A Case Study in Product Liability: Promoting Student Engagement with Standards.

Prof. Matthew Williams, Case Western Reserve University
Prof. Colin K Drummond, Case Western Reserve University
Mrs. Daniela Solomon, Case Western Reserve University

Board 10: Work in Progress: A Themed Problem-Learning Redesign of Bioinstrumentation Lectures

Dr. Xianglong Wang, University of California, Davis
David Lin, Washington State University

Board 11 : Work in Progress: An Enhanced Active Learning Approach to Turning Classroom into a Neighborhood

Dr. Zhinan Wang, University of Illinois at Chicago

Board 12: Work in progress: Assessment and impact of a Clinical Observations and Needs Finding service-learning course on Biomedical Engineering outcomes

Jacquelynn Ann Horsey,
Dr. Mostafa Elsaadany, University of Arkansas
Dr. Timothy J. Muldoon, University of Arkansas

Board 13: Work in Progress: Clinical Immersion Model for Biomedical Engineering Undergraduate Students with Experienced Nurses

Dr. Loay Al-Zube, University of Mount Union
Dr. Sara Dorris, University of Mount Union

Board 14: Work in Progress: Co-creation of Teaching Team Competencies and Values

Dr. Jennifer L. Leight, The Ohio State University
Larry Hurtubise,
Dr. Tanya M. Nocera, The Ohio State University

Board 15: Work in Progress: Cultivating Growth of Systems Thinking Habit of Mind over a Five Course Fundamental

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Sequence

Dr. Lisa Weeks, University of Maine
Prof. Karissa B Tilbury,

Board 16: Work in Progress: Designing a course to equip Bioengineering graduate students with effective and equitable teaching skills

Callan E. Monette, Stanford University
Dr. Alexis Seymour, Stanford University
William T Yu, Stanford University
Leighton Terrance Wan, Stanford University
Andrew Sho Perley, Stanford University, Department of Bioengineering
Ross Daniel Venook, Stanford University

Board 17: Work in progress: Immersive Virtual Reality-Based Learning in Biomedical Engineering Labs: Lessons Learned and Recommendations for Efficient Integration

Ishita Tandon,
Vitali Victorovitch Maldonado, University of Arkansas
Megan Wilkerson, University of Arkansas
Amanda Walls,
Prof. Raj R. Rao, University of Arkansas
Dr. Mostafa Elsaadany, University of Arkansas

Board 18: Work in Progress: Implementation of a Junior-level Biomedical Engineering Design Course Focused on the Manufacturing of Electrospun Nanofibers.

Dr. Christian Poblete Rivera, University of Texas at Dallas

Board 19: Work in Progress: Integrating Ethics Education across the Biomedical Engineering Curriculum Increases Student Awareness of Frameworks and Broader Applications to Practice

Joshua Robert Chan,
Dr. Elizabeth Kathleen Bucholz, Duke University
Prof. Cameron Michael Kim, Duke University

Board 20: Work in Progress: Investigating the Impact of International Education on Cultural Understanding, Health Disparities and Collaboration through Project-based Learning

Breanna Kilgore,
Dr. Luis Carlos Estrada Petrocelli, Universidad Latina de Panamá, Facultad de Ingeniería
Dr. Jay Molino, Univesidad Especializada de las Américas
Dr. Ernesto Antonio Ibarra Ramirez P.E., Universidad Latina de Panama
Dr. ABHISHEK MAHESH APPAJI, B.M.S. College of Engineering
Dr. Rogelio Garcia Contreras, University of Arkansas
Dr. Raj R. Rao, University of Arkansas

Board 21: Work In Progress: Jigsaws as an Effective Approach for Developing Analytical and Collaboration Skills in Healthcare Systems and Process Design Courses

Dr. Uri Feldman,
Dr. George D. Ricco, University of Indianapolis

Board 22: Work in Progress: Promoting and Assessing Curiosity Through A Tissue Engineering Course Project Incorporating Biomimicry

Dr. Wujie Zhang, Milwaukee School of Engineering
Lauren M Beverung, Milwaukee School of Engineering
Rebecca McKeown,
Tammy J. Rice-Bailey,

Board 23: Work In Progress: Quality Management Systems Applied to Assessment in a Biomedical Engineering Course

Dr. Ross Aaron Petrella, North Carolina State University at Raleigh

Board 24: Work in Progress: Teaching Cardiovascular Physiology with Computational Modeling - Insight from a New, Team-Taught Course in Biomedical Engineering

Dr. Mitchel Jonathan Colebank, University of California, Irvine
Naomi Chesler,

Board 25: Work in Progress: Teaching Fundamental Design Principles through Integration of Knowledge and Curriculum Design

Dr. Adel Alhalawani, Rose-Hulman Institute of Technology
Prof. Renee D. Rogge, Rose-Hulman Institute of Technology
Dr. Bill Weiner, Rose-Hulman Institute of Technology
Dr. Alan Chiu, Rose-Hulman Institute of Technology

Board 26: Work in Progress: Technical Scientific Writing across the BME curriculum

Dr. Amy Adkins, North Carolina State University at Raleigh
Prof. Naji S. Husseini, North Carolina State University at Raleigh
Dr. Lianne Cartee, North Carolina State University at Raleigh

Board 27: Work-in-Progress: Developing Underrepresented Biomedical Engineering Students' Persistence in a First-Year Introductory Design Course

Dr. Janna Jobel, University of Massachusetts Lowell
Dr. Yanfen Li, University of Massachusetts Lowell

Board 28: Work-in-progress: Transforming the Molecular and Cellular Engineering Educational Experience in Biomedical Engineering

Prof. Cameron Michael Kim, Duke University
Charles Wallace,
Margaret Wacera Gatongi,

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M205 - Chemical Engineering Division (ChED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Board 29: Compiling Census Data and Atmospheric Repository Data to Infer Socio-Environmental Trends

Dr. Joe Woo, Lafayette College

Board 30: Incorporating the Impact of Engineering Solutions in Global, Economic, Environmental, and Social Contexts into our Core Curriculum

Taryn Melkus Bayles, University of Pittsburgh
Dr. Joaquin Rodriguez, University of Pittsburgh
Robert Enick,

Board 31: Research Experiences and Mentoring in Separations

Mr. Thomas McKean, University of Arkansas
Dr. Ranil Wickramasinghe P.E., University of Arkansas
Jorge Almodovar, University of Arkansas
Dr. Ranil Wickramasinghe P.E., University of Arkansas

Board 32: Work in Progress: A Laboratory Platform for Learning for Chemical Engineering

Benjamin Miles Phillips, Baylor University
Dr. Anne Marie Spence, Baylor University
Alexandre Yokochi,

Board 33: Work in Progress: Active Learning of Kinetics and Reactor Design Through a Jupyter Notebook

Mr. Jaafar Ballout, Texas A&M University at Qatar
Mamoun Al-Rawashdeh, Texas A&M University at Qatar

Board 34: Work in Progress: Simple, Scalable Interventions to Address Academic and Mental-Health Barriers in Engineering Undergraduates

Prof. Maureen Tang, Drexel University
Ms. Tamara Galoyan Galoyan,
Shannon Capps,

M206 - Civil Engineering Division (CIVIL) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Jennifer Retherford, University of Tennessee at Knoxville

Board 35: Assessing Students' Perspectives and Attitudes Toward Social Justice and Compassion in Civil Engineering (Work in Progress)

Mr. Cristián Eduardo Vargas-Ordóñez, Purdue University at West Lafayette (COE)
Prof. Maria Santagata, Purdue University at West Lafayette (COE)
David David Yu,

Board 36: Case Study: Sequential Development of Sensing Skills in a Civil and Environmental Engineering Curriculum

Dr. Sarah Jane Christian P.E., Carnegie Mellon University
Dr. Fethiye Ozis, Carnegie Mellon University
Katherine Ann Flanigan,
Joe Dallas Moore, Carnegie Mellon University
Prof. Gerald J. Wang, Carnegie Mellon University
Prof. Mario Berges, Carnegie Mellon University

Board 37: Developing Globalized Petroleum Engineers (WIP)

Dr. Roman Taraban, Texas Tech University
Mr. Alberto Giussani, Texas Tech University
Dr. William M. Marcy P.E., Texas Tech University
Mr. Paul A. Terrell, Texas Tech University
Dr. Sweta Saraff, IHR Kolkata
Dr. Ramakrishna Biswal, Department of Humanities and Social Sciences, National Institute Technology, Rourkela

Board 38: Identifying the Strengths and the Cracks of Mastery Based Assessment in Reinforced Concrete Design (Case Study)

Dr. Anthony Battistini, Angelo State University

Board 39: Increasing Students' Understanding of Stakeholder Perspectives: A Value-Sensitive Design Case Study

Dr. Ellen Zerbe, Georgia Institute of Technology
Dr. Kevin Haas, Georgia Institute of Technology
Alexandra C. Muscalus,

Board 40: Using "Anchored Instruction" to Teach Fundamental Bridge Engineering Principles: A Case Study.

Dr. Benjamin Z. Dymond, Northern Arizona University
Davis Ray,
Dr. Joshua T. Hewes P.E., Northern Arizona University
Dr. John Tingerthal P.E., Northern Arizona University
Dr. Robin Tuchscherer, Northern Arizona University

Board 41: WIP - Community of Practice as a Theory of Change

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

for Infrastructure Education

Dr. Kristen L. Sanford P.E., Lafayette College
Dr. Frederick Paige, Virginia Polytechnic Institute and State University
Dr. Philip J. Parker P.E., University of Wisconsin - Platteville
Dr. Rodolfo Valdes-Vasquez, Colorado State University

Board 42: WIP: Reflections on teaching an engineering course through murder mysteries

Krishna Kumar, University of Texas at Austin

Board 43: Work in Progress: Low Enrollment in Civil Engineering Departments: Challenges and Opportunities

Alaa Yehia, University of British Columbia, Vancouver
Ms. Ayatollah S. Yehia, University of Virginia
SHERIF YEHIA,

Board 44: Work-In-Progress: What Goes into an Engineering Decision: An Infrastructure Decision-Making Game for Exploratory Equity Learning

Abigail L. Beck,
Prof. Eun Jeong Cha, University of Illinois at Urbana-Champaign

M207 - College Industry Partnerships Division (CIP) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

Board 45: A mandatory early internship course: An analysis of engineering identity of students.

Ing. Magdalena Villaseca, Universidad Andres Bello
Dr. Juan Felipe Calderon, Universidad Andres Bello, Viña del Mar, Chile
Prof. Maria Elena Truyol, Universidad Andres Bello, Santiago, Chile

Board 46: "Good communication skills are super, super important": Developing students' professional communication skills for career-ready engineers

Dr. Jennifer Linvill, Purdue University
Imani N. Adams, Purdue University
Emily Marie Haluschak, Purdue University at West Lafayette (COE)
Ms. Breejha Sene Quezada, Purdue Engineering Education
Prof. Tamara J. Moore, Purdue University at West Lafayette (COE)

Board 47: An Analysis of the Existence of Metrics for University/Industry Collaboration

Dr. Carolyn Kusbit Dunn, East Carolina University
Dr. David L. Batts, East Carolina University

Board 48: Partnering with Industry to Establish a New University Engineering Program

Charles E. Baukal Jr., Oklahoma Baptist University
Christopher T. Jones,
Jeffrey Anderson,
Larinee Dennis,
Steve Fendley,

Board 49: Project-based learning course co-designed with regional enterprises

Lufan Wang, Florida International University
Ruoying Chu,
Dr. Fangzhou Xia, Massachusetts Institute of Technology
Dr. Zhuoxuan Li, Stanford University
Dr. Yan Wei, Southern University of Science and Technology
Prof. Yiming Rong, Southern University of Science & Tech

Board 50: Unlock the Potential of Industry Partners for Engineering Education

Lt. Col. Erik Backus, Clarkson University
Paul Edward Dougall,
Dr. Shane W. Rogers, Clarkson University
Dr. Jennifer S. Atchison, Drexel University
JoAnn W. Rogers,
Dr. Philip J. Parker P.E., University of Wisconsin - Platteville

Board 51: Utilizing Technical Competitions to Enhance Diverse Workforce Recruitment and Retention

Ms. Jacalynn Sharp, JHU APL
Julianne Burroughs,
Jorge Luis Rivera,
Aishwarya Jayabharathi,
Katherine-Ann Carr,
William Roberts Gray-Roncal,
Danielle Patrice Hilliard, Johns Hopkins University, Laurel
Alberto J. De Jesus Santiago,

M208 - Computers in Education Division (COED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Sponsor: Computers in Education Division (COED)

Board 55: (Work in Progress) Adapting the First Programming Course for Undergraduate Students of Mathematics Major

Dr. Maristela Holanda, Texas A&M University
Dr. Dilma Da Silva, Texas A&M University
Raquel Carneiro Dörr,
Fernanda Macedo de Sousa,

Board 56: Using anonymous grading for high-stakes assessments to reduce performance discrepancies across student demographics

Dr. Neha B. Raikar, University of Maryland Baltimore County
Dr. Nilanjan Banerjee,

Board 57: WIP - A Web-based Face Recognition Application for Better In-Person Learning

Shirley Qin, University of Toronto
Jiawei Tian, University of Toronto
Yuqi Yang,
Miss Qian Guo, University of Toronto
Mr. Junhao Liao, University of Toronto
Dr. Hamid S. Timorabadi, University of Toronto

Board 58: WIP: Enhancing Workforce Development of Data Science Skills within Domain-Specific Programs

Dr. Ryan L. Solnosky P.E., Pennsylvania State University
Prof. Rebecca Napolitano,
Wesley F. Reinhart, Pennsylvania State University

Board 59: WIP: Lab Container: An environment to manage a student's time to complete programming labs while providing effective feedback from course staff

Mr. Yu Sheng Pan, University of Toronto
Mr. Aniruddha Redkar, University of Toronto
Sowrov Talukder, University of Toronto
Mr. Parth Sindhu, University of Toronto
Dr. Hamid S. Timorabadi, University of Toronto

Board 60: Work in Progress - Development and implementation of a virtual reality application in high school geometry education.

Chinyere Offor, Lincoln University of Pennsylvania
Dr. Tiffanie R Smith, Lincoln University

Board 61: Work in Progress: Applied Programming Experiences (APEX) for Community College Students

Dr. Valerie A. Carr, San Jose State University
Jennifer Avena, San Jose State University
David Schuster, San Jose State University
Wendy Lee, San Jose State University

Dr. Belle Wei, San Jose State University

Board 62: Work In Progress: Personalizing STEM Ecampus Study Strategies with an Innovative eNotebook

Dr. Quintana "Quincy" Clark, Oregon State University
Jason V. Clark,

Board 63: Work in progress: Uncovering engineering students' sentiments from weekly reflections using natural language processing

Mr. Ahmed Ashraf Butt, Purdue University at West Lafayette (COE)
Dr. Saira Anwar, Texas A&M University
Dr. Muhsin Menekse, Purdue University at West Lafayette (COE)

Board 64: Work in Progress: Update on the Impact of Secure and Upgrade Computer Science in Classrooms through an Ecosystem with Scalability & Sustainability (SUCCESS)

Prof. Lynette Michaluk, West Virginia University
Dr. Mingyu Lu, West Virginia University Institute of Technology
Gay Bernadette Stewart,

Board 65: Work in Progress: Using Natural Language Processing to Facilitate Scoring of Scenario-Based Assessments

Matthew Norris, Virginia Tech
Mr. Hamidreza Taimoory, Virginia Polytechnic Institute and State University
Dr. Andrew Katz, Virginia Polytechnic Institute and State University
Dr. Jacob R Grohs, Virginia Polytechnic Institute and State University

M210 - Continuing Professional Development Division (CPD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Continuing Professional Development Division (CPD)

Board 66: A Comparison Study: Challenges and Advantages of Offering Online Graduate Level Statistical Course

Dr. Yuan-Han Huang, Pennsylvania State University, Behrend College
Dr. Hsin-Li Chan, Pennsylvania State University, Behrend College (Department of Industrial Engineering)
Dr. Barukyah Shaparenko, Pennsylvania State University, Behrend College

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MONDAY, JUNE 26th SESSIONS

Board 67: A guide for Generation Z students to meet the Future Skills requirements of Industry 4.0

Patricia Caratozzolo, Institute for the Future of Education, Tecnológico de Monterrey, Mexico

Luis Alberto Mejía-Manzano, Tecnológico de Monterrey (ITESM)

Gabriela Sirkis PhD, Universidad del CEMA

Jorge Rodriguez-Ruiz, Tecnológico de Monterrey (ITESM)

Julieta Noguez PhD, School of Engineering and Sciences, Tecnológico de Monterrey, Monterrey, Mexico

Jorge Membrillo-Hernández, Institute for the future of Education, Tecnológico de Monterrey, Mexico

Patricia Vázquez-Villegas,

Board 68: WIP: Development of a Certification Framework for a Microelectronics Workforce Development Program

Dr. Jennifer S Linvill, Purdue University

Dr. Eric Holloway, Purdue University at West Lafayette (COE)

Emily Marie Haluschak, Purdue University at West Lafayette (COE)

Evelyn Shana Marx,

Ms. Breejha Sene Quezada, Purdue University at West Lafayette (PPI)

Prof. Tamara J Moore, Purdue University at West Lafayette (COE)

M211 - Cooperative and Experiential Education Division (CEED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Sandra Brabb, Washington State University

Poster session highlighting experiential learning and cooperative education impact.

Board 69: Co-ops are Great! but What Are the Final Numbers Telling Us?

Dr. Paul John Ackerman Jr P.E., York College of Pennsylvania

Kelly Ann Arcieri, York College of Pennsylvania

Board 70: Impact of First Co-op Experience on Student Retention and Learning: A Work in Progress

Dr. P.K. Imbrie, University of Cincinnati

Mr. Fazel Ranjbar, University of Cincinnati

Dr. Jutshi Agarwal, University of Cincinnati

Board 71: Innovation-Based Learning. Learning by Failure

Isaac Heizelman, University of North Dakota

McKenna Rose Matt,

M213 - Design in Engineering Education Division (DEED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Board 72: How to Develop Engineering Students as Design Thinkers: A Systematic Review of Design Thinking Implementations in Engineering Education

Miss Yuwei Deng, King's College London

Dr. Wei Liu, King's College London

Board 73: The Impact of "Green" Requirements in Engineering Students' Design Projects on Engineering Students' Green Mindset

Dr. Xiuhua Si, California Baptist University

Dr. Ziliang Zhou, California Baptist University

Dr. Jinxiang Xi,

Jun Zhang,

Board 74: Work-in-Progress: Containing Design: Rethinking Design Instruction to Support Engineering Device Development for Low-Income Countries

Ms. Katherine Drinkwater, Duke University

Charlotte Sendek,

Allison N Stocks, Duke University

Paula Kworekwa,

Julius Mugaga,

Robert Tamale Ssekitoleko,

Dr. Ann Saterbak, Duke University

Board 75: Work-in-Progress: Instructor and Student Reflections on First-year Engineering Design

Dr. Kyung S Kang, Marian University

Board 76: Work-in-Progress: Threshold Concepts in Capstone Design

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Elizabeth A. Debartolo, Rochester Institute of Technology
(COE)

James Lucas Daly,

M215 - Electrical and Computer Engineering Division (ECE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering
Division (ECE)

Board 77: A Study on Student Success in Circuit Theory with Complimentary Videotaped Problem-Solving Demonstrations in Challenging Times

Dr. Mohammad Ashraf Khan, Saginaw Valley State University

Dr. Yu Zou, Saginaw Valley State University

Wesley Beck, Saginaw Valley State University

Board 78: ADEP: Asset-Driven Equitable Partnerships (WIP)

Dr. Kenneth A Connor, Rensselaer Polytechnic Institute

Dr. Stephen M Goodnick, Arizona State University

Michelle Klein, Electrical and Computer Engineering Dept.
Heads Assoc. (ECEDHA)

Dr. Barry J. Sullivan, Electrical & Computer Engineering
Department Heads Assn

Dr. John C. Kelly, North Carolina A&T State University (CoE)

Dr. Pamela Leigh-Mack, Virginia State University

Dr. Mohamed F. Chouikha, Prairie View A&M University

Dr. Shiny Abraham, Seattle University

John Janowiak,

Sinais Alvarado,

Prof. Petru Andrei, Florida A&M University - Florida State
University

Prof. Wayne A Scales, Virginia Polytechnic Institute and State
University

Tymia Wilson,

Yeimidy Lagunas,

Board 79: Course Improvement of An Introduction to Programming Course in ECE: Customizing Learning Paths for Parallel Computing Topics

Isabel Alviar, University of Illinois Urbana-Champaign

Dr. Ujjal K Bhowmik,

Prof. Yuting W. Chen, University of Illinois at Urbana
- Champaign

Board 80: Design and Development of a Rooftop Photovoltaics Laboratory for Advanced Engineering Education

Dr. Sandip Das, Kennesaw State University

Board 81: Electrical Engineering Faculty and Student Perceptions of a Professional Formation Course Sequence

Dr. Holland Banse, Magnolia Consulting

Dr. Chris S Ferekides, University of South Florida

Dr. Carol Haden, Northern Arizona University

Prof. Ismail Uysal, University of South Florida

Board 82: Remote, Hands-on ECE Teaching: Project RECET

Dr. Kenneth A Connor, Rensselaer Polytechnic Institute and The
Inclusive Engineering Consortium

Mr. Douglas A Mercer,

Dr. Daniel D Stancil, North Carolina State University at Raleigh

Prof. John H. Booske, University of Wisconsin - Madison

Prof. Michael Devetsikiotis, University of Texas at Austin

Dr. Barry J. Sullivan, Electrical & Computer Engineering
Department Heads Assn

Dr. Kathy Ann Gullie,

Dr. Dean T Spaulding ,

Michelle Klein, Electrical and Computer Engineering Dept.
Heads Assoc. (ECEDHA)

Prof. Gregory T Byrd,

Board 83: Sensor Fusion Algorithms and Tracking for Autonomous Systems

Dr. Zekeriya Aliyazicioglu, Cal Poly Pomona

Board 84: The 2TO4 Project - Facilitated Transition from 2-Year to 4-Year Engineering Studies (WIP)

Dr. Kenneth A Connor, Rensselaer Polytechnic Institute

Dr. Bruk T. Berhane, Florida International University

Dr. Mohamed F. Chouikha, Prairie View A&M University

Prof. Miguel Velez-Reyes P.E., University of Texas at El Paso

Dr. Barry J. Sullivan, Electrical & Computer Engineering
Department Heads Assn

Michelle Klein, Electrical and Computer Engineering Dept.
Heads Assoc. (ECEDHA)

Yeimidy Lagunas, Inclusive Engineering Consortium

Milford Muskett,

Amanda Nastiuk,

Sinais Alvarado,

Elizabeth Hibbler, Conference for Industry and Education
Collaboration (CIEC)

Board 85: Using Telecommunication Instructional Modeling

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

System (TIMS) in Electrical and Computer Engineering Courses

- Dr. Jiahui Song, Wentworth Institute of Technology
Dr. Douglas Eric Dow, Wentworth Institute of Technology
Dr. Wayne Bynoe, Wentworth Institute of Technology

Board 86: Utilization of Inexpensive, Safe, and Portable Electronic Instrumentation System to Increase Students' Performance in Multiple Stem Disciplines

- Dr. Oludare Adegbola Owolabi P.E., Morgan State University
Chukwuemeka Duru,
Mr. Pelumi Olaitan Abiodun, Morgan State University
Ms. Opeyemi Taiwo Adeniran, Morgan State University
Dr. Uttam Gaulee,
Ms. Sotonye Ikiriko, Morgan State University
Neda Bazyar Shourabi, Pennsylvania State University, Berks Campus
Dr. Md Mahmudur Rahman, Morgan State University
Frank Efe,
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University
Dr. Krishna Bista,
Dr. Mulugeta T. Dugda, Morgan State University
Benjamin Gbeminiyi Famewo,

Board 87: Work in Progress WIP Comparing the most demanded skills for Electrical and Computer Engineers (ECE) Graduates in the United States from the Perspective of ECE Academic Department Heads and ECE Professional Engineers

- Dr. Mohammad Al Mestiraihi, University of Texas Rio Grande Valley
Prof. Kurt Henry Becker, Utah State University - Engineering Education

Board 88: Work in Progress: Impact of Electronics Design Experience on Non-majors' Self-efficacy and Identity

- Tom J. Zajdel, Carnegie Mellon University
Allison Connell Pensky, Carnegie Mellon University

Board 89: Work in Progress: Use of Simscape in an Introductory Power Electronics Course

- Dr. Cherian Mathews, University of the Pacific

M216 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Board 90: Core Feature Extraction with Computer Vision

- Mr. Salvador A. Vargas, California State University, Bakersfield
Daniel Torres, California State University, Bakersfield
Dr. Alberto Cureg Cruz, California State University, Bakersfield

Board 91: Work-in-Progress: A Systematic Gap Analysis of the Australian Power Engineering Curriculum

- Miss Nisaka Munasinghe, University of New South Wales
Mr. Hua Chai, University of New South Wales
Dr. Jayashri Ravishankar, UNSW Sydney

M221 - Engineering Libraries Division (ELD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: James Cox, The University of Iowa

Board 93: Collection Management in Preparation for Building Restoration: University of Illinois Mathematics Library

- Mrs. Kendall Morgan, Grainger Engineering Library and Information Center
Mr. Elisandro Cabada, University of Illinois at Urbana-Champaign

Board 94: Developing Support for Critical Citation Requirements for Civil and Environmental Engineering Graduate Research

- Sarah Weiss, University of Maryland- College Park

Board 95: Exploring an Engineering Student-Centered Approach to Library Outreach and Engagement by Listening First

- Wynn Tranfield, University of California, Santa Cruz

Board 96: Exploring the Impact of Textbook Costs on Undergraduate Engineering Majors

- Jentry E. Campbell, Dartmouth College
Stephen Krueger, Dartmouth College

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Board 97: Is There a Relation between Research Topics and High-Impact Journals in Biomedical Engineering?

Qianjin Zhang, The University of Iowa

M222 - Engineering Management Division (EMD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Engineering Management Division
(EMD)

Board 98: Exploring the Relationship Between Team Personality and Team Dynamics in Construction Project Teams: A Literature Review

Rebecca Kassa, University of Kansas
Tolulope Ibilola Ogundare, University of Kansas, Lawrence
Dr. Brian Lines, The University of Kansas
Mr. Jake Smithwick, University of North Carolina at Charlotte
Prof. Kenneth Timothy Sullivan, Arizona State University

Board 99: Systematic Literature Review on Organizational Resilience in the Context of Higher Education Institutions

Diego Alejandro Polanco-Lahoz, Texas Tech University
Dr. Jennifer A Cross, Texas Tech University

M223 - Engineering Technology Division (ETD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Engineering Technology related posters focused on teaching and student learning

Board 102: Design and Development HyFlex Courses for Undergraduate Students

Dr. Kazi Imran, SUNY Poly (DO NOT USE; MERGED INTO SUNY POLY INST (ENG & ENG TECH)
Dr. Jiayue Shen, SUNY Polytechnic Institute

Board 103: Solar-Powered Car Speed Radar Measurement, Display, and Logging System

Anthony Ciko,
Yave Cortes,
Josiah Andrew Jones,
Jimmy Sohail,
Alex Blinder,

Dr. Mohsen Azizi, New Jersey Institute of Technology

M224 - Entrepreneurship & Engineering Innovation Division (ENT) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering
Innovation Division (ENT)

Board 104: An Accelerator of Human Innovation Integrating Continuous Improvement and Lean Philosophy into Innovation Program for Undergraduate Students

Dr. Omar H. Albalawi, University of Tabuk
Dr. Ibrahim E. Atawi, University of Tabuk
Asma M. AlTurki, University of Tabuk
Khaled Saleem S. Alatawi, University of Tabuk

Board 105: Building a Framework to Understand the Impact of Entrepreneurship Support Programs on the Formation of Engineers

Dr. Chithra Adams, VentureWell
Dr. Sarah E. Zappe, Pennsylvania State University
Dr. Stephanie Cutler, Pennsylvania State University
Mr. Phil Weilerstein, VentureWell
Hope Liu,

Board 106: Innovation through Making Course: Creating a Distinctive Prototyping Experience as Part of a New Entrepreneurial Pathway (Work in Progress)

Mitra Varun Anand, Worcester Polytechnic Institute
Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute
Dr. Curtis Abel, Worcester Polytechnic Institute

Board 107: Work in Progress: Development of an Innovation Corps-Modeled Bioengineering Course to Promote Entrepreneurial Engagement among Undergraduate Students.

Amanda Walls,
Ishita Tandon,
Timothy J. Muldoon,
Prof. Jeff Wolchok, University of Arkansas
Dr. Mostafa Elsaadany, University of Arkansas

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M225 - Environmental Engineering Division (ENVIRON) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderator: Shannon Parks, University of Pittsburgh at Johnstown

Board 108: Enhancing Environmental Engineering Curriculum for the Transportation Industry

Dr. Ramanitharan Kandiah, Central State University

Prof. Krishnakumar V. Nedunuri, Central State University

M226 - Experimentation and Laboratory-Oriented Studies Division (DELOS) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

ELOS Posters include a bring-your-own-experiment demonstration of augmented and virtual reality for environmental engineering and remote electronic printing for electrical engineering.

Board 109: BYOE: Laboratory Exercise using Augmented Reality and Virtual Reality for Environmental Engineering Curriculum

Dr. Azadeh Bolhari P.E., University of Colorado Boulder

Board 110: Work-in-Progress: Engaging Students in Remote Delivery of an Electronic Printing Laboratory Course

Prof. Lili Dong, Cleveland State University

Dr. Yuejin Xu, Murray State University

M229 - Industrial Engineering Division (IND) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Board 118: Systems Engineering Initiative for Student Success (SEISS) Framework for Transforming Organizational Designs

Dr. Arunkumar Pennathur, The University of Texas at El Paso

Priyadarshini Pennathur, University of Texas at El Paso

Dr. Emily Blosser, University of Louisiana Lafayette

Prof. Nicholas A Bowman, University of Iowa

Board 119: WIP: Three Scaffolding Approaches to Foster a Tolerance for Ambiguity in an Undergraduate Engineering Statistics Course

Dr. Kingsley A. Reeves Jr., University of South Florida

Ana Carolina Leo, University of South Florida

Dr. Jeremi S. London, Virginia Polytechnic Institute and State University

Julia Machele Brisbane, Virginia Polytechnic Institute and State University

Natalia Torres Banks,

M232 - International Division (INTL) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Board 120: A Study of the Bangladeshi Engineering Students' Perceptions to Succeed Academically

Mr. Md Sakib Ullah Sourav, Shandong University of Finance and Economics, China

Dr. Cristina Diordieva, Nanyang Technological University, Singapore

Ribhav Galhotra, Nanyang Technological University, Singapore

Shahid Md. Asif Iqbal, Premier University, Chattogram, Bangladesh

Jeffrey D. Radloff, SUNY, Cortland

Dr. Ibrahim H. Yeter, Nanyang Technological University

M233 - Pre-College Engineering Education Division (PCEE) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Jamie Gurganas will be moderating this session

Board 148: A Qualitative Study of Factors Influencing K-12 Students' Interest in STEM Career (Fundamentals)

Tristan Robert Straight, Wartburg College

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Jannah Meyer, Wartburg College

Dr. Ibukun Samuel Osunbunmi, Utah State University -
Engineering Education

Bolaji Ruth Bamidele, Utah State University

Murad Musa Mahmoud, Wartburg College

Prof. Kurt Henry Becker, Utah State University - Engineering
Education

Dr. Jonathan D. Phillips, Utah State University

Board 150: AFRL Career STREAM Implementation at NMT (Work in Progress)

Destiny J. Crawford, New Mexico Tech Mechanical Engineering
Department

Jett C. Emms, New Mexico Institute of Mining and Technology
Raechelle Sandoval,

Dr. Curtis John O'Malley, New Mexico Institute of Mining and
Technology

Board 149: Advancing Participation in Engineering via Interdisciplinary Curricular Collaborations (Work in Progress)

Evelyn Hanna, Kent Place School

Carey Gates,

Michelle Stevenson, The Kent Place School

Board 151: An After-school STEM Program with a Novel Equitable and Inclusive Structure (Work in Progress, Diversity)

Dr. Matthew Aldeman, Illinois State University

Jeritt Williams, Illinois State University

Allison Antink-Meyer, Illinois State University

Dr. Jin Ho Jo,

Maria Luisa Zamudio,

Board 152: An Analysis of School District Adoption of K-12 Engineering Curriculum (Evaluation) (DEI)

Dr. Michael R. Odell, University of Texas at Tyler

Li Feng, Texas State University

Christopher Thomas, The University of Texas at Tyler

Eric Stocks,

Patrick Massey, Michigan State University

Board 153: An Immersive Summer Camp Designed for Underrepresented Populations and Its Effectiveness on Increasing Pre-College Awareness and Broadening Participation in Engineering (Evaluation)

Prof. Tanja L. Greene, E.S. Witchger School of Engineering,
Marian University

Dr. Hansika I. Sirikumara, E.S. Witchger School of Engineering,
Marian University Indianapolis, IN

Dr. Binh Q. Tran, Marian University

Board 154: An Introductory Aeronautics Course for Pre-

Engineering Students to Understand How Drones Work

Dr. Shouling He, Vaughn College of Aeronautics and
Technology

Dr. Hossein Rahemi, Vaughn College of Aeronautics and
Technology

Board 155: Broadening Participation and the Mission of Engineering for US All (e4usa) through Design Projects That Engage Students with Disabilities as Stakeholders (Work in Progress)

Dr. Jennifer Kouo, The Institute for Innovation in Development,
Engagement, and Learning Systems (IDEALS) at the Johns
Hopkins University School of Education

Dr. Jeannie Chipps, Johns Hopkins University

Ms. Rachel Figard, Arizona State University

Dr. Kenneth Reid, University of Indianapolis

Dr. Katey Shirey, eduKatey LLC, STEAM Education Services

Dr. Stacy S. Klein-Gardner, Vanderbilt University

Board 156: Concrete Tools to Practice Diversity, Equity, Inclusion, and Belonging in the STEM Classroom

Ms. Geniene K. Minkus, Geniene Minkus Consulting

Dr. Meagan C. Pollock, Engineer Inclusion

Board 157: Conducting the Pilot Study of Integrating AI: An Experience Integrating Machine Learning into Upper Elementary Robotics Learning (Work in Progress)

Ms. Geling Xu, Tufts Center for Engineering Education and
Outreach

David Zabner,

Dr. Jennifer Light Cross, Tufts University

Dustin Ryan Nadler,

Steven V. Coxon,

Karen Engelkenjohn,

Board 158: Creating a Pipeline of Future Engineers in Texas (Evaluation) (DEI)

Li Feng, Texas State University

Patrick Massey, Michigan State University

Michael R. Odell, University of Texas at Tyler

Board 159: Developing An Assessment Toolkit for Pre-college Summer Engineering Workshops (Works-in-Progress)

Dr. Tamecia R. Jones, North Carolina State University at
Raleigh

Dr. Leah Bug, North Carolina State University at Raleigh

Board 160: Discovering Simple Machines; Fun with Problem- Solving in Elementary School

Miss Joselyn Elisabeth Busato, Bucknell University

Dr. Elif Miskioglu, Bucknell University

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Dr. Kaela M. Martin, Embry-Riddle Aeronautical University
- Prescott

Board 161: Elementary Students' Mechanistic Reasoning about Their Community-connected Engineering Design Solutions (Work in Progress)

Dr. Mustafa Sami Topcu, Yildiz Technical University
Dr. Kristen B. Wendell, Tufts University

Board 162: Engineering Education and Culturally Relevant Pedagogy in Pre-College: A Review and Synthesis of the Literature

Ms. Maria Perez-Piza, University of Texas at El Paso

Board 163: Engineering Identity of 2nd-Grade Girls (Work-in-Progress)

Dr. Evelyn Hanna, Kent Place School
Ms. Suzanne Tracy, Kent Place School

Board 164: Engineering Interventions in My Science Classroom: What's My Role?

Dr. Cheryl Carrico, E4S, LLC
Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University
Dr. Sreyoshi Bhaduri, ThatStatsGirl

Board 165: Evaluation of an Introductory Computational Thinking Summer Program for Middle School to Identify the Effects of Authentic Engineering Experiences (Work in Progress)

Dr. Krista Dulany Chisholm, University of Florida
Olivia Lancaster,
Dr. Nancy Ruzycki, University of Florida

Board 166: Experiences from ImageSTEAM Workshop for the Middle School (Work In Progress)

Dr. John M. Mativo, University of Georgia
Dr. Ramana Pidaparti, University of Georgia
Suren Jayasuriya, Arizona State University
Kimberlee Ann Swisher,

Board 168: Exploring K-12 S,T,E,M Teachers' Views of Nature of Engineering Knowledge (Work-in-Progress)

Dr. Jeffrey D. Radloff, SUNY Cortland
Allison Antink-Meyer, Illinois State University
Dr. Ryan Brown, Illinois State University
Dr. Ibrahim H. Yeter, Nanyang Technological University
Dominick Fantacone,

Board 167: Exploring Elementary Pre-service Teachers' Personal Engineering Efficacy and Engineering Teaching Efficacy in a Science Methods Course Incorporating Engineering Design Activities (Work in Progress)

Mr. Miracle Moonga, Montana State University - Bozeman

Dr. Rebekah J. Hammack, Montana State University - Bozeman
Dr. Ibrahim H. Yeter, Nanyang Technological University

Board 168A: Initial Development of a Pre-college Engineering Framework: An Analysis of the Engineering Accreditation Board in Southeast Asia

Dr. Ibrahim H. Yeter, Nanyang Technological University
Ms. Jingyi Xie, Nanyang Technological University of Singapore

Board 169: Making Families Aware of Engineering through the Public Library (Work in Progress)

Dr. Kelli Paul, Indiana University-Bloomington
Dr. Jungsun Kim, Indiana University-Bloomington
Lauren Penney, Indiana University-Bloomington
Amber Simpson, State University of New York at Binghamton
Dr. Adam Maltese, Indiana University-Bloomington

Board 170: PADS -- The Performance Assessment of Design Skills (Work in Progress)

Dr. Cathy P. Lachapelle, STEM Education Insights
Ms. Elizabeth Parry, STEM Education Insights

Board 171: Project-Based Learning Using NASA Design Concepts for 3D Printing Makerspace Development to Support Pre-college STEM Education

Dr. Etahe Johnson, University of Maryland Eastern Shore
Dr. Willie L. Brown Jr., University of Maryland Eastern Shore
Prof. Ibibia K. Dabipi, University of Maryland Eastern Shore
Mere Serea,

Board 172: Redefining the Role of Women in Engineering through SWE-Led Middle School Outreach Program (Work in Progress)

Dr. Sarah K. Bauer, Mercer University
Prof. Cheng Zhu, Rowan University
Courtney A. Lemasney, Rowan University
Amanda Yannarella, Rowan University

Board 173: Results of Girl Scouts Taking the Draw-an-Engineer Test: Where Do We Go from Here? (WIP)

Dr. Abigail Clark, Ohio Northern University
Dr. Rachel Louis Kajfez, The Ohio State University

Board 175: STEP E-Dragester: A Pre-college Partnership Program Pilot Model (WIP)

Mr. Erik James Schettig, North Carolina State University at Raleigh
Dr. Vincent William DeLuca, North Carolina State University at Raleigh

Board 174: Stakeholder Views in Building a Sustainable Engineering Learning Ecosystem: Afterschool Green Energy, Robotics, and Automation (Work in Progress)

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Allison Antink-Meyer, Illinois State University
Dr. Matthew Aldeman, Illinois State University
Dr. Jin Ho Jo,
Jeritt Williams, Illinois State University
Maria Luisa Zamudio,

Board 176: Summer Robotics Program for High School Students

Dr. Jiahui Song, Wentworth Institute of Technology
Dr. Gloria Guohua Ma, Wentworth Institute of Technology
Dr. Douglas Eric Dow, Wentworth Institute of Technology
James R. McCusker Ph.D., Wentworth Institute of Technology
Suzanne Sontgerath, Wentworth Institute of Technology
Ilie Talpasanu,

Board 177: Sustainability Focused Pre-college Engineering Education for Building a STEM Pipeline - Work in Progress

Dr. Uma Balaji, Fairfield University
Dr. Elif Kongar, University of New Haven

Board 178: Teacher Perspectives of Outcomes and Challenges Resulting from Students' Interactions with MATLAB in e4usa (Fundamental)

Mr. Nicolas Léger, Florida International University
Dr. Stacy S Klein-Gardner, Vanderbilt University
Dr. Bruk T Berhane, Florida International University

Board 179: The Effect of Role Models on Interest in STEM (Work-in-progress)

Jack Priske,
Britta Solheim,
Dr. Murad Musa Mahmoud, Wartburg College
Dr. Cristian Gerardo Allen, Wartburg College
Dr. Ibukun Samuel Osunbunmi, Utah State University - Engineering Education
Dr. Jonathan D. Phillips, Utah State University
Prof. Kurt Henry Becker, Utah State University - Engineering Education

Board 180: Understanding Children's Perceptions of Robotics Through Drawings: Early Development of the Draw a Robot Task (Work in Progress)

Dr. Holly M Golecki, University of Illinois at Urbana - Champaign
Dr. Jerrod A Henderson, University of Houston

Board 181: Using an Integrated STEM Education Approach with Place-based Learning in a Community of Practice to Enhance Underrepresented Rural Student Learning

Dr. John Geoffrey Knowles, Bryan College
Dr. Jung Han, Purdue University

Dr. Todd Kelley, Purdue University at West Lafayette (COE)

Board 182: Using of Esque Box for STEM Education of Pre-college Students (Work in Progress)

Mr. Wesley David Klehm, Oral Roberts University Engineering Program
Dr. Pavel Navitski, Oral Roberts University
Jordan Matthew Swan,

Board 183: Utilizing On-Site Sustainability Technology to Engage K-12 Students in Engineering Learning (Work in Progress)

Rachel Burch, University of Delaware
Dr. Amy Trauth, American Institutes for Research
Dr. Michael Chajes, University of Delaware
Dr. Daniel Cha, University of Delaware

Board 184: Work in Progress: Broadening Participation in Engineering with the STEM Excellence in Engineering Equity (SEEE) Project

Taryn Melkus Bayles, University of Pittsburgh
Claudia J. Morrell,
Sandra Staklis,
Kevin A Jordan,

Board 185: Work in Progress: Engaging Students in the UN Sustainable Development Goals through Funds of Knowledge: A Middle School Bilingual Classroom Case Study

Luis E Montero-Moguel, The University of Texas at San Antonio
Dr. Joel Alejandro Mejia, The University of Texas at San Antonio

Board 186: Work in- Progress: Scaling STEM-ID—Research Strategies to Inform Initial Scaling of Middle School Engineering Curricula

Dr. Dyanne Baptiste Porter, Georgia Tech Center for Education, Integrating Science, Mathematics, and Engineering (CEISMC)
Dr. Jessica D Gale, Georgia Institute of Technology
Dr. Meltem Alemdar, Georgia Institute of Technology
Dr. Sunni Haag Newton, Georgia Institute of Technology
Abeera P. Rehmat, Georgia Institute of Technology
Talia Capozzoli, Georgia Institute of Technology
Mr. Jeffrey H Rosen, Georgia Institute of Technology
Jasmine Choi, Georgia Institute of Technology
Roxanne Moore, Georgia Institute of Technology

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M234 - Liberal Education/ Engineering & Society Division (LIBED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society
Division (LEES)

**Board 121: Using Tutor-led Support to Enhance Engineering
Student Writing for All**

Johanna Bodenhamer, Indiana University Purdue University
Indianapolis

Dr. Robert Weissbach, Indiana University - Purdue University
Indianapolis

Ms. Ruth Camille Pflueger, Pennsylvania State University,
Behrend College

Dr. Corinne C. Renguette, Indiana University - Purdue
University Indianapolis

Dr. Brandon Sorge, Indiana University - Purdue University
Indianapolis

Annwesa Dasgupta,

Dr. Immanuel Edinbarough P.E., The University of Texas Rio
Grande Valley

**Board 122: Work in Progress: Identity and Positioning of
International Students in Sociotechnical Discussions**

Jingshu Meng,

Hannah Norton,

Dr. Chelsea Andrews, Tufts University

M235 - Manufacturing Division (MFG) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Yalcin Ertekin, Drexel University; Zhenhua Wu,
Virginia State University

**Board 123: Data Analytics Short Courses for Reskilling and
Upskilling Indiana's Manufacturing Workforce**

Ted J. Fiock, Purdue Programs

Jonathan Mohn,

John Mack,

Charilaos Mousoulis,

Mr. Eunseob Kim, Purdue University

Lucas Wiese, Purdue University at West Lafayette (COE)

Prof. Martin Jun, Purdue University

Dr. Alejandra J. Magana, Purdue University at West Lafayette
(COE)

Ali Shakouri Shakouri,

**Board 124: MAKER - Recycling HDPE in an Academic
Makerspace**

Dr. Austin Talley, Texas State University

Dr. Kimberly Grau Talley P.E., Texas State University

Pablo Rodriguez Verde,

**Board 125: Taking an Experiential Learning Approach to
Industrial IoT Implementation for Smart Manufacturing
through Course Work and University-Industry Partnerships**

Eunseob Kim, Purdue University

Lucas Wiese, Purdue University at West Lafayette (COE)

Dr. Hector Will, Oakland City University

Dr. Alejandra J. Magana, Purdue University at West Lafayette
(COE)

Prof. Martin Jun, Purdue University

**Board 126: Work in progress: Incorporating Virtual
Programming Concepts in an Advanced Robotics Course
for Machining Processing and Quality Inspection of CNC
Machines and Industrial Robots**

Dr. Yalcin Ertekin, Drexel University

Dr. Richard Chiou, Drexel University

Prof. Tzu-Liang Bill Tseng, University of Texas at El Paso

M238 - Mechanical Engineering Division (MECH) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Siu Ling Leung, Pennsylvania State University

View a wide range of mechanical engineering related topics
presented as posters.

**Board 127: Adding Inexpensive Sand Casting to Mechanical
Engineering Capstone - Impacts on Student Inventiveness
and Attitude**

Cristian D. Jacome,

Dr. Ting Dong, University of Florida

Dr. Matthew J. Traum, University of Florida

**Board 128: An Automated Management Process for Digital
Correction**

Prof. Sami Ammar,

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Prof. Massimo Cimmino,

Dr. Michel Ho, Polytechnique Montreal

Board 129: Analyzing Student Learning Level for the Authentic Learning Assignment "Design Your Own Problem" Using Bloom's Taxonomy

Elisa Koolman, University of Texas at Austin

Ms. Boni Frances Yraguen, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Dr. Katherine Fu, Georgia Institute of Technology

Board 130: Continuous Improvement of a Mechanical Engineering Senior Seminar Using Student Feedback

Dr. Yucheng Liu, South Dakota State University

Board 131: Investigating the Impact of a Mechanical Engineering Undergraduate Research Experience on Student Learning (Work in Progress)

Nosakhare Iyobosa Idiaghe,

Dr. Jessica R. Deters, University of Nebraska Lincoln

Board 132: Notes on Design of Keyed Joints

Dr. Alex C. Szatmary, King's College

Board 133: The Design, Implementation, and Lessons Learned of an Atmospheric Water Generator Device

Dr. Karim Altaï, James Madison University

Mr. Brian Tang, Mission Technologies, division of HII

Board 134: The HapConnect: Teaching about Haptics and Inclusive Design with Modular, Wearable Technology

Mr. Bryan MacGavin, Saint Louis University

Dr. Jennifer Lynne Tennison, Saint Louis University

Dr. Jenna L. Gorlewicz, Saint Louis University

Dr. Sridhar S. Condoor, Saint Louis University

Board 135: Undergraduate Projects/Research in a Liberal Arts College

Dr. Niloofar Kamran, Cornell College

Board 136: Utilizing Active Learning to Replace Traditional Homework in Undergraduate Engineering Majors

Dr. Zahra Pournorouz, Stevens Institute of Technology (School of Engineering and Science)

Board 137: WIP: Engaging Mechanical Engineering Students in Projects of Caring: Socially and Environmentally Responsible Projects that Go out into the Public Domain

Dr. Vincent Nguyen, University of Maryland College Park

Dr. Elisabeth Smela, University of Maryland College Park

Dr. David Isaac Bigio, University of Maryland, College Park

M240 - Minorities in Engineering Division(MIND) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Diane Golding, University of Texas at El Paso

Board 138: (Re)Engineering Student Success: Constructing Knowledge on Summer Bridge Students' Experiences to Encourage Holistic Student Success

Ms. Shaylin Williams, Mississippi State University

Board 139: Factors Affecting Enrollment, Retention, and Attrition of STEM Undergraduates at a Minority Serving Institution

Ms. Claudia Calle Müller, Florida International University

Mais Kayyali, Florida International University

Mr. Mohamed Elzomor P.E., Florida International University

Board 140: Work in Progress: Exploring Innovation Self-Efficacy in Neurodiverse Engineering Students

Dr. Azadeh Bolhari P.E., University of Colorado Boulder

Dr. Angela R. Bielefeldt, University of Colorado Boulder

Board 141: Work in progress: Investigating Historically Marginalized Group Disparities in Biomedical Engineering Entrepreneurially Minded Learning

Ms. Mary Sallah Jia, University of Arkansas

Kaitlin Hall, University of Arkansas

Prof. Raj R. Rao, University of Arkansas

Dr. Mostafa Elsaadany, University of Arkansas

M241 - Multidisciplinary Engineering Division (MULTI) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Board 142: A New Paradigm for Sustainability Engineering: A Transdisciplinary, Learner-Centered, and DEI-Focused Approach

Dr. Aidsa I. Santiago-Roman, University of Puerto Rico, Mayaguez Campus

Prof. Christopher Papadopoulos, University of Puerto Rico, Mayaguez Campus

Dr. Nayda G. Santiago, University of Puerto Rico, Mayaguez Campus

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Dr. Lourdes A. Medina,
Dr. Ivan J. Baiges-Valentin, University of Puerto Rico,
Mayaguez Campus

Board 143: Challenges Faced by Students Transitioning from High School to College

Mrs. Anika Coolbaugh Pirkey, West Virginia University
Daniel Augusto Kesting,
Dr. Lizzie Santiago, West Virginia University

Board 144: Interdisciplinary & International Research Experiences in Bioinspired Science & Technology

Dr. Teddy Ivanitzki, ASEE
Dr. Rolf Mueller, Virginia Polytechnic Institute and State University

Board 145: Possible Relations between Self-Efficacy, Sociodemographic Characteristics, Dropout and Performance of Freshman Students in Engineering Courses

Dr. Cristiane Maria Barra Da Matta, Instituto Mauá de Tecnologia
Prof. Daniel Kashiwamura Scheffer, Instituto Mauá de Tecnologia
Dr. Susana Marraccini Giampietri Lebrão,
Dr. Maria do Carmo Fernandes-Martins, Universidade Metodista de São Paulo
Fernando Silveira Madani, Instituto Mauá de Tecnologia

Board 146: Work in Progress: Incorporating Learning Strategies and Theory into a Multidisciplinary Design Capstone Course

Mr. Bob Rhoads, The Ohio State University
Mr. John Schrock, The Ohio State University

Board 147: Work-in-Progress: The Effect of Summarizing a Research Article on Students' Area of Robotics Interest

Dr. Siobhan Oca, Duke University
Dr. Genevieve M. Lipp, Duke University

M245 - Engineering Physics and Physics Division (EP2D) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Board 100: Hot Wheels: Heated-Seat Wheelchair

Dr. Bala Maheswaran, Northeastern University

Ayush Maurya,
Matthew Robert Pliszak,
John Alvin Roche, Northeastern University
Katerina Haralambos Pashiardis,
David Ian Hunter,

Board 101: Rebounding Energy

Prof. Bala Maheswaran, Northeastern University
Rosalyn Bell Beckwith,
Montserrat Velasco,
Emily Minkler,
Eleanor Altwarg, Northeastern University

M247 - Student Division (STDT) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Board 187: Poster: WIP: Neurodivergent Engineering Students' Sense of Belonging at the University, Major, and Course Levels: A Mixed Methods Study

Ms. Candice W. Bolding, Clemson University
Mr. Robert M O'Hara, Clemson University
Penny S Edwards,
Katherine Mulholland, Clemson University

Board 188: Student-centered and led approaches for improving Mental Health

Cody Pettitt, Ohio University
Dr. Greg Kremer, Ohio University
Dr. Timothy Cyders,
Emily McCarty,
Robert F. Lindsey,
Ryan Pytosh,

Board 189: WIP: Staff Communities of Practice for Makerspace Professional Development

Lindsey Pegram, "Be A Maker (BeAM)" Makerspace in the Department of Applied Physical Sciences at the University of North Carolina at Chapel Hill
Maria Christine Palmtag,
Ms. Anna Engelke, UNC-Chapel Hill / North Carolina State University

Board 190: Work in Progress: A Pilot Study on Faculty Perceptions of the Impact of COVID-19 on Undergraduate Engineering Student Readiness

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Emily Fitzpatrick, University of Nebraska-Lincoln
Dr. Jessica Deters, University of Nebraska - Lincoln

M250A - Two-Year College Model Design Competition

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderators: Philip Regalbuto, Trident Technical College;
Pamela Silvers,

After an exhibit session, participants will design and build an autonomous robot that can shoot three Nerf Rival Balls into five containers representing five British warships and four shore assault boats. Raising an American flag also earns points.

The robot can hold at most 25 Rival balls and must always remain inside the pentagon-shaped Fort McHenry (Baltimore, MD) with 13.5" exterior side walls, and should not exceed 10" in height (except for the flag). The robot must use one shooting mechanism and shoot one ball at a time. The robots will have a maximum time of 90 seconds in each of four allotted trials.

See the 2023 Official Rules in the "Resources" section for complete details

M250B - Two-Year College Division Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Two-year college division poster session

Board 190A: A New Educational Experience: Community College Engineering and Music Students Create User-Friendly Music Theory Application for Education and Composition

Anita Riddle, Salt Lake Community College
Miss Sierra Katherine Schmidt, Salt Lake Community College
Miss Christine Silvia Schmidt, Salt Lake Community College
Karson Spencer,
Dr. Nick M. Safai, Salt Lake Community College

Board 190B: A New Way to Solar for an Increased Efficiency

Daniel Kelly Green,

Dr. Nick M. Safai, Salt Lake Community College

Board 190C: Lessons Learned from the First Offering of REU PATHWAYS Summer Research Program for Community College Students

Dr. Ibrahim F. Zeid, Northeastern University
Dr. Jennifer Ocif Love, Northeastern University
Mrs. Claire Duggan, Northeastern University

M251 - Women in Engineering Division (WIED) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Board 192: Identifying and addressing the barriers to advancement for women in the engineering professoriate: A systematic review of literature

Dr. Debarati Basu, Embry-Riddle Aeronautical University
Dr. Lilianny Virguez, University of Florida
Dr. Michelle Soledad, Virginia Tech
Dr. Sreyoshi Bhaduri, ThatStatsGirl

Board 191: Are female faculty role models to female students in higher education? A study of teachers' perceptions of their roles and responsibilities in computer science and engineering

Dr. Qian Wang, Xi'an Jiaotong-Liverpool University (XJTLU)
Biying Wen, Liverpool University; University of Liverpool

M252 - Community Engagement Division Poster Session - Exploring the Transformative Power of Service, Engagement, and Research

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Elizabeth Jones, University of Nebraska - Lincoln

Board 52: Engagement in Practice: Role of Community Engagement in Disaster Recovery

Dr. Azadeh Bolhari P.E., University of Colorado Boulder
Eric Matzke Flaska, University of Colorado Boulder

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Dr. Kenneth Stewart,

Board 53: Engagement in Practice: Strengthening Student's STEM Identity Through Service

Selvin Yovani Tobar,

Bara Maisara Zalloum,

Anna N. Le,

Yessenia Nicacio-Rosales,

Dr. Doris J. Espiritu, Wilbur Wright College- One of the City Colleges of Chicago

Board 54: How a Civic Internship Impacts Student Professional Discernment

Dr. Kerry Meyers, University of Notre Dame

Dr. Danielle Wood, University of Notre Dame

Dr. Hazel Marie, Youngstown State University - Rayen School of Engineering

Dr. Faisal Aqlan, University of Louisville

Daniel Lapsley, University of Notre Dame

M257 - Faculty Development Division (FDD) Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Board 111: A Systematic Review of Instruments Used to Evaluate the Effectiveness of the Entering Mentoring Curriculum

Ms. Ha Pho, University of Massachusetts Lowell

Dr. Yanfen Li, University of Massachusetts Lowell

Hsien-Yuan Hsu, University of Massachusetts Lowell

Board 112: Creating an Institutional Culture of Empowering Faculty for Student-centered Learning through a Pilot Program

Dr. Sally J. Pardue, Tennessee Technological University

Dr. Kumar Yelamarthi, Tennessee Technological University

Mrs. Taylor Chesson, Tennessee Technological University

Dr. Lenly J. Weathers, Tennessee Technological University

Dr. J.W. Bruce, Tennessee Technological University

Dr. Joseph C. Slater P.E., Tennessee Technological University

Board 113: Engineering Faculty's Academic Influence on Student Persistence: Faculty Use, Knowledge, and Comfort in Providing Encouragement to Students

Ms. Rachel Ziminski, University of Massachusetts Lowell

Dr. Yanfen Li, University of Massachusetts Lowell

Board 115: LESSONS LEARNED: A 360 Degree Review of

Faculty Development Resources

Dr. Randy McDonald, Texas A&M University

Lani Draper, Texas A&M University

Dr. Sunay Palsole, Texas A&M University

Sandra R. Childers, Texas A&M University

Board 117: WIP: Exploring the Teaching Journey of Early-career Engineering Faculty

Mr. Marcus Vinicius Melo de Lyra, Arizona State University

Dr. Adam R. Carberry, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University

Dr. Jennifer M. Bekki, Arizona State University

Board 116: Lessons Learned: Building Our Capacity to Engage in Engineering Education Research

Dr. John Sangster, Northeastern University

Dr. Andrew L. Gillen, Northeastern University

Dr. Aileen Huang-Saad, Northeastern University

M392 - IEEE Meeting

10:00 A.M. - 12:00 P.M., CALLOWAY, HILTON BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

IEEE meeting

M301 - AERO 1: Rocketry and Space Education

11:00 A.M. - 12:30 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Tracy Yother, Purdue University at West Lafayette (PPI)

Work in Progress: Implementing an Orbital Debris Macroethics Lesson in a Junior-Level Spacecraft Dynamics Course

Megan Ennis, University of Michigan

Ms. Elizabeth Ann Strehl, University of Michigan

Dr. Aaron W. Johnson, University of Michigan

Dr. Corin L. Bowen, California State University, Los Angeles

Oliver Jia-Richards, University of Michigan

Experience with the Development and Implementation of Online and Hands-on Rocketry Education and Outreach

Dr. Joshua Rovey, University of Illinois at Urbana-Champaign

Mr. John Juhyun Kim, University of Illinois at

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Urbana-Champaign

Timothy Plomin, University of Illinois Urbana-Champaign

Heather Ruth Arnett, University of Illinois at Urbana-Champaign

Dr. Luisa-Maria Rosu,

Advancing Engineering Education through University Ground Stations

Michael Irving Buchwald, Clarkson University

Prof. Michael C.F. Bazzocchi, Clarkson University

Lessons Learned from Starting a Student-Led Rocket Club and the Collaborative Effort between the Club and a Rocket Course

Jacob Michael Blocker,

Dr. Benjamin Ahn, The Ohio State University

M302 - Architectural Engineering Division (ARCHE) Technical Session 2

11:00 A.M. - 12:30 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderators: Rachel Mosier, Oklahoma State University; Rania Al-Hammoud, University of Toronto

Curriculum Changes Informed by the Architectural Engineering and Construction Industry

Samuel Underwood, University of Nebraska - Lincoln

Dr. Markeya S. Peteranetz, University of Nebraska - Lincoln

Dr. Clarence Waters, University of Nebraska - Lincoln

Combining Evidence-Based Practices with Technology to Enhance an Architectural Technology Design Studio

Prof. Darrell D. Nickolson, Indiana University - Purdue University Indianapolis

Kelly Scholl, Indiana University-Bloomington

Identifying the Static and Dynamic Nature of Course Content: Focus on Construction

Dr. Nicholas Tymvios, Bucknell University

Dr. John Gambatese P.E., Oregon State University

Dr. Jake Smithwick, University of North Carolina at Charlotte

Construction Site Visits During Pandemic Period and Their Use in Post-Pandemic Times

Ing. Luis Horacio Hernandez Carrasco P.E., Tecnológico de Monterrey (ITESM)

Prof. Miguel X. Rodriguez-Paz, Tecnológico de Monterrey

(ITESM)

Saul E. Crespo, Tecnológico de Monterrey (ITESM)

Implementation of intergenerational architectural engineering peer mentoring program and impact on institutional retention and connectedness

Samuel Underwood, University of Nebraska - Lincoln

Dr. Markeya S. Peteranetz, University of Nebraska - Lincoln

Clarence Waters, University of Nebraska - Lincoln

M304 - Biomedical Engineering Speed Networking

11:00 A.M. - 12:30 P.M., BALLROOM 4 , BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Casey Ankeny, Northwestern University; Yanfen Li, University of Massachusetts Lowell

Join new and returning members of the BED community to exchange ideas and expand your professional network at this speed networking event to kick off Biomedical Engineering Division (BED) programming at the 2023 ASEE conference. The goal of this session is to develop connections and build community among educators in biomedical engineering. The format will consist of 1-on-1 pairings followed by small-group discussion.

M305 - Chemical Engineering Division (ChED) Technical Session 1: Diversity, Equity, and Inclusion in ChE

11:00 A.M. - 12:30 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Duncan Mullins, Oklahoma State University; Victoria Goodrich, University of Notre Dame

Equality, Diversity and Inclusion (EDI) in the Chemical Engineering Curriculum: Working in Partnership with Students to Create Sustainable Practices

Dr. Deesha Chadha, Imperial College, London

Jerry Y.Y. Heng,

Emerald Sun,

Do Small Collaborative Learning Communities within a Larger Class Increase Students' Sense of Belonging and Learning?

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MONDAY, JUNE 26th SESSIONS

Dr. Mechteld Veltman Hillsley, Pennsylvania State University
Dr. Stephanie Butler Velegol, Pennsylvania State University
Prof. Gina Ahyun Noh,

Opportunity Gaps for Women in Chemical Engineering: A Quantitative Critical Investigation

Prof. Eric Burkholder, Auburn University

Designing and Implementing a Workshop on the Intersection between Social Justice and Engineering

Kavitha Chintam, Northwestern University
Dr. Alexis N. Prybutok, University of Washington
Willa Brenneis,
Jonathan M. Chan,
Joie Green,
Ruihan Li,
Meagan Olsen,
Sapna L. Ramesh,
Carolyn E. Ramirez,
Dhanvi Ram Vemulapalli,
Dr. Jennifer Cole, Northwestern University

Impact of "The Design of Coffee," A General Education Chemical Engineering Course, on Students' Decisions to Major in STEM Disciplines

Esohe Fawole, University of California, Davis
Glaucia Prado, University of California, Davis
Prof. William Ristenpart, University of California, Davis
Dr. Jason White, University of California, Davis

M306A - Civil Division Business Meeting

11:00 A.M. - 12:30 P.M., CARROLL, HILTON BALTIMORE INNER HARBOR

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Tonya Nilsson, Santa Clara University

M308 - The Best of Computers in Education

11:00 A.M. - 12:30 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderators: Steven Barrett, University of Wyoming;
Mahnas Mohammadi-Aragh, Mississippi State University

This session will showcase the best papers submitted to the Computers in Education Division. Papers in this session will be judged for the division's John A. Curtis Best Paper Award.

Identifying Collaborative Problem-Solving Behaviors Using Sequential Pattern Mining

Yiqiu Zhou, University of Illinois, Urbana-Champaign
Qianhui Liu, University of Illinois, Urbana-Champaign
Sophia Yang, University of Illinois, Urbana-Champaign
Dr. Abdussalam Alawini, University of Illinois, Urbana-Champaign

Latinx Culture, Music, and Computer Science Remix in a Summer Camp Experience: Results from a Pilot Study

Ms. Jayma Koval, Georgia Institute of Technology
Diley Hernandez, Georgia Institute of Technology
Tom McKlin,
Mr. Douglas Edwards, Georgia Institute of Technology
Rafael A. Arce-Nazario,
Joseph Carroll-Miranda,
Isaris Rebeca Quinones Perez, University of Puerto Rico, Rio Piedras
Lilliana Marrero-Solis,
Jason Freeman, Georgia Institute of Technology
Taneisha Lee Brown,
Pascua Padro,
Stephen Garrett,
Analia E. Rao,
Dr. Marion Usselman, Georgia Institute of Technology

Creating and Implementing a Custom Chatbot in Engineering Education

Mr. Shameel Abdulla, Texas A&M University, Qatar
Dr. Yasser M. Al Hamidi, Texas A&M University, Qatar
Prof. Marwan Khraisheh, Texas A&M University, Qatar

Virtual Reality For Robot Control and Programming in Undergraduate Engineering Courses

Mr. Andrew Rukangu, University of Georgia
Dr. John Ray Morelock, University of Georgia
Dr. Kyle Johnsen, University of Georgia

RVfpga: Computer Architecture Course and MOOC Using a RISC-V SoC Targeted to an FPGA and Simulation

Dr. Sarah L. Harris, University of Nevada, Las Vegas
Daniel Chaver Martinez, University Complutense of Madrid, Spain
Luis Piñuel,
Olof Kindgren,

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Robert C.W. Owen,

M309 - Construction Engineering Division (CONST) Technical Session 5

11:00 A.M. - 12:30 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Eddie Oh, Texas A&M University - Commerce; Luciana Debs, Purdue University Programs

Analysis of Qualifications for Entry-Level Positions in Construction Management

Omkar Gadakh,

Dr. Luciana Debs, Purdue University

Developing a New Course in Design, Construction, and Society

Dr. Luciana Debs, Purdue University

Dr. Claudio Martani, Purdue University

Differences in the Human Dimensions of Specialty Field Leaders and General Contractor Project Managers

Tolulope Ibilola Ogundare,

Rebecca Kassa, University of Kansas

Dr. Omar Maali, City of Lawrence, Kansas

Dr. Brian Lines, The University of Kansas

Mr. Jake Smithwick, University of North Carolina, Charlotte

Prof. Kenneth Timothy Sullivan, Arizona State University

Skillsets of Top-Performing Specialty Field Leaders: A Study of Site Superintendents, General Foremen, and Crew Leaders in the Sheet Metal and Air Conditioning Trades

Tolulope Ibilola Ogundare,

Rebecca Kassa, University of Kansas

Dr. Omar Maali, City of Lawrence, Kansas

Dr. Brian Lines, University of Kansas

Mr. Jake Smithwick, University of North Carolina, Charlotte

Prof. Kenneth Timothy Sullivan, Arizona State University

Where are the women of Color professors?: Multicultural career sustainability utilizing participatory action research

Cassandra Puletapuai, Colorado State University

Dr. Daniel Birmingham, Colorado State University

Dr. Rodolfo Valdes-Vasquez, Colorado State University

Dr. Diana A. Chen, University of San Diego

M310 - CPD Division Executive Board Meeting

11:00 A.M. - 12:30 P.M., TUBMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Continuing Professional Development Division (CPD)

M311 - Experiential Learning and Professional Skills and Competencies: Attainment, Assessment, and Evaluation.

11:00 A.M. - 12:30 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Jenny Strickland,

This session covers topics on assessing various professional skills and concepts such as social capital, engineering identity, project team skills assessment, and specific skills embedded in learning outcomes.

Work in Progress: Assessing Undergraduate Engineering Students' Career Social Capital

Adrian Nat Gentry, Purdue University

Dr. Eric Holloway, Purdue University at West Lafayette (COE)

Dr. Kerrie A. Douglas, Cornell University

Prof. Peter Bermel, Purdue University at West Lafayette (COE)

Work in Progress: Are Project Teams Actually Developing Professional Skills?

Emily Buten, University of Michigan

Jack Boomer Perry, University of Michigan

Dr. Aaron W. Johnson, University of Michigan

Supporting the Development of Professional Competencies and Engineering Identity at Scale

Dr. John H. Callewaert, University of Michigan

Cassandra Sue Ellen Jamison, University of Michigan

Pilot Study: Assessing Construction Management Student Knowledge Using Student Learning Outcomes in Construction Internships

Dr. Philip Warren Plugge, Central Washington University

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M313 - DEED Invited Speaker: Dr. Julie Linsey

11:00 A.M. - 12:30 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Speaker: Dr. Julie S Linsey, Georgia Institute of Technology

M314A - FIE Steering Committee: Open Session

11:00 A.M. - 12:30 P.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Stephen Frezza, Gannon University

M314B - Celebrating ERM Apprentice Faculty Grant Awardees

11:00 A.M. - 12:30 P.M., JOHNSON, HILTON BALTIMORE INNER HARBOR

Sponsor: Educational Research and Methods Division (ERM)

Speakers: Dr. Anastasia Marie Rynearson, Campbell University; Dr. Aaron W. Johnson, University of Michigan

Invite and recognize AFG awardees and their mentors from the past few years.

M314C - The International Handbook of Engineering Education Research (IHEER) and the Future of EER

11:00 A.M. - 12:30 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Aditya Johri, George Mason University

This panel will introduce the "International Handbook of Engineering Education Research" (IHEER), a new resource in the field, and through that, discuss the future of the field of Engineering Education Research (EER). This international handbook brings together 100 expert contributors from

more than 20 countries on five continents for 32 chapters that address the state of the art in engineering education. Chapters are in six sections and review and discuss topics such as comparative research, engineering ethics, curriculum design, theoretical perspectives, research methods, and the use of technology and computing. Many chapters take a critical perspective toward developments in engineering education and argue for a more just and inclusive future vision for EER.

The handbook is supported by the National Science Foundation and is available for free through Open Access.

The authors will provide a brief overview followed by a discussion about the potential impact and limitations of the volume.

Part 1: Introduction of the handbook's six sections:

- 1, Comparative Perspectives for Engineering Education Research
- 2, Theoretical Orientations and Critical Approaches in Engineering Education
- 3, Engineering Education Across Contexts and Participants
- 4, Advancing Pedagogy and Curriculum in Engineering Education
- 5, Engineering Education at the Intersection of Technology and Computing
- 6, Engineering Education Research Methods and Assessment

Part 2: Moderated discussion

Part 3: Audience questions and open discussion

M314D - Meet the Engineering Education Pioneers

11:00 A.M. - 12:30 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderators: Adam Carberry, Arizona State University; Huihui Qi, University of California, San Diego

This session provides early-career scholars and pioneers in engineering education an opportunity to interact face-to-face. Session attendees will have the opportunity to meet with pioneers in a roundtable format to ask questions, seek advice, and get feedback. The intended audience

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for this panel includes graduate students, post-doctoral scholars, and others interested in the engineering education community. This session is a follow-up to the National Science Foundation-funded Engineering Education Pioneers Project, which documented the stories of more than 40 engineering education pioneers through online profiles, <https://depts.washington.edu/celtweb/pioneers-wp/>.

M314E - Work-in-Progress Session: Understanding Issues Faced by Graduate Students and Faculty

11:00 A.M. - 12:30 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Boni Yraguen, Georgia Institute of Technology

Educational Research & Methods Division (ERM) technical session

Work in Progress: Toward Understanding Engineering Research Culture

Mr. Herman Ronald Clements III, Purdue University, West Lafayette

Work in Progress: Designing a Survey Instrument to Assess Graduate Student Motivation Towards Degree Completion

Eduardo Rodriguez Mejia, Rowan University
Dr. Cheryl A. Bodnar, Rowan University

Work in Progress: A Trio-Ethnography on Professional Identity Development of Internationally-Trained Minoritized Women Early-Career Researchers in Canada

Anuli Ndubuisi, University of Toronto, Canada
Dr. Glory Ovie, The King's University Edmonton, Canada
Zian (Kelly) Zhang, University of Toronto, Canada

Work in Progress: Who Are Graduate Program Directors and What Are Their Roles in Healing within Graduate Engineering Education?

Ms. Mais Kayyali, Florida International University
Mr. Derrick James Satterfield, University of Nevada, Reno
Dr. Adam Kirn, University of Nevada, Reno
Dr. Alexandra Coso Strong, Florida International University

Work in Progress: Using Participatory Design and Qualitative Research Strategies in the Development of a New Faculty Mentoring Program for Undergraduate Engineering Students

Dr. Constanza Miranda, Johns Hopkins University
Mrs. Rachel McClam, Johns Hopkins University

Work in Progress: Caring Means Clear Explanations—The Epistemic Value of Engineering Students' Descriptions of Good Teaching

Dr. Todd M. Fernandez, Georgia Institute of Technology
Shayla Ellington,

M316 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Saquib Ahmed, SUNY Buffalo State University; Ira Harkness, University of Florida

Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 1.

What makes a solar engineer?

Dr. Joseph Ranalli, Pennsylvania State University Hazleton
Mesude Bayrakci Boz, Pennsylvania State University Hazleton

Identifying the Needs of Electric Power Industry through Online Job Ads: A Mixed-methods Approach

Huiye Yu, UNSW Sydney
Mr. Hua Chai, University of New South Wales
Dr. Jayashri Ravishankar, University of New South Wales

Adapting Capstone Design for the Solar District Cup Competition

Dr. Joseph Ranalli, Pennsylvania State University Hazleton

Efficiency Analysis of a Hybrid Solar System Design

Ryan Thomas Flynn,
Caleb Holdridge,
Alexandra Murphy,
Ms. Jacquelyn Autumn Carter,
Sarah Schollenberger,
Prof. Tooran Emami Ph.D., United States Coast Guard Academy

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M317 - Engineering and Public Policy Business Meeting

11:00 A.M. - 12:30 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Engineering and Public Policy Division (EPP)

M318 - Engineering Design Graphics Division (EDGD) Technical Session 2

11:00 A.M. - 12:30 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Design Graphics Division (EDGD)

Moderator: Raissa Marchiori,

Augmented Botswanan Learning Experience

Dr. Cameron Denson, North Carolina State University at Raleigh
Niloufar Bayati, North Carolina State University at Raleigh

Culture-inspired creative design projects increase students' sense of belonging in freshman engineering design course

Dr. Raghu Pucha, Georgia Institute of Technology
Shivani Kundalia,
Carol Subiño Sullivan, Georgia Institute of Technology

What do we learn from formative feedback? A comparison of weekly reflection surveys to a midterm survey in a graphical communication course

Dr. Lulu Sun, Embry-Riddle Aeronautical University - Daytona Beach
Chad Rohrbacher, Embry-Riddle Aeronautical University - Daytona Beach

Project-Focused Redesign of a First-Year Engineering Design Course for CAD and CAM in a Modern Era

Ms. Barbara Groh, University of Texas at Austin
Christopher Grady Rylander,
Dr. Michael Cullinan, University of Texas at Austin
Dipankar Behera,

Supporting Student Persistence in Engineering Graphics through Active Learning Modules

Dr. Aaron C. Clark, North Carolina State University at Raleigh
Mr. Erik Schettig, North Carolina State University at Raleigh
Dr. Jeremy V. Ernst, Embry-Riddle Aeronautical University - Worldwide

Dr. Daniel P. Kelly, Nanyang Technological University

Incorporating Makerspace Design and Fabrication Activities into Engineering Design Graphics

Ms. Jan Edwards, College of Lake County
Prof. Rob Twardock, College of Lake County

Using EFA to Determine Factor Structure of a Computer-Based Version of the Purdue Spatial Visualization Test: Rotations (PSVT:R)

Ms. Savanna Dautle, Rowan University
Dr. Stephanie Farrell, Rowan University

M319 - Engineering Economy Division Business Meeting

11:00 A.M. - 12:30 P.M., KEY 5, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Economy Division (EED)

Engineering Economy Division Business Meeting

M320 - Engineering Ethics Division (ETHICS) Technical Session _Monday June 26, 11:00 - 12:30

11:00 A.M. - 12:30 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Adetoun Yeaman, Wake Forest University; Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research Chennai

Character-Based Engineering Virtues

Dr. Kenneth McDonald, United States Military Academy, Department of Systems Engineering

Engineering ethics and the public: Impacts of a graduate-level course on students' ethical perceptions and conduct in research and professional settings (2010-20)

Frank A. Mazzola, Virginia Polytechnic Institute and State University
Mr. Siddhartha Roy, Virginia Polytechnic Institute and State University
Dr. Marc Edwards, Virginia Polytechnic Institute and State University

Recognizing Principles of AI Ethics through a Role-Play Case Study on Agriculture

Mr. Ashish Hingle, George Mason University

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Dr. Aditya Johri, George Mason University

Game Over: Reframing Ethical Decision-Making through Failure for Engineering Education

Alice Fox, Stanford

Mr. Benjamin C. Beiter, Virginia Polytechnic Institute and State University

Impact of critical narrative on students' abilities to recognize ethical dilemmas in engineering work

Dr. Jeff R. Brown, Embry-Riddle Aeronautical University - Daytona Beach

Chad Rohrbacher, Embry-Riddle Aeronautical University - Daytona Beach

Dr. Taylor Joy Mitchell, Embry-Riddle Aeronautical University

Dr. Leroy Long III, Sinclair Community College - Dayton

Jenna Korentsides, Embry-Riddle Aeronautical University - Daytona Beach

Joseph Roland Keebler, Embry-Riddle Aeronautical University - Daytona Beach

Incorporating Giving Voice to Values (GVV) into an Engineering Ethics Course

Dr. Rosalyn W. Berne, University of Virginia

William J Davis,

Mr. Kent A. Wayland, University of Virginia

Dr. Bryn Elizabeth Seabrook, University of Virginia

Caroline Crockett, University of Virginia

M321 - Engineering Libraries Division (ELD) Technical Session 1: Engineering Librarianship

11:00 A.M. - 12:30 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Leena Lalwani, University of Michigan

Free ticketed event

Engineering Librarianship in the Post-war Period: Profile of an Emerging Academic Librarian Community

Mr. Michael Joseph White, Queen's University

Let's Talk about Disability: Disability Justice in Engineering Librarianship

Prof. Elizabeth C. Novosel, University of Colorado Boulder

Survey of Research in Engineering Librarianship, 2015-2019

Amber Janssen, California State University, Maritime Academy

Mindy F. Thuna, University of Toronto

M322 - Engineering Management Division (EMD) Tech Session 1: Program-level innovations in design, delivery, and assessment

11:00 A.M. - 12:30 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Eric Specking, University of Arkansas

Program-level innovation at its best! Come learn about factors considered and the approach taken in designing a new MSEM program; a project-based approach to curriculum delivery; and how to leverage Canvas Learning Management System features and analytics for program assessment.

A Project-Based Approach to Integrated Business and Engineering Curriculum

Prof. Alina Alexeenko, Purdue University at West Lafayette (COE)

Dr. William "Bill" C. Oakes, Purdue University at West Lafayette (COE)

Dr. Carla B. Zoltowski, Purdue University at West Lafayette (COE)

Dilip Chhajed,

Ryan Paul Case,

Exploiting Digital Learning Management System (LMS) Capabilities for Effective Program Assessment of Competency-based Education

Dr. Laramie Vance Potts, New Jersey Institute of Technology

Dr. Huiran Jin, New Jersey Institute of Technology

Mohammad Rabie,

Online Engineering Management Master's Program—Lessons Learned

Dr. John T. Tester, Tennessee Technological University

Dr. Mazen I. Hussein, Tennessee Technological University

M323 - MET Leadership Council

11:00 A.M. - 12:30 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

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This is the Leadership council meeting of Mechanical Engineering Technology.

M324 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 1: Robotics and Bio-Inspired Projects

11:00 A.M. - 12:30 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderator: Pritpal Singh, Villanova University

Affordable robotics toolkits for equitable and interdisciplinary education, transformable to searching nodes for disaster onsite investigations

Mr. Hiroyuki Ishizaki, Shibaura Institute of Technology
Dr. Sumito Nagasawa, Shibaura Institute of Technology
Prof. Hatsuko Yoshikubo, Shibaura Institute of Technology
Dr. Hitoshi Nakamura, Shibaura Institute of Technology

Applying Entrepreneurially Minded Learning to the Design and Fabrication of Soft Robotic Fish with Native American Engineering Students.

Dr. Monsuru O. Ramoni, Navajo Technical University
Jonathon Chinana,
Mr. Ty Shurley, Navajo Technical University
Dr. Kathryn Hollar, Harvard John A. Paulson School of Engineering & Applied Sciences

Bringing Entrepreneurial Mindset to the Design of Machinery through a Bio-Inspired Design Project with Aesthetic Objectives

Prof. Soheil Fatehiboroujeni, Colorado State University
Dr. Lisa Bosman, Purdue University at West Lafayette (PPI)

Enhancing Programming Industrial Robots Course through Integration of the Entrepreneurial Mindset

Dr. Maged Mikhail, Purdue University Northwest
Dr. Khalid H. Tantawi, University of Tennessee at Chattanooga
Prof. Jeffrey Ma, Saint Louis University

How to engage engineering students in teaching linear elasticity through entrepreneurially minded bio-inspired projects

Dr. Jeffrey Jianfeng Ma, Saint Louis University
Dr. Lisa Bosman, Purdue University at West Lafayette (PPI)

Dr. Maged Mikhail, Purdue University Northwest

Dr. Khalid H. Tantawi, University of Tennessee at Chattanooga

Dr. Beshoy Morkos, University of Georgia

M325 - Environmental Engineering Division (ENVIRON) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderator: Andrew Pfluger, United States Military Academy

How Active Rainwater Harvesting May Help Reduce Nuisance Flooding: Flood Analysis and Social Barriers to Adoption

Isabel Lopez, University of Texas at El Paso
Dr. Ivonne Santiago, University of Texas at El Paso

Innovative Outreach for Careers in the Water and Wastewater Utilities

Dr. Kauser Jahan, Rowan University
Dr. Ying Tang, Rowan University
Jeong Eun Ahn, Rowan University

A Toolkit for Expanding Sustainability Engineering Utilizing Foundations of the Engineering for One Planet Initiative

Dr. Andrew Schulz, Georgia Institute of Technology
Cynthia D. Anderson, Alula Consulting
Cindy Cooper, The Lemelson Foundation
Dr. Dustyn Roberts P.E., University of Pennsylvania
Jorge E Loyo Rosales, Rice University
Kristin Lewis, American Association for the Advancement of Science (AAAS)
Ms. Supraja N. Kumar, Smart Surfaces Coalition
Julianne Rolf, Yale University
Dr. Nelson A. Granda Marulanda, Western Carolina University

Experiential Virtual Learning on the impacts of Covid-19 on Air Quality through Integration of Research in STEM Education

Dr. Madhumi Mitra Ph.D., University of Maryland Eastern Shore
Dr. Abhijit Nagchaudhuri, University of Maryland Eastern Shore
Will Klein, University of Maryland, College Park

Educational tools for teaching policy and science communication to engineering students

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Dr. Sotiria Koloutsou-Vakakis, University of Illinois at Urbana
- Champaign

Dr. Ashlynn S. Stillwell, University of Illinois Urbana
- Champaign

M326 - Experimentation and Laboratory-Oriented Studies Division (DELOS) Technical Session 5: Lab Design

11:00 A.M. - 12:30 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Natasha Smith, University of Virginia

In this session, authors discuss various aspects of lab design (prioritizing learning outcomes, assessment, developing an entrepreneurial mindset).

Experimental methods in tissue engineering: An integrated approach to theory, design, and analysis

Dr. David L Simpson, Wentworth Institute of Technology

Increasing Student Motivation and Learning by Adopting the Experiment-Centric Pedagogy: A Case of Undergraduates in Biology

Ms. Blessing Isoyiza ADEIKA, Morgan State University

Dr. Adedayo Ariyibi, Morgan State University

Dr. Akinyele Oni, Morgan State University

Maia Freeman,

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Adebayo Iyanuoluwa Olude, Morgan State University

Saroj K. Pramanik, Morgan State University

Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Frank Efe,

Hannah Abedoh, Morgan State University

Dr. Krishna Bista,

Investigating Engineering Laboratory Course Assignments and Assessments across Four Institutions and a Case Study on Their Impact on Students' Lab Report Writing

Dr. Dave Kim, Washington State University-Vancouver

Dr. John D Lynch,

Artem Taran,

Anna Yurov,

Ryder Sandry,

Prioritizing learning objectives for chemical engineering laboratory courses

Dr. Sarah A. Wilson, University of Kentucky

Prof. Samira Azarin Azarin,

Dr. Chris Barr, University of Michigan

Dr. Joanne Kay Beckwith, Carnegie Mellon University

Dr. Janie Brennan, Washington University in St. Louis

Prof. Tracy L. Carter, Northeastern University

Amy J. Karlsson, University of Maryland

Redesigning a multi-disciplinary measurement lab and statistics course: An approach for navigating competing priorities

Dr. Nick A. Stites, University of Colorado Boulder

Micaela Valentina Bara, University of Colorado Boulder

Survey of the Entrepreneurial Mindset of Students in Undergraduate Laboratory Courses

Akshara Subramaniasivam,

Dr. Rebecca Marie Reck, University of Illinois at Urbana
- Champaign

Prof. Katie Ansell, University of Illinois, Urbana-Champaign

Prof. Holly M. Golecki, University of Illinois at Urbana
- Champaign

Chandrasekhar Radhakrishnan,

Dr. Christopher D. Schmitz, University of Illinois at Urbana
- Champaign

Dr. Jessica R. TerBush, University of Illinois at Urbana
- Champaign

M327 - First-Year Programs Division (FYP) - WIPS 1: Programs & Curricula

11:00 A.M. - 12:30 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Gregory Bucks, University of Cincinnati

A collection of works in progress focused on the design of programs, courses, and curricula. Expect a discussion-oriented session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

Effect of Terminology on Student Performance (Work in Progress)

Dr. Nazli Aslican Yilmaz Wodzinski P.E., Virginia Polytechnic Institute and State University

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Dr. Pavan Karra, Minnesota State University, Mankato

Work in Progress: Supplementing theoretical modeling with empirical data for improved design

Prof. Jennifer Bailey, Rochester Institute of Technology (COE)
Spencer Randolph Davis,

WIP: Improving Writing Instruction, Practice, and Feedback in an Introduction to engineering course

Dr. Shazib Z. Vijlee, University of Portland
Molly Hiro, University of Portland

Work in Progress: Toxic Workplaces: Game-Based Exploration of Engineering Ethics for First-Year Engineering Students

Dr. Kevin D. Dahm, Rowan University
Abagael Riley,
Dr. Daniel D. Burkey, University of Connecticut
Dr. Richard Tyler Cimino, New Jersey Institute of Technology
Dr. Jennifer Pascal, University of Connecticut
Dr. Scott Streiner, University of Pittsburgh
Prof. Michael F. Young, National Science Foundation

Work in Progress: Cultivating Reflective Engineers: Does providing a reflective ePortfolio experience in a first-year design course lead students to be more reflective in later courses?

Dr. Rebecca Thomas, Bucknell University
Dr. Sarah Appelhans, Bucknell University
Prof. Stu Thompson, Bucknell University
Dr. Stewart Thomas, Bucknell University
Prof. Robert M. Nickel, Bucknell University
Dr. R. Alan Cheville, Bucknell University
Prof. Richard J. Kozick, Bucknell University
Christa Matlack, Bucknell University
Philip Asare, University of Toronto

Work in Progress: Engineering together - Applying remote collaborative technology to an in-person undergraduate engineering course

Mr. John William Lynch, University of Cincinnati
Dr. Jutshi Agarwal, University of Cincinnati
Dr. P.K. Imbrie, University of Cincinnati

Online Engineering Bridge Summer Program Created and Focused on Preparing Students for Calculus

Mrs. Sarah Cooley Jones, Louisiana State University and A&M College
Dr. Elizabeth Michelle Melvin, Louisiana State University and A&M College
Dr. Isaac Benjamin Michael,

WIP: Designing disciplinary projects in an honors first-year engineering course to improve retention and participation of first-year students.

Dr. Joseph A. Lyon, Purdue University at West Lafayette (COE)
Dr. Jacqueline Callihan Linnes, Purdue University at West Lafayette (COE)
Dr. Sean P. Brophy, Purdue University at West Lafayette (COE)
Dr. Martin R. Okos, Purdue University at West Lafayette (COE)
Timothy M. Whalen,

M327B - First-Year Programs Division (FYP) - GIFTS

11:00 A.M. - 12:30 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Kimberlyn Gray, West Virginia University Institute of Technology

Great Ideas for Teaching (and Advising) Students (GIFTS) are short papers focused on sharing great new ideas. Expect a discussion-focused session with a chance to speak with the authors about their GIFTS. Topics range widely across first-year adjacent subjects.

GIFTS: Framing Understanding Implicit Bias as a Professional Skill to First-Year Students

Dr. Jeffrey W. Fergus P.E., Auburn University
Jessica Bowers, Auburn University - Samuel Ginn College of Engineering

GIFTS: Building a sense of connection to campus and engineering identity through information literacy

Dr. Jessica Ohanian Perez, California State Polytechnic University, Pomona
Mr. Paul Hottinger, California State Polytechnic University, Pomona

GIFTS: Initiative to Meet Students through Informal Walks around Campus

Dr. Andrew Charles Bartolini, University of Notre Dame

GIFTS: Exploration Activities for Just-in-Time Learning in a First-Year Engineering Robotics Design-Build Project

Aditya T. Vadlamani, The Ohio State University
Laine Rumreich, The Ohio State University
Andrew H. Phillips, The Ohio State University

GIFTS: Introducing Agile Process and Product Development in an FYE Course

Dr. Karen C. Davis, Miami University

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GIFTS: Making Research Experiences Meaningful through Critical Self-Reflection

Peter DeCrescenzo, University of Maryland Baltimore County
Sunji Jangha,

GIFTS: Learning Theory Workshop Led to First-Year Classroom Innovations

Dr. Krista M. Kecskemety, The Ohio State University
Benjamin Grier,
Ms. Brooke Morin, The Ohio State University
Amy Kramer P.E., The Ohio State University
Mrs. Kristina Kennedy, The Ohio State University

GIFTS: Undergraduate Student Professional Development

Miss Niamh Williams, The Engineering Lab
Dr. Leah Bug, North Carolina State University at Raleigh
Arin Morgan Crow,
Erica Mahoney,

M328 - Graduate Studies Division (GSD) Technical Session 1: Recruitment and Support in Engineering Graduate Programs

11:00 A.M. - 12:30 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Amy Clobes, University of Virginia

Identifying Barriers to Recruiting Low-Income Students into Engineering Master's Programs

Dr. Catherine G. P. Berdanier, Pennsylvania State University
Dr. Tonya L. Peoples, Pennsylvania State University
Dr. Catherine L. Cohan, Pennsylvania State University
Dr. Julio Urbina, Pennsylvania State University
Prof. Reginald F. Hamilton, Pennsylvania State University
Dr. Cynthia Howard-Reed, Pennsylvania State University

Graduate Research Experience and Transitioning to Grad School (GREaT GradS): A New Approach to Graduate-School Onboarding for Marginalized Groups

Alyssa V. B. Santos, Pennsylvania State University
Sarah J. Boehm, Pennsylvania State University
Dr. Fadi Castronovo, California State University, East Bay
Tiffany A. Mathews, Pennsylvania State University

Student-led program to improve equity in Ph.D. oral qualifying exams

Meredith Leigh Hooper, California Institute of Technology
Jacqueline Rose Tawney, California Institute of Technology
Dr. Emily Hope Palmer, California Institute of Technology
James Ragan, California Institute of Technology
Dr. Morgan Louise Hooper, California Institute of Technology
Yazmin Gonzalez, California Institute of Technology

Redesigning US STEM Doctoral Education to Create a National Workforce of Technical Leaders

Prof. Himanshu Jain, Lehigh University
Volkmar Dierolf, Lehigh University
Dr. Anand Jagota, Lehigh University
Zilong Pan, Lehigh University
Nathan Urban, Lehigh University

M329 - Industrial Engineering Division (IND) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderator: Hugh McManus, Northeastern University

Proposition of a Method to Monitor Higher Education Students' Competence Development through Assessment Rubrics

Prof. Maria A. Cannarozzo Tinoco, Universidade Federal Do Rio Grande Do Sul
Christine Tessele Nodari, Universidade Federal Do Rio Grande Do Sul
Luis Rabelo,
Paula Kvitko de Moura, Federal University of Rio Grande do Sul
Arthur Marcon, Universidade Federal Do Rio Grande Do Sul
Angela de Moura Ferreira Danilevicz,

Designing and Innovating Sustainable Products, Services and Systems: Infusing the Entrepreneurial Mindset in Undergraduate and Graduate Industrial Engineering Training

Dr. Ana Cram, University of Texas at El Paso
Dr. Arunkumar Pennathur, University of Texas at El Paso
Dr. Amirmasoud Momenipour, Rose-Hulman Institution of Technology
Priyadarshini R. Pennathur, University of Texas at El Paso

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Development of Lean Six Sigma Competencies through Guided Learning Sequences

Dr. Gibrán Sayeg-Sánchez, Tecnológico de Monterrey (ITESM)
Prof. Miguel X. Rodriguez-Paz, Tecnológico de Monterrey

Integrating Companies and Higher Education in the Teaching-Learning Process of Lean Thinking Using Challenge-Based Learning

Dr. Araceli Zavala, Tecnológico de Monterrey
Jonathan Cuevas-Ortuño, Tecnológico de Monterrey
J. Reyes Angulo Cedeño, Tecnológico de Monterrey
Agustin Perez Araos, Tecnológico de Monterrey
Marco Antonio de Luna,

M330 - Computing and Information Technology Division (CIT) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Mudasser Wyne, National University;
Hashmath Fathima, Morgan State University

Giving Students a View of Buffer Overflow with Readily Available Tools

Ms. Cheryl Lynn Resch, University of Florida
Dr. Christina Gardner McCune,

On Time-based Exploration of Student Performance Prediction

Dr. Abdulmalek Al-Gahmi, Weber State University
Dr. Kyle D. Feuz, Weber State University
Dr. Yong Zhang, Weber State University

Preference for debugging strategies and debugging tools and their relationship with course achievement: Preliminary results of a study involving novice programmers.

Dr. Laura Melissa Cruz Castro, University of Florida
Jenny Patricia Quintana-Cifuentes, University of Louisiana at Monroe
Akash Kumar,

Identifying Factors That Influence Engineering Students' Outcome Expectancy and Learning Self-Efficacy in a Flipped CS1 Course

Ashish Aggarwal, University of Florida

Griffin Pitts, University of Florida

Sage Bachus, University of Florida

Miss Sarah Rajkumari Jayasekaran, University of Florida

Dr. Saira Anwar, Texas A&M University

Giving Our Students a Competitive Edge - 12 Week Hackathon Style Competition

Mrs. Jenifer Lynne Soale, University of Cincinnati

M331 - Project-Based Learning Enhanced through Instrumentation

11:00 A.M. - 12:30 P.M., BRENT, HILTON BALTIMORE INNER HARBOR

Sponsor: Instrumentation Division (INST)

Moderator: Brad Kicklighter, University of Southern Indiana

In this session, our authors present their experiences with project-based learning and how instrumentation can enhance the learning experience. We have four projects that use automated instrumentation in creative ways to improve learning. Join us on an adventure in our project laboratories.

Raspberry Pi Pico as an IoT Device

Mr. David R. Loker, Pennsylvania State University, Behrend College

Introducing Automation for Data Acquisition and Analysis in a Sophomore-level Electronics Course

Dr. Carl K. Frederickson, University of Central Arkansas

Development of Mosquito Breeding Environment Testing Instrumentation via Capstone Project

Dr. Byul Hur, Texas A&M University
Jaime Pablo Lopez,
Brian J. Munoz,
Sephia Blair,

Mechatronics Engineering Integrate Project: An Approach in Project-Based Learning with the Subjects of Instrumentation, Control Systems, and Microcontrollers

Prof. Fernando Silveira Madani, Centro Universitário Instituto Mauá de Tecnologia
Prof. Andressa Corrente Martins, Centro Universitário, Instituto Mauá de Tecnologia
Dr. Anderson Harayashiki Moreira, Centro Universitário, Instituto Mauá de Tecnologia
Alexandre Harayashiki Moreira,

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

M332 - Introduction to the ENTER Network: An International Registry and Growth Network for Professional Educators

11:00 A.M. - 12:30 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Phillip Sanger, Purdue University at West Lafayette (COE)

Speakers: Dr. Jose Carlos Quadrado, Instituto Superior De Engenharia De Lisboa; Tiia Rütman, ; Dr. Maria M. Larrondo-Petrie, Florida Atlantic University

The ENTER network coordinates all elements necessary to develop and maintain an International Professional Educator Register that provides transparency and empowers higher education institutions to consider certified educators from different countries for their high-profile faculty positions. The proposed register also motivates educators to improve their skills and competencies in general.

M333 - Panel: The Engineers of the 2030s versus the Engineer of 2020

11:00 A.M. - 12:30 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderators: Elizabeth Parry, ; Latanya Robinson, Florida International University

“The Engineer of 2020: Visions of Engineering in the New Century” articulated a list of skills and attributes the National Academy of Engineering deemed necessary for the engineer of 2020: strong analytical skills, practical ingenuity, creativity, communication skills, business

management skills, leadership, high ethical standards and professionalism, dynamism/agility/flexibility,

being lifelong learners, and ability to frame problems in a sociotechnical and operational context.

These skills and attributes will continue to be critical for future engineers — but are they enough for the Engineers of the 2030s? This topic was discussed at the 2022 Interdivisional

Town Hall; in this session, the Pre-College Engineering Education Division will bring closure to the 2022 Town Hall and help colleagues prepare for 2023. The two to four speakers participated in the 2022 Town Hall.

The panel will discuss how the skills and attributes of the engineer of 2020 must evolve to meet the challenges of the 2030s. Panelists will take questions from the audience.

M333B - Pre-College Engineering Education Division (PCEE) Technical Session 1: Partnerships Making It Real!

11:00 A.M. - 12:30 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Meredith Portsmore, Tufts University

Success Framework for a STEAM x S-L Partnership

Dr. Kathryn Schulte Grahame, Northeastern University
Anne E. Shea, Northeastern University
Christiane Amstutz,

Reinvigorating Energy Teaching via Research with Engineers (Evaluation)

Catherine Lynn Biesecker,
Justin McFadden,
Dr. Thomas Tretter, University of Louisville
Dr. Brian Scott Robinson, University of Louisville
Dr. James E. Lewis, University of Louisville

From Silos to Systems: The Evolution of {University's} College of Engineering PreCollege Outreach

Dr. Betsy Chesnutt, University of Tennessee at Knoxville
Dr. Anne Skutnik, Tickle College of Engineering
Prof. Laura Knight, University of Tennessee at Knoxville
Mrs. Jessica Danielle Jeffers, University of Tennessee at Knoxville

Implementation of a Multiyear Pre-Collegiate Engineering Research Program

Dr. Mary E. Loveless, Baylor School
Louie C. Elliott,
Benjamin H. Holt,
Ramon Antonio Herrera,
Elizabeth Burnette,

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

The Impact of participating in an Afterschool Professional Training Program on Youth Employees

Dr. Foad Hamidi, University of Maryland Baltimore County
Dr. William Easley, University of Maryland Baltimore County
Amy Hurst, New York University

M334 - Olmsted Awardee Conversation

11:00 A.M. - 12:30 P.M., KEY 3&4 , HILTON BALTIMORE INNER HARBOR

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Sean Ferguson, University of Virginia

Speakers: Gary Downey, ; Ms. Deborah Johnson, University of Virginia

Panelists and previous recipients of the division's highest honor discuss the state of [sociotechnical] engineering education, anti-racist and design justice movements in and beyond academia, and the meaning and significance of liberal education today.

M335 - Redefining Manufacturing Education Practices

11:00 A.M. - 12:30 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Faisal Aqlan, University of Louisville; Rui Liu, Rochester Institute of Technology (COE)

Assessment of the ABET Student Outcomes in a Service Learning b-sed Subtractive Manufacturing Course

Dr. Ismail Fidan, Tennessee Technological University

Implementation of Actionable Gamification Design Framework in Machining Training

Krzysztof Kamil Jarosz, Rochester Institute of Technology
Trisha Gard-Thompson, Rochester Institute of Technology (COE)
Chao Peng, Rochester Institute of Technology
Dr. Rui Liu, Rochester Institute of Technology (COE)

Development of a SimEvents Model for Printed Circuit Board (PCB) Assembly Processes

Siqin Dong, Old Dominion University
Dr. Mileta Tomovic, Old Dominion University

Dr. Krishnanand Kaipa, Old Dominion University

Exploring Student Learning Experience of Systems Engineering Course Developed for Manufacturing and Industrial Engineering Graduates

Dr. Aditya Akundi, The University of Texas Rio Grande Valley
Dr. Immanuel Edinbarough P.E., The University of Texas Rio Grande Valley
Dr. Md Fashiar Rahman, The University of Texas at El Paso
Dr. Amit J. Lopes,
Sergio Luna,

M336 - Materials Division (MATS) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderator: Kaitlin Tyler, ANSYS, Inc.

Join the materials education community sharing its work on incorporating computational methods and software tools in the classroom.

Impact of Computation in Undergraduate Curriculum : Alumni Perspective

B. Ruşen Argun, University of Illinois at Urbana - Champaign
Prof. Andre Schleife,
Dr. Cecilia Leal,
Prof. Dallas R. Trinkle, University of Illinois at Urbana - Champaign
Prof. Nicola H. Perry, University of Illinois at Urbana - Champaign
Prof. Jessica Krogstad, University of Illinois at Urbana - Champaign
Dr. Matthew D. Goodman, University of Illinois at Urbana - Champaign
Antonia Statt,
Marie Agathe Charpagne,

Differences Between First- and Third-Year Students' Attitudes Toward Computational Methods in Engineering (WIP)

Nina Perry,
Dr. Timothy Chambers, University of Michigan

Integrating programming-based modules into a materials characterization laboratory course to reinforce data science and scientific writing

Enze Chen, University of California, Berkeley
Dr. Mark Asta, University of California, Berkeley

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Andrew Minor, University of California, Berkeley and
Lawrence Berkeley National Laboratory

Using SolidWorks to improve student's understanding of typical crystal structures

Dr. Xiaobin Le, Wentworth Institute of Technology
Prof. Masoud Olia P.E., Wentworth Institute of Technology

Improving the Quality of Data Graphics in Materials Education

Dr. Barry Dupen, Purdue University Fort Wayne

M337 - Mathematics Division (MATH) Technical Session 2

11:00 A.M. - 12:30 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Experimental Centric Pedagogy as Scaffolding for a Better Understanding of Calculus in the Mathematics Discipline

Tijesunimi Abraham Adeyemi, Morgan State University
Dr. Oludare Adegbola Owolabi P.E., Morgan State University
Neda Bazayar Shourabi, Pennsylvania State University, Berks Campus
Chukwuemeka Duru,
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University
Mr. Pelumi Olaitan Abiodun,
Dr. Uttam Gaulee,
Frank Efe,

Exploiting a Grading Option to Measure Mathematics Confidence

of Engineering Students

Dr. Gianluca Guadagni, University of Virginia
Dr. Deepyaman Maiti, University of Virginia
Farzad Shafiei Dizaji,

Introducing Omnifinites and the Arithmetic Errorless Infinity Calculator

Hunter Christopher Fred, Western Kentucky University
Ryan Bennett Greenwood, Western Kentucky University
Prof. Shane Mathew Palmquist, Western Kentucky University

Mastery Grading Approach in a Calculus Course

Dr. Hui Ma, University of Virginia

Our Learning Experience with MATH 101, a Virtual and Adaptive Remedial Course

Dr. Alberth Alvarado, Universidad Galileo
Mr. Jose Roberto Portillo, Universidad Galileo

M338 - Mechanical Engineering Division (MECH) Technical Session 1: Diversity, Inclusion, and Accessibility

11:00 A.M. - 12:30 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Yucheng Liu, South Dakota State University

This session highlights a broad range of topics related to creating diverse, inclusive, and accessible experiences for mechanical engineering undergraduate students.

Work in Progress: The Effects of Representation in Worked Example Videos

Dr. Jacob Moore, Pennsylvania State University, Mont Alto

Hair Dryer Design as a Synergistic Tool for Combining Thermodynamics and the Importance of Diversity in Design Team Composition

Dr. Breigh Nonte Roszelle, University of Denver
Dr. Jason Andrew Roney, University of Denver

Developing an open textbook on introductory thermodynamics

Dr. Claire Yu Yan, University of British Columbia, Okanagan

The use of 3D printed media to improve the accessibility of engineering educational materials

Dr. Gergely Sirokman, zyBooks, A Wiley Brand
Dr. Ryan Barlow, zyBooks, A Wiley Brand
Dr. Adrian Rodriguez, zyBooks, a Wiley brand
Dr. Alicia Clark, zyBooks, A Wiley Brand
Lauren Fogg, zyBooks, a Wiley Brand
Ms. Jenny Welter, zyBooks, A Wiley Brand

M339 - Will This Be on the Mechanics Test? Concept Inventories and Understanding Exams

11:00 A.M. - 12:30 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Basel Alsayyed, Western Carolina University;
Kristi Shryock, Texas A&M University

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MONDAY, JUNE 26th SESSIONS

In this session, we take a deeper look at assessing student learning in mechanics courses. Topics include Concept Inventories, quizzing in lieu of homework, and the ways that other factors (spatial ability or symbolic skills) affect test results.

Weekly Quizzes in Lieu of Homework in Large Sections

Dr. Anna K. T. Howard, North Carolina State University, Raleigh

Azadeh Dashti Cole, North Carolina State University, Raleigh

Work in Progress for Two Questions: Confusion Matrix Analysis of Student Think-Alouds during a Dynamics Concept Inventory Exam

Dr. Julian Ly Davis, University of Southern Indiana

Dr. Andrew Jason Hill, University of Southern Indiana

Context Matters: Continued Study of Results of Common Concept Questions at Several Diverse Institutions

Dr. Christopher Papadopoulos, University of Puerto Rico, Mayaguez

Prof. Eric Davishahl, Whatcom Community College

Dr. Jean Carlos Batista Abreu, Elizabethtown College

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

Prof. Dominic J. Dal Bello, Allan Hancock College

Dr. Kurt M. Degoede, Elizabethtown College

Dr. Anna K. T. Howard, North Carolina State University at Raleigh

Dr. Azize Akcayoglu,

Dr. Hadas Ritz, Cornell University

Dr. William A. Kitch, Angelo State University

Work in Progress: Evaluating the Effect of Symbolic Problem Solving on Testing Validity and Reliability

Dr. Yan Tang, Embry-Riddle Aeronautical University, Daytona Beach

Lin Ding, The Ohio State University

Dr. Haiyan Bai, The University of Arizona

Dr. Richard Catrambone, Georgia Institute of Technology

The Role of Spatial Ability in a Statics and Mechanics of Materials Course

Dr. Maxine Fontaine, Stevens Institute of Technology

M340 - MIND Business Meeting

11:00 A.M. - 12:30 P.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Minorities in Engineering Division (MIND)

Moderators: Diane Golding, University of Texas at El Paso; Gholam Shaykhian, NASA EPSCoR

The MIND Business Meeting will introduce new officers, share program status, and receive member feedback.

M341 - Panel: Mentorship, Instruction, and Coaching in Engineering Education and the Industry

11:00 A.M. - 12:30 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Elizabeth Parry, STEM Education Insights; Lynn Albers, Hofstra University

Speakers: Ms. Rachele Reisberg, Northeastern University; Dr. Jamie R Gurganus, University of Maryland Baltimore County

As a substantial influence on a student's engineering academic career, engineering educators may serve and facilitate roles such as mentor, instructor, and coach. This panel will bring closure to a discussion at the 2022 Interdivisional Town Hall and prepare for 2023.

Two to four speakers who participated in the 2022 Town Hall will discuss how these facets correlate with developing the Engineers of the 2030s. Contributing elements will include defining the roles of being an engineering mentor, instructor, and coach and the professional development needed to develop these skills.

Topics will include how to prepare engineering educators to serve as mentors, instructors, and coaches; empower students; and develop transferable skills appropriate for levels of emotional maturity.

Ticketed event

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

M342 - Faculty Development and Research Programs (NEE)

11:00 A.M. - 12:30 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Rossana Villa Rojas, University of Nebraska - Lincoln

This session contains works that explore the implications of start-up packages, the psychological needs of faculty, a pathway to start research on education, how to engage in interdisciplinary STEAM collaborations, working with longitudinal student records, creating a functional knowledge management system, and managing a research group.

Tips for Creating a Functional Personal Knowledge Management System in Academia

Dr. Rebecca Marie Reck, University of Illinois, Urbana-Champaign

Growing and Managing Your Research Group

Dr. Edward F. Gehringer, North Carolina State University, Raleigh

Dr. Steven G. Hall, P.E., North Carolina State University, Raleigh

Dr. Matthias F. Stallmann, North Carolina State University, Raleigh

A Primer on Working with Longitudinal Student Unit Records

Mr. Russell Andrew Long, Purdue University

Richard A. Layton, Layton Data Display

Dr. Marisa K. Orr, Clemson University

Dr. Susan M. Lord, University of San Diego

Dr. Matthew W. Ohland, Purdue University

A Pathway to Initiate Engineering Education Research: A First-Year Reflection on Faculty Development

Dr. James W. Giancaspro, University of Miami

Dr. Diana Arboleda, University of Miami

Dr. Aaron Heller, University of Miami

Ali Ghahremaninezhad, University of Miami

What Do Engineering and Other STEM Faculty Need? Exploring the Nuances of Psychological Needs

Dr. Denise Wilson, University of Washington

Dr. Jennifer J. VanAntwerp, Calvin University

Work in Progress: Recommendations for Early Career Faculty to Engage in Interdisciplinary STEAM Collaborations

Dr. Renee M. Desing, Oregon State University

Dr. Abigail Clark, The Ohio Northern University

Dr. Rachel Louis Kajfez, The Ohio State University

Cassandra Wallwey, The Ohio State University

Engineering Start-Up Packages: Mixed Methods Analysis of Composition and Implications for Early-Career Professional Formation

Dr. Monica L. Castaneda-Kessel, Utah State University

M343 - ASEE General Body Meeting & Finances Town Hall

11:00 A.M. - 12:30 P.M., BALLROOM 1 & 2, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Board of Directors

ASEE General Body Meeting and Finances Town Hall

M344 - Ocean and Marine Division (OMED) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsor: Ocean and Marine Division (OMED)

BSc Maritime Technology Curriculum Revision: What Will the Future Naval Architect Look Like?

Dr. Jeroen Pruyn, Delft University of Technology, Netherlands

Designing and Building of a Micro-Fatigue Testing Device for Scanning Electron Microscope (SEM) In-Situ Testing for Naval Applications

Dr. Nathan M. Kathir, P.E., George Mason University

Mehdi Amiri,

Lessons Learned in the Development of a STEM Outreach Program for Biologically Inspired Underwater Robotics

Dr. Leigh S. McCue, George Mason University

Erin Hagarty,

Prof. Jill K. Nelson, George Mason University

Prof. Cameron Nowzari, George Mason University

Prof. Ali Khalid Raz, George Mason University

Jessica Rosenberg, George Mason University

Dr. Daigo Shishika, George Mason University

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Dr. Cynthia Smith, George Mason University
James Yang,

Relative Performance of Transfer vs. First-Time Freshmen at a Maritime College

Dr. Robert Kidd, State University of New York, Maritime College
Dr. Martin S. Lawless, State University of New York, Maritime College
Prof. Kathryn Gosselin, San Jose University
Dr. Kathryn R. Gosselin, State University of New York, Maritime College

M345 - Engineering Education — Past and Future: Preparing Stewards of the Profession

11:00 A.M. - 12:30 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Bala Maheswaran, Northeastern University

Speakers: Dr. Bala Maheswaran, Northeastern University; Mr. Richard R Harris, Northeastern University; Dr. Micah Lande, South Dakota School of Mines and Technology

Panelists in this session will discuss the importance of engineering education and current trends in preparing engineers for the future. The Engineers of the 2030s and beyond must be prepared to lead their immediate engineering communities across other disciplines and in their greater communities. Engineers improve the environment and world in which we live. We must prepare future engineers to appreciate, include, and better understand the perspectives and needs of people. As stewards of the engineering profession ourselves, our empathy enables human-centered design, understanding stakeholder needs, and co-designing with the community. By taking steps to position people at the center of innovation, we build an inclusive environment and better future engineers. What steps do we need to make this happen?

This session will cover the following aspects:

- * Impact of Technology in the Current Educational System
- * Importance of Experiential Learning
- * Engineering for All
- * Opportunities Through Inclusive Engineering Education

* Needs of Community-College-Industrial-Government Partnerships to prepare engineers for the future

* Creating Resilient and Sustainable Educational Systems for the Future

* Skills Required to Address the Challenges Facing Future Engineers

Free ticketed event

M346 - Software Engineering Division (SWED) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Afsaneh Minaie, Utah Valley University (Department of Computer Science); Reza Sanati-Mehrzy, Utah Valley University (Department of Computer Science)

A Novel Interdepartmental Approach to Teach Cross-Functional Collaboration in Software Engineering

Dr. Lynn Roy Thackeray, Utah Valley University

Dr. Susan L. Thackeray, Utah Valley University

Using Active Learning and Gamification to Teach Software Engineering in Game Design Courses

Dr. Bruce R. Maxim, University of Michigan, Dearborn

Dr. Jeffrey Jonathan Yackley, University of Michigan, Flint

Work in Progress: An Interview-Based Retrospective on the Redesign of an Introductory Computing Course

Stephanos Matsumoto, Olin College of Engineering

Work in Progress: Robotics Programming Made Inclusive, Motivating, Enabling via Alternative Forms of Assessment

Lisa Milkowki, Seattle University

M347 - Student Division (STDT) Technical Session 5: Motivation and Support for Success

11:00 A.M. - 12:30 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Qin Liu, University of Toronto

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

Work in Progress: Exploring the Relationship between Female Engineering Faculty and Degree Attainment of Women in Engineering

Claudia Vanessa Garcia, Society of Women Engineers
Dr. Roberta Rincon, Society of Women Engineers
Daniel E. Chand, Kent State University

Work in Progress: An Investigation of the Influence of Academic Culture on Engineering Graduates' Workforce Expectations and Subsequent Work Behaviors

Philippa Eshun,
Dr. Kacey Beddoes, San Jose State University

Engineering Pathways from High School to Workplace: A Review of the Literature

D'Andre Jermaine Wilson-Ihejirika, University of Toronto, Canada
Dr. Qin Liu, University of Toronto, Canada
Joanna Meihui Li, University of Toronto, Canada
Mustafa Nisar, University of Toronto, Canada
Ms. Jiawen Lin, University of Toronto, Canada

Work in Progress: Assessing the Need for Mental Health Curricula for Civil, Architecture, and Construction Engineering

Sepehr Khorshid, University of Alabama
Dr. Siyuan Song, University of Alabama

Mediating Expectations: Understanding the Influence of Grades on Professional Identity Formation in Undergraduate Engineering Students

Jackson Clyde Smith,
Ilham Kabir,
Dr. Cassandra McCall, Utah State University

M350 - Engineering and Engineering Technology Transfer and the Two-Year College Student Part 1

11:00 A.M. - 12:30 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Cynthia Pickering, Arizona State University

This session deals with transfer students in engineering and engineering technology at two-year colleges

Comparing Success for Transfers Students and First-Time Freshmen Using Data from Institutional Archives - Early Results

Dr. Fred W. Depiero, California Polytechnic State University, San Luis Obispo

Prof. Dominic J. Dal Bello, Allan Hancock College

Eva Schiorring, STEM EVAL

Dr. Elizabeth L. Thompson, California Polytechnic State University, San Luis Obispo

Dr. John Y. Oliver, California Polytechnic State University, San Luis Obispo

Dr. Jane L. Lehr, California Polytechnic State University, San Luis Obispo

Stephen Robert Beard,

Examining Student Experiences Related to Transfer from Two-Year Technical Colleges to Engineering and Computer Science Degree Programs at a Four-Year Institution

Shannon Conner,

Olivia Anne DiSilvestre,

Mr. Marcus Lee Riddlehuber, Clemson University

Louise Averitt, Clemson University

Dr. D. Matthew Boyer, Clemson University

Equity and Retention: Strategies to Increase Engineering Enrollment, Retention, and Success of Underprepared Students

Dr. Doris J. Espiritu, City Colleges of Chicago-Wilbur Wright College

Dr. Ruzica Todorovic, City Colleges of Chicago-Wilbur Wright College

Bridget O'Connell, City Colleges of Chicago-Wilbur Wright College

From Cooperation to Alliance: Transforming a Transfer Partnership to Promote Engineering Degree Pathways for Underrepresented Students

Dr. Matthew Ford, University of Washington, Tacoma

Dr. Aleya Dhanji, Highline Community College

Kira Glynn King,

Dr. Jie Sheng, University of Washington

Skyler Roth, Highline Community College

Dr. Emese Hadnagy, University of Washington

Promoting Research Career Pathways among Engineering Transfer Students at Two-Year Institutions Using Course-Based Undergraduate Research Experiences (CURES)

Dr. Henry Griffith, San Antonio College

Dr. Heena Rathore, Texas State University

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MONDAY, JUNE 26th SESSIONS

M351A - Sex, Gender, and Engineering: Responding to Harassment at Work and in School

11:00 A.M. - 12:30 P.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Jennifer Vanantwerp, Calvin University

Speakers: Dr. Denise Wilson, University of Washington; Dr. Jennifer J Vanantwerp, Calvin University; Tamara Floyd Smith, West Virginia University Institute of Technology; Ms. Shruti Misra, University of Washington; Alicia Mullen, ; Eve Riskin,

This panel discussion addresses practical strategies to improve the landscape of gender harassment. The discussion will be built around a framework drawn from a recent book that explores the current state of sexual harassment in engineering.

The four panelists represent a diverse group of women engineers. Using their wealth of experiences and their expertise in the research literature, they will present a concrete picture of gender harassment — and share solutions.

A particular emphasis will be on approaches that can be implemented from the bottom up — by individuals or workgroups — without relying on the top levels of an organization to take the initiative.

Gender Harassment at Work and In School: Seeing It; Solving It (Panel Discussion)

Tamara Floyd Smith, West Virginia University Institute of Technology

Dr. Jennifer J VanAntwerp, Calvin University

Ms. Shruti Misra, University of Washington

Alicia Mullen,

Prof. Eve A. Riskin P.E., University of Washington

Dr. Denise Wilson, University of Washington

Dr. Tamara Floyd Smith P.E., Tuskegee University

M352 - Community Engagement Division 1 - Empowering Students and Strengthening Community Relationships

11:00 A.M. - 12:30 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Thomas Rossi,

A Program to Engage Undergraduate and High School Students in Community-Based Research

Khalid Oladeji Bello, University of Louisville

Dr. Faisal Aqlan, University of Louisville

Danielle Wood, University of Notre Dame

Dr. Jay B. Brockman, University of Notre Dame

Dr. Hazel Marie, Youngstown State University

Dr. Kerry Meyers, University of Notre Dame

Daniel Lapsley, University of Notre Dame

Motivations and Barriers to Participation in Community Outreach and Engagement among Environmental and Water Resources Engineering Students

Sydney Donohue, University of New Mexico

Dr. Anjali Mulchandani, University of New Mexico

Community-University Relationships in Environmental Engineering Service-Learning Courses: Social Network Vectors and Modalities of Communication

Hannah Cooke, University of Connecticut

Dr. Rebecca Campbell-Montalvo, University of Connecticut

Todd Campbell, University of Connecticut

Chester Arnold,

Dr. Maria Chrysochoou, University of Connecticut

Byung-Yeol Park, University of Connecticut

Peter C. Diplock,

Community-University-Government Partnership to Advance Environmental Justice and Address River Water Quality Concerns

Connor Becerril,

Joanna D. Kinsey, Quinnipiac University

Courtney McGinnis, Quinnipiac University

Dr. John E. Greenleaf, P.E., Quinnipiac University

Dr. Kimberly DiGiovanni, Quinnipiac University

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MONDAY, JUNE 26th SESSIONS

M354 - SPONSOR TECH SESSION: Exploring the Path of Becoming an ABET Program Evaluator—Is It the Right Fit for You? Presented by ABET

11:00 A.M. - 12:30 P.M., ROOM 301 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

This presentation is specifically tailored for individuals who are considering becoming an ABET Program Evaluator (PEV) and would like to gain a comprehensive understanding of the responsibilities involved. The presentation will address the application process, the training process and commitment, and the intricacies of an ABET visit, as seen from the perspective of a PEV. Additionally, the presentation will cover mandatory documentation requirements, arranging travel, and what to expect.

Speaker: Jennifer Brock, Associate Dean for Academics and Professor of Mechanical Engineering, University of Alaska, Anchorage, College of Engineering

M355 - Inclusive Leadership: A Panel Discussion

11:00 A.M. - 12:30 P.M., ROOM 328, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Leadership Development
Division (LEAD)

Moderator: Meg Handley, Pennsylvania State University

During this interactive panel discussion, panelists will briefly discuss their respective papers. In a facilitated activity, attendees will then discuss ways to embed inclusive leadership knowledge and practice into our curricula and programs.

Building a Leadership Toolkit: Underrepresented Students' Development of Leadership-Enabling Competencies through a Summer Research Experience for Undergraduates (REU) in Engineering Education

Ms. Elizabeth Volpe, University of Florida

Dr. Denise Rutledge Simmons P.E., University of Florida

Sara Valentina Rojas,

"Everybody Gotta Eat" and Insights on Leadership and Resilient Identity from Black Engineers

Dr. Katreena Thomas, Clemson University

Dr. Brooke Charae Coley, Massachusetts Institute of Technology

Learning from an Omnidirectional Mentorship Program: Identifying Themes and Outcomes through a Qualitative Lens

Matthew Lewis Caulfield,

Dr. Daniel Ivan Castaneda, James Madison University

Dr. Melissa Wood Aleman, James Madison University

Dr. Robert L. Nagel, James Madison University & Carthage College

Assessing Levels of Psychological Safety and Teamwork Satisfaction in Engineering Senior Capstone Teams

Dr. Kenneth Lamb P.E., California State Polytechnic University, Pomona

Dr. Kyle G. Gipson, James Madison University

Mr. Seth Claberon Sullivan, Texas A&M University

M356 - Military and Veterans Division (MVD) Technical Session I

11:00 A.M. - 12:30 P.M., ROOM 330, BALTIMORE
CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

Moderator: Jerry Dahlberg, University of Tennessee, Space Institute

Student Veteran Engineers and Academic Libraries: A Review of Recent Literature

Mr. Paul McMonigle, Pennsylvania State University

Active Duty and Veteran Pathways to Engineering Higher Education

Dr. Robert J. Rabb, P.E., Pennsylvania State University

Dr. Alyson Grace Eggleston, Pennsylvania State University

Dr. Ronald W. Welch, The Citadel

The Veteran, the Myth, the Legend: Preparing for Engineering Curriculum and Career

Dr. Alyson Grace Eggleston, Pennsylvania State University

Dr. Robert J. Rabb, P.E., Pennsylvania State University

Dr. Ronald W. Welch, The Citadel

Dr. Catherine Mobley, Clemson University

Leveraging Incentives, Disincentives, and Peer Feedback to Enhance Student Performance

Kyle Patrick Ditonto, United States Military Academy

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Brandon Lawrence,

Major Sam Yoo, United States Military Academy

M357 - Incorporating Inclusive and Equitable Practices in Engineering Courses Using the PIPES Menu and Decision Matrix

11:00 A.M. - 12:30 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute and State University

Speakers: Dr. April Dukes, University of Pittsburgh; Miss Jessica Moriah Vaden, University of Pittsburgh

This special session will introduce the the PIPES Inclusive Practices Menu and Decision Matrix, which have been developed as a National Science Foundation-IUSE funded project.

Most engineering instructors would consider creating a more inclusive classroom environment as a goal aligned with personal, department, school, and university priorities. These tools are designed to provide lists and examples of evidence-based practices and guidance for deciding which practice will fit best in a course, helping instructors to overcome inclusive and equitable implementation barriers.

Participants will be introduced to the PIPES Inclusive Practices Menu and Decision Matrix and receive guidance about how to use these tools to center equitable and inclusive practices in their course design. Participants should leave with a plan for modifications to a course that will support creating a more inclusive environment.

M357B - Faculty Development Division (FDD) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Jill Nelson, George Mason University

Work in Progress: Certification and Training for Robot and PLC

Integration

Dr. Iftekhhar Ibne Basith, Sam Houston State University

Vajih Khan, Sam Houston State University

Dr. Faruk Yildiz, Sam Houston State University

Abdulhamid Zaidi,

Dr. Suleiman Obeidat, Sam Houston State University

Prof. Sumith Yesudasan, Sam Houston State University

The CS POGIL Activity Writing Program

Dr. Helen Hu, Westminster College of Salt Lake City

Tricia D. Shepherd,

Dr. Clifton L. Kussmaul, Green Mango Associates, LLC

Dr. Patricia B. Campbell, Campbell-Kibler Associates

The Teaching Portfolio and Peer Review of Teaching

Dr. W. Vincent Wilding, Brigham Young University

Jennifer Ramsey, Brigham Young University

Richard Swan, Brigham Young University

Tina M. Taylor,

Understanding Environmental Factors in Academic Honesty Awareness Towards a Better Interpretation of Plagiarism via Turnitin Similarity Scores

Dr. Mireia Perera-Gonzalez, Northeastern University

Dr. Shiao ming Shi, Northeastern University

Empowering Faculty Members through Mooc in Techno-Pedagogical Content

Dr. K.S.A. Dinesh Kumar, National Institute of Technical Teachers Training and Research, Chennai, India

Dr. Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research, Chennai, India

Dr. Shanmuganeethi Velu, National Institute of Technical Teachers Training and Research, Chennai, India

M359 - Panel: Neurodivergent Graduate Students and Faculty Members' Experiences of (In) Accessibility in Engineering Education Through a Domains of Power Lens

11:00 A.M. - 12:30 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

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Speakers: Dr. Marissa A Tsugawa, Utah State University - Engineering Education; Mr. Hector Enrique Rodriguez-Simmonds, Purdue Engineering Education; Theo Sorg, Purdue University; Ms. Katherine Maul, Purdue University at West Lafayette (PPI); Mr. Taylor V. Williams, Harding University; Dr. Alice L. Pawley, Purdue University at West Lafayette (COE); Dr. Nadia N. Kellam, Arizona State University

This panel aims to initiate an open discussion about being neurodivergent in engineering and educate the engineering education community about neurodivergent topics from a diversity, equity, inclusion, and social justice lens. The panel aligns with the Equity, Culture, and Social Justice in Education (ECSJ) Division's goals by highlighting ways engineering education institutions are often inaccessible and difficult to navigate for neurodivergent people. The goal is to challenge ableist structures in engineering education that hinder neurodivergent people's inclusion and engagement in engineering by sharing experiences and discussing ways to move forward, forming discourse about neurodiversity within diversity, equity, inclusion, and social justice topics with the broader engineering education research community.

The term neurodivergent refers to divergence from neurotypical, or typical, brain functioning and

structures, which includes people who are formally diagnosed, undiagnosed, or self-diagnosed ADHD, autistic, anxiety disorders, mood disorders, schizophrenic, and more. This term stems from the neurodiversity movement as a descriptor that emancipates itself from the deficit-based language (e.g., learning disability, intellectual disability, cognitive disorder) of pathological models (e.g., "What's wrong with you?" and "How do we fix you?"). Such thinking often leads neurodivergent people to hide their neurodivergence to "appear normal" and avoid stigma, discrimination, and violence. In higher education, deficit-based language and

framing still exist and perpetuate ableist pedagogy and treatment of neurodivergent students.

Some initiatives have attempted to improve the accessibility of education to neurodivergent students. However, these initiatives often serve as a barrier more than a support, especially for neurodivergent people with intersecting oppressed identities (e.g., race, queer). In engineering education, engineering's meritocratic and elitist culture further discourages neurodivergent students from seeking accommodations.

This panel furthers the mission of the Division primarily through its first pillar: examining systems. It brings mechanisms to light that discriminate against neurodivergent

people in engineering through panelists' experiences.

Because the panelists are all in higher education and, specifically, in engineering programs (completing a Ph.D. or employed in higher education), they will also share strengths and strategies that helped them survive and, sometimes, thrive in these programs and positions.

Overall, the panelists seek to engage the audience by increasing their awareness of neurodivergence and

how it manifests in engineering education. Neurodivergence is often overlooked because of its

invisibility and educators and researchers are unsure how to talk about it. This open discussion will reveal the panelists' experiences of surviving the (in)accessibility of these systems while allowing the audience to ask questions and perhaps share their own neurodivergent experiences, which can demonstrate the prevalence of neurodivergence in engineering and foster solidarity.

M359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 6

11:00 A.M. - 12:30 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

How Engineering Faculty, Staff and Administrators Enact and Experience Diversity Programs.

Dr. Emily Gwen Blosser, University of Louisiana, Lafayette

Dr. Arunkumar Pennathur, University of Texas, El Paso

Priyadarshini Pennathur,

Prof. Nicholas A Bowman, University of Iowa

Choosing Self-Care and Preservation: Examining Black Women STEM Faculty's Decision to Pursue Entrepreneurship and Entrepreneurship Education Programming

Meaghan Pearson, University of Michigan

Dr. Prateek Shekhar, New Jersey Institute of Technology

Jacqueline Handley, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Conceptualizing Social Justice in Civil Engineering and Professors' Perspective: A Systematic Literature Review

Ms. Tomeka Carroll, University of Virginia

Dr. Diana Marcela Franco Duran, University of Virginia

Lindsay Ivey Burden,

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Engineering Instructors' Constructions of the Universality or Individuality of Neurodiversity

Dr. Erin Scanlon, University of Connecticut
Ms. Connie Syharat, University of Connecticut
Dr. Arash Esmaili Zaghi, P.E., University of Connecticut
Dr. Maria Chrysochoou, University of Connecticut
Rachael Gabriel, University of Connecticut

How Diversifying / Updating the Teaching Team Has Positively Affected Teaching

Sara Al Humidi,
Alena Sloan,
Mrs. Andrea Atkins, University of Waterloo
Dr. Rania Al-Hammoud, University of Waterloo

The Undervalued Labor of Black and Hispanic Engineering Faculty

Dr. Maria L. Espino, University of South Carolina
Mr. Brian Le, University of California, Los Angeles
Dr. Spencer Platt, University of South Carolina
Dr. Henry Tran, University of South Carolina

Work-in-Progress: Towards Advancing Grassroots Transformative Advocacy Strategies for Work Justice of BIPOC Contingent Faculty

Dr. Idalis Villanueva Alarcón, University of Florida
Dr. Homero Murzi, Virginia Tech
Marisela Martinez-Cola,

M369 - ASEE Paper Management System Townhall

11:00 A.M. - 12:30 P.M., BALLROOM 3, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

ASEE Paper Management System Townhall

M374 - EDC Public Policy Committee Meeting

11:00 A.M. - 12:30 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Deans Council (EDC)

EDC Public Policy Committee Meeting

M381 - Safe Zone Ally Training, Level 1

11:00 A.M. - 12:30 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Alex Mejia, ; Dr. Hadas Ritz, Cornell University

This workshop is an interactive, research-informed session for students, faculty, and the professional community to build the knowledge and skills needed to create a more inclusive and affirming environment for LGBTQIA+ individuals in engineering. Such Safe Zone Workshops have been developed by a community of science and engineering professionals and students specifically for a STEM audience. Faculty, students, administrators, staff, and other professionals are encouraged to participate in these workshops.

Safe Zone Level 1 focuses on understanding LGBTQIA+ concepts and the coming-out process, responding to bias, and simple strategies for building an inclusive environment.

This workshop will address concerns such as:

- 1 LGBTQIA+ student in 5 fears for their physical safety on college campuses, and 1 LGBTQIA+ student in 3 is made to feel uncomfortable in engineering classrooms.
- LGBTQIA+ engineering students are more likely than women, underrepresented minorities, and non-LGBTQIA+ peers to report a chilly climate.
- STEM departments are lagging far behind other disciplines in adopting LGBTQIA+-inclusive practices.

ASEE members can help change this.

The ASEE Safe Zone Ally Training workshops are supported by the National Science Foundation through grants EEC-1539140 and EEC-1748499. To learn more and access free ally resources, visit <https://lgbtq.asee.org>.

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M390 - Engineering Communicators Constituent Committee Business Meeting

11:00 A.M. - 12:30 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Communications Constituent Committee (ECCC)

M394A - SPONSOR TECH SESSION: Engineering Student Success at Scale – Updates and Lessons from Texas A&M's "25 by 25" Growth Initiative, Presented by Texas A&M Engineering

11:00 A.M. - 12:30 P.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Texas A&M Engineering launched the ambitious "25 by 25" initiative as an intentional growth program to broaden access for qualified students to pursue engineering degrees at Texas A&M University, and grow our total enrollment to 25,000 students by 2025. Key elements of "25 by 25" include revamping the first-year academic experience by admitting all students to a common general engineering program, introducing a new first-year engineering curriculum, and enhancing academic advising. Co-curricular support and academic success programs have also been revised and expanded. Alternate pathway options are provided to students through the Aggie Gateway Program in Qatar, the Engineering Academies throughout Texas, and our engineering programs at Galveston and McAllen. In addition, practical hands-on training certifications are offered through the unique Bachelor's+ partnership program with Texas State Technical College. A panel of speakers will share insights and reflections from these areas of the "25 by 25" program and our continuing efforts to offer a quality engineering educational experience at scale through our 22 engineering B.S. degree programs.

Speakers:

Dr. Andrea Ogilvie, Texas A&M University, College

of Engineering; Dr. Angie Hill Price, Texas A&M University, College of Engineering; Dr. Ioannis Economou, Texas A&M University, Qatar

M394B - SPONSORED PANEL: Building a Sustainable Future for Engineering for US All (e4usa); Reflections on the Past and Insights for the Future, Presented by University of Maryland

11:00 A.M. - 12:30 P.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join us for an engaging discussion on the Engineering for US All (e4usa) national initiative and its transition from an NSF-funded grant to a non-profit 501(c)(3) organization. During this sponsored technical session, we will reflect on the past four years of e4usa and the achievements that were made possible through the support of NSF funding. We will also discuss the challenges and opportunities that lie ahead as we focus on ensuring the long-term sustainability and viability of the program under e4usa.org.

Our aim is to provide a view of the steps we are taking, including developing key partnerships, hiring professional staff, and exploring new services that can be offered for payment. In addition, attendees will learn how to partner with e4usa to advance the goal of demystifying and democratizing engineering for all.

By attending this session, participants will have the chance to discover how e4usa intends to maintain this project once grant funding ends, and be offered insights into potential long-term strategies for sustaining their own projects. They will also have the opportunity to engage with the e4usa team and learn more about our mission to empower the next generation of engineers and drive positive change in our communities. Don't miss this chance to be a part of this exciting discussion and help shape the future of engineering education for all.

Speakers/Facilitators:

Bruk Berhane

Assistant Professor of Engineering Education, School of Universal Computing, Construction and Engineering

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Education, Florida International University

Partnership Team Lead, e4usa

Kevin Calabro

Director and Senior Lecturer, University of Maryland

Credit and Placement Team Lead, e4usa

Adam Carberry

Associate Professor, Arizona State University

Research Team Lead, e4usa

Abubakr Hamid

Program Manager, e4usa, University of Maryland

CPO & Programs Manager, e4usa, Inc.

Stacy Klein-Gardner

Adjunct Professor of Biomedical Engineering, Vanderbilt University

co-PI and co-Director, e4usa

Jennifer Kouo

Assistant Research Scientist, The Institute for Innovation in Development, Engagement, and Learning Systems (IDEALS) at the Johns Hopkins School of Education

Professional Learning Director, e4usa

Darryll Pines

President, University of Maryland

PI and co-Director, e4usa

Jim Zahniser

Assistant Dean, Strategic Operations and IT, University of Maryland

CIO, e4usa

M469A - Free Time

12:30 P.M. - 1:30 P.M., FREE TIME, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M401 - AERO 2: Innovative Pedagogy and Hands-on Learning 1

1:30 P.M. - 3:00 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Brian Ritchie, The Ohio State University

Exploring Additive Manufacturing in a Space Environment - A Capstone Design Project Experience

Zain Zafar Khan,

Zachary Alan Sobelman,

Dr. Sharanabasaweshwara Asundi, Old Dominion University

An Investigation of the Effect of Number of Hot Spots on Taxi Time at U.S. Hub Airports

Mr. Shantanu Gupta, Purdue University at West Lafayette (PPI)

Prof. Mary E. Johnson Ph.D., Purdue University at West Lafayette (PPI)

Mr. Jiansen Wang, Purdue University

Learners' Peer-to-Peer Interactions of Aerospace and Aviation Education with Unmanned Aerial Systems Designs Using Data Methods Integration

Vicleese Sloan, University of Maryland Eastern Shore, Department of Engineering and Aviation Science, Aviation Management Senior Student

Mr. Fasil Tesfaye Amado, University of Maryland Eastern Shore

Cameron Smith,

Bryan Stivell Campbell, University of Maryland Eastern Shore

Dr. Willie L. Brown Jr., University of Maryland Eastern Shore

Prof. Ibibia K. Dabipi, University of Maryland Eastern Shore

Mr. Dinesh Kumar Sharma,

Etahe Johnson, University of Maryland Eastern Shore

Lanju Mei, University of Maryland Eastern Shore

Dr. Weiwei Zhu,

Dr. Lei Zhang, University of Maryland Eastern Shore

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M402 - Architectural Engineering Division (ARCHE) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderators: Eugene Kwak, State University of New York, College of Technology at Farmingdale; Rachel Mosier, Oklahoma State University; Filza Walters, Texas A&M University

Sustainability-Related Issues among Architecture and Construction Students: Analyzing Perception of Sustainable Design and Construction

Dr. Sanjeev Adhikari, Kennesaw State University
Kathryn Bedette, Kennesaw State University
Giovanni Loreto, Kennesaw State University

Artificial Intelligence (AI) Art Generators in the Architectural Design Curricula

Prof. Keith E. Hedges, Drury University

Impact of the digital design process in an architectural engineering technology program: Integration of advanced digital tools (work in progress)

Mr. Eugene Kwak, State University of New York, College of Technology at Farmingdale

A hybrid model for Architectural Engineering courses with Digital Transformation Competencies

Prof. Miguel X. Rodriguez-Paz, Tecnológico de Monterrey (ITESM)
Mr. Jorge A. Gonzalez-Mendivil, Tecnológico de Monterrey
Prof. Israel Zamora-Hernandez,
Prof. Martha Elena Nunez, Tecnológico de Monterrey (ITESM)

The Effect of the Application of Feedback and Reflection on an Iterative Student Design Challenge

Mrs. Andrea Atkins, University of Waterloo
Alison McNeil,
Dr. Rania Al-Hammoud, University of Waterloo

M404 - Biomedical Engineering Division (BED): Best of Works in Progress

1:30 P.M. - 3:00 P.M., ROOM 337, BALTIMORE

CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Leann Dourte Segan, University of Pennsylvania; Sabia Abidi, Rice University

In this interactive session, six authors will each pitch their work in progress as a five-minute, two-slide “postcard” overview. Attendees will then have the opportunity to interact with any author(s) they wish, to engage in dynamic, small-group discussion at the authors' stations around the room. The Biomedical Engineering Division's Best Work in Progress Award will be selected from these six presentations based on evaluators' ratings of Relevance to BME Education, Innovation, Technical Merit, Demonstrated Outcomes, and Presentation Quality.

Work in Progress: Improving Student-Instructor Relationships and Help-Seeking through Office Hours

Ms. Emily Abigail Schafer, Northwestern University
Prof. David P. O'Neill, Northwestern University

Work In Progress: Professional Development Through High-Impact Experiences

Dr. Charles Patrick Jr., Texas A&M University

Work In Progress: “Flash-Labs” as a Tool for Promoting Engagement and Learning in Signals and Systems for Biomedical Engineering Course

Dr. Uri Feldman, Wentworth Institute
Dr. George D. Ricco, University of Indianapolis

Work in Progress: Physiological Assessment of Learning in a Virtual Reality Clinical Immersion Environment

Prof. Christine E. King, University of California, Irvine
Kit Roy Feeney,
Quangminh Tang,
Milan Das,
Dalton Salvo,

Work in Progress: Can In-Class Peer Reviews of Written Assignments Improve Problem Solving and Scientific Writing in a Standard-Based, Sophomore Laboratory Course?

Dr. Casey Jane Ankeny, Northwestern University
Dr. Ken Gentry, Northwestern University
Prof. David P. O'Neill, Northwestern University
Philippa Eshun,

Work in Progress: Exploring Developing Knowledge of Mathematical Modeling Skills Using Concept Maps

Mr. Grayson Rice, Duke University
Dr. Ann Saterbak, Duke University

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M405 - Chemical Engineering Division (ChED) Technical Session 2: Community Retrospectives

1:30 P.M. - 3:00 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Kevin Dahm, Rowan University; Mechteld Hillsley, Pennsylvania State University

Graduate Ph.D. Chemical Engineering Curriculum: Progress in Twenty Years

Mrs. Emily Nichole Ingram, University of Kentucky

Dr. Malgorzata Chwatko, University of Kentucky

Community Perspectives on Chemical Engineering Education

Milo D. Koretsky, Tufts University

Dr. Lisa G. Bullard, P.E., North Carolina State University, Raleigh

Prof. Joshua A. Enszer, University of Delaware

Dr. Allison Godwin, Purdue University, West Lafayette

Dr. Vanessa Svihla, University of Texas, Austin

Dr. Sindia M. Rivera-Jiménez, University of Florida

Preliminary Reflections and Assessment of the 2022 Chemical Engineering Summer School

Dr. Margot A. Vigeant, Bucknell University

Dr. Daniel Anastasio, Rose-Hulman Institute of Technology

Prof. Michael David Mau Barankin, Colorado School of Mines

Taryn Melkus Bayles, University of Pittsburgh

Dr. Daniel D. Burkey, University of Connecticut

Dr. Laura P. Ford, The University of Tulsa

Dr. Tracy Q. Gardner, Colorado School of Mines

Dr. Milo Koretsky, Tufts University

Dr. Daniel Lepek, The Cooper Union

Prof. Matthew W Liberatore, The University of Toledo

National Trends and Models for Teaching-Track Faculty in Chemical Engineering

Dr. Stephanie Butler Velegol, Pennsylvania State University

Dr. Lisa G. Bullard P.E., North Carolina State University, Raleigh

Taryn Melkus Bayles, University of Pittsburgh

Dr. Katie Cadwell, Syracuse University

Is Poor Classroom Attendance a Virtual-Learning Hangover or the New Normal? A Qualitative Study

Dr. Matthew Cooper, North Carolina State University, Raleigh

E. Daniel Cardenas-Vasquez, North Carolina State University, Raleigh

M406 - Civil Division Planning Session

1:30 P.M. - 3:00 P.M., BLAKE , HILTON BALTIMORE INNER HARBOR

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Jennifer Retherford, University of Tennessee at Knoxville; Mary Watson, Pennsylvania State University; Tonya Nilsson, Santa Clara University; David Saftner, Northern Arizona University

This session is used to collaboratively develop the call for papers for next year's ASEE Convention.

M408 - COED: AI and ML Topics

1:30 P.M. - 3:00 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Nathaniel Hunsu, University of Georgia

This session showcases papers focused on artificial intelligence or machine learning topics in computing education.

Development of a Research-Based Course on Machine Learning and Robotics for Undergraduate Engineering Students at Hampton University

Dr. Zhao Sun, Hampton University

Laura Camila Peralta,

Myles Anthony Ragins,

Niara Renee Chaney,

Engaging High School Teachers in Artificial Intelligence Concepts and Applications

Prof. Nebojsa I. Jaksic, Colorado State University, Pueblo

Dr. Bahaa Ansaf, Colorado State University, Pueblo

Implementation and Evaluation of a Predictive Maintenance Course Utilizing Machine Learning

Mr. Jonathan Adam Niemirowski, Louisiana Tech University

Ms. Krystal Corbett Cruse, Louisiana Tech University

Dr. David Hall, Louisiana Tech University

Study of Artificial Intelligence Computing Devices for Undergraduate Computer Science and Engineering Labs

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Prof. Nebojsa I. Jaksic, Colorado State University, Pueblo
Dr. Bahaa Ansaf, Colorado State University, Pueblo

Using Artificial Intelligence in Academia to Help Students Choose Their Engineering Program

Dr. Shatha Jawad, National University
Dr. Ronald P. Uhlig, National University
Dr. Pradip Peter Dey,
Dr. Mohammad N. Amin, National University
Dr. Bhaskar Sinha, National University

M408B - COED Programming Education 1: Students, Motivation, and Mastery

1:30 P.M. - 3:00 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: James Lewis, University of Louisville

This session will focus on papers related to teaching students how to program computers in the realm of CS1 and other first programming courses.

A Blended Approach to Design an Introductory Programming Course for Non-CS Majors: Students' Feedback

Ms. Kwansun Cho, University of Florida
Sung Je Bang,
Dr. Saira Anwar, Texas A&M University

Comparing First-Year Student Programming Confidence Perceptions Between Different Hands-On Projects

Dr. James E. Lewis, University of Louisville
Mr. Nicholas Hawkins, University of Louisville
Dr. Brian Scott Robinson, University of Louisville

Exploring Differences in Planning between Students with and without Prior Experience in Programming

Ryan Parsons, Western Washington University
Qiang Hao, Western Washington University
Dr. Lu Ding, University of South Alabama

Student Perceptions of Learning Models in First-Year Programming Courses

Dr. David M. Feinauer, P.E., Virginia Military Institute
Runna Alghazo, Prince Mohammad Bin Fahd University, Saudi Arabia
Dr. Jaafar M. Alghazo, Virginia Military Institute
Dr. Sherif Abdelhamid, Virginia Military Institute

Prof. James C. Squire, P.E., Virginia Military Institute

The Combination Approach: Increasing Student Learning and Understanding of Introductory Computer Science Topics

Mr. Thomas Rossi, Penn State Behrend
Dr. Paul C. Lynch, Penn State Behrend

M409 - Construction Engineering Division (CONST) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Behnam Shadravan, Florida A&M University;
Kimberly Talley, Texas State University

Teamwork as a Core Competence in Construction and Engineering Education

Saeed Rokooei, Mississippi State University
Dr. Raheleh Miralami, Mississippi State University
Dr. George D. Ford, Mississippi State University

Improving Students' Communication Skills and Systems Thinking Ability in Circular Economy through Combination Learning Module

Mr. Piyush Pradhananga, Florida International University
Mr. Mohamed Elzomor, P.E., Florida International University

Teamwork Assessment in Construction Undergraduate Courses

Dr. Behnam Shadravan, Florida A&M University

The Physical Learning Environment's Impact on Higher Education Programs: Student Perception of Learning, Satisfaction, and Sense of Belonging in a Construction Management Program

Mr. Veto Matthew Ray, Indiana University - Purdue University, Indianapolis
Ms. Emily McLaughlin,
Brenda Morrow, Indiana University - Purdue University, Indianapolis
Marvin Louis Johnson, Indiana University - Purdue University, Indianapolis

Work in Progress: Introducing a coffee break to improve exam performance and reducing student stress in construction majors

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito USFQ

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M411 - Improving Retention & Self-Efficacy through Experiential Learning and Research Programs

1:30 P.M. - 3:00 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Robin Hammond, Arizona State University

Cooperative and Experiential Education Division (CEED)
Technical Session 4

Educating Engineering Students Innovatively: A Model for Improving Retention and Academic Performance of Black Upper-Level Students

Dr. Charmane Caldwell, Florida A&M University - Florida State University

Dr. Reginald J. Perry, Florida A&M University - Florida State University

Experiential Learning Approaches to Health-themed STEM Education That Addresses Medical Concerns in Hispanic Communities (Work in Progress)

Dr. Daniel A. Tillman, University of Texas at El Paso

Thomas Joseph Soto, University of Texas at El Paso

Song An, University of Texas at El Paso

Carlos Paez, Navajo Technical University

Alice Carron, Blue Marble Institute of Space Science

Engaging early-stage undergraduate students in research through a Science Communication Fellowship

Sydney Donohue, University of New Mexico

Kamryn G. Zachek,

Dr. Alex Webster, University of New Mexico

Mr. Timothy L. Schroeder,

Dr. Anjali Mulchandani, University of New Mexico

Building Research Self-efficacy in Undergraduate Students through Authentic Research Experiences

Dr. Robin Lynn Nelson, University of Texas at San Antonio

Dr. Karina Ivette Vielma, The University of Texas at San Antonio

Dr. JoAnn Browning, The University of Texas at San Antonio

Intern Perceptions and Learning Experiences: Assessment Insights from a Research Internship Program

Sophia Vicente, Virginia Tech Department of Engineering Education

Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Dr. Wayne Gersie,

M413 - Design in Engineering Education Division (DEED) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Corey Schimpf, University at Buffalo, The State University of New York

AI and VR in Design Education

Using Deep Learning and Augmented Reality to Improve Accessibility: Inclusive Conversations Using Diarization, Captions, and Visualization

Mr. Yun Wang, Undergraduate at University of Illinois Urbana-Champaign

Mr. Colin P. Lualdi, University of Illinois Urbana-Champaign

Dr. Lawrence Angrave, University of Illinois Urbana-Champaign

Guru Nanma Purushotam,

Learning from Machine Learning and Teaching with Machine Teaching: Using Lessons from Data Science to Enhance Collegiate Classrooms

Dr. Lucas Buccafusca, Johns Hopkins University

A Feasibility Study of Spatial Cognition Assessment in Virtual Reality for Computer Aided Design Students

Dr. Ulan Dakeev, Sam Houston State University

Dr. Reg Recayi Pecen, Sam Houston State University

Dr. Faruk Yildiz, Sam Houston State University

Dr. Iftekhar Ibne Basith, Sam Houston State University

Vajih Khan, Sam Houston State University

Christopher J Rabe,

Olivia Walton,

Yannis Micah Lagrosa,

Lain Edward Sowell, Sam Houston State University

Exploring Virtual Reality as a Design Observation Training Tool for Engineering Students

Mr. Nicholas Moses, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Dr. Kathleen H. Sienko, University of Michigan

Assessing Priorities in Engineering Design Through

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Augmented Reality

Mrs. Ibukunoluwa Eunice Salami, University of Nebraska
- Lincoln

Dr. Logan Andrew Perry, University of Nebraska - Lincoln

M414A - FIE Steering Committee: Executive Session

1:30 P.M. - 3:00 P.M., KEY 11 & 12, HILTON
BALTIMORE INNER HARBOR

Sponsor: Educational Research and Methods
Division (ERM)

Moderator: Stephen Frezza, Gannon University

M414B - The Story Behind the Story: Unpacking the Publication Process for Journal of Engineering Education Articles

1:30 P.M. - 3:00 P.M., ROOM 315, BALTIMORE
CONVENTION CENTER

Sponsor: Educational Research and Methods
Division (ERM)

Moderators: Joyce Main, Purdue University at West
Lafayette (COE); David Knight, Virginia Polytechnic
Institute and State University

The Journal of Engineering Education (JEE) is one of the premier scholarly publications sponsored by ASEE and an important mechanism for members of the Educational Research Methods Division to share their work with the global engineering education research community. As the journal transitions to a new editorship, it will embark on an inclusive and broad strategic planning process to position the journal for continued future success as the field expands, the nature of publishing undergoes significant transformations, and journal staff work toward building out the culture of inclusive reviewing in the community.

This special session/panel will help move that process forward while meeting some of the journal's important goals in continuing supporting the research community.

As laid out in the recent inaugural editorial, the new editors believe the peer review process is critical as new knowledge continues to be generated in the field. How research moves from its infant stage through the publication process can often be a bit challenging to understand, however,

particularly for graduate students or early-career faculty. The this special session/panel will help researchers and reviewers better understand the publication processes associated with the Journal of Engineering Education.

The session will increase transparency for the entire community in achieving the goal of being kind to authors and reviewers alike. In addition to providing high-level overviews of the process and offering opportunities for members of the community to ask questions of the editorial team, multiple sets of authors who will "tell the story behind the story" of their papers. Prior JEE authors will show how their papers changed over time through the review process and reflect upon ways the process enhanced their work.

Panelists will also offer their own reflections on ways that engineering educators as a community can work toward progress on collectively exhibiting more inclusive reviewing behaviors.

The session will begin with a high-level overview of JEE's in-progress strategic plan and its submission-to-publication processes by the new co-editors-in-chief. Multiple teams of recent authors will offer their experiences with the publication process. Finally, audience members will be able to ask the author teams or the co-editors about the review process or future plans for the journal.

M414C - Supporting Underrepresented and LGBTQ Students

1:30 P.M. - 3:00 P.M., ROOM 308, BALTIMORE
CONVENTION CENTER

Sponsor: Educational Research and Methods
Division (ERM)

Moderator: Karen Rambo-Hernandez, Texas A&M University

Educational Research & Methods Division (ERM)
Technical Session

Environments Affecting Black Student Thriving in Engineering
(BSTiE)

Stephanie A Damas, Clemson University

Dr. Lisa Benson, Clemson University

Addressing the Needs of Hispanic/Latino(a) Students with the
Flipped Classroom Model

Dr. Alberto Cureg Cruz, California State University, Bakersfield

Dr. Amin Malek, California State University, Bakersfield

Andrea Medina, California State University, Bakersfield

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Dr. Melissa Danforth, California State University, Bakersfield

An Exploration of Black Engineering Students' Aspirational Capital within Community Cultural Wealth and Ecological Systems Theory

Ms. Jessica Allison Manning, Clemson University

Dr. Catherine E. Brawner, Research Triangle Educational Consultants

Dr. Catherine Mobley, Clemson University

Dr. Marisa K. Orr, Clemson University

Dr. Rebecca Brent, Education Designs, Inc

In/authenticity in STEM Social Networks: How "Out" are LGBTQ Students with their Peers in STEM?

Dr. Bryce E. Hughes, Montana State University - Bozeman

Sidrah MGWatson,

Family Voices: Learning from Families with Preschool-Age Children from Historically Marginalized Communities to Expand our Vision of Engineering

Dr. Scott A. Pattison, TERC, Inc.

Smirla Ramos-Montañez,

Viviana López Burgos,

Dr. Gina Navoa Svarovsky, University of Notre Dame

Catherine Wagner, University of Notre Dame

Annie Douglass,

Julie Allen,

M414D - Work-in-Progress Session: Supporting Students To, Through, and Beyond Transitions

1:30 P.M. - 3:00 P.M., ROOM 327 , BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Lynne Molter, Swarthmore College

Educational Research & Methods Division (ERM) technical session

Work in Progress: A Systematic Literature Review of Engineering Education in Middle School Classrooms

Mrs. Natasha Lagoudas Wilkerson, Texas A&M University

Dr. Karen E. Rambo-Hernandez, Texas A&M University

Rachelle Pedersen, Texas A&M University

Work in Progress: Engineering Identity Development after Two Years of Undergraduate Education

Janet Aderemi Omitoyin,

Dr. Renata A. Revelo, The University of Illinois, Chicago

Musab Kazi,

Dr. Betul Bilgin, The University of Illinois, Chicago

Justin Merchan,

Prof. Houshang Darabi, The University of Illinois, Chicago

Work in Progress: PEERSIST - A Formation of Engineers Framework for Understanding Self-Efficacy and Persistence among Transfer Students

Cody D. Jenkins,

Ms. Thien Ngoc Y. Ta, Arizona State University

Dr. Ryan James Milcarek, Arizona State University

Dr. Gary Lichtenstein, Quality Evaluation Designs

Dr. Samantha Ruth Brunhaver, Arizona State University

Dr. Karl A. Smith, University of Minnesota, Twin Cities

Work in Progress: Emotional Configurations in Undergraduate Engineering Education

Emily Kostolansky, Tufts University

Dr. Kristen B Wendell, Tufts University

Nicole Alexandra Batrouny, Tufts University

Work in Progress: Proposing Items for an Engineering Undergraduate Subjective Wellbeing Questionnaire (EUSWQ)

Mr. Muhammad Asghar, Utah State University

Dr. Angela Minichiello P.E., Utah State University

Daniel Kane, Utah State University

Dr. Oenardi Lawanto, Utah State University

Joshua Marquit, Pennsylvania State University

Work in Progress: Developing a Guide to Support Engineering Student Out-of-Class Participation and Professional Learning

Dr. Cassandra Sue Ellen Jamison, Rowan University

Jeffrey Stransky, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

Work in Progress: Impacts of Engineering-Adjacent Participation On Identity and Motivation in Engineering

Dr. Cassandra Sue Ellen Jamison, Rowan University

Dr. Justin Charles Major, Rowan University

Ms. Alexandra Mary Jackson, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

Work in Progress: Opportunities for Engineering Undergraduates to Develop Non-Technical Professional Skills during the COVID-19 Pandemic

Dr. Giselle Guanes Melgarejo, The Ohio State University

Ms. Victoria Bill, New York University

Dr. Julie P Martin, The Ohio State University

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Ms. Tiantian Li, Purdue University, West Lafayette
Dr. Kerrie A Douglas, Purdue University, West Lafayette
Dr. Eric Holloway, Purdue University, West Lafayette

M415 - Curricular Innovations in Computing - 1

1:30 P.M. - 3:00 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Milica Markovic, California State University, Sacramento

Accessible Cybersecurity Education for Engineering Students

Dr. Mai Abdelhakim, University of Pittsburgh - Main Campus
Dr. Samuel J. Dickerson, University of Pittsburgh

Important and Difficult Topics in CS2: An Expert Consensus via Delphi Study

Lea Wittie, Bucknell University
Anastasia Kurdia, Tulane University
Prof. Meriel Huggard, Trinity College Dublin
Khai-Nguyen Nguyen, Bucknell University

Undergraduate Research in Quantum Computing: Lessons Learned from Developing Student Researchers

David H. K. Hoe, Loyola University Maryland
Dr. Mary Lowe, Loyola University Maryland
Dr. Dave Binkley, Loyola University Maryland

Quantification of Competencies-based Curricula for Artificial Intelligence

Dr. Yufang Jin, The University of Texas at San Antonio
Mr. Robert Applonie, The University of Texas at San Antonio
Dr. Paul E. Morton, The University of Texas at San Antonio
Mason Cole Conkel, Electrical and Computer Engineering, Klesse College of Engineering and Integrated Design, University of Texas at San Antonio
Mrs. Thuy Khanh Nguyen, University of Texas at San Antonio
Prof. Chunjiang Qian, The University of Texas at San Antonio

NSF REU Site: Swarms of Unmanned Aircraft Systems in the Age of AI/Machine Learning

Ryan Restivo, Saint Bonaventure University
Connor Walsh, University of Tennessee at Martin
Wesley Chase Duclos,
Vrushank Mali, University of Tennessee at Martin

Dr. Jian Wang, University of Tennessee at Martin
Prof. Huihui H. Wang, St. Bonaventure University
Dr. Thomas Yang, Embry-Riddle Aeronautical University - Daytona Beach
Prof. Richard Stansbury, Embry-Riddle Aeronautical University - Daytona Beach
Prof. Houbing Herbert Song, University of Maryland, Baltimore County

Changes to a Circuits Lab Sequence to Encourage Reflection and Integration of Experiences Across Related Courses to Explore New Solution Spaces to an Engineering Problem

Dr. Chandrasekhar Radhakrishnan, University of Illinois, Urbana-Champaign
Dr. Christopher D. Schmitz, University of Illinois at Urbana - Champaign
Dr. Rebecca Marie Reck, University of Illinois Urbana-Champaign
Arijit Banerjee,
Yi Zhou, University of Illinois at Urbana-Champaign
Prof. Katie Ansell, University of Illinois, Urbana-Champaign
Prof. Holly M. Golecki, University of Illinois at Urbana-Champaign
Dr. Jessica R. TerBush, University of Illinois at Urbana-Champaign
Prof. Joe Bradley, University of Illinois at Urbana-Champaign

M416 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 4

1:30 P.M. - 3:00 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Matt Aldeman, Illinois State University; Madhumi Mitra, University of Maryland Eastern Shore

Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 4.

New Method for Testing Induction Machines in a Teaching Laboratory

Dr. Herbert L. Hess, University of Idaho
Emily M. Conroe,
Daniel Taylor,

Online Labs and DEI in Introduction to Thermodynamics

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MONDAY, JUNE 26th SESSIONS

Course

Dr. Teodora Rutar Shuman, Seattle University

Making Electric Machinery Labs Easier to Grade

Dr. Glenn T. Wrate P.E., Northern Michigan University

Implementation and Assessment of an Integrated Extended Reality Renewable Energy Laboratory for Enhanced Learning

Dr. Irina Nicoleta Ciobanescu Husanu, Drexel University

Dr. Richard Chiou, Drexel University

Dr. Md Fashiar Rahman, The University of Texas at El Paso

Prof. Tzu-Liang Bill Tseng, The University of Texas at El Paso

The technical and educational requirements in establishing a Li-ion coin-cell assembly and testing research facility laboratory in a university environment

Dr. Robert W. Fletcher, Lawrence Technological University

Rebecca Almandoz,

Maria Lomas,

Zainab Al Salihi,

M417 - Engineering to Promote Social Justice

1:30 P.M. - 3:00 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsors: Engineering and Public Policy Division (EPP); Equity, Culture & Social Justice in Education Division (EQUITY); Chemical Engineering Division (ChED)

Moderator: Elizabeth Cady, National Academy of Engineering

Speakers: Dr. Jennifer L. Cole, Northwestern University; Dr. Jerrod A Henderson, University of Houston; Trevion S Henderson, Tufts University; Kaylla Cantilina, University of Michigan

Historically, engineers have rarely been at the table in key conversations about technological governance, but engineering graduates must work to support justice, equity, diversity, and inclusion while understanding and mitigating any side effects. They also must be involved in decisions related to these issues.

This topic was discussed at the 2022 Interdivisional Town Hall; the panel will bring closure to that event and prepare for 2023. The four speakers participated in the 2022 Town Hall.

Questions to be discussed include:

How can engineers use their privilege to help create a more

equitable world?

What is the engineer's responsibility in showing up for social justice?

What curricular and co-curricular approaches will effectively introduce students to appropriate ways to incorporate social justice into design?

How can engineering educators capture social justice in learning outcomes and assessments?

What ethical authority do we need to assert and how?

How do educators ensure that students today emerge from our programs with the knowledge and ethical frameworks necessary to play a critical role in a civil society?

Panelists will also take questions from the audience.

M420 - Engineering Ethics Division (ETHICS) Technical Session _ Monday June 26, 1:30 - 3:00

1:30 P.M. - 3:00 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Ann Wittig, City University of New York, City College; Basel Alsayed, Western Carolina University

Knowledge Integration as the Foundation of Ethical Action: or, Why You Need All Three Legs of a Three-Legged Stool

Dr. Kathryn A. Neeley, University of Virginia

Non-human Animals and a New Ethics for Engineering

Dr. Rosalyn W. Berne, University of Virginia

Pushing Ethics Assessment Forward in Engineering: NLP-Assisted Qualitative Coding of Student Responses

Mr. Umair Shakir, Virginia Polytechnic Institute and State University

Dr. Justin L. Hess, Purdue University at West Lafayette (COE)

Matthew James P.E., Virginia Polytechnic Institute and State University

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Redesign of an Engineering Failure Course to Incorporate Learning Objectives in Diversity, Ethics and Inclusivity

Dr. Gary P. Halada, Stony Brook University

"Better Living through Chemistry?" DuPont & Teflon

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Dr. Marilyn A. Dyrud, Oregon Institute of Technology

M421 - Engineering Libraries Division — Lightning Talks

1:30 P.M. - 3:00 P.M., ROOM 318, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderators: Kelly Durkin Ruth, United States Naval Academy; Qianjin Zhang, The University of Iowa

M422 - Translating Engineering Management from the Classroom to the Workplace

1:30 P.M. - 3:00 P.M., ROOM 321, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Richard Blank,

Speakers: Mr. Trevor Mackesey, ; Mr. Stanislaw Tarchalski, Johns Hopkins University, Laurel; JJ Rorie, Johns Hopkins; Stephanie Caporaletti, Johns Hopkins

Talented and committed employees are the engines that drive business outcomes and keep organizations competitive and performing at their peak. This panel will develop a better understanding of how graduate-level engineering management programs can adapt to student and industry needs while preparing students for technical leadership careers through industry connections. Panelists will discuss how to incorporate translational activities to prepare students for professional success through:

1. Examples of engineering management program engagement with industry.
2. Awareness of the connection between classroom skills and workplace applications.
3. Engaging working professional education through today's technology.
4. Networking with like-minded educators and professionals through facilitated open forum Q/A discussions.

M423 - Engineering Technology Division (ETD) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 306, BALTIMORE
CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Scott Dunning, Virginia Polytechnic Institute and State University

Engineering Technology related papers focused on student learning

A Thermoelectric Cooling Project to Improve Student Learning in an Engineering Technology Thermodynamics Course

Ms. Krystal Corbett Cruse, Louisiana Tech University

Dr. David Hall, Louisiana Tech University

Dr. Bryant C. Hollins, Louisiana Tech University

Mr. Casey Kidd, Louisiana Tech University

William C. Long,

Beyond the Classroom: Experiential Learning with Engineers Without Borders in Guatemala

Dr. Dalya Ismael, Old Dominion University

Dr. Orlando M. Ayala, Old Dominion University

Combining Project-Based Learning with the KEEN Framework in an Advanced Fluid Mechanics Course: A Continued Implementation

Dr. Carmen Cioc, The University of Toledo

Dr. Sorin Cioc,

Dr. Noela A. Haughton, The University of Toledo

Consensus Building Method for Expert Crowdsourcing of Curriculum Topics

Mr. Brian Khoa Ngac, George Mason University

Dr. Mihai Boicu, George Mason University

Dissecting 3D Printing for Engineering Design Process Education of High School Preservice Teachers

Prof. Weihang Zhu, University of Houston

Dr. Mariam Manuel, University of Houston

Dr. Paige Evans, University of Houston

Peter Weber,

M424 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 2: Assessing the Entrepreneurial Mindset, Curiosity, and

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Workplace Preparedness

1:30 P.M. - 3:00 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderator: Ruben Lopez-Parra, Purdue University at West Lafayette (COE)

A Multi-Method Analysis of Engineering Student Curiosity

Dr. Meagan Eleanor Ita, Arvinas

Ms. Amanda Marie Singer, The Ohio State University

Dr. Rachel Louis Kajfez, The Ohio State University

Development of a Manufacturing Assessment Survey to Promote Entrepreneurial Mindset in Engineering

Fatemeh Mozaffar,

Dr. Cheng Chen, University of Georgia

Dr. Beshoy Morkos, University of Georgia

Dr. Jianfeng Ma,

Work in Progress: Gap Analysis for Assessment of Entrepreneurial Mindset in Engineering

Dr. Heather Dillon, University of Washington

Dr. Deborah M. Grzybowski, The Ohio State University

Dr. Bryant Hutson, University of North Carolina at Chapel Hill

Dr. Megan Morin, University of North Carolina at Chapel Hill

Dr. Nicole Ralston,

Dr. Michael J. Rust, Western New England University

Viji Sathy, University of North Carolina at Chapel Hill

Prof. Ben Tribelhorn, University of Portland

Dr. Timothy A. Doughty, University of Portland

Work in Progress on a Case Study of Preparedness in Engineering for Agricultural Start-ups (PEAS)

Mrs. Katie Marie Mowat, University of Nebraska - Lincoln

Dr. Logan Andrew Perry, University of Nebraska - Lincoln

Dr. Santosh Kumar Pitla, University of Nebraska - Lincoln

Statistical Validation of Growth in the Entrepreneurial Mindset of Students Resulting from Four Years of Interventions

Dr. Nadiye O. Erdil, University of New Haven

Dr. Ronald S. Harichandran, University of New Haven

M426 - Experimentation and Laboratory-Oriented Studies Division (ELOS) Technical Session

I: Laboratories in Mechanics, Thermofluids, Embedded Systems, and Controls

1:30 P.M. - 3:00 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Gautom Das, University of Maryland Baltimore County

In this session, authors present the design, equipping, and assessment for hands-on experiences in mechanics and thermal-fluids labs as well as how Internet of Things and gamification strategies can enhance embedded systems and controls laboratories.

A We Platform for Learning Control System Based on IoT Application

Luis Guilherme de Souza Munhoz,

Dr. Wânderson de Oliveira Assis, Instituto Mauá de Tecnologia

Rogério Cassares Pires,

Alessandra Dutra Coelho,

Fernando de Almeida Martins,

Marcello Nitz,

Achieving Student Outcomes through Hands-on Design of Experiments

Mr. Dan Kilula,

Dr. Shivan Haran, Arkansas State University

Logan Riley Neal,

An Optimized Elbow Project for Undergraduate Mechanical Engineering Students

Mr. Jonathan Abdou Merheb, Oral Roberts University

Josiah Kesler, Oral Roberts University

Mr. Ivan Samuel Esley, Oral Roberts University

Jesse Phillip Hosein, Oral Roberts University

Miss Benitha Ndayisenga, Oral Roberts University

Lucas Oliveira de Freitas, Oral Roberts University

Dr. John E. Matsson, Oral Roberts University

Designing the Laboratory Experience from the Ground Up: Custom Laboratory Equipment and Writing-Intensive Pedagogy

Dr. Jacob Bishop, Southern Utah University

Work-in-Progress: Hands-on group activities for large fluid mechanics classes in a traditional lecture hall setting

Dr. Fiona C. Levey, Worcester Polytechnic Institute

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M427 - Roundtable: Navigating the Challenges of Post-COVID Student Preparedness

1:30 P.M. - 3:00 P.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsors: First-Year Programs Division (FYP); Pre-College Engineering Education Division (PCEE)

Moderators: J. Hylton, Ohio Northern University; Jack Bringardner, New York University Tandon School of Engineering

The disruption in P12 learning caused by the COVID pandemic has resulted in a perceived downward shift in the preparedness of students entering the first-year collegiate engineering experience. This roundtable will be a facilitated discussion about how this phenomenon is affecting first-year engineering programs and how to help students navigate the transition to college in the face of this new reality. A particular focus will be on students facing multi-layered disadvantages due to intersectional factors such as identity and/or opportunity gaps exacerbated by the pandemic.

M427B - First-Year Programs Division (FYP) - Technical Session 1: Course Design

1:30 P.M. - 3:00 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Jennifer Perkins, Arizona State University

A full paper session on course design.

Preliminary assessment of "ECE Engineering Laboratory" course for a redesigned first-year engineering curriculum

Dr. Federica Aveta, Wentworth Institute of Technology

James R. McCusker Ph.D., Wentworth Institute of Technology

Understanding the impacts of extra credit modules on students' learning experience in a 100-level electrical and computer engineering course

David H. Smith IV, University of Illinois at Urbana-Champaign

Dr. Ujjal K. Bhowmik, University of Illinois at Urbana-Champaign

Prof. Yuting W. Chen, University of Illinois Urbana-Champaign

The Evolution of an Interdisciplinary Case-Based Learning

First-Year Course

Dr. Rea Lavi, Massachusetts Institute of Technology

Cong Cong, Massachusetts Institute of Technology

Dr. Yuan Lai, Massachusetts Institute of Technology

Mr. Justin A. Lavallee, Massachusetts Institute of Technology

Dr. Gregory L. Long Ph.D., Massachusetts Institute of Technology

Dr. M. Mehdi Salek,

Nathan Melenbrink, Massachusetts Institute of Technology

Dr. Amitava 'Babi' Mitra, Massachusetts Institute of Technology

Redesigning a Cornerstone Course, Lessons Learned from a Pandemic

Dr. Catalina Cortazar, Pontificia Universidad Catolica de Chile

Miss Isabel Hilliger P.E., Pontificia Universidad Catolica de Chile

Gabriel Astudillo, Pontificia Universidad Católica de Chile

Using Backwards Design to Redesign a First-Year Engineering Seminar to Serve a Diverse Student Population

Matilde Luz Sánchez-Peña, University at Buffalo, The State University of New York

Dr. Jennifer L Zirnheld, University at Buffalo, The State University of New York

Dr. Kevin M. Burke,

Mr. William Wild, University at Buffalo, The State University of New York

Dr. Julia Latorre,

Prof. Carl F. Lund, University at Buffalo, The State University of New York

Dr. Andrew Olewnik, University at Buffalo, The State University of New York

M428 - Graduate Studies Division (GSD) Technical Session 2: Innovative Approaches to Teaching and Learning in Engineering Graduate Programs

1:30 P.M. - 3:00 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Carmen Torres-Sanchez,

Metacognition in Graduate Engineering Courses

Dr. Larisa Olesova,

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Dr. Duoduo Liao, George Mason University
Dr. Ioulia Rytikova, George Mason University
Dr. Mihai Boicu, George Mason University
Prof. Harry J. Foxwell, George Mason University

A Scaffolded Approach to Active Learning in the Graduate Classroom

Dr. Sarah A. Goodman, Stevens Institute of Technology
Dr. Gail P. Baxter, Stevens Institute of Technology

Investigating the Need for Forensic Engineering Graduate Program to Meet the Growing Workforce Demand

Mr. Piyush Pradhananga, Florida International University
Ms. Claudia Calle Müller, Florida International University
Miss Rubaya Rahat, Florida International University
Mr. Mohamed Elzomor P.E., Florida International University

Human Balance Models for Engineering Education: An Innovative Graduate Co-Creation Project

Alana Teresa Smith, University of Massachusetts Lowell
Emi Aoki, University of Massachusetts Lowell
Mrs. Mahsa Ghandi, University of Massachusetts Lowell
Prof. Jasmina Burek, University of Massachusetts Lowell
Prof. Charles Thompson Ph.D., University of Massachusetts Lowell
Prof. Kavitha Chandra, University of Massachusetts Lowell

Development of an Online Phase-Field Theory Course for Mechanical Engineering Graduate Students

Dr. Yucheng Liu, South Dakota State University

M429 - Industrial Engineering Division (IND) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderator: Megan Hammond, University of Indianapolis

Integrating Entrepreneurial Mindset, Bio-design, and Art into a Rapid Prototyping and Reverse Engineering Course

Dr. Arif Sirinterlikci, Robert Morris University
Dr. Khalid H. Tantawi, University of Tennessee at Chattanooga

Value Methodology & Frugal Engineering: New frontiers in an engineering curriculum?

Dr. Bopaya Bidanda, University of Pittsburgh

Gajanan Hegde,

Work in Progress: An optimization model for assigning students to multidisciplinary teams by considering preferences and skills

Dr. Megan Hammond, University of Indianapolis
Dr. Joan Martinez, University of Indianapolis
Dr. Joseph B. Herzog, University of Indianapolis

Poetry writing to enhance conceptual understanding of mathematical models and approaches for inventory management

Prof. Elif Akcali, University of Florida
Saron Getachew Belay,
Elayne Colón, University of Florida
Jade Williams,

M430 - Computing and Information Technology Division (CIT) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Mahima Agumbe Suresh, ; Reza Sanati-Mehrziy, Utah Valley University (Department of Computer Science)

Preliminary Experience and Impact of Experiment-focused Teaching Approach in a Computer Architecture Course in Computer Science

Miss Opeyemi Taiwo Adeniran, Morgan State University
Dr. Md Mahmudur Rahman, Morgan State University
Dr. Oludare Adegbola Owolabi P.E., Morgan State University
Neda Bazayr Shourabi, Pennsylvania State University, Berks Campus
Eric Sakk,
Chukwuemeka Duru,
Frank Efe,
Mr. Pelumi Olaitan Abiodun, Morgan State University
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

Design and Evaluation of an Academic Integrity Module for Computer Science Students

Dr. Debarati Basu, Embry Riddle Aeronautical University

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Prof. Harini Ramaprasad, University of North Carolina at Charlotte

An Evidence-Based Approach for Deeper Understanding of Student, Teacher, and Learning Dynamics

Dr. Teresa Piliouras, Technical Consulting & Research, Inc.

Miss Mengqian Wu, Technical Consulting Research, Inc.

Ms. Steffi N. Crasto, Center for Advanced and Emerging Technologies (CARET)

Mr. Pui Lam (Raymond) Yu, Technical Consulting & Research, Inc.

Dr. Navarun Gupta, University of Bridgeport

Holistic Review of Multi-Site Combined REU/RET Program and the Long-Term Effects of Hybrid Mode of Instruction

Ms. Hashmath Fathima, Morgan State University

Dr. Kofi Nyarko, Morgan State University

How Maker Culture Improves Students' Learning Experiences in Computing Programs

Dr. Yonghui Wang, Prairie View A&M University

Dr. Suxia Cui, Prairie View A&M University

Dr. Bugrahan Yalvac, Texas A&M University

Dr. Wei Zhan, Texas A&M University

M431 - Learning through Instrumentation: Experiences and Applications

1:30 P.M. - 3:00 P.M., BRENT, HILTON BALTIMORE INNER HARBOR

Sponsor: Instrumentation Division (INST)

Moderator: Herbert Hess, University of Idaho

In this session, authors present their experiences with teaching and learning using instrumentation inside and outside the classroom and laboratory. These include embedded systems, DAQ, battery management, and a fun ping-pong robot project. Join us for adventures in instrumentation to enhance project-based learning.

Active Learning Experiences with Embedded Systems, Instrumentation, and Control within and Outside the Classroom

Dr. Abhijit Nagchaudhuri, University of Maryland Eastern Shore

Mr. Jesu Raj Pandya, University of Maryland Eastern Shore

Ayomikun Precious Adegunle,

Jackson Mitchell Cuppett,

Charles Raleigh,

Mr. Isaac Omodia, University of Maryland Eastern Shore

Data Acquisition System to Measure and Monitor Temperatures and Atmospheric Air Parameters

David N. Long, James Madison University

Dr. Karim Altaii, James Madison University

Research & Development of a Decentralized Battery Management System for Modern Automobiles

Dr. Cyril B. Okhio, Kennesaw State University

Dr. Theodore Orrin Grosch, Kennesaw State University

Dr. Austin B. Asgill P.E., Kennesaw State University

M432 - International Division Business Meeting

1:30 P.M. - 3:00 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: International Division (INTL)

If you have ideas for what the international division can do to support engineering education with international perspectives in various ways, and if you would love to serve in the division, please attend the business meeting. All international division members and members-to-be are welcome!

M433 - Pre-College Engineering Education Division (PCEE) Technical Session 2: Let's Get Thinking Computationally

1:30 P.M. - 3:00 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Tracy Babcock, Bozeman Public School District

K-8 Computational Thinking through Engineering (Fundamental)

Dr. Christine M. Cunningham, Pennsylvania State University

Dr. Darshita N. Shah, The Pennsylvania State University

Ashwin Krishnan Mohan, Pennsylvania State University

Dr. Gregory John Kelly, Pennsylvania State University

A Systematic Literature Review Examining the Impacts of Integrating Computer Science in K-5 Settings

Alaina Katherine Mabie,

Monica McGill, CSEdResearch.org

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Brenda Huerta, Bradley University

K-2 Grade-Age Children and Their Parents' Experiences Engaging in Engineering and Computational Thinking Activities in Informal Learning Setting (Fundamental Research)

Dr. Abeera P. Rehmat, Georgia Institute of Technology

Dr. Hoda Ehsan, The Hill School

Dr. Monica E. Cardella, Florida International University

Student Experiences of an Intentionally Embedded Computer Science and Cybersecurity Pathway in U.S. High Schools

Jordan Williamson,

Monica McGill, CSEdResearch.org

M433B - Pre-College Engineering Education Division (PCEE)

Technical Session 7: Partnerships Making It Real! II

1:30 P.M. - 3:00 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderators: Martha Cyr, ; Avneet Hira, Boston College

"Make it Be a Real School": An Author's Perception on Community Approach for Teaching Engineering (Evaluation)

Dr. Faiza Zafar, Rice University

Mr. Roger Ramirez, Rice University

Mrs. Christina Anlynette Alston, Rice University

Carolyn Nichol, Rice University

Administrator's perspectives on an engineering program aimed at broadening participation.

Dr. Jeanette Chipps, Johns Hopkins University

Dr. Stacy S. Klein-Gardner, Vanderbilt University

Determining the Efficacy of a K-12 and Higher Education Partnership (Evaluation)

Janna Jobel, University of Massachusetts Lowell

Dr. Adam St. Jean, University of Massachusetts Lowell

Designing Professional Development to fit your Audience (Other)

Dr. Leah Bug, North Carolina State University at Raleigh

Dr. Laura Bottomley, North Carolina State University at Raleigh

Evaluating a High School Engineering Community of Practice: The Perspective of University Liaisons (Evaluation)

Dr. Sabina Anne Schill, Florida International University

Dr. Stacy S. Klein-Gardner, Vanderbilt University

M434A - Decompression Session: Sustaining Our Work and Ourselves in the Current Moment

1:30 P.M. - 3:00 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderators: Jenn Rossmann, Lafayette College; Marie Stettler Kleine, Colorado School of Mines

Many members of our community feel pressures in their work on anti-racist, LGBTQ+, social justice, and environmental topics, and about their own identities. This session will provide space and support for these scholars and their important work.

In this Decompression Session, LEES will offer time and space to relieve internal and collective stresses caused by institutional policies, government restrictions, and the current climate. It will also offer mutual support in sustaining scholarship.

M434B - Stories, Communication, and Convergence in Engineering Education

1:30 P.M. - 3:00 P.M., DOUGLASS, HILTON BALTIMORE INNER HARBOR

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Sheila Gobes-Ryan, University of South Florida

Papers in this session address the role of humanistic inquiry, stories, and communication in engineering education. They explore curricular interventions as well as implications for engineering practices.

Story-Driven Learning in Higher Education: A Systematic Literature Review

Dr. Ariana Turner, Georgia Institute of Technology

Hye Yeon Lee, Georgia Institute of Technology

Prof. Joseph M LeDoux, Georgia Institute of Technology

Engineering Is Personal: Interpersonal Communication for the 21st-Century Engineer

Dr. Joanna G Burchfield, University of South Florida

April A. Kedrowicz, North Carolina State University, Raleigh

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Building a Communication-Integrated Curriculum in Materials Science

Dr. Jennifer C. Mallette, Boise State University
Harold Ackler P.E., Boise State University

Towards a Transformative Collaboration: Technical Writing, Engineering, Industry

Dr. Naqaa Abbas, Texas A&M University, Qatar
Reza Tafreshi,
Prof. Patrick Linke,
Mary Queen, Texas A&M University, Qatar

Divergence and Convergence in Engineering Leadership, Entrepreneurship, Management, and Policy

Dr. Kathryn A. Neeley, University of Virginia
Dr. Rider W. Foley, California State University, Channel Islands
Andrew Li,
Rebecca Jun, University of Virginia

M435 - Defense Manufacturing and DoD Support for Manufacturing Education

1:30 P.M. - 3:00 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderator: Zhenhua Wu, Virginia State University

Speaker: Dr. Cindy Waters, Naval Surface Warfare Center

The Manufacturing Division will host this guest speaker session.

M436 - Materials Division (MATS) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderator: Alison Polasik, Campbell University

Learn about project-focused instruction in the materials community in this session.

Origami in Materials Engineering

Dr. Anuja Kamat, Wentworth Institute of Technology

Revealing the Bulk Mechanical Property Threshold for Thin Metallic Samples to Support a Desktop-Scale Stress-Strain Apparatus

Miss Sofia Ahmed, University of Florida
Dr. Matthew J. Traum,

Introductory materials science: A project-based approach

Dr. Lessa Kay Grunenfelder, University of Southern California

WIP Paper: Engineering Materials Related Courses at the University of Puerto Rico in Mayagüez (UPRM) after Hurricane Fiona Crossed the Island in September 2022

Dr. Jayanta K. Banerjee, Purdue University at West Lafayette (COE)

Adoption of Cacpla Pedagogy Collaborate Approach to Improve Peer-Facilitated Tutorials in Material Science

Dr. David Olubiyi Obada, Africa Centre of Excellence on New Pedagogies in Engineering Education, Ahmadu Bello University, Zaria, Nigeria

Adrian Oshioname Eberemu,

Mr. Kazeem A. Salami, Ahmadu Bello University

Abdulkarim Salawu Ahmed, Ahmadu Bello University

Ayodeji Nathaniel Oyedeji, Ahmadu Bello University

Akinlolu Akande,

Fatai Olukayode Anafi, Ahmadu Bello University

Abdulkarim Salawu Ahmed,

Dr. Raymond Bako, Ahmadu Bello University

M437 - Mathematics Division Business Meeting

1:30 P.M. - 3:00 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Mathematics Division (MATH)

Moderator: Jeffrey Hieb, University of Louisville

M438 - Mechanical Engineering Division (MECH) Technical Session 2: Thermo-Fluids Projects and Active Learning

1:30 P.M. - 3:00 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

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Moderator: Maria-Isabel Carnasciali, University of New Haven

This session brings together authors highlighting active and engaging student experiences to enhance thermal-fluids related education.

Fabrication of Fluidic Devices through Dissolution of 3D Printed Material in PDMS Mold

Gavin Bathgate ,
Dylan Perlino,
Cameron Howard,
Owen Frink,
Dr. Reza Rashidi, SUNY University at Buffalo

Project-Based Learning Success in Fundamentals of Fluid Mechanics

Prof. Elizabeth "Elisha" M.H. Garcia Ph.D., PE, United States Coast Guard Academy

Measuring the drag forces on Corvette car model

Dr. Manohar Chidurala, Western Kentucky University
Riley Bishop,
Mr. Brandon Charles Sekula, Western Kentucky University
Mr. Nathaniel Burris, Western Kentucky University

Work in Progress: Introducing Process Simulators to Mechanical Engineering Seniors in a Thermofluids Course

Prof. Ibrahim Hassan P.E., Texas A&M University at Qatar
Mr. Omar Al-Ani, Texas A&M University at Qatar

M439 - Keeping It Real: Real World Examples and Systems Thinking

1:30 P.M. - 3:00 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Joshua Gargac, Ohio Northern University; Diana Arboleda, University of Miami; Julian Davis, University of Southern Indiana

This session examines the rich complexity in problems that engineers solve. We explore hands-on examples, systems-level thinking, and the challenge of ill-defined problems. This session is a great place to learn ways to enrich your content and curriculum.

An Exploration of How Students Make Use of Hands-on Models to Learn Statics Concepts

Dr. Kathryn Mary Rupe, Western Washington University

Prof. Eric Davishahl, Whatcom Community College
Dr. Lee Singleton, Whatcom Community College
Rebecca S. Borowski,

Improving Students' Learning through Inquiry-Based Learning Activities as Pre-training for Mechanics of Materials Classes

Dr. Huihui Qi, University of California, San Diego
Mr. He Liu,
Changkai Chen,
Mr. Richard Eugene Vallejo Jr., University of California, San Diego
Trevor Keoki Oshiro,
Edward Zhou Yang Yu, University of California, San Diego
Isabella Fiorini,

A System-of-Systems Inspired Framework to Enhance Aerospace Structural Mechanics Education

Waterloo Tsutsui, Purdue University, West Lafayette
Prof. Daniel Delaurentis, Purdue University

Modifying a Junior Year Machine Design Project to Break Down Knowledge Silos in the Mechanical Engineering Curriculum

Dr. Ashley J. Earle, York College of Pennsylvania
Dr. Stephen N. Kuchnicki, York College of Pennsylvania
Dr. Scott F. Kiefer, York College of Pennsylvania
Dr. Stephen Andrew Wilkerson, P.E., York College of Pennsylvania

Characterizing Student Work while Solving Ill-Defined Statics Problems in Groups

Max Magee, University at Buffalo, The State University of New York
Dr. Jessica Swenson, University at Buffalo, The State University of New York

M440 - National Science Foundation Opportunities and Outcomes from Engaging with a Broad Demographic

1:30 P.M. - 3:00 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Gholam Shaykhian, NASA EPSCoR

The National Science Foundation (NSF) funds scientists and engineers to perform research that advances discovery and

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innovation. The agency also expects researchers' work to have broader impacts: the potential to benefit society and contribute to the achievement of specific, desired societal outcomes. Desired outcomes include but are not limited to:

- 1) Inclusion — increasing and including the participation of women, people with disabilities, and underrepresented minorities in STEM
- 2) Workforce: developing a more diverse, globally competitive STEM workforce
- 3) Education: improving education and educator development — at any level — in science, technology, engineering, and mathematics (STEAM)
- 4) Infrastructure: enhancing infrastructure for research and education

This panel discussion will highlight new and divisional and cross-directorate initiatives at the NSF related to these outcomes. NSF Program Directors will provide an overview of solicitations and expectations for submissions.

M441 - Multidisciplinary Engineering Division (MULTI) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Pamela Gilchrist, Virginia Tech Innovation Campus; Yang Shao, University of Illinois at Urbana - Champaign

Fostering Global Engineers through the Study of the Humanities: Assessment of the Course "Science and Religion in Japan" from a Racial Equity Perspective

Prof. Hatsuko Yoshikubo, Shibaura Institute Of Technology, Japan

Prof. Gabriele Trovato, Shibaura Institute of Technology, Japan
Hiroyuki Ishizaki, Shibaura Institute of Technology, Japan

Developing Experiments to Teach Control Theory

Dr. Stephen Andrew Wilkerson, P.E., York College of Pennsylvania

Dr. Stephen Andrew Gadsden, McMaster University

Mr. Andrew Lee,

Work in Progress: Curricular Integration of Design and Material Standards in Engineering

Dr. Breanna Michelle Weir Bailey, P.E., Texas A&M University,

Kingsville

Mohammad Motaheer Hossain,

Dr. Larry Peel, Texas A&M University, Kingsville

Computer-Supported Collaborative Learning in Higher Education: An Experimental Analysis of Small-Group Collaboration in Web-Conferencing

Michael M. Malschützky, Hochschule Bonn-Rhein-Sieg, Germany

Christine Kawa,

Marco Winzker,

Exploratory Work in Progress: Stakeholders' Perceptions about an Undergraduate Engineering Program Accreditation Process in Ecuador

V. Sanchez Padilla, Virginia Tech

Dr. Jennifer M. Case, Virginia Tech

Dr. Homero Murzi, Virginia Tech

Albert Espinal,

M442 - Success in Engineering Education

1:30 P.M. - 3:00 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Derek Breid, Saint Vincent College

Speakers: Mr. Cristian Eduardo Vargas-Ordonez P.E., Purdue University at West Lafayette (COE); Prof. Christopher Papadopoulos, University of Puerto Rico, Mayaguez Campus

The aim of this special session is to facilitate thoughtful discussion about successful engineering education in a way that is not only accessible to early-career faculty, but also actionable. A panel of three or four experienced educators will reflect on their current understanding of successful engineering education, present reasons for their views, and discuss changes in their understanding of success throughout their careers. Members of the audience will be encouraged to comment on the panelists' positions and contribute their own understanding to the conversation.

This panel will address success in conventional technical courses such as statics and circuits, design-related courses, and other areas of the curriculum, like laboratory courses. The anticipated benefit is that participants will gain a stronger understanding of what success means for them to help them form a better pedagogical approach.

Although exchange of practical pedagogical ideas is not

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the main intent, participants are likely to leave the session abuzz with possibilities for more effective education.

Ticketed event

M445 - Engineering Physics and Physics Business Meeting

1:30 P.M. - 3:00 P.M., TUBMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderators: Carl Frederickson, University of Central Arkansas; Bala Maheswaran, Northeastern University

Division Business Meeting

Free ticketed event

M446 - Software Engineering Division Business Meeting

1:30 P.M. - 3:00 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Robert Hasker, Milwaukee School of Engineering; Afsaneh Minaie, Utah Valley University (Department of Computer Science)

M447 - Student Division (STDT) Technical Session 1: Student Success and Mentoring

1:30 P.M. - 3:00 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Cyra Anderson,

Work in Progress: Exploring Elements of a Mentoring and Professional Development Program in Engineering Education

Cyra Anderson, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Mr. Nagash Clarke, University of Michigan

Reflection and Goal Setting: Methods for Improved Performance and Engagement in Engineering Courses

Kathryn Christopher, Grand Valley State University and Western

Michigan University

C.J. Witherell, Grand Valley State University

Aziz Gram Sarhan,

A Quantitative Study of Factors Predicting High-Achieving Engineering Students' Progress towards Desired Educational Outcomes

Dr. Ibukun Samuel Osunbunmi, Utah State University

Prof. Ning Fang, Utah State University

Reflections on the Process of Growing into Faculty: A Collaborative Experience in Being Apprentices

Mr. Duncan H. Mullins, State University of New York, Buffalo

AraOluwa Adaramola, Purdue University, West Lafayette

Reflections on Mentorship - Being the Change You Want to See in Engineering Education

Alexander Vincent Struck Jannini, Purdue University Library TSS

M449 - Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhe) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhe)

An Exploration of the Use of Technical Electives in Engineering Curricula

Dr. John R. Reisel, P.E., University of Wisconsin, Milwaukee

Engineering or Physical Sciences: How to Choose? An Exploration of How First-Year University Students Choose between Studying the Physical Sciences and Engineering

Dr. Janna Rosales, Memorial University of Newfoundland, Canada

Mr. Amit Sundly, Memorial University of Newfoundland, Canada

Dr. Svetlana Barkanova, Memorial University of Newfoundland, Canada

Dr. Cecilia Moloney, Memorial University of Newfoundland, Canada

How to Address Sustainability in a Mechanical Engineering Program - Implementation and Challenges

Prof. Sayyad Zahid Qamar, Sultan Qaboos University, Oman

Omar S. Al Abri, Sultan Qaboos University, Oman

Moosa Salim Al Kharusi,

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Mr. Sayyad Basim Qamar, Texas A&M University

Connecting Fulbright and UniCEN: Developing International Learning Experiences in Global Environment and a Sustainable Goals Project.

Dr. Tatiana V. Goris, Pittsburg State University

Mr. Zeshan Ahmad Shah, Pittsburg State University

Microelectronic Technology, AI and Academic Dishonesty: An Agile Engineering Approach

Mr. Tyler Thomas Procko, Embry-Riddle Aeronautical University

Dr. Omar Ochoa, Embry-Riddle Aeronautical University

Dr. Christina Frederick, Embry-Riddle Aeronautical University

Personhood at the Extremes

Dr. Suzanne Keilson, Loyola University, Maryland

M450 - Engineering and Engineering Technology Transfer and the Two-Year College Student Part 2

1:30 P.M. - 3:00 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Robert Schaffer, Mission College

This session deals with transfer students in engineering and engineering technology at two-year colleges.

Development and First-Year Outcomes of a NSF-Funded Summer Research Internship Program to Engage Community College Students in Engineering Research

Dr. Xiaorong Zhang, San Francisco State University

Dr. David Quintero, San Francisco State University

Fatemeh Khalkhal, San Francisco State University

Dr. Zhaoshuo Jiang, San Francisco State University

Dr. Zhuwei Qin, San Francisco State University

Dr. Jenna Wong, San Francisco State University

Dr. Yiyi Wang, San Francisco State University

Dr. Wenshen Pong, P.E., San Francisco State University

Dr. Robert Petruilis,

Five 2-year HSIs Collaborate to Provide Culturally Responsive IT Work-Based Experiences

Cynthia Kay Pickering, Arizona State University

Mara Lopez, Arizona State University

Caroline VanIngen-Dunn, Arizona State University

Katy M. Pinto,

Gloria Gonzalez,

Marcus Jerome Garcia, Phoenix College

Paul Ross, Phoenix College

Service-Based Fellowship Program to Support First-Generation College Students

Dr. Bob Schaffer, Mission College

Exploring the Potential for Broadening Participation in Engineering through Community College and Minority-Serving Institution Partnerships

Dr. Bruk T. Berhane, Florida International University

Mr. Collins N. Vaye, Florida International University

Mr. Joseph Ronald Sturgess, Virginia Tech

Mr. Daniel Ifeoluwa Adeniranye, Florida International University

M451 - Women in Engineering Division Business Meeting

1:30 P.M. - 3:00 P.M., JOHNSON , HILTON BALTIMORE INNER HARBOR

Sponsor: Women in Engineering Division (WIED)

Moderators: Kristi Shryock, Texas A&M University; Brian Kirkmeyer, Miami University

Women in Engineering Division Business Meeting

M452 - Community Engagement Division 2 - Engagement in Practice Lightning Round: Equitable Engagement and Transformative Education

1:30 P.M. - 3:00 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Leena Shevade,

Engagement in Practice: Lessons Learned in Finding Synergy between Student Organizations and the Recruitment of Underserved Populations

Dr. Roneisha Wynette Worthy, Kennesaw State University

Dr. Amy Borello Gruss, Kennesaw State University

Engagement in Practice: Building Inclusive and Just Pathways to a Clean Energy Economy through Youth Education of Clean

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Energy

Hyunjung Ji, The University of Alabama
Sally Grace Shettled, The University of Alabama
Mark Allen Mueller, The University of Alabama
Colby Nicole Putman, The University of Alabama
Amelia Salazar, Sam Houston State University
Ms. Laurel Jane Holmes MPH, Energy Alabama
Dr. Hyun Jin Kim, The University of Alabama

Engagement in Practice: Lessons Learned and Outcomes from the Creation of an Engineering for Sustainable Development Makerspace to Support Collaborations Investigating Passive Gravity Water Treatment Plants

Patrick Sours, The Ohio State University
Vance Cherish,
Tylesha D. Drayton, The Ohio State University

Engagement in Practice: Developing Local School System Partnerships for Large-Scale Engineering Design Challenges, the Get Outside And Learn (GOAL) Program

Dr. Vincent Nguyen, University of Maryland, College Park
Jennifer Bishop, University of Maryland, College Park
Dr. Paige E. Smith, University of Maryland, College Park
Rebecca Z. Kenemuth, University of Maryland, College Park
Rebecca Kenemuth,

Engagement in Practice: Collaborating with University Extension on Game Jam Workshops to expose middle school aged learners to basic programming concepts

Ezequiel Aleman, Iowa State University of Science and Technology
Ethan Paul Ruchotzke,
Dr. Michael Brown, Iowa State University of Science and Technology

Engagement in Practice: Maximizing the Impact of Service-learning Activities Through Collaboration with K-12 Educators

Prof. Yuting W. Chen, University of Illinois, Urbana-Champaign
Prof. Blake Everett Johnson, University of Illinois, Urbana-Champaign
Mr. Saadeddine Shehab, University of Illinois, Urbana-Champaign
Dr. Marcia Pool, University of Illinois, Urbana-Champaign

M454 - SPONSOR TECH SESSION: What's New at ABET 2023—An Information Session, Presented by ABET

1:30 P.M. - 3:00 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

This ABET-sponsored session aims to update engineering educators on the latest activities and news related to ABET accreditation. Whether you are new to ABET accreditation or seeking accreditation for the first time, this session is designed for you. The session will cover various topics, including the types of programs that are accredited, the accreditation criteria and procedures, the individuals responsible for writing and evaluating the criteria, and the decision-making process for final accreditation decisions. Additionally, the session will explore how assessment tools are utilized in the ABET process, as well as the significance of ABET and its impact. Participants are encouraged to come prepared with questions and feedback for senior ABET representatives.

Speakers:

Michael Milligan, Ph.D., P.E., Chief Executive Officer, ABET; Joseph L. Sussman, Ph.D., F.ASME, Chief Accreditation Officer, Chief Information Officer, ABET; Jane Emmet, Senior Director, Accreditation Operations, ABET

M455 - Engineering Leadership and Cultural Change

1:30 P.M. - 3:00 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Leadership Development Division (LEAD)

Moderator: Kim Wolfinbarger, University of Oklahoma

This session will feature roundtable discussions about the role of engineering leaders in driving cultural change. How can engineering educators work to bridge the culture gap that arises from the systemic cultural tensions in our own institutions? How can engineering educators simultaneously prepare students to work in organizations as they exist today while equipping students to drive change and create the organizations of tomorrow?

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M456 - Military and Veterans Division (MVD) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

Moderator: Angela Minichiello, Utah State University

A Method for Deducing the Self-Diffusion Coefficient of a Single Analog Molecule within a Liquid-State Flow

Mr. Philip Troy Brown, University of North Carolina, Charlotte
Dr. Russell G. Keanini, University of North Carolina, Charlotte
Dr. Jerry Lynn Dahlberg, University of Tennessee Space Institute
Dr. Peter Thomas Tkacik, University of North Carolina, Charlotte

Shaping Experiential Research for Veteran Education (SERVE), A Multi-University Summer Research Exchange Program for Veterans

Dr. Jerry Lynn Dahlberg, University of Tennessee Space Institute
Bruce LaMattina,
Dr. Russell G. Keanini, University of North Carolina, Charlotte
Ernest Lamar Brothers, University of Tennessee, Knoxville

A Framework to Facilitate Higher Educational Institutions Delivery of Data Science Microcredentials: A First-Hand Experience

Dr. Haroon Malik, Marshall University
Dr. David A. Dampier, Marshall University

Building a Rotary Wing Aviation Program to Facilitate Integration of Military Veterans and Service Members

Mr. Charles William Weigandt, Austin Peay State University
Dr. Mahesh Kumar Pallikonda, Austin Peay State University
Prof. Ravi C. Manimaran, Austin Peay State University

M457 - Faculty Development for Culturally Responsive Mentoring of Graduate and Undergraduate Students in Research: Challenges and Strategies

1:30 P.M. - 3:00 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute and State University

Speakers: Dr. Karen A High, Clemson University; Mrs. Jennifer Brown, Clemson University; Randi Sims,

This is an interactive, facilitated dive into faculty development of culturally responsive mentoring undergraduate and graduate research students. Faculty developers will engage in reflections and ideation about how they could help faculty foster healthier, more robust mentoring approaches to improve the research self-efficacy of their students. Faculty developers seeking strategies and tools for facilitating productive, culturally responsive mentorship of both undergraduate and graduate research students are invited.

The session:

- 1) Increase participants' confidence in using common mentoring language to identify areas of improvement with their faculty at their home institutions.
- 2) Increase familiarity with the nuances of mentoring undergraduates versus graduate students in research and how this can affect faculty approaches to recruitment.
- 3) Provide a concrete strategy for creating faculty development opportunities that show faculty how to engage in more culturally

responsive mentoring practices with their student research mentees and improve the mentoring culture in their institutions.

M457B - Faculty Development Division (FDD) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Melanie Villatoro, New York City College of Technology

Faculty Perceptions of Diversity Statements in STEM Faculty Job Applications

Dr. Torrie Cropps, University of Texas, Dallas
Dr. Yvette E. Pearson, P.E., University of Texas, Dallas
Jue Wu, University of California, Berkeley
Ms. Samara Rose Boyle, Rice University
Dr. Canek Moises Luna Phillips, Rice University

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MONDAY, JUNE 26th SESSIONS

Navigating Faculty Identity Development through the Tenure and Promotion Process as Black and Hispanic Engineering Faculty

Dr. Maria L. Espino, University of South Carolina
Mr. Brian D. Le, University of California, Los Angeles
Dr. Henry Tran, University of South Carolina
Dr. Spencer Platt, University of South Carolina

The Hidden Curriculum. Navigating Promotion and Tenure at University of Delaware

Dr. Robin Andreasen, University of Delaware
Dr. Heather Doty, University of Delaware
Dr. Shawna Vican, University of Delaware

Peer Observation Practice to Enhance Inclusive Teaching: An Exploratory Approach to Evaluate Faculty Perceptions

Dr. Sarira Motaref, P.E., University of Connecticut
Dr. Mousumi Roy, P.E., University of Connecticut
Dr. Maria Chrysochoou, University of Connecticut

Nuestro Impacto: An Insider Look into the Connections between Our Past Experiences and Current Teaching and Mentoring Practices

Dr. Idalis Villanueva Alarcón, University of Florida
Dr. Laura Melissa Cruz Castro, University of Florida
Dr. John Alexander Mendoza, University of Florida
Dr. Edward Latorre-Navarro, University of Florida
Mr. Diego Alvarado, University of Florida
Dr. Lilianny Virguez, University of Florida

M459 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Renewed Hope: Utilizing Freirean Pedagogies to Enhance Multicultural STEM Classrooms

Cassandra Puletapuai, Colorado State University
Dr. Daniel Birmingham, Colorado State University

The Curriculum Puzzle: Developing and Integrating Materials to Localize a Curriculum

Nrupaja Bhide, Purdue University, West Lafayette
Yağmur Önder, Purdue University, West Lafayette
Sydney Free, Purdue University, West Lafayette

Michael Dunham, Purdue University, West Lafayette

Dr. Dhinesh Balaji Radhakrishnan, Purdue University, West Lafayette

Prof. Jennifer Deboer, Purdue University, West Lafayette

ICT-Mediated STEM for the Inclusive Education of Migrants and Refugees Children

Juan Sebastián Sánchez-Gómez, Universidad de los Andes, Columbia

Maria Catalina Ramirez,

Andrea Herrera, Universidad de los Andes, Columbia

Work In Progress: A Novel Approach to Understanding Perceptions of Race among Computing Undergraduates

Fatima Glovena Fairfax, Duke University

Elyse McFalls, Duke University

Alex Rogers, Duke University

Jabari Kwesi, Duke University

Alicia Nicki Washington, Duke University

Shaundra Bryant Daily, Duke University

Crystal E. Peoples, Duke University

Ms. Helen Xiao, Duke University

Eduardo Bonilla-Silva,

Work In Progress: Evaluating the Cultural Context of Engineering and Engineering-Related Concept Inventory Assessment Items

Shauna N. Adams, Purdue University, West Lafayette

Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Philip Goldberg, Purdue University, West Lafayette

Work In Progress: Implementation of a Skills Based Approach to Diversity, Equity, and Inclusion in Senior Undergraduate Aerospace Capstones

Prof. Sara E. Lego, Pennsylvania State University

M459B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 5

1:30 P.M. - 3:00 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

The Danger of a Single Story: A Critical and Holistic Account of Rachel's Experience in Computing for Broadening Participation

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MONDAY, JUNE 26th SESSIONS

Mrs. Nivedita Kumar, Florida International University
Dr. Stephen Secules, Florida International University

Decolonization of Academia: Is the Word Latinx a Form of Colonization?

Ms. Karen Dinora Martinez Soto, Virginia Tech
Dr. Homero Murzi, Virginia Tech
Ms. Jazmin Jurkiewicz, Virginia Tech
Rene Alberto Hernandez, Virginia Tech

Reconfigurations of Life Cycle Assessment: Valuing Life over Lithium

Dr. Joey Valle, Purdue University
Nafissa Aida Maïga,
Roshan Krishnan,
Jessica Ng,
John Mulrow,

(Re)membering Indigenous Spirituality in Engineering Education: A Narrative Literature Review

Mr. Austin Morgan Kainoa Peters, Purdue University

How Do Students Take up Notions of Environmental Racism in an Engineering Computational Methods Course?

Dr. Desen Sevi Ozkan, Tufts University
Ms. Cynthia Hampton, Virginia Tech
Ms. Taylor Lightner, Virginia Tech

Considerations for Indigenizing the Technologically Enhanced Engineering Education Curriculum

Dr. Bahar Memarian, University of Toronto, Canada

M469B - CIEC Board and Planning Meeting

1:30 P.M. - 4:30 P.M., CARROLL, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Headquarters

CIEC Board and Planning Meeting

M469C - Greet the Stars! ASEE New Members & First Timers Orientation

1:30 P.M. - 3:00 P.M., BALLROOM 3, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

Join VP of Member Affairs Christi Patton Luks in this informative session about ASEE.

M474 - Engineering Deans Council (EDC) Executive Board Meeting

1:30 P.M. - 3:00 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Deans Council (EDC)

Engineering Deans Council (EDC) Executive Board Meeting

M492A - Messages Matter – How to Attract Diverse Students to Engineering

1:30 P.M. - 3:00 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: Organizations Outside ASEE

DiscoverE's Message Matter research explored how to increase engineering interest among high school students and their parents through messaging. "Engineering Is for Everyone" is the most highly appealing message, especially among girls and students of color. However, it is also the least believable. To attract and retain a diverse engineering and technical workforce, a critical need as the US Bureau of Labor predicts a shortfall of more than 6 million engineers by 2026, we need to work together to make the unbelievable believable. At this session, we'll explore the Messages Matter research and discuss what steps we all can take to expand how we present engineering and create inclusive and welcoming environments to inspire future innovators.

M492B - IEEE Meeting

1:30 P.M. - 5:00 P.M., CALLOWAY, HILTON BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

IEEE Meeting

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

M492C - Promoting the Value of the Grand Challenges Scholars Program to Students, Faculty, Staff, and Alumni

1:30 P.M. - 3:00 P.M., KEY 3&4, HILTON BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

Description: The Grand Challenges Scholars Program (GCSP) was created in 2009 to promote an awareness of the National Academy of Engineering Grand Challenges (GC) and to create a means for undergraduate students to meaningfully engage in addressing the Grand Challenges while also being recognized for their efforts. Since then almost 100 colleges and universities worldwide have created GC Scholars Programs and almost 2000 students have graduated from those institutions as GC Scholars. In spite of the inherent personal and societal benefits of participating in a GCSP experience, our observations indicate that students, faculty, staff, and alumni are often not fully aware of the ways in which participation in the program can support them in achieving their personal and professional goals. This session will highlight the ways in which the GCSPs have accentuated the accomplishments of students, faculty, staff, and alumni and the ways in which participation can be promoted to them that make clear the substantial benefits. The session will be based on stories of impact from a panel of representative speakers with ample time for comments, questions, and creative discussion.

Facilitators:

Keith Buffinton, Bucknell University

Yevgeniya (Zhenya) V. Zastavker, Olin College of Engineering

Speakers:

TBD

M492D - ECEDHA (The Electrical and Computer Engineering Department Head Association)

1:30 P.M. - 3:00 P.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

M494 - SPONSOR TECH SESSION: Empowering Engineering Excellence—Women Leaders Rising to the Top, Presented by University of Maryland Baltimore County

1:30 P.M. - 3:00 P.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

The International Federation of Engineering Education Societies (IFEES) and Global Engineering Deans Council (GEDC) are proud to present "Empowering Engineering Excellence: Women Leaders Rising to the Top," a panel discussion based on a book series, supported, and sponsored by the University of Maryland, Baltimore County (UMBC), that celebrates and showcases the remarkable achievements of women in engineering leadership positions worldwide.

Engineering has traditionally been a male-dominated field, but the tide is turning as women continue to break barriers, shatter stereotypes, and rise to influential positions in academia, industry, and research. This panel brings together a culturally diverse group of trailblazing women who have overcome obstacles, navigated challenging environments and emerged as accomplished leaders in their respective fields.

The panelists represent a global perspective, hailing from different continents and cultural backgrounds, reflecting the international scope of engineering leadership. Their experiences will provide a multifaceted understanding of the challenges faced by women in engineering, while also illuminating the opportunities and progress that exist today.

This panel aims to inspire the next generation of female engineering leaders by showcasing the achievements of these extraordinary women. Their stories will highlight the importance of diversity and inclusion in engineering, encouraging aspiring engineers, educators, and professionals to pursue their ambitions, dissolve boundaries, and forge a path to leadership positions in engineering.

Join us for an insightful and empowering discussion as we celebrate the accomplishments of these outstanding women and explore how they have risen to the top in the engineering field, defying stereotypes and paving the way for future generations.

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Speakers, Moderators, and "Rising to the Top" Authors:

1. Stephanie Farrell (USA), Session Co-Chair, IFEEES President, Professor, and Founding Department Head, Experiential Engineering Education at Rowan University

2. Renetta Garrison Tull (USA), Session Co-Chair, Vice Chancellor, DEI at the University of California, Davis

3. Jamie Gurganus (USA), Session Co-Chair, Faculty In the Engineering and Computing Education Program, Associate Director of STEM Education Research, Affiliate Faculty in Mechanical Engineering, Director for the Center for the Integration of Research, Teaching and Learning (CIRTL) in Graduate School at UMBC, College of Engineering and Information Technology (COEIT)

4. Soma Chakrabarti (USA), Session Co-Chair, Engineering Education Outreach Program and Partnership Developer | International Collaborator for Continuing & Online Education, Ansys

5. Tagwa Musa (Sudan), Session Co-Chair, Researcher at Texas A&M University and Associate Professor of Petroleum Engineering at Sudan University of Science and Technology (SUST)

6. Sushma Kulkarni (India), GEDC Incoming-Chair, Vice Chancellor-NICMAR University Pune

7. Loreto Valenzuela (Chile), Director of College at the School of Engineering at Pontificia Universidad Católica de Chile (PUC)

8. Paloma Díaz (Spain), Dean of Computer Science and Engineering of Universidad Carlos III de Madrid (UC3M)

M501 - AERO 3: Innovative Pedagogy and Hands-on Learning 2

3:15 P.M. - 4:45 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Mary Johnson, Purdue University at West Lafayette (PPI)

Aerospace technical session

Collaborating with Aviation Museums to Enhance Authentic Assessments for Aerospace Structures

Dr. Craig Merrett, Clarkson University

Ms. Jamie Adams, Clarkson University

Dr. Aaron W. Johnson, University of Michigan

Dr. Jessica Swenson, University at Buffalo, The State University of New York

Tolerance of Ambiguity and Engineering Identity

Dr. M. Javed Khan, Tuskegee University

Dr. Chadia Aji, Tuskegee University

The Impact of Immersive Virtual Reality on Undergraduate STEM Students

Dr. Chadia A. Aji, Tuskegee University

Dr. M. Javed Khan, Tuskegee University

M502 - Architectural Engineering Business Meeting

3:15 P.M. - 4:45 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderators: Rachel Mosier, Oklahoma State University; Eugene Kwak, State University of New York, College of Technology at Farmingdale

Join us to vote for new leadership and discuss items of concern to you, the new member.

M504 - Biomedical Engineering Division (BED) Technical Session 1: Sense of Self in Biomedical Engineering Students

3:15 P.M. - 4:45 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Karin Jensen, University of Michigan; Cameron Kim,

This Biomedical Engineering technical session will include full-paper presentations from authors. Moderators may encourage small group discussion or other engaging activities with attendees related to the topic in the latter part of the session.

Improving Student Perceptions of Learning through Collaborative Testing

Dr. Brian P. Helmke, University of Virginia

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Measuring Biomedical Engineers' Self-Efficacy in Generating and Solving Provocative Questions about Surgery

Mr. Nathan Zhang, Vanderbilt University
Dr. Stacy S. Klein-Gardner, Vanderbilt University
Dr. Michael I. Miga, Vanderbilt University

Clinician-Engineer Self-Concept in Biomedical Engineering students and Its Relationship to Race, First-Generation Status, and Mode of Delivery

Dr. William H. Guilford, University of Virginia

Story-Driven Learning in Biomedical Engineering: Quantifying Empathy in the Context of Prompts and Perceptions

Dr. Stephanie Jill Lunn, Florida International University
Dr. Cristi L. Bell-Huff, Georgia Institute of Technology
Prof. Joseph M. LeDoux, Georgia Institute of Technology

M505 - Chemical Engineering Division Executive Committee Meeting

3:15 P.M. - 4:45 P.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Chemical Engineering Division (ChED)

Moderators: David Silverstein, University of Kentucky; Reginald Rogers, University of Missouri - Columbia

This meeting is open only to Chemical Engineering Division executive board members.

M506 - Committee on Professional Practice Presents: Topics in the Academic-Industry Zone

3:15 P.M. - 4:45 P.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Shinae Jang, University of Connecticut

Presenters will share efforts they are pursuing to align or better align academic activities with industry practice.

Teaching Climate Change in an Introductory Civil Engineering Course

Dr. Yufeng Hu, Western Michigan University
Elise DeCamp, Western Michigan University
Dr. Osama Abudayyeh, University of Tabuk, Saudi Arabia

How Academia and Industry Can Partner to Prepare Future Civil Engineers for Success

Mr. Bradley Aldrich P.E., F.NSPE, F.ASCE, American Society of Civil Engineers
Dr. Kleio Avrithi, P.E., Mercer University
Ms. Jennifer Hofmann, American Society of Civil Engineers

Ungraded Classrooms: A Pattern for Learning in Engineering Modeled after Expert Practitioners

Dr. Bret N. Lingwall, P.E., South Dakota School of Mines and Technology
Dr. Andrea E. Surovek, P.E., South Dakota School of Mines and Technology

Student-to-Industry Interaction in a Civil Engineering Field Course: Benefits for Education and Leadership

Dr. Brad Wambeke, United States Air Force Academy
Col. Joel Sloan, United States Air Force Academy
Lt. Col. Timothy E. Frank, United States Air Force Academy
Daphne DePorres, United States Air Force Academy

M506B - ASCE Liasion Committee Presents: All Things ASCE

3:15 P.M. - 4:45 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Scott Hamilton, York College of Pennsylvania; Leslie Nolen, American Society of Civil Engineers

Topics range from ASCE Initiatives to ABET and everything in between.

Future World Vision Integrated into a First-Year Civil Engineering Course

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

Fostering Infrastructure Equity through Leveraging Envision Rating System among Civil Engineering and Construction Students

Miss Rubaya Rahat, Florida International University
Mr. Mohamed Elzomor, P.E., Florida International University

Preparing the Future Civil Engineer: ASCE's Proposed Revision of the ABET Civil Engineering Program Criteria - Implementation Tools

Dr. David A. Dzombak, P.E., Carnegie Mellon University
Wayne R. Bergstrom,
Dr. Jay A. Puckett, P.E., University of Nebraska, Lincoln
Dr. Stephen J. Ressler, P.E., United States Military Academy, West Point

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Ms. Leslie Nolen, C.A.E., American Society of Civil Engineers

A Study of EAC-ABET Civil Engineering Accreditation Curriculum Requirements and Exemption Provisions of State Licensure Laws and Rules

Dr. Matthew K. Swenty, Virginia Military Institute

Dr. Brian J. Swenty, P.E., University of Evansville

Does an ABET EAC Civil Engineering Degree Prepare Structural Engineers for Practice?

Dr. Matthew K. Swenty, Virginia Military Institute

Dr. Benjamin Z. Dymond, Northern Arizona University

M508 - COED: Spotlight on Diverse Learners

3:15 P.M. - 4:45 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Lifford McLaughlan, Texas A&M University - Kingsville

This session focuses on topics related to diversity and inclusion in computing education.

Examining Psychological and Social Factors That Impact the Experiences and Representation of Black Women in Computer Science (A Case Study)

Dr. Edward Dillon, Morgan State University

Theodore Wimberly Jr.,

Mariah McMichael,

Miss Lauren Brown, Morgan State University

Abigail Dina,

Krystal L. Williams, University of Georgia

Motivation and Evidence for Screen Reader Accessible Website as an Effective and Inclusive Delivery Method for Course Content in Higher Education

Dr. Vijesh J. Bhute, Imperial College London

Ellen Player,

Dr. Deesha Chadha, Imperial College London

Office Hours, Demographic Groups, and COVID

Heidi Huang, University of Michigan, Ann Arbor

Kevin Yan, University of Michigan, Ann Arbor

Dr. Andrew Deorio, University of Michigan, Ann Arbor

Portable Laboratory for Electrical Engineering Education:

The LAB-VEE Ecosystem Developed in Latin America and the Caribbean

Ing. Reymi Then, Universidad Tecnológica de Santiago, Chile

Dr. Maria M. Larrondo-Petrie, Florida Atlantic University

Work in Progress: Toward an Augmented Reality (AR) Learning Environment for Hispanic High School Students to Visualize and Embody STEM Spatial Transformations

Dr. Daniel A. Tillman, University of Texas, El Paso

Wei Yan, Texas A&M University

Song An, University of Texas, El Paso

Jeffrey Liew, Texas A&M University

Dr. Kien H. Lim,

Lisa Garbrecht, University of Texas, Austin

Philip B. Yasskin,

M508B - COED: Cybersecurity Education

3:15 P.M. - 4:45 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Walter Schilling, Milwaukee School of Engineering

This session focuses on cybersecurity education topics at both the pre-college and university levels.

A Bridged Cybersecurity Curriculum with Embedded Stackable Credentials

Dr. Fitratullah Khan, The University of Texas, Rio Grande Valley

Dr. Ala Qubbaj, The University of Texas, Rio Grande Valley

Laura Saenz,

Dr. Liyu Zhang, The University of Texas, Rio Grande Valley

Dr. Mahmoud K. Quweider, The University of Texas, Rio Grande Valley

Early Integrating of Industry Certification Domains and Objectives into a Modern a Cybersecurity Degree Curriculum

Dr. Mahmoud K. Quweider, The University of Texas, Rio Grande Valley

Dr. Liyu Zhang, The University of Texas, Rio Grande Valley

Dr. Hansheng Lei,

Evaluating the Impact of a Multimodal Cybersecurity Education Approach on High School Student Cybersecurity Learning

Xiaoli Yang,

Dr. Ahmad Y. Javaid, The University of Toledo

SaiSuma Sudha,

Sai Sushmitha Sudha,

Examining the Impact of Early Cybersecurity Education in the

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Selection of Cybersecurity as a Career among High School Senior and University Freshmen Students

Sai Sushmitha Sudha,
SaiSuma Sudha,
Dr. Ahmad Y. Javaid, The University of Toledo
Xiaoli Yang,

M510 - Continuing Professional Development Division (CPD) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Continuing Professional Development Division (CPD)

WIP-Certification for Adult Learners and Industry Professionals for Continuous Professional Development

Dr. Iftexhar Ibne Basith, Sam Houston State University
Dr. Ulan Dakeev, Sam Houston State University
Vajih Khan, Sam Houston State University
Dr. Sumith Yesudasan, Sam Houston State University
Dr. Faruk Yildiz, Sam Houston State University
Dr. Suleiman Obeidat, Sam Houston State University
Euijin Yang,
Christopher J. Rabe,

Writing as an URM STEM Community: Increasing Competitiveness and Success of Underrepresented Minority STEM Pre-tenure Faculty and Postdoctoral Researchers through Community Grant and Other Academic Writing Experiences

Dr. Mehrube Mehrubeoglu, Texas A&M University - Corpus Christi
Cherish C. Vance, The Ohio State University
Kimberle Ann Kelly,
Janel L Ortiz, California State Polytechnic University, Pomona
Shawanee' Patrick, Texas A&M University
Philip Olawale Adebo,
David Chimene,
Dr. Joseph William Newton Leo Reustle, Hampton University
Department of Marine and Environmental Science

Integration of Professional Communication Competence in a Design Thinking Course

Dr. Olukemi Akintewe, University of South Florida
Dr. Jonathan Elliot Gaines, University of South Florida
Walter Alejandro Silva Sotillo,
James Anderson,

Training New Employees during the Great Resignation

Charles E. Baukal Jr., Oklahoma Baptist University

M511 - Cooperative and Experiential Education Division (CEED) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Moderator: Helen Chen, Stanford University

This session will cover the impact of experiential learning projects in a variety of settings.

Building a Statewide Experiential Learning Portfolio in Cybersecurity

Dr. Luiz A. DaSilva, Virginia Polytechnic Institute and State University
Dr. Liza Wilson Durant, George Mason University
Jordan Mason,
Sarah Hayes, Virginia Polytechnic Institute and State University

Work-In-Progress: Effects of co-curricular activities on student learning outcomes related to an artificial intelligence, modeling, and simulations (AIMS) certificate program

Martell Bell, The University of Iowa
Prof. Rachel Vitali, The University of Iowa
Dr. Jae-Eun Russell,

Creating value for entrepreneurs through a transdisciplinary experiential program

Dr. Philip Appiah-Kubi, University of Dayton
Phil Doepker,
Dr. Khalid Zouhri, University of Dayton
James Brothers, University of Dayton

Student-centered design: A capstone design project of a batch vacuum evaporator for food science students by a multidisciplinary team of engineering seniors

Dr. Philip Jackson, University of Florida
Emily Hope Ford,
Allison Kathleen Porras,
Andrew John MacIntosh,

Work in Progress: Interactive and Dynamic Lecture Slides for Active Learning of Concept Evaluation and Selection

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Prof. Eli Patten, University of Washington

M513 - Design in Engineering Education Division (DEED) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Curriculum Design and Improvements

Design of a Junior-Level Design Class: Work in Progress

Yanko Kranov,

Dr. Robert T. Bailey P.E., Loyola University Maryland

Dr. Suzanne Keilson, Loyola University Maryland

Rethinking Spatial Visualization Assessments: Centering Recognized Prior Knowledge in 2D/3D Curriculum Development

Yağmur Önder, Purdue University at West Lafayette (COE)

Nrupaja Bhide, Purdue University at West Lafayette (PPI)

Prof. Jennifer Deboer, Purdue University at West Lafayette (COE)

Dr. Dhinesh Balaji Radhakrishnan, Purdue University at West Lafayette (COE)

WORK-IN-PROGRESS: An Interdisciplinary Model for Teaching Technical Communication in Multidisciplinary Capstone Courses

Mr. Bob Rhoads, The Ohio State University

Lynn Hall, The Ohio State University

Elevating Student Voices in Collaborative Textbook Development

Leah M Wiitablake, Clemson University

Amber Taylor,

Landry Samuels,

Jalani Ziad Eanochs,

Caleb Jovan Hardin,

Dr. D. Matthew Boyer, Clemson University

M514A - FIE Planning Committee Meeting

3:15 P.M. - 4:45 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Stephen Frezza, Gannon University

M514B - Advancing Diversity, Equity, and Inclusion

3:15 P.M. - 4:45 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Elizabeth Strehl, University of Michigan

Educational Research & Methods Division (ERM) Technical Session

Centering equity in an NSF engineering education alliance: Considerations for complex, multi stakeholder work

Rebecca Zarch, SageFox Consulting Group

Monica McGill, CSEdResearch.org

Fostering Educational Equity in Engineering

Miss Katrina Marie Robertson,

Hadi Ali, Embry-Riddle Aeronautical University

Dr. Jonathan M. Adams, Embry-Riddle Aeronautical University - Prescott

Elizabeth Ashley Rea, Embry-Riddle Aeronautical University - Prescott

Integrating Participatory Methods in the Study of Equity and Inclusion

Dr. Kristen Moore, University at Buffalo, The State University of New York

Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York

Qiuxing Chen,

Dr. Anne M. McAlister, University of Virginia

Courtney Burris,

Ms. Jada Vanessa Mowatt, Department of Chemical and Biological Engineering, University at Buffalo, The State University of New York

Promoting Research Quality to Study Mental Models of Ethics and Diversity, Equity, and Inclusion (DEI) in Engineering

Dr. Justin L. Hess, Purdue University at West Lafayette (COE)

Dr. Andrew Katz, Virginia Polytechnic Institute and State University

Isil Anakok, Virginia Polytechnic Institute and State University

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Prof. Brent K. Jesiek, Cornell University
Andrew Whitehead,
Sri Sowmya Panuganti, Purdue Engineering Education

Equitable Attainment of Engineering Degrees: A Tri-University Study & Improvement Effort

Raian Islam, The University of Arizona
Prof. Gregory L. Heileman, The University of Arizona
Kian G. Alavy, University of Arizona
David Ruitter, University of California, San Diego
Prof. Mitchell L. R. Walker II, Max Planck Institute for Intelligent Systems

M514C - Promoting Well-Being in Engineering Education: Strategies and Perspectives

3:15 P.M. - 4:45 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Natalie Van Tyne, Virginia Polytechnic Institute and State University

Educational Research & Methods Division (ERM)
Technical Session

A Kickstart to Smart Living in Undergraduate Engineering: Proposing Goals and Objectives for a First-Year Happiness and Well-Being Course

Mr. Muhammad Asghar, Utah State University
Daniel Kane, Utah State University
Dr. Angela Minichiello P.E., Utah State University
Dr. Wade H Goodridge, Utah State University

Intuitional role in the mental health and well-being of undergraduate engineering students: Student and faculty perspectives

Mr. Muhammad Asghar, Utah State University
Dr. Angela Minichiello, Utah State University
Mr. Assad Iqbal, Arizona State University

Stigma of mental health conditions within engineering culture and its relation to help-seeking attitudes: Insights from the first year of a longitudinal study

Matilde Luz Sánchez-Peña, University at Buffalo, The State University of New York
Dr. Anne M. McAlister, University at Buffalo
Nichole Ramirez, Purdue University
Dr. Douglas B. Samuel,

Mr. Syed Ali Kamal, University at Buffalo, The State University of New York

Xinrui Xu, Huazhong University of Science and Technology

The Well-being Teaching Assistant: A Proactive Approach to Caring for Students with Academic and Personal Difficulties in Massive Courses

Dr. Jorge A. Baier, Pontificia Universidad Catolica de Chile
Miss Isabel Hilliger P.E., Pontificia Universidad Catolica de Chile
Mrs. Ximena Hidalgo,
Mr. Matías Alonso Piña, Pontificia Universidad Catolica de Chile
Gabriel Astudillo, Pontificia Universidad Católica de Chile

The Role of Information-Gathering on Students' Satisfaction in Engineering Majors

Mrs. Haleh Barmaki Brotherton, Clemson University
Dr. Marisa K. Orr, Clemson University

Burnout: The Cost of Masking Neurodiversity in Graduate STEM Programs

Ms. Connie Mosher Syharat, University of Connecticut
Dr. Alexandra Hain, University of Connecticut
Dr. Arash Esmaili Zaghi P.E., University of Connecticut
Catherine G. P. Berdanier, Pennsylvania State University

M514D - Exploration of Written and Team Communication

3:15 P.M. - 4:45 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: David Reeping, University of Cincinnati

Educational Research & Methods Division (ERM)
Technical Session

Literature Adventures with Linguistic Inquiry and Word Count

Ms. Kristin L. Schaefer P.E., UH
Jorge Rosales,
Dr. Jerrod A. Henderson, University of Houston

Measuring and Visualizing Metadiscursive Markers in Student Writing

Dr. Aneet Dharmavaram Narendranath, Michigan Technological University
Zachary Thelander,
Dr. Sirena C. Hargrove-Leak, Elon University

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Write from the Start in Engineering: Mixed-Methods Results of a Collaboration between a First-Year Biomedical Engineering Class and a University Writing Center

Dr. D'Arcy Randall, Dept. of Mechanical Engineering, The University of Texas at Austin

Dr. Hyesun You, The University of Iowa

Dr. Daniel S. Puperi, The University of Texas at Austin

Mr. Thomas E. Lindsey, The University of Texas-Arlington

Rhya Moffitt Brooke, The University of Texas at Austin

Enhancing Team Communication Skills via Portable Intercultural Module in a Systems Thinking Class

Dr. Aparajita Jaiswal, Purdue University at West Lafayette (PPI)

Dr. Tugba Karabiyik, Purdue University at West Lafayette (COE)

Dr. Lan Jin,

Kris Acheson-Clair, Purdue University Programs

Overlooked, Underlying: Understanding tacit criteria of proposal reviewing during a mock panel review

Ms. Randi Sims, Clemson University

Kelsey Watts, Clemson University

Ms. Evan Ko, University of Illinois at Urbana - Champaign

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

Dr. Gary Lichtenstein, Arizona State University

Dr. Karin Jensen, University of Michigan

Dr. Lisa Benson, Clemson University

M514E - Work-in-Progress Session: Emergent Methods for Engineering Education Research

3:15 P.M. - 4:45 P.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Maimuna Begum Kali, Florida International University

Educational Research & Methods Division (ERM) technical session

Work in Progress: Transferability of a Neurodivergent Codebook Developed from TikTok to Neurodivergent Engineers

Autumn Cuellar, Utah State University

Sarah Principato,

Sakshi Solanki,

Dr. Catherine McGough Spence, Minnesota State University, Mankato

Dr. Marissa A Tsugawa, Utah State University - Engineering Education

Work in Progress: Developing Methods from Feminist Standpoint Perspectives to Analyze a Panel Discussion and Promote Enduring Impact

Dr. Renee M. Desing, Oregon State University

Dr. Susan Sajadi, Virginia Tech

Dr. Christina Anlynette Alston, Rice University

Stephanie A Damas, Clemson University

Gabriella Torres,

Dr. Corin L. Bowen, California State University, Los Angeles

Work in Progress: Research on Engineering Students' Epistemological Beliefs in Design Decision Making: Conceptual Issues and a New Methodological Approach

Dr. Trevion S Henderson, Tufts University

Work in Progress: Using Think-Aloud Sessions to Understand Student Problem-Solving Approaches

Natalie Dow,

Ryan Lee,

Ms. Zihui Zhu, Embry-Riddle Aeronautical University - Prescott

Dr. Kaela M Martin, Embry-Riddle Aeronautical University - Prescott

Dr. Elif Miskioglu, Bucknell University

Dr. Adam R Carberry, Arizona State University

Work in Progress: Using Machine Learning to Map Student Narratives of Understanding and Promoting Linguistic Justice

Harpreet Auby, Tufts University

Dr. Milo Koretsky, Tufts University

Work in Progress: A Systematic Literature Review of Person-Centered Approaches and Data-Driven Methods in Engineering Education Research

Mr. Jiafu Niu, University of Cincinnati

Dr. David Reeping, University of Cincinnati

Work in Progress: Assessing Engineering Students' Behavioral Engagement and Learning; Survey Development and Validation

Dr. Ibukun Samuel Osunbunmi, Utah State University - Engineering Education

Prof. Kurt Henry Becker, Utah State University - Engineering Education

Young Min Kim, The Ohio State University

Dr. Mohammad Al Mestiraihi, The University of Texas Rio Grande Valley

Dr. R Ryan Dupont, Utah State University

Dr. David K. Stevens, Utah State University

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M515 - Faculty Leadership

3:15 P.M. - 4:45 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsors: Electrical and Computer Engineering Division (ECE); Faculty Development Division (FDD)

Moderator: Huihui Wang, St. Bonaventure University

The ASEE Electrical and Computer Engineering Division, Faculty Development Division, and IEEE Educational Activities Board Faculty Resources Committee will present a hybrid panel aiming at providing insights about and skills of engineering faculty leadership. The panelists represent academic leadership roles in engineering disciplines. Participants will learn leadership knowledge and critical skills to prepare them for their careers in the future. The panel has the potential to provide participants with an academic network.

M516 - Panel: Teaching Engineering with Energy — Making Energy Literacy Sustainable

3:15 P.M. - 4:45 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Speaker: Dr. Hector E. Medina, Liberty University

The Department of Energy (DOE) has defined energy literacy as “an understanding of the nature and role of energy in the world and daily lives accompanied by the ability to apply this understanding to answer questions and solve problems.” Higher and, to some extent, K–12 education should play a key role in equipping students with interdisciplinary knowledge, skills, and attitudes to make them apt to respond suitably to the sustainability challenges facing our nation and the world. Unfortunately, there is no confident evidence that even the engineering education system is producing engineering graduates with sufficient energy literacy. Arguably, the overhead burden caused by the smorgasbord of courses with vastly different concepts to learn and myriad other challenging educational activities at the university level can overwhelm the typical engineering student’s bandwidth. Many of those course concepts could be interrelated by implementing systems-based approaches that rely on the common threads of “energy/power” and “information.”

This panel will foster discussions between engineering faculty, STEM educators, students, and the community to provide solutions for implementing “energy” as a key learning transaction in engineering education in a sustainable manner.

M517 - Engineering and Public Policy Division (EPP) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsor: Engineering and Public Policy Division (EPP)

Moderator: Elizabeth Adams, Fresno City College

Exposing Students to the Interactions of Science, Engineering and Public Policy through an Interdisciplinary Course

Dr. Lianne Cartee, North Carolina State University and University of North Carolina at Chapel Hill

Clifford E. Griffin, North Carolina State University at Raleigh

Research on Governance of Higher Engineering Education Quality in China after Accessing the Washington Accord

Dr. Ming Li, Beijing Foreign Studies University

Miss Min Zhao, Graduate School of Education, Beijing Foreign Studies University, Beijing, China.

The constituent elements of STEM education and their respective effect on talent cultivation performance in the unique context of China: A two-stage study

Mr. Guangpei Chen, School of Public Affairs, Zhejiang University and Institute of China’s Science, Technology and Education Policy, Zhejiang University

Yingying Qiao, School of Public Affairs, Zhejiang University and Institute of China’s Science, Technology and Education Policy, Zhejiang University

Yiang Yang,

Tracing the policy shift to new engineering education in China: An analytical lens of historical institutionalism

Dr. Yanru Xu, University of Chinese Academy of Sciences

Ji’an Liu,

YaXuan Wen,

Dr. Lufan Wang, Florida International University

Dr. Yan Wei, Southern University of Science and Technology

Prof. Yiming Rong, Southern University of Science and Technology

M519 - Engineering Economy Division (EED) Technical Session 1

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3:15 P.M. - 4:45 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Economy Division (EED)

Course Strategy: Threading Triple Bottom-Line Sustainability Across Multiple Courses

Dr. Daniel B. Oerther, Missouri University of Science and Technology

Investment Exercise for First-Year Engineering Students

Dr. Huseyin Sarper, Old Dominion University
Dr. Nebojsa I Jaksic P.E., Colorado State University - Pueblo

Microfinance in an Engineering Economics Course

Prof. Robert P. Leland, Oral Roberts University

Transforming Engineering Economy into a Two-Credit Course

Dr. Kate D. Abel, Stevens Institute of Technology (School of Engineering and Science)

M520 - Engineering Ethics Division (ETHICS) Technical Session_Monday June 26, 3:15 - 4:45

3:15 P.M. - 4:45 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Rockwell Clancy, Colorado School of Mines; Rujun Gao,

Reengineering ethics education for deeper student engagement through the creation of roleplaying and decision-making games [WIP Paper, Student Experiences]

Dr. Shreya Kumar, University of Notre Dame
Dr. Megan Levis, University of Notre Dame

Stifle or Support: Academic Culture and Engineering Ethics Education [Full Research Paper]

Dr. Madeline Polmear, Vrije Universiteit Brussels

Student Use of Artificial Intelligence to Write Technical Engineering Papers - Cheating or a Tool to Augment Learning

Dr. Ronald P. Uhlig, National University
Dr. Shatha Jawad Jawad, National University
Dr. Bhaskar Sinha, National University
Dr. Pradip Peter Dey,
Dr. Mohammad N. Amin, National University

The Development and Application of a Comprehensive

Questionnaire Used to Evaluate the Effect of Engineering Ethics Courses

Dr. Jiaojiao Fu, Peking University

[Full Research Paper, Ethical Engineering in Industry and Applied Contexts] Responsibility and Accountability: Faculty Leaders, Ethics Frameworks, and Disciplinary Enculturation

Dr. Laurie A. Pinkert, University of Central Florida
Prof. Jonathan Beever, University of Central Florida
Steven Kuebler,
Lakelyn E. Taylor, University of Central Florida
Eve Vazquez, University of Central Florida
Victor Milanes, University of Central Florida

M521 - Engineering Libraries Division — Roundtable

3:15 P.M. - 4:45 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Qianjin Zhang, The University of Iowa

M522 - Engineering Management Division (EMD) Business Meeting

3:15 P.M. - 4:45 P.M., POE, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Management Division (EMD)

Moderator: Eric Specking, University of Arkansas

This session is the Engineering Management Division Business Meeting.

M523 - Engineering Technology Excom Meeting

3:15 P.M. - 4:45 P.M., TUBMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

This is an executive committee meeting of the Engineering Technology Division

M524 - Entrepreneurship & Engineering Innovation Division

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(ENT) Technical Session 3: Projects and Student Learning

3:15 P.M. - 4:45 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderator: Antony Kinyua, Morgan State University

A First-Year Design Project That Encourages Motivation, Curiosity, Connections, and Making

Dr. Haolin Zhu, Arizona State University

Amy Trowbridge, Arizona State University

Changes in Affective Capacities of CAD Students Engaged in an Engineering Design Project

Prof. John Reap, Quinnipiac University

David Tomczyk, Quinnipiac University

GreenLab Startup Weekend at Palm Institute - Incubating Student Startups in Ghana

Peter Carlos Okantey,

Dr. Clifton L. Kussmaul, Green Mango Associates, LLC

Esther Mensah,

Eugene Eluerkeh,

Oscar Rodriguez,

Introducing Entrepreneurship in Manufacturing courses: A Hands-on Project approach

Dr. Anu Osta, Rowan University

Promoting Entrepreneurial Mindset in Engineering Students Using IoT-Focused Project-Based Learning

Dr. Hadil Mustafa, California State University, Chico

Dr. Alfred Schademan, California State University, Chico

M525 - EED Business Meeting

3:15 P.M. - 4:45 P.M., KEY 5, HILTON BALTIMORE INNER HARBOR

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Shannon Parks, University of Pittsburgh at Johnstown; David Sanchez, University of Pittsburgh

Join the Environmental Engineering Division in our annual Business Meeting to learn more about us, vote on officers, and help plan for the 2024 conference!

M526 - Influential Considerations in Designing and Running the Laboratories of Engineering Programs

3:15 P.M. - 4:45 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Bijan Sepahpour, The College of New Jersey

The panelists, who have diverse backgrounds, discuss the significance of proper planning and the impact of influential parameters in designing and running engineering laboratories;

1. Availability of space
2. Faculty and staff with the necessary background
3. Program needs
4. Availability of necessary minimum budget
5. Choice(s) of equipment
6. Duration/run time for experiments
7. Safety
8. Maintenance
9. Accommodations for students with disabilities
10. Time of offering the course
11. Designing remote labs and experiments
12. Impact of COVID on laboratory courses

M527 - First-Year Programs Division (FYP) - Technical Session 2: Program Design

3:15 P.M. - 4:45 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Eric Steward, University of South Alabama

A full paper session on the subject of program design.

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Exploring Transformative Learning from a Summer Bridge Program

Ms. Sukeerti Shandliya, University of Cincinnati
Mr. Gibin Raju, University of Cincinnati
Dr. So Yoon Yoon, The University of Iowa
Dr. Cedrick Kwuimy, The University of Iowa

A systematic review of pedagogical tools, learning goals, and participation strategies for high-achieving engineering and STEM students

Dr. Joseph A. Lyon, Purdue University at West Lafayette (COE)
Dr. Jacqueline Callihan Linnes, Purdue University at West Lafayette (COE)

Use of Transfer Student Capital in Engineering and STEM Education: A Systematic Literature Review

Dr. Kristin Kelly Frady, Clemson University
Ms. Randi Sims, Clemson University

A reimagined first-year engineering experience implementation: Structure, collaboration, and lessons learned.

Dr. Devlin Montfort, Oregon State University
Jason H. Ideker,
Dr. Jennifer Parham-Mocello, Oregon State University
Rowan Ezra Skilowitz,
Dr. Natasha Mallette P.E., Oregon State University

"I'm not a big English person but I liked this class": Lessons from a collaboration between the School of Engineering and the English Department

Emily M Wortman-Wunder,
Miriam Howland Cummings Ph.D., University of Colorado Denver
Prof. Maryam Darbeheshti, University of Colorado Denver

Teaching and Learning: Challenges and Successes with First-Year Program at Regional Campuses

Dr. Qudsia Tahmina, The Ohio State University at Marion

M527B - First-Year Programs Division (FYP) - Best Of FPD

3:15 P.M. - 4:45 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderators: Nadir Yilmaz, Howard University; J. Hylton, Ohio Northern University

This session features presentations from the FPD 2023 Best Paper finalists.

Centering Social Justice in Engineering: A New Course Model for First-year Engineering Education

Prof. Jill Davishahl, Western Washington University

Understanding Students' Self-regulation in a HyFlex Design Thinking Course

Dr. Lakshmy Mohandas, Purdue University at West Lafayette (COE)
Prof. Nathan Mentzer, Purdue University at West Lafayette (COE)
Ms. Adrie Koehler,
Mr. Shawn Farrington, Purdue University at West Lafayette (COE)
Elnara Mammadova,

Examining the Impacts of the Wright State Model for Engineering Mathematics Education through Curricular Analytics

Reed Finfrock, The Ohio State University
Prof. Nathan W. Klingbeil, Wright State University

Capturing First-Year Engineering Students' Situational and Individual Interest via a Formal Makerspace Course

Dr. Brian Scott Robinson, University of Louisville
Dr. Thomas Tretter, University of Louisville
Dr. James E. Lewis, University of Louisville
Mr. Nicholas Hawkins, University of Louisville

Experienced Teaching Assistants' Perceptions of a Simulated Environment for Facilitating Discussions with Individual Student Avatars from a Design Team in Conflict

Dr. Haritha Malladi, University of Delaware
Dr. Marcia Gail Headley, University of Delaware
Dr. Pamela S. Lottero-Perdue, Towson University
Prof. Jenni Buckley, University of Delaware

M528 - Graduate Studies Division (GSD) Technical Session 3: Mentorship and Communication in Engineering Graduate Programs

3:15 P.M. - 4:45 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Eunsil Lee, University at Buffalo, The State University of New York

Facilitating Engineering Faculty Success: Faculty Development of Graduate Mentoring Practices

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Himani Sharma, Arizona State University
Miss Amanda Marie Singer, The Ohio State University
Dr. Mayra S. Artiles, Arizona State University
Dr. Rachel Louis Kajfez, The Ohio State University
Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Perceived Advisor Support and Thesis Self-Efficacy: An Instrument Development

Abimelec Mercado Rivera, Arizona State University
Dr. Mayra S. Artiles, Arizona State University
Dr. Samantha Ruth Brunhaver, Arizona State University

Metaphor: The Key to Communicating with Both Specialists and the Public

Amanda Dawn Hilliard, The Johns Hopkins University

Overcoming Obstacles to Providing Academic Communications Supports for Engineering Ph.D. Students

Dr. Elizabeth Fife, University of Southern California

Work in Progress: Student Learning Experiences in the Research Lab: Qualitative Analysis of Two Types of Leadership-Mentorship Style

Dr. Magdalena G. Grohman, University of North Texas
Prof. Matthew J. Brown Ph.D., Southern Illinois University
Nicholas Raphael Gans, The University of Texas at Arlington
Mr. Jeff Glenn Edwards, University of Texas at Dallas

Daniel Rodarte, University of Texas at Arlington
Yiran Yang, University of Texas at Arlington
Dr. Amanda Olsen, The University of Texas at Arlington

Experiential Learning in Virtual Realities

Prof. Hugh L. McManus, Northeastern University
Dr. Erica Gralla,

Lean Methods to Optimize Operations in Emergency Departments During the Height of the COVID-19 Pandemic

Dr. Susan J. Ely, University of Southern Indiana

Performance-Based Learning: An Innovative Approach to Teaching

Engineering Thermodynamics in a Hybrid Learning Environment

Oladayo John Akinpelu,
Mr. Oludayo Samuel Alamu, Morgan State University
Dr. Oludare Adegbola Owolabi P.E., Morgan State University
Neda Bazyar Shourabi, Pennsylvania State University, Berks Campus
Dr. Seong Lee, Morgan State University
Ayodeji B. Wemida,
Dr. Mulugeta T Dugda, Morgan State University
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University
Mr. Pelumi Olaitan Abiodun, Morgan State University

M529 - Industrial Engineering Division (IND) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderator: Hugh McManus, Northeastern University

Closing the professional skills gap for engineering graduates: Recent trends in higher education

Dr. Ekaterina Koromyslova, South Dakota State University
Ms. Carrie Steinlicht, South Dakota State University
Miriam Kanini Peter,

Enhancing Students' Learning Experience with Hazard Analysis in a Virtual 3D Printing Lab

Rafia Rahman Rafa, University of Texas at Arlington
Dr. Shuchisnigdha Deb, University of Texas at Austin
Mr. Jaivardhan Vinodkumar Sood, University of Texas at Arlington

M530 - Computing and Information Technology Division (CIT) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Frank Kreimendahl, Wentworth Institute of Technology; Afsaneh Minaie, Utah Valley University (Department of Computer Science)

Challenges and Experiences in Implementing a Specifications Grading System in an Upper-Division Undergraduate Computer Networks Course

Dr. Mahima Agumbe Suresh, San Jose State University

Learning outcomes as a self-evaluation process

Dr. Catalina Aranzazu-Suescun, Embry-Riddle Aeronautical University
Ing. Luis Felipe Zapata-Rivera,

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Labor-based Grading in Computer Science: A Student-Centered Practice

Chris Marriott,
Menaka Abraham,
Dr. Heather E. Dillon, University of Washington

The Development, Assessment, and Advancement of a Student-Centered Cyber Risk Management Course

Dr. Joseph Benin, United States Coast Guard Academy
Mr. William Randall,
Angela G Jackson-Summers,

Auto-graded Scaffolding Exercises For Theoretical Computer Science

Prof. Jeff Erickson, University of Illinois Urbana-Champaign
Jason Xia, University of Illinois at Urbana - Champaign
Eliot Wong Robson,
Tue Do,
Aidan Tzur Glickman,
Zhuofan Jia,
Eric Jin,
Jiwon Lee,
Patrick Lin,
Steven Pan,
Samuel Ruggerio,
Tomoko Sakurayama, University of Illinois, Urbana-Champaign
Andrew Yin,
Yael Gertner, University of Illinois, Urbana-Champaign
Brad Solomon, University of Illinois, Urbana-Champaign

M532 - International Undergraduate Engineering Student Experiences in the U.S.

3:15 P.M. - 4:45 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Pritpal Singh, Villanova University

Speakers: Dr. Pritpal "Pali" Singh, Villanova University; Kaz Burns ; Mei Schuerch ; Athiel M Mading ; Hashem Mones Alhattab,

International students come to the U.S. from all over the world to pursue undergraduate engineering degrees. They are usually coming to very different pedagogical educational approaches than they typically experience in their home countries. They may also have assimilation challenges with

integrating into the American culture, and miss family and friends. This session will host a panel of four to five international students who are studying for undergraduate engineering degrees and represent different countries. The moderator will share a list of questions with the students in advance and their responses will constitute about the first 20 minutes of the session. The remainder of the session will be a conversation/dialogue with the audience.

M532B - International Division (INTL) Technical Session #1: Global Competency

3:15 P.M. - 4:45 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Brent Jesiek, Purdue University at West Lafayette (COE)

Engineering Global Competencies through Study Abroad

Dr. Patrick Tunno, Pennsylvania State University

Preparing for Student Success in Global Competency and Awareness

Dr. Patrick Tunno,
Angela Rothrock, Pennsylvania State University
Dr. Robert J. Rabb P.E., Pennsylvania State University
Dr. Christine B. Masters, Pennsylvania State University

Measuring Sustainability Literacy in Undergraduate and Graduate Engineering Students in a Colombian University

Sandra Jennina Sanchez, Florida International University
Milton Januario Rueda,
Dr. Douglas L. Robertson, Florida International University

Developing a Global Competency Mindset in an International, Faculty-led Program in Brazil Focused on Sustainable Energy

Dr. Courtney Pfluger, Northeastern University

Analysis of gaps in the training of engineers in relation to international standards: The case of industrial engineering students in Chile.

Mr. Ruben Vega-Valenzuela, Universidad Andres Bello, Santiago, Chile
Prof. Maria Elena Truyol, Universidad Andres Bello, Santiago, Chile
Dr. Gonzalo Aguila, Universidad Andres Bello, Santiago, Chile

M533 - Pre-College Engineering Education Division (PCEE)

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Technical Session 3: Let's Get Thinking on Design

3:15 P.M. - 4:45 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Anne Spence, Baylor University

A Longitudinal Engineering Education Study of a Holistic Engineering Pedagogy and Holistic Design Thinking Methodology on Postsecondary Student Academic Success and Retention

Mark Povinelli, Syracuse University

Safety Factors and Accidents in P-12 Pre-Engineering and Engineering Design Courses: Results from a National Study (Fundamental)

Dr. Tyler S. Love, University of Maryland Eastern Shore
Dr. Kenneth Russell Roy, Glastonbury Public Schools (Connecticut)

The influence of notebooks on elementary teachers engaging in engineering practices (Fundamental)

Dr. Matthew Johnson, Pennsylvania State University
Minyoung Gil, Pennsylvania State University

Mathematical Modeling in Preexisting K-12 Engineering Design Challenges (Fundamental)

Latanya Robinson, Florida International University
Dr. Monica E. Cardella, Florida International University
Dr. Alexandra Coso Strong, Florida International University

M533B - Pre-College Engineering Education Division (PCEE) Technical Session 4: Engaging Authentic Engineering Practices

3:15 P.M. - 4:45 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Jennifer Love, Northeastern University

Socially Engaged Engineering: A Framework for K-8 Education (Fundamental, Diversity)

Dr. Christine M Cunningham, Pennsylvania State University
Dr. Gregory John Kelly, Pennsylvania State University
Ashwin Krishnan Mohan, Pennsylvania State University

Intergenerational E-Textile Workshops for Engineering and Social-Emotional Learning (Fundamental)

Emanuel Joseph Louime,
Eunice Yujin Kang,
Emma Anderson, Massachusetts Institute of Technology
Kristin A Searle, Utah State University
Dr. Avneet Hira, Boston College

Student Connections between Engineering Contexts and STEM Content

Ms. Azizi Penn, Purdue University
Miss Rachel Elisabeth Gehr, Purdue University at West Lafayette (PPI)
Hillary E. Merzdorf, Purdue University at West Lafayette (COE)
Siddika Selcen Guzey, Purdue University at West Lafayette (COE)
Dr. Morgan M Hynes, Purdue University at West Lafayette (COE)
Dr. Kerrie A Douglas, Purdue University at West Lafayette (COE)
Prof. Tamara J Moore, Purdue University at West Lafayette (COE)

Biologically Inspired Design For High School Engineering Students (Work in Progress)

Dr. Meltem Alemdar, Georgia Institute of Technology
Dyanne Baptiste Porter, Georgia Institute of Technology
Dr. Abeera P. Rehmat, Georgia Institute of Technology
Dr. Michael Helms,
Alexandra A. Towner, Georgia Institute of Technology
Roxanne Moore, Georgia Institute of Technology
Mr. Jeffrey H Rosen, Georgia Institute of Technology
Julia Varnedoe,
Dr. Marc Weissburg,

M534 - Minoritization Processes and Equity in Engineering Education

3:15 P.M. - 4:45 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Alice Pawley, Purdue University at West Lafayette (COE)

Papers in this session address the experiences of people with identities minoritized in engineering, the systemic processes

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of minoritization and marginalization, and the implications of prevailing framings of 'diversity' and 'inclusion' for education research and practice.

Modeled Professionalism, Identity Concealment, and Silence: The Role of Heteronormativity in Shaping Climate for LGBTQ+ Engineering Undergraduates

Brandon Bakka, University of Texas at Austin
Travis Bouchard, The University of Texas at Austin
Vivian Xian-wei Chou, University of Texas at Austin
Dr. Maura Borrego, University of Texas at Austin

Someone Like You: Theorizing LGBTQ Participation in Engineering through Network Homophily and State Authenticity

Dr. Bryce E. Hughes, Montana State University, Bozeman
Sidrah MGWatson, Montana State University, Bozeman

"Studies in the Strategies of Overcomers": Literature Review of the Experiences of High-achieving Black Male Undergraduate Engineering Students

Dr. Royce A. Francis, The George Washington University
Dr. LaKeisha McClary, The George Washington University

Minoritization Processes in Structural Engineering Diversity Work

Dr. Lara K. Schubert, UCLA; Cal State Los Angeles; Cal Poly, San Luis Obispo

Transgender and Nonbinary Computing and Engineering Education: A Workshop Experience Report

Stacey Sexton,
Amanda Menier, SageFox Consulting Group
Rebecca Zarch, SageFox Consulting Group

M537 - Mathematics Division (MATH) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

Understanding students' experience and achievement in a redesigned engineering math class

Dr. Hui Ma, University of Virginia

Understanding the sin, cos, and tan calculator buttons

Mr. Daniel Blessner, Pennsylvania State University, Wilkes-Barre Campus

WIP: Implementing an Alternative Grading Scheme in a Large Enrollment Differential Equations Course: Lessons Learned

Dr. Hadas Ritz, Cornell University

Work in Progress: A Structural Change in Calculus Sequences

Mr. Mark Mixer, Wentworth Institute of Technology
Deirdre Donovan, Wentworth Institute of Technology

Work in Progress: Uncovering Links between Mathematical Preparation and Engineering Persistence

Dr. Mary E. Lockhart, Texas A&M University
Noor Hakim,
Vainavi Chilukuri, Texas A&M University
Jason Champagne,
Dr. Karen E. Rambo-Hernandez, Texas A&M University
Dr. Robin A.M. Hensel, West Virginia University

M538 - Mechanical Engineering Division Business Meeting

3:15 P.M. - 4:45 P.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: Mechanical Engineering Division (MECH)

Join colleagues for the ASEE ME Division Business Meeting to review actions since the last conference and elect officers for the next year.

M539 - Teaching Mechanics: Modes and Methods

3:15 P.M. - 4:45 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: James Lord, Virginia Polytechnic Institute and State University; Daniel Baker, Colorado State University

This session explores creative approaches to using classroom space. Papers include student perspectives on flipped classes, teaching someone else's flipped class, teaching study abroad, studio-style classes, and re-thinking homework by including a revision process. These innovative explorations are sure to generate some discussion on ways to approach your classroom.

The Evolution of a Flipped Dynamics Course

Dr. Phillip Cornwell, United States Air Force Academy
Matthew Snyder,
Dr. Michael Anderson, P.E., United States Air Force

Flipping a Required Mechanics Course with Different Instructors

Dr. Phillip Cornwell, Rose-Hulman Institute of Technology

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Ioan Feier,
Nicholas J. Marco,
Danielle Ozment,

Mechanics in Rome: First Time for a New Study Abroad Program

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

The Efficacy of Student-Revised Homework Assignments in an Introductory Engineering Course

Capt. Robert A. Hume, P.E., United States Military Academy
Lt. Col. Adrian Biggerstaff, United States Military Academy
Dr. Eric B. Williamson, U.S. Military Academy

Changing the Static: Insights and Early Results of a Shift toward a Studio-Style Statics Class

Dr. Christopher Papadopoulos, University of Puerto Rico, Mayaguez

M540 - Increasing Minority-Serving Institutions Through NSF+NASA Program to Stimulate Competitive Research

3:15 P.M. - 4:45 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division (MIND)

Moderator: Diane Golding, University of Texas at El Paso

Speakers: Dr. Gholam Ali Shaykhian, NASA EPSCoR; Dr. Gholam Ali Shaykhian, NASA EPSCoR

The NSF and NASA have forged an inter-governmental partnership that introduces a unique fellowship opportunity for the Established Program to Stimulate Competitive Research (EPSCoR) jurisdictions. Fellows can collaborate with investigators from NASA and conduct research in NASA's premier laboratories, and other private, governmental, or academic research centers. This panel discussion aims to increase awareness and participation among Minority-Serving Institutions (MSIs) in EPSCoR jurisdictions.

Panelists:

Dr. Sandra Richardson, NSF, Section Head for the EPSCoR in the Office of Integrative Activities (OIA)

Dr. Kathleen Loftin, NASA EPSCoR Project Manager

Dr. Jose Colom-Ustariz, NSF, Program Officer

Dr. Chinonye Whitley, NSF, Program Officer, email

Dr. Pinhas Ben-Tzvi, NSF, Program Officer, email

Dr. Ali Shaykhian, NASA

Dr. Dawn Martin, NASA

A special sub-track within the EPSCoR Research Fellows, Research Infrastructure Improvement (RII) Track-4, is dedicated to MSIs.

All ASEE members are encouraged to attend this session to meet the NSF and NASA leaderships, learn more about the fellowship program, and discuss their questions.

M541 - Multidisciplinary Engineering Division (MULTI) Technical Session 7

3:15 P.M. - 4:45 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Yang Shao, University of Illinois at Urbana - Champaign; Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research Chennai

Work in Progress: Using a 5-DOF Robotic Arm Project for the Enhancement of Engineering Recruitment and Education

Dr. Liya Grace Ni, Biola University

Deep Learning Projects for Multidisciplinary Engineering Design Students

Mr. Robert L. Avanzato, Pennsylvania State University, Abington

Creating Creative Educational Opportunities among Engineering and Arts Students

abdullah ibrahim,

Roudha Saif Al-Khaldi, Texas A&M University, Qatar

Doaa Elamin Emam,

Dr. Yasser M. Al Hamidi, Texas A&M University, Qatar

Prof. Marwan Khraisheh, Texas A&M University, Qatar

Connecting the Dots: A Programmatic Approach to Data Science within Engineering

Dr. Kristen Moore, University at Buffalo, The State University of New York

Dr. Liesl Folks, The University of Arizona

Ms. Bina Ramamurthy, University at Buffalo, The State University of New York

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Ms. Erin Rowley, University at Buffalo, The State University of New York

Evaluating Student Project Choice, Course Satisfaction, and Performance between Community Service, Internal Projects, and Industry-Sponsored Projects in a Multidisciplinary Industry-Sponsored Capstone Program

Edward Latorre, University of Florida

Elizabeth Louise Meier, University of Florida

M541B - Interdivisional Town Hall Meeting: Preparing Engineering Students for an Ever-Changing Planet

3:15 P.M. - 4:45 P.M., BALLROOM 3, BALTIMORE CONVENTION CENTER

Sponsors: Multidisciplinary Engineering Division (MULTI) ; Professional Interest Council (PIC)

Moderators: Lynn Albers, Hofstra University; Micah Lande, South Dakota School of Mines and Technology; Bala Maheswaran, Northeastern University; Cindy Cooper, The Lemelson Foundation; Cindy Anderson, ; Michael Milligan, ABET

The annual Interdivisional Town Hall offers the opportunity for members from different divisions and other attendees to come together to discuss topics of interest throughout the entire ASEE membership. This year's discussion will focus on the student experience and how we, as faculty and instructors, may make a difference. We will explore important topics related to changing curricula, course structure, and culture in engineering education. The first half will allow for intimate roundtable conversations based on provided discussion prompts, listed below. The second half of the Town Hall will briefly introduce a framework of the Engineering for One Planet effort and the work to be done to consider how sustainability can be part of the engineering canon. Both parts will lead directly to parallel roundtable discussions to share recommendations and generate ideas for a proposed list of action items. Individuals will be asked to share and apply their skills, knowledge, and expertise to these action items in crafting shareable deliverables for guiding future effort.

Topic 1 — The Changing Context of DEI in Engineering Education

We all want to include Diversity, Equity, and Inclusion (DEI) in our curricula, but what is it really about and how do we implement it? Starting with some common definitions of DEI, we want to discuss how to implement it in academic

settings. How do we build understanding of what DEI and its role in education is? Have people and consequently our teaching/learning style changed? The ultimate goal of the discussion is to give ASEE guidance about how we can implement DEI at our respective academic institutions in the face of changing contexts in many states. This is not an opportunity to complain (much) but to provide solutions. How might we share best practices for DEI implementation and what are ways to support colleagues to help us do so?

Topic 2 — The Impact of Generative AI on Engineering Education

“The recent release of ChatGPT has sparked a surge of interest in generative artificial intelligence (AI) and its potential to revolutionize education. While viewed by some as a disruptive technology with immense transformative potential, there are also concerns and challenges associated with generative AI. These include issues of academic integrity, equitable access, algorithmic bias, inaccurate information, job security, privacy, and impacts on learning. As some educators have already incorporated generative AI into their teaching, others are more cautious or apprehensive. The question now is how to address these concerns and challenges, and what is the best way to leverage this technology for engineering education and preparing students for the 21st-century workplace.” NOTE: The preceding paragraph was generated by ChatGPT based on input from the topic organizers (<https://chat.openai.com>).

Topic 3 — Changing the Curriculum, Course Structure, and Culture of Engineering Education

Preparation for engineering majors include quite a number of pre-engineering fundamentals: math, science, programming, etc. While faculty and practicing engineers may see the connections between these topics, how might we help students experience their learning in a useful context? Are these fundamental courses needed or should they be placed later in the curriculum or removed altogether? These courses are often seen as roadblocks, negatively affecting persistence and academic success. How can we adapt curriculum and engineering culture to better showcase the utility and necessity of these courses and technical skills? How do we make the engineering course structures more inclusive in a way that can benefit all students to become future engineers?

Topic 4 - Understanding and Supporting Students Where They Are Day-to-Day

Students are aware of the broader world and context and many are concerned about how their engineering studies have implications for the greater good and making the world

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better. Yet, they don't know how to accomplish this. This can lead to tension between supporting students as creators of knowledge and needing to reinforce fundamentals for engineering. How do we help bridge the gap? Add in the complexity of ever-increasing crises, rising anxieties, and negative effects on peoples' mental wellness; students must now learn in these difficult circumstances. How might we incorporate students' concerns into our existing routines in the classroom to support mutual respect and to help meet students where they are day-to-day? What are best practices that can be more widely adopted and scaled to be supportive of students' learning experiences while aligning with trauma-informed teaching which models empathy, inclusion, and multicultural awareness to students.

M542 - New Engineering Educators Division

3:15 P.M. - 4:45 P.M., KEY 9 & 10, HILTON BALTIMORE INNER HARBOR

Sponsor: New Engineering Educators Division (NEE)

New Engineering Educators Division

M543 - ASEE Journal Editors Roundtable Discussion: Future of Scholarship at ASEE

3:15 P.M. - 4:45 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Board of Directors

M547 - Student Division (STDT) Technical Session 3: Student Innovative Practice

3:15 P.M. - 4:45 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Ping-Chuan Wang, State University of New York at New Paltz

Student-Led Makerspace Workshop Platform

Adam J Murrison, Worcester Polytechnic Institute

Cameron Wian, Worcester Polytechnic Institute

Sydney Kerivan, Worcester Polytechnic Institute

Jakob Sperry, Worcester Polytechnic Institute

Circuit-Level Microelectronics Reliability Project to Foster Interdisciplinary Engineering Learning

Mr. Nigel Michael Caprotti, State University of New York, New Paltz

Dr. Ping-Chuan Wang, State University of New York, New Paltz

Looking into the Design of Accessible Musical Instruments for Musicians with Physical Disabilities

Sydney Rose Fitzgerald, Spackenkill High School

Dr. Hoda Ehsan, The Hill School

A Framework for the Classroom Use of Science-Fiction to Enhance Ethical Design Skills among Engineering Students

Elyas Masrour,

Work in Progress: A Survey of Artificial Intelligence Educational Resources for Pre-College Education

Eisa A. Khawaja, Alpharetta High School

Dr. Hoda Ehsan, The Hill School

M548 - Systems Engineering Division Business Meeting

3:15 P.M. - 4:45 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Systems Engineering Division (SYS)

Moderators: BENJAMIN KWASA, Kent State University, Kent; Radu Babiceanu, Embry-Riddle Aeronautical University - Daytona Beach

M549 - Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhe) Technical Session 2

3:15 P.M. - 4:45 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhe)

Lessons for Education, Engineering and Technological Literacy from the Experience of Britain's Vaccine Task Force (VTF)

Prof. John Heywood, Trinity College Dublin, Ireland

Assessing Resilience as a Virtue in Learners:

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Development of a New Scale for Academic Resilience

Paul Marlowe,
Dr. Stephen T. Frezza, Franciscan University of Steubenville
Joanne Storm Gallagher, Franciscan University of Steubenville
Dr. Marita Anne O'Brien, Franciscan University of Steubenville
Sabrina J. Bierstetel, Franciscan University of Steubenville

A Critique of EC 2000 from Amartya Sen's Capability Framework

Dr. R. Alan Cheville, Bucknell University
Dr. Sarah Appelhans, Bucknell University
Dr. Stewart Thomas, Bucknell University
Dr. Rebecca Thomas, Bucknell University

Teaching or Learning? A Framework for Shaping Good Old Fashioned Engineering Students

Dr. Timothy Aaron Wood P.E., The Citadel

Analysis of Engineering Textbook Epistemologies

Dr. Michael Robinson, Saint Vincent College

Moving Technological and Engineering Literacy into Mainstream Conversation: The 2021 Whitepaper "Future Directions for Technological and Engineering Literacy and the Philosophy of Engineering" Revisited

Prof. Carl O. Hilgarth, Shawnee State University
Dr. John Heywood, Trinity College Dublin

M550 - STEM Education at the Two-Year College

3:15 P.M. - 4:45 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Anant Honkan, Georgia State University

This session deals with STEM education at two-year colleges.

Mentor Perspectives of Apprenticeships for Community College STEM Careers

Ms. Sara E. Rodriguez, University of Texas, El Paso
Dr. Benjamin C. Flores, University of Texas, El Paso
Dr. Chandra Anne Turpen, University of Maryland, College Park
Agniprava Banerjee, University of Texas, El Paso
Jana Foxe, University of Washington
James P. Grover,
Gigi N. Delk,

Paid Pre-College STEM Bridge Programs: Just-In-Time Support & Engagement for Community College STEM Learners

Mr. Gabe Hanzel-Sello, Growth Sector
Mr. David Gruber,
Ms. Janet Yowell, University of Colorado, Boulder
Cheryl Martinez, Growth Sector
Ivanna Abreu,

Predicting Student Success in College Algebra Classes Using Machine Learning

Dr. Zeynep Akcay Ozkan, City University of New York, Queensborough Community College
Yuanhong Yu, City University of New York, Queensborough Community College
Dr. Ewa Stelmach, City University of New York, Queensborough Community College

The Mind Fitness Program[®] Provides Training for STEM Careers

Dr. Dan G. Dimitriu, P.E., 3D LoneStar
Clint Taylor,
Tim Hicks,
Raul Rios,

Theory to Practice: Faculty Professional Development to integrate Culturally Responsive Pedagogy and Practices in STEM Education to Improve Success of Underserved Students in STEM.

Cynthia Kay Pickering, Arizona State University
Mara Lopez, Arizona State University
Ms. Elaine L. Craft, Florence-Darlington Technical College
Sarah Belknap, Westchester Community College
Caroline VanIngen-Dunn, Arizona State University
Laurie S. Miller McNeill, Westchester Community College
Juan R. Rodriguez, Westchester Community College

M551 - Women in Engineering Division (WIED) Technical Session 2

3:15 P.M. - 4:45 P.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Melanie Villatoro, New York City College of Technology

This session explores research and project experiences of women in engineering.

A Qualitative Study of Undergraduate Women in Engineering Project Teams

Dr. Grace J. Liang,

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Dr. Rick Evans, Cornell University

Mojdeh Asadollahipajouh,

Dr. Stacey E. Kulesza, P.E., Kansas State University

Anna Glushko Evans, Kansas State University

Incorporating an Education Module on Diversity, Equity, and Inclusion into Undergraduate and Graduate Curricula Has No Positive Effect on Women's Perception of Biomedical Engineering

Spencer Szczesny, Pennsylvania State University

Alyssa Salazar,

Ann Cameron Casasanta,

Pathways to Engineering Graduate Studies for Women: Challenges and Opportunities Revealed through Mining Students' Application, Admission, and Enrollment Data

Dr. Najme Kishani Farahani, University of Toronto, Canada

Prof. Aimy Bazylak, University of Toronto, Canada

Prof. Jason Bazylak, University of Toronto, Canada

Examining Gender Inclusivity through Sense of Belonging in a Summer Research Experiences for Undergraduates (REU) Program at a Large Research University

Shawna Dory, Pennsylvania State University

Luis Roberto Delgado Jr., Pennsylvania State University

Dr. Stephanie Cutler, Pennsylvania State University

Dr. Sarah E. Zappe, Pennsylvania State University

Dr. Esther Gomez, Pennsylvania State University

Dr. Stephanie Butler Velegol, Pennsylvania State University

Fostering Inclusive Department Climates: A Workshop for Department Chairs at the University of X

Dr. Shawna Vican, University of Delaware

Dr. Robin Andreasen, University of Delaware

Dr. Heather Doty, University of Delaware

M556 - Military and Veterans Division Panel Session

3:15 P.M. - 4:45 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

Moderator: Jerry Dahlberg, University of Tennessee, Space Institute

This panel discussion features diverse veterans and academic leaders who will share experiences in their journeys from military service to engineering and working with those who are making a similar transition.

M557 - Sharing the Stories of Engineering Faculty with ADHD to Create More Inclusive Academic Environments

3:15 P.M. - 4:45 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute and State University

Speakers: Cindy Finelli, ; Dr. Nadia N. Kellam, Arizona State University; Dr. Robin Fowler, University of Michigan; Dr. Arash Esmaili Zaghi P.E., University of Connecticut

In the broader literature, there has been a move to more asset-based approaches to understanding people with Attention Deficit Hyperactivity Disorder (ADHD). Research

shows that, compared to neurotypical individuals, those with ADHD often have greater resiliency, tend to be more creative and innovative, and are capable of achieving intense focus when engaging in high-interest activities and tasks. Individuals who demonstrate these positive attributes may be especially suited for positions as engineering faculty, since these are exemplary faculty traits.

This session will provide an opportunity for engineering faculty who have ADHD to share their stories and for the broader ASEE community to begin to identify characteristics of an inclusive academic environment designed to help faculty with ADHD thrive.

M557B - Faculty Development Division (FDD) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Kathryn Dimiduk, Cornell University

Inclusive Course Design Checklist: A Living Document for Faculty to Create Inclusive Classrooms

Dr. Swetha Nittala, Uber Technologies

Dr. Sheri Sheppard, Stanford University

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Dr. Helen L. Chen, Stanford University

Addressing New ABET General Criteria Focusing on Diversity, Equity, and Inclusion

Dr. Gary Lichtenstein, Arizona State University

Dr. Rocio C. Chavela Guerra, Rowan University

Dr. Stephanie Cutler, Pennsylvania State University

Dr. Ivan E. Esparragoza, Pennsylvania State University

Dr. Sarah E. Zappe, Pennsylvania State University

"Say It Anyhow You Can": Unpacking How Engineering Faculty Members Approach Culturally Relevant Engineering Education at an Iraqi University

Moses Olayemi, Purdue University, West Lafayette

Prof. Jennifer Deboer, Purdue University, West Lafayette

Mohammad Javad Ahmadi,

What Is Intercultural Communication Competence and Why We Need to Talk About It: A Call for Awareness among STEM Faculty

Camila Olivero-Araya, The Ohio State University

Dr. Julie P. Martin, The Ohio State University

Micah Organ,

Lessons Learned: Designing an Empathy Workshop for Engineering Faculty to Promote Equity-Focused Teaching

Dr. Linjue Wang, University of Michigan

M559 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Mobilizing Resources in a Community of Practice: How Academic Change Agents Work Toward Equity in their Change Projects

Selen Güler, University of Washington

Dr. Elizabeth Litzler, University of Washington

Dr. Cara Margherio, University of Washington

Dr. Julia M. Williams, Rose-Hulman Institute of Technology

Dr. Eva Andrić, Rose-Hulman Institute of Technology

Dr. Sriram Mohan, Rose-Hulman Institute of Technology

"We're Learning like Everyone Else": Best Practices from Men Allies

Danielle Vegas Lewis, SUNY Fredonia

Participants' Conceptions about Self-Advocacy around

Hidden Curriculum in Engineering

Dr. Victoria Beth Sellers, University of Florida

Dr. R. Jamaal Downey, University of Florida

Idalis Villanueva Alarcón, University of Florida

Music, Coding, and Equity: An Exploration of Student and Teacher Experiences in Decoding Messaging and Discussing Equity with the "Your Voice Is Power" Curriculum

Dr. Sunni Haag Newton, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Dr. Meltem Alemdar, Georgia Institute of Technology

Joycelyn Wilson, Georgia Institute of Technology

Sabrina Grossman, Georgia Institute of Technology

Unexpected Accomplices: Effective Mentoring between a Black and White Woman Despite Historical Issues of Privilege, Power, and Positionality

Dr. Meagan Eleanor Ita, Arvinas

Dr. Monica Farmer Cox, The Ohio State University

White Male Allyship in STEM Higher Education: An Autoethnographic Study

Mr. Nagash Antoine Clarke, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Managers, Reporting Structures, and Re-Orgs: Volatility and Inequality in Early-Career Engineering and Implications for Educators

Dr. Shannon Katherine Gilmartin, Stanford University

Sara Jordan-Bloch, Stanford University

M559B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Mastery Grading for Equity in a Chemistry for Engineers Course

Susan Garver Stirrup, University of Colorado, Denver

Leveling the Playing Field: Enacting Equitable Pedagogy to Teach Rigid Body Dynamics

Dr. Eleazar Marquez, The University of Texas, Rio Grande Valley

Dr. Samuel Garcia, The University of Texas, Rio Grande Valley

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Creating Inclusive Classrooms: Work Developed during the ASEE Year of Impact on Racial Equity (YIRE)

Dr. Shannon D. Barker, University of Virginia
Dr. Kenya Crosson, University of Dayton
Dr. Victoria E Goodrich, University of Notre Dame
Dr. Jordan Jarrett, P.E., Colorado State University

Examining the Unique Experiences of Transgender and Gender Nonconforming Students in a Pre-College Engineering Course

Rachel Figard, Arizona State University
Dr. Sabina Anne Schill, Florida International University
Dr. Medha Dalal, Arizona State University
Dr. Adam R Carberry, Arizona State University

Embedding Equity in an Undergraduate Introductory Course through Experiential Learning

Dr. Rania Al-Hammoud, University of Waterloo
Soukaina Jazouli,
Mrs. Andrea Atkins, University of Waterloo

Examining the Impact of Introductory Mathematics Courses on Undergraduate Students' Desire to Pursue a STEM Major

Sydney Hunt, Duke University
Shaundra Bryant Daily, Duke University
Shira Viel,
Dr. Karis Boyd-Sinkler, Duke University

M574 - EDC Business Meeting Sponsored by Bucknell University's College of Engineering

3:15 P.M. - 4:45 P.M., KEY 3 & 4, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Deans Council (EDC)

EDC Business Meeting

M581 - ASEE Commission on Diversity, Equity, and Inclusion Business Meeting

3:15 P.M. - 4:45 P.M., KEY 7, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderators: Homero Murzi, Virginia Polytechnic Institute and State University; Meagan Pollock, Engineer Inclusion; Jeremi London, Virginia Polytechnic Institute and State University

All are welcome to the Commission on Diversity, Equity, and Inclusion (CDEI) Business Meeting, which will also be a community-building session.

M582 - Using an Asset Framework to Support Students from Admission to Graduation

3:15 P.M. - 4:45 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsors: Undergraduate Experience Committee (UEC); ASEE Commission on Diversity, Equity & Inclusion (CDEI); Minorities in Engineering Division (MIND)

Moderator: Nandika D'souza, University of North Texas

Conventional admissions and advising approaches using deficit frameworks such as math readiness and degree plans contribute to exclusionary practices where students perceive that math placement as their only means of being respected. Students never have a chance to reflect on their other strengths. Transfer students also need be welcomed much like their first time as college students. In this session, we will have two segments.

Part 1: Enabling student strengths to be recognized. First, we will reflect on utilizing student assets of prior vocational skills to recognize students. We will examine approaches that address the wide variance in the preparation for an engineering degree among incoming students that underscores the deficit entrance experience.

Part 2: Effective use of dual credit, transfer implementation.

Here, we will focus on approaches to decrease the net cost of education through proactive implementation of dual credit and transfer pathways from community colleges.

Be ready to engage! The audience will build a best practice through interactive engagement following a 20-minute presentation for each topic.

Using the Hero's Journey Monomyth Framework to Understand Students' Engineering Experiences

Dr. Shannon Chance, Technological University Dublin & University College London

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Dr. Ines Direito, University College London

Dr. Bill Williams, Instituto Politécnico de Setúbal, Portugal

M594A - SPONSOR TECH SESSION: Tips for Enhancing Your Engineering Education Proposals, Presented by National Science Foundation

3:15 P.M. - 4:45 P.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

In this highly interactive Sponsor Tech Session, NSF will spotlight topics critical to proposal success including robust and effective project evaluation, knowledge generation (for example, through appropriate research questions and design methodologies) as well as other practical hints for enhancing engineering education proposals. Attendees will learn how to leverage new funding opportunities from recent national initiatives such as the CHIPS & Science Act of 2022, the National AI-Institutes Research Initiative, and the National Quantum Initiative. Exploration of the various topics will occur through dynamic mini-presentations by NSF program directors and invited experts, followed by stimulating small group discussions and interactive Q&A sessions. Tech Session will feature rich peer interactions and opportunities to engage directly with NSF program directors.

Speaker Information:

1. Dr. Abi Ilumoka, Program Director, NSF/DUE
2. Dr. Vinod Lohani, Program Director, NSF/DGE
3. Dr. Eric Sheppard, Program Director, NSF/DUE
4. Dr. Samir Iqbal, Program Director, NSF/TIP
5. Dr. Gwen Lee Thomas, Quality Measures, LLC
6. Dr. Frances Carter-Johnson, Program Director, NSF/EES

M594B - SPONSOR TECH SESSION: Holistic Admissions to Meet Your Mission and Diversity Goals, Presented by Acuity Insights

3:15 P.M. - 4:45 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Gender imbalance and representation of other historically under-represented minority groups have been some of the greatest challenges for engineering schools—and indeed the engineering profession—over the past few decades. While gains have been made in these areas, there is still a lot of progress needed to ensure diversity in the profession.

Join Dr. Kelly Dore, Co-founder and VP, Science and Innovation at Acuity Insights, who will share strategies that can support the widening of pathways into engineering so that engineering schools can create a world powered by engineers who bring a diversity of perspectives, and who represent and serve the whole of society.

Presenter:

Dr. Kelly Dore, Co-founder and VP, Science and Innovation

M669 - FOCUS ON EXHIBITS: Summertime Social Sponsored by Campbell University

5:00 P.M. - 6:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

M727 - FPD Social

6:30 P.M. - 9:30 P.M., OFFSITE, PRATT STREET ALE HOUSE, 206 W PRATT ST, BALTIMORE MD 21201

Sponsor: First-Year Programs Division (FYP)

Moderator: J. Hylton, Ohio Northern University

Ticketed event: \$50.00 advanced registration and \$60.00 on site registration

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M706 - Civil Division RAP Session

7:00 P.M. - 9:00 P.M., OFFSITE, BABE RUTH MUSEUM, 216 EMORY STREET, BALTIMORE, MD 21230

Sponsor: Civil Engineering Division (CIVIL)

Mingle with other civil engineering friends at this reception-style gathering at the Babe Ruth Museum. Plan to take time to see the displays. Food and drinks will be catered by Citron. Register to obtain two drink tickets.

Free ticketed event

M711 - CIEC Social for CEED, CIPD, and CPPD Divisions

7:00 P.M. - 9:00 P.M., OFFSITE, TBD, TBD

Sponsors: Cooperative and Experiential Education Division (CEED) ; College Industry Partnerships Division (CIP)

This social gathering is for members of the CEED, CIPD, and CPPD Divisions that meet annually at the Conference for Industry and Education Collaboration. Learn more about what that conference and the divisions have to offer.

Free ticketed event

M7110 - ASEE Campus Representative Member Recruitment Awards Reception

7:00 P.M. - 9:00 P.M., EUTAW STREET RECEPTION AREA, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Campus Representatives

Annual campus representatives' reception and awards ceremony

Free ticketed event

M721 - Engineering Libraries Division — Welcome Reception

7:00 P.M. - 9:00 P.M., OFFSITE, THIS EVENT IS HELD OFF-SITE BY INVITE ONLY. ELD MEMBERS SHOULD CHECK THE MEMBER LISTSERV FOR EVENT DETAILS. , TBD

Sponsor: Engineering Libraries Division (ELD)

This event is held offsite by invitation only. ELD members should check the member listserv for event details.

Free ticketed event

M723 - Engineering Technology Berger, McGraw, and Ray Awards Dinner

7:00 P.M. - 9:00 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

Ticketed event: \$90.00 advanced registration and \$100.00 on site registration

M738 - Mechanical Engineering Division Convivium

7:00 P.M. - 9:00 P.M., KEY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Mechanical Engineering Division (MECH)

The Mechanical Engineering Division Convivium provides an opportunity to socialize with fellow division members and honor recipients of the division's annual awards. The event will be held onsite this year.

Ticketed event: \$50.00 advanced registration and \$60.00 on site registration

2023 ASEE ANNUAL CONFERENCE

MONDAY, JUNE 26th SESSIONS

M741 - MULTI Business Meeting and Social Networking

7:00 P.M. - 9:00 P.M., OFFSITE, ALEXANDERS TAVERN, 710 S BROADWAY, BALTIMORE, MD 21231

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Cynthia Barnicki, Milwaukee School of Engineering; Duncan Davis, Northeastern University

www.alexanderstavern.com

Join colleagues at 7 p.m. at Alexander's Tavern for a combined business and social event. We will spend the first hour conducting annual business and hearing ASEE news from our PIC chair, Dr. Peter Golding, followed by the opportunity to network. The cost of the ticket will go directly toward food and drinks during the business meeting.

Ticketed event

M745 - Engineering Physics and Physics Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, THE CHEESECAKE FACTORY IS A 6 MINUTE WALK FROM THE CONVENTION CENTER (ACCORDING TO GOOGLE MAPS)., 201 E. PRATT STREET, BALTIMORE, MD

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Teresa Larkin, American University

The Division Social Event is open to anyone who would like to join members of the Engineering Physics and Physics Division to eat together and interact. We will meet at

the Cheesecake Factory, Pratt Street Pavilion, Inner Harbor, 201 E. Pratt Street,

Baltimore, MD 21202; 410-234-3990.

Free ticketed event

M751 - WIED/MIND/PCEE Social

7:00 P.M. - 9:00 P.M., HOLIDAY 4, HILTON BALTIMORE INNER HARBOR

Sponsors: Women in Engineering Division (WIED); Minorities in Engineering Division (MIND); Pre-College Engineering Education Division (PCEE)

Moderator: Brian Kirkmeyer, Miami University

Enjoy a social gathering and networking opportunity for members of the WIED/MIND/PCEE divisions. Due to budget constraints, this will be a launching point for people to stay and mingle or coalesce into smaller groups and go to dinner on their own. A list of local restaurants and bars will be available to choose from, including an option to attend a Baltimore Orioles baseball game. WIED, MIND, and PCEE appreciate the understanding that this event had to be different in 2023.

M755 - LEAD Division Social

7:00 P.M. - 9:00 P.M., OFFSITE, 206 W. PRATT STREET, 206 W. PRATT STREET, BALTIMORE

Sponsor: Engineering Leadership Development Division (LEAD)

Join LEAD for a dinner buffet at the Pratt Street Ale House. Purchase tickets via your conference registration. Tickets will be \$20 in advance or \$30 onsite.

Ticketed event: \$20.00 advanced registration and \$30.00 on site registration

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T69 - Sunrise Yoga

7:00 A.M. - 7:45 A.M., CONVENTION CENTER
TERRACE GRADEN - 3RD FLOOR, BALTIMORE
CONVENTION CENTER

Sponsor: ASEE Headquarters

T169A - Registration & Poster Board Viewing

8:00 A.M. - 5:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

T172 - TUESDAY PLENARY: The 2022 Best Overall Papers and Corporate Member Council Keynote Speaker

8:00 A.M. - 9:00 A.M., BALLROOM 1 & 2 ,
BALTIMORE CONVENTION CENTER

Sponsors: Corporate Member Council (CMC); ASEE
Board of Directors

Moderator: Doug Tougaw, Purdue University at West
Lafayette (COE)

Speaker: Prith Banerjee,

This session will present the 2022 Best Overall PIC Paper Winner, "The Impact of Math and Science Remedial Education on Engineering Major Choice, Degree Attainment, and Time to Degree" by Joyce B. Main and Amanda Griffith (Educational Research and Methods Division);

2022 Best Overall Zone Paper Winner, "Flipping the Heat Transfer Classroom," Jessica Lofton, University of Evansville; and 2022 Best DEI Paper Winner, "Integrating Race, Gender, and Indigenous Knowledge in the Introductory Physics Curriculum," Prasad Venugopal

The session will include remarks by CMC keynote speaker Prith Banerjee, Chief Technology Officer, ANSYS, about "The Future of Engineering Education in the Hybrid World."

T201 - AERO 4: New Technologies and Strategic Applications

9:15 A.M. - 10:45 A.M., ROOM 313, BALTIMORE
CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Kristi Shryock, Texas A&M University

Aerodynamics Airfoil Project: Analytical, Numerical, and Experimental Introduction for Undergraduates

Prof. Elizabeth "Elisha" M.H. Garcia Ph.D. PE, United States Coast Guard Academy

Vertically Integrated Project (VIP) - Design and Development of Unmanned Aerial Systems as Part of Research Course

Dr. Adeel Khalid, Kennesaw State University

Using Free Software as Computational Wind Tunnels to Teach Students About Airfoils

Dr. Jason Andrew Roney, University of Denver

Design and Implementation of Virtual Research Projects in Aerospace Engineering through a Virtual Summer Research Program

Dr. Hua Li, Texas A&M University - Kingsville

Prof. Kai Jin, Texas A&M University - Kingsville

Dr. Larry Peel, Texas A&M University - Kingsville

Dr. Michael Preuss, Exquiri Consulting, LLC

Ovais Khan,

Yi Ren,

T202 - Architectural Engineering Division (ARCHE) Technical Session 3

9:15 A.M. - 10:45 A.M., LATROBE, HILTON
BALTIMORE INNER HARBOR

Sponsor: Architectural Engineering Division
(ARCHE)

Moderators: Rachel Mosier, Oklahoma State University;
John Phillips, Oklahoma State University; Ryan Solnosky,
Pennsylvania State University

The positive effect of construction site visits in the adequate comprehension of structural engineering concepts for students.

Prof. Luis Horacio Hernandez Carrasco, Tecnológico de

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Monterrey (ITESM)

Prof. Miguel X. Rodriguez-Paz, Tecnologico de Monterrey (ITESM)

Prof. Saul E. Crespo-Sanchez, Tecnologico de Monterrey (ITESM)

Contributions of interdisciplinary learning toward AE graduates' success: An industry perspective

Ziyi Wang, Penn State University

Dr. Robert M. Leicht, Pennsylvania State University

Dr. Ryan L. Solnosky P.E., Pennsylvania State University

Introducing Structural Engineering Faculty into Beginning Architectural Design Studios Taken by Architectural Engineering Students

Alex Campbell P.E., Oklahoma State University

Prof. John J Phillips P.E., Oklahoma State University

Using Conceptual Cost Estimating as a Constraint and Tool in Design Curriculum

Prof. Eric Anderson R.A., State University of New York, College of Technology at Farmingdale

Infusing Research Know-How into the Construction Sector: Pedagogies to Support Digital Construction in Ireland

Dr. Shannon Chance, Technological University Dublin & University College London

Dr. Barry McAuley, Technological University Dublin

T203 - Biological and Agricultural Engineering Departments: Looking to the Past While Envisioning the Future

9:15 A.M. - 10:45 A.M., KEY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Biological and Agricultural Engineering Division (BAE)

Department representatives from North Carolina State University, Virginia Tech, and the University of Georgia will present their departments' historic and contemporary highlights, followed by a discussion of visions of the future. This session provides an opportunity to recognize the past and share plans to educate and support the next generation of biological and agricultural engineers. It can also serve as a chance to share ideas, resources, and what has or has not worked in the past.

T204 - Biomedical Engineering Division (BED) Technical Session 2: Experiential Learning in Biomedical Engineering

9:15 A.M. - 10:45 A.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Bilal Ghosn, Rice University; Uri Feldman,

This biomedical engineering technical session will include full-paper presentations from authors. Moderators may encourage small group discussions or other engaging activities with attendees related to the topic in the latter part of the session.

A Case Study: Exploring the Influence of Home Environments on Tissue-Engineering Summer Research Experiences for High School Students

Marla Hilderbrand-Chae, University of Massachusetts, Lowell

Shalain Iqbal Siddiqui,

Dr. Chiara E. Ghezzi,

Bryan Black, University of Massachusetts, Lowell

Janna Jobel, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

Inculcating the Entrepreneurial Mindset Using a STEAM-Based Approach in a Biomedical Engineering Physiology Course

Dr. Sabia Zehra Abidi, Rice University

Benefits of a Low-Stakes Show and Tell Session in Biomedical Engineering Design

Rebecca Alcock,

Dr. John P. Puccinelli, University of Wisconsin, Madison

Designing Capstone Experiences for Interdisciplinarity in Biomedical Engineering Education

Prof. Holly M. Golecki, University of Illinois, Urbana-Champaign

Dr. Jennifer R. Amos, University of Illinois, Urbana-Champaign

Prof. Joe Bradley, University of Illinois, Urbana-Champaign

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T205 - Chemical Engineering Division (ChED) Technical Session 3: Junior & Senior Year Curriculum

9:15 A.M. - 10:45 A.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Gautom Das, University of Maryland Baltimore County; Stephanie Velegol, Pennsylvania State University

Work-in-Progress: Developing a Research Plan for a Retrospective Analysis of the Effect of Bridging Courses on Student Success in Graduate Studies

Dr. Matthew Cooper, North Carolina State University, Raleigh
Dr. Lisa G. Bullard, P.E., North Carolina State University, Raleigh

Work-in-Progress: Unpacking Graduate Teaching Assistants' (GTAs) Taught Practice – Exploring Training through Decisional Capital

Dr. Deesha Chadha, Imperial College London
Dr. Umang Vinubhai Shah, Department of Chemical Engineering, Imperial College London, South Kensington, London SW7 2AZ
Dr. James Iain Campbell, Imperial College London

Work-in-Progress: A Pedagogical Unboxing of Reservoir Simulation with Python – Backward Design of Course Contents, Assessment, and Pedagogy (CAP)

Dr. Olatunde Olu Mosobalaje, Covenant University
Moses Olayemi, Purdue University, West Lafayette

Work-in-Progress: Optimization and Consolidation of a Chemical Engineering Lab-on-a-Kit

Prof. Fernando Mérida, University of Florida
Prof. Carlos Rinaldi,
Luis Gallego, University of Florida
Andrew Stephen Kraus,
Hyeongbeen Joo,
Elizabeth Louise Meier, University of Florida

Work in Progress: Using Experiment-centric Learning Pedagogy to Increase Student

Understanding of Chemical Principles and Concepts

Temileye Omopariola Ibirinde,

Adebayo Iyanuoluwa Olude, Morgan State University
Mr. Pelumi Olaitan Abiodun, Morgan State University
Dr. Oludare Adegbola Owolabi, P.E., Morgan State University
Dr. Niangoran Koissi, Morgan State University
Dr. Krishna Bista,
Neda Bazyar Shourabi, Pennsylvania State University, Berks Campus
Frank Efe,
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

Work-in-Progress: Expanding Use of Affordable Transport Equipment – Fluidized Bed with Applications for Bio- and Chemical Catalysis

Zeynep Ezgi Durak, Washington State University
Prof. Bernard J. Van Wie, Washington State University
David B. Thiessen, Washington State University
Dr. Olusola Adesope, Washington State University
Oluwafemi Johnson Ajeigbe,

T205B - Chemical Engineering Division (ChED) Technical Session 4: Work-in-Progress Part 1

9:15 A.M. - 10:45 A.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Sindia Rivera-Jiménez, University of Florida; Neha Raikar, University of Maryland Baltimore County

Develop the Mindset of Engineering for One Planet in Chemical Process Control

Zuyi Huang, Villanova University

Process Control Laboratory Projects: Technical Training, Team Development, and Global Collaboration

Dr. Joaquin Rodriguez, University of Pittsburgh
Dr. Schohn L. Shannon, University of Pittsburgh
Michael McMahan,
Hseen Baled,

Hands-on Experience in Solving Real-World Problems via a Unique Student-Faculty-Industry Collaboration Program

Miss Swapana Subbarao Jerpoth, Rowan University
Dr. Robert P. Hesketh, Rowan University

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Dr. Kirti M. Yenkie, Rowan University
Dr. C. Stewart Slater, Rowan University
Dr. Mariano Javier Savelski, Rowan University
Sean Curtis,
Michael Fracchiolla,
David Anthony Theuma,

The Incorporation of Safety throughout the Core Curriculum

Taryn Melkus Bayles, University of Pittsburgh
Dr. Joaquin Rodriguez, University of Pittsburgh
Robert Enick,

How We Teach: Capstone Design

Dr. Laura P. Ford, The University of Tulsa
Dr. Jennifer Cole, Northwestern University
Dr. Kevin D. Dahm, Rowan University
Dr. Bruce K. Vaughen, American Institute of Chemical Engineers
Dr. Marnie V. Jamieson, University of Alberta, Canada
Dr. Lucas James Landherr, Northeastern University
Dr. David L. Silverstein, P.E., University of Kentucky
Dr. Troy J. Vogel, University of Notre Dame
Dr. Christy Wheeler West, University of South Alabama
Dr. Stephen W. Thiel, University of Cincinnati

T206A - Committee on Educational Policy Presents: Holistic Program Topics

9:15 A.M. - 10:45 A.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Kevin McMullen, United States Military Academy

Presenters share on a variety of topics related to developing holistic students, with primary focus on courses and program design.

Why Students Select the Civil Engineering Major

William Graves, United States Military Academy, West Point
Thomas James Matarazzo, United States Military Academy, West Point
Dr. Brock E. Barry, P.E., United States Military Academy, West Point
Elizabeth Bristow,

Dr. Mark Evans, United States Military Academy, West Point

Bowling Alone and Leaving Students Behind: Placing ASEE Civil Engineering Division Membership Trends in Context

Dr. Andrea L Welker, P.E., The College of New Jersey
Ms. Leslie Nolen, American Society of Civil Engineers

Building Awareness of Inclusivity through Scalable Hands-On Activities.

Dr. Margaret A. Hunter, Hofstra University
Dr. Lynn A. Albers, Hofstra University
Salvador Rojas-Murillo, Hofstra University

Incorporating Teamwork Elements into a Course to Improve Learning Outcomes

Dr. Kevin Haas, Georgia Institute of Technology
Dr. Alexandra C. Muscalus, Woods Hole Oceanographic Institution
Dr. Ellen Zerbe, Georgia Institute of Technology
Dr. Robert Benjamin Simon, Georgia Institute of Technology

Enhancing Student Engagement and Skillsets towards Transportation Careers Using Digital Badge Program: A Case Study

Dr. Venkatesh Pandey, North Carolina Agricultural and Technical State University
Dr. Maranda McBride, North Carolina A&T State University (CoE)
Dr. Hyoshin Park,

T206B - Committee on Effective Teaching Presents: Creativity

9:15 A.M. - 10:45 A.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Civil Engineering Division (CIVIL)

Moderators: James Klosky, United States Military Academy; Jakob Bruhl, United States Military Academy

Moderators will coordinate an interactive session which will include presentations by core authors followed by a guided discussion.

Assessment of a Final Project of a Large Statics Course on Fostering Creativity and Inclusion

Prof. Shinae Jang, University of Connecticut
Christa Taylor, University of Connecticut

Flipping the Classroom to Create a Student-Centered Learning Environment in Three Undergraduate Civil Engineering Courses

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Dr. Amie Baisley, University of Florida

Prof. Keith D. Hjelmstad, Arizona State University, Polytechnic Campus

Creativity's Role in Solving Ill-Structured Engineering Problems: Opinions of Student, Faculty and Practitioners

Xiangxiu Zhang,

Secil Akinci-Ceylan, Iowa State University of Science and Technology

Dr. Kristen Sara Cetin, P.E., Michigan State University

Dr. Benjamin Ahn, Iowa State University of Science and Technology

Dr. Andrea E Surovek, P.E., South Dakota School of Mines and Technology

Kyle P. Kelly,

T206C - Committee on Educational Policy Presents: Pillars of Our Curriculum

9:15 A.M. - 10:45 A.M., HOLIDAY 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Jacob Henschen, University of Illinois at Urbana - Champaign; Ann Sychterz,

Presenters will share ideas and efforts related to curriculum design at their institutions.

Investigating the Inclusion of Traffic Operations Concepts in Undergraduate Civil Engineering Curricula

Dr. Rebeka Yocum, Oregon Institute of Technology

Dr. Vikash V. Gayah, Pennsylvania State University

Integration of Diversity, Equity, and Inclusion Topics into a First-Year Introduction to Civil Engineering Course

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

Civil Engineering Curricula and Sustainability Education: An International Cross-Case Analysis of Alignments and Gaps

Miss Laura Gutierrez-Bucheli, Monash University

Alan Reid, Monash University

Gillian Kidman, Monash University

Prof. Julia Lamborn, P.E., Monash University

A Methodology for Converting an Engineering Program from Quarters to Semesters

Dr. Allen C. Estes, California Polytechnic State University, San Luis Obispo

Prof. Brent Nuttall, California Polytechnic State University, San

Luis Obispo

Mr. Craig Baltimore, California Polytechnic State University, San Luis Obispo

Dr. Peter Laursen, California Polytechnic State University, San Luis Obispo

Michael James Deigert, P.E., California Polytechnic State University, San Luis Obispo

Dr. Cole C. McDaniel, California Polytechnic State University, San Luis Obispo

T208 - COED: Student Perspectives of Instructional and Advising Approaches

9:15 A.M. - 10:45 A.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Steven Barrett, University of Wyoming

The papers in this session examine student perceptions of computing-supported instructional approaches used in computing classrooms and computing-supported advising.

A Comparison of Students' Academic Achievement and Perceptions in Hyflex and Non-Hyflex Engineering Courses

Dr. Jessica Ohanian Perez, California State Polytechnic University, Pomona

Prof. Juliana Lynn Fuqua, California State Polytechnic University, Pomona

Dr. Faye Linda Wachs, California State Polytechnic University, Pomona

Dr. Paul Morrow Nissenson, California State Polytechnic University, Pomona

Brooke Jones,

Jeffrey A. Phillips,

Harmony Nguyen, The Pennsylvania State University

Effectiveness of a Web-Based Advising Tool for an Engineering Program: Students' Perspectives

Dr. Mahbub K. Ahmed, P.E., Southern Arkansas University

Mrs. Kendra J. Ahmed, Southern Arkansas University

Lighting Engagement : Student Engagement in a Lightboard vs. Traditional Video Lectures

Dr. Sunay Palsole, Texas A&M University

Student Preference of Video Length for Studying Machine Learning in a Flipped Classroom

Dr. Ahmed Dallal, University of Pittsburgh

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T208B - COED Modulus Topics

9:15 A.M. - 10:45 A.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Sunay Palsole, Texas A&M University

In computing, the modulus operator stands for the remainder. This session will highlight some of the papers which simply did not fit into the themes of the other technical sessions.

A SwarmAI Testbed for Workforce Development and Collaborative, Interdisciplinary Research

Martha Cervantes, Johns Hopkins University

Raphael Norman-Tenazas,

Adam Goertz,

Mr. Erik C. Johnson, University of Illinois, Urbana-Champaign

William Roberts Gray-Roncal,

KarmaCollab: A Communication Platform For Collaborative Learning

Damitu Robinson, University of California, Davis

Mr. Nicholas Hosein,

Prof. Andre Knoesen, University of California, Davis

Akash Kashyap,

Optimal Faculty Staffing Using Depth-First Search

Dr. Mudasser Fraz Wyne, National University

Dr. Alireza Farahani,

Dr. Esmacil Atashpaz-Gargari,

Dr. Lu Zhang, National University

Uncovering Students' Social Networks: Entity Resolution Methods for Ambiguous Interaction Data

Mr. Adam Steven Weaver, Utah State University

Mr. Jack Elliott, Utah State University

Using VR (Virtual Reality) Technology to Teach Fall Safety Topics to Students: Simulation Outcomes and Student Learnings

Dr. Mahmud Hasan, University of Houston, Downtown

T211 - Experiential Learning : Global Models and Perspectives

9:15 A.M. - 10:45 A.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Cooperative and Experiential Education Division (CEED)

Cooperative and Experiential Education models and projects across the globe.

A descriptive study of an innovative and sustainable model of work-integrated learning for industry professionals: An Indian case

Prof. Venkataraman PB, Birla Institute of Technology and Science Pilani

G Sundar,

University-industry Partnerships for Enhancing the Workplace Readiness of Professional Masters in Engineering: A Comparative Case Study in China

Fangqing Yi, Tsinghua University

Dr. Xiaofeng Tang, Tsinghua University

Evaluation of a Work-Integrated Learning Program for Undergraduate STEM Outreach Instructors

Dr. Lisa Romkey, University of Toronto

Daniel Munro, University of Toronto

Virginia Hall,

Ms. Tracy L. Ross, Actua

Developing industry-aware engineering students in the classroom: The role of desktop site tours

Alicia Shih, School of Chemical Engineering, The University of New South Wales, Sydney, Australia

Dr. Sarah Grundy, School of Chemical Engineering, The University of New South Wales, Sydney, Australia

Dr. Peter Neal, School of Chemical Engineering, The University of New South Wales, Sydney, Australia

Student Engineering Enrichment from Design to Execution

Mrs. Lana El Ladki, Texas A&M University at Qatar

Dr. Saira Anwar, Department of Multidisciplinary Engineering, Texas A&M University

Dr. Bilal Mansoor, Texas A&M University at Qatar

Dr. Yasser M. Al-Hamidi, Texas A&M University at Qatar

T2110 - Campus Representative Business Meeting

9:15 A.M. - 10:45 A.M., HOPKINS, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Campus Representatives

Annual business meeting of ASEE's campus representatives.

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T213 - Design in Engineering Education Division (DEED) Technical Session 8

9:15 A.M. - 10:45 A.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Teaming Strategies and Team Dynamics

Managers and Engineers: Impact of Defined Roles on Shared Leadership in Capstone Design

Dr. Rebecca Komarek, University of Colorado Boulder
Dr. Daria A Kotys-Schwartz, University of Colorado Boulder
Dr. Daniel Knight, University of Colorado Boulder
Julie Elizabeth Steinbrenner, University of Colorado Boulder

Work in Progress: Implementing a Tiger Team in a Capstone Design Course

Prof. Alan Cheville, Bucknell University
Dr. Stewart Thomas, Bucknell University
Prof. Stu Thompson, Bucknell University

Promoting Individuals' Teamship and Goal Achievement while Working on Team Design Projects

Adam Wickenheiser, University of Delaware
Prof. Jenni Buckley, University of Delaware
Dr. Marcia Gail Headley, University of Delaware

Putting Individual Learning Responsibility Back into the Team Experience - An Application of the Design Experience

Dr. Cecelia M. Wigal, University of Tennessee at Chattanooga

Enhancing Teams in Higher Education through Effective Team Dynamics Training

Dr. Mary Lynn Realf, Georgia Institute of Technology
Sydney Mae Ayers,
Julianne Latimer,

T213B - Design in Engineering Education Division (DEED) Technical Session 9

9:15 A.M. - 10:45 A.M., JOHNSON , HILTON BALTIMORE INNER HARBOR

Sponsor: Design in Engineering Education Division (DEED)

K-12 AND First Year Design

Relationship between High School STEM Self-Competency and

Behavior in a Parametric Building Design Activity

Stephanie Bunt, The Pennsylvania State University
Dr. Nathan C. Brown,
Laura Hinkle,
Andrew Walton,
Dr. Nathan C. Brown,

Comparing Complexities of the Understanding of the Engineering Mindset

between First-Year and Capstone Students

Ms. Lauren Taylor Wagner, The Ohio State University
Tyler Milburn, The Ohio State University
Dr. Krista M. Kecskemety, The Ohio State University
Mr. Bob Rhoads, The Ohio State University

Identifying Opportunities for Peer Mentors as Student Social Support Catalyst within a Multidisciplinary First-Year Design Course

Dr. Pamela L. Dickrell, University of Florida
Ms. Estefany Soto, University of Central Arkansas
Dr. Louis S. Nadelson, University of Central Arkansas

Designing Innovations Research Stream - A Design Research Program for First-Year Students

Dr. Mohammad Fazelpour, University of Maryland College Park
Benjamin Treadwell Landon,
Prof. Jeffrey W. Herrmann, University of Maryland, College Park
Patrick Killion,

Gotta Catch 'Em All: Learning Graphical Communications through an Introductory Hands-on Design-Build-Test Project in a Hybrid Learning Environment

Anna Wang, University of California San Diego
Dr. Lelli Van Den Einde, University of California San Diego
Dr. Nathan Delson, eGrove Education

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T214A - Formation and Development of Engineers

9:15 A.M. - 10:45 A.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Lorena Grundy, University of California, Berkeley

Educational Research & Methods Division (ERM)
Technical Session

Studying the Formation of Engineers in the Learning Ecologies of Energy Engineering Education and Energy Engineering Practice

Dr. Russell Korte, The George Washington University
Prof. Saniya Leblanc, The George Washington University

A Measurement of Systemic STEM Educational Wellness at a Minority-Serving Institution Using the Eco-STEM Educational Ecosystem Health Survey

Dr. Corin L. Bowen, California State University, Los Angeles
Michael W. Ibrahim,
Dr. Gustavo B. Menezes, California State University, Los Angeles

Engineering Program Matriculation: Timing and Graduation

Dr. Matthew T. Stimpson, North Carolina State University at Raleigh
Dr. Jerome P. Lavelle, North Carolina State University at Raleigh

Examining Engineering Students' Shift in Mindsets Over the Course of a Semester: A Longitudinal Study

Dr. Dina Verdin, Arizona State University, Polytechnic Campus
Carlos Luis Perez, Arizona State University
Sharona Krinsky, California State University, Los Angeles
Dr. Emily L. Allen, California State University, Los Angeles

Exploring graduate engineering students' reasons for original enrollment and current persistence in engineering master's and PhD programs

Gabriella M. Sallai, Penn State University
Dr. Matthew Bahnson, The Pennsylvania State University
Catherine G. P. Berdanier, Pennsylvania State University

Engineering CARES: Measuring Basic Psychological Needs in the Engineering Workplace

Prof. Denise Wilson, University of Washington
Dr. Jennifer J. VanAntwerp, Calvin University

Ms. Shruti Misra, University of Washington

T214B - Research Methodologies – Session 1

9:15 A.M. - 10:45 A.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Greses Perez, Stanford University

Educational Research & Methods Division (ERM)
Technical Session

Conducting the cognitive interview: Sharing experiences and insight from two think-aloud studies

Mr. Joseph Francis Mirabelli, University of Illinois at Urbana-Champaign
Dr. Karin Jensen, University of Michigan
Jennifer Cromley, University of Illinois Urbana-Champaign
Ms. Sara Rose Vohra, University Of Illinois at Urbana-Champaign

Evaluating the quality of interviews with a process-based, self-reflective tool

Dr. Amy L. Brooks, Oregon State University
Dr. James L. Huff, Harding University

Investigating Engineering Practice Using Ethnographic Methods: Experiences of Student Observers at Multiple Field Sites

Prof. Brent K. Jesiek, Purdue University at West Lafayette (COE)
Mr. Brooks Michael Leftwich, Purdue University, West Lafayette
Russell Korte, The George Washington University
Dr. Cory Brozina, Youngstown State University - Rayen School of Engineering
Dr. Aditya Johri, George Mason University

Exploring composite narratives as a methodology to understand and share research findings in engineering education

Dr. Susan Sajadi, Virginia Tech
Dr. Nadia N. Kellam, Arizona State University
Dr. Samantha Ruth Brunhaver, Arizona State University

A Qualitative Methods Primer: A Resource to Assist Engineering Education Scholars in Mentoring Traditionally Trained Engineering Faculty to Educational Research

Dr. Matthew Bahnson, Pennsylvania State University

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Catherine G. P. Berdanier, Pennsylvania State University

T214C - Supporting Students with Disabilities and Understanding Spatial Ability and Accessibility

9:15 A.M. - 10:45 A.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Bryce Hughes, Montana State University - Bozeman

Educational Research & Methods Division (ERM) Technical Session

An Analysis of Low-Scoring Blind and Low-Vision Individuals' Selected Answers on a Tactile Spatial Ability Instrument

Daniel Kane, Utah State University

Dr. Natalie L. Shaheen,

Dr. Wade H. Goodridge, Utah State University

Parallel Form Reliability Analysis of a Tactile Mental Cutting Test for Assessing Spatial Ability in Blind and Low-vision Populations

Mrs. Candice Hamilton, Stephen F. Austin State University

Emily Stratman,

Daniel Kane, Utah State University

Jenny Lee Blonquist,

Dr. Natalie L. Shaheen, Illinois State University

Dr. Wade H. Goodridge, Utah State University

"It is So Exhausting to Constantly Have to Explain to People": Exploring the Effects of Faculty Interactions on Disabled Students

Ms. Rachel Figard, Arizona State University

Dr. Samantha Ruth Brunhaver, Arizona State University

Dr. Jennifer M. Bekki, Arizona State University

An Analysis of Pre and Post-COVID-19 Lockdown Spatial Ability Performance in Blind and Low-Vision Individuals

David Searle, Utah State University

Daniel Kane, Utah State University

Dr. Natalie L. Shaheen,

Dr. Wade H. Goodridge, Utah State University

The Effects of a Spatial Thinking Curriculum on Low-Income Sophomore Summer Scholars

Dr. Marisa K. Orr, Clemson University

Ms. Lauren Fogg, Louisiana Tech University

Mrs. Catherine Hendricks Belk, Clemson University

Dr. Katie Evans, Houston Baptist University

Dr. Mitzi Desselles, Louisiana Tech University

T214D - Student Experiences and Development – Session 1

9:15 A.M. - 10:45 A.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Ginger Scarbrough, New Mexico State University

Educational Research & Methods Division (ERM) Technical Session

From Engineering Students to Student Engineers: Reflections, Identity, and Positioning in Co-curricular Activities

Dr. Zhiyi Liu, University at Buffalo

Dr. Andrew Olewnik, University at Buffalo, The State University of New York

Student Persistence in Engineering Majors: A Description of Engineering Students at Two Universities before and during COVID-19

Dr. Karen E. Rambo-Hernandez, Texas A&M University

Olukayode E. Apata, Texas A&M University

Mr. Syahrul Amin, Texas A&M University

Mr. Blaine Austin Pedersen, Texas A&M University

Camille S. Burnett, Prairie View A&M University

Dr. Bimal P. Nepal, Texas A&M University

Dr. Noemi V. Mendoza Diaz, Texas A&M University

How Do Engineering Attitudes of Learners Who Are Displaced Change after Exposure to a Relevant and Localized Engineering Curriculum?

Maham A Godil, Purdue University West Lafayette

Prof. Jennifer Deboer, Purdue University at West Lafayette (COE)

Dr. Dhinesh Balaji Radhakrishnan, Purdue University at West Lafayette (COE)

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Switching research labs: A phenomenological study of international graduate students.

Ms. Ifeoluwa Priscilla Babalola, Texas A&M University

Dr. Victor M. Ugaz, Texas A&M University

Dr. Bugrahan Yalvac, Texas A&M University

Receiving curricular messages: Engineering students' understandings of valued practices in their field

Shannon M. Clancy, University of Michigan

Berenice Alejandra Cabrera, University of Michigan

Ms. Sarah Jane (SJ) Bork, University of Michigan

Kayleigh Merz, University of Michigan

Dr. Erika Mosyjowski, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Dr. Lisa R. Lattuca, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

A Process for Systematically Collecting Plan of Study Data for Curricular Analytics

Dr. David Reeping, University of Cincinnati

Mr. Sushant Makarand Padhye, University of Cincinnati

Nahal Rashedi,

T214E - Work-in-Progress Session: Exploring Learning and Development in Engineering Courses

9:15 A.M. - 10:45 A.M., BALLROOM 3 , BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Isabella Stuopis, Tufts University

Educational Research & Methods Division (ERM) technical session

Work in Progress: Undergraduate Student Perceptions of Macroethical Issues in Aerospace Engineering

Ms. Elizabeth Ann Strehl, University of Michigan

Megan Ennis, University of Michigan

Dr. Aaron W. Johnson, University of Michigan

Dr. Corin L. Bowen, California State University, Los Angeles

Work in Progress: Using the Formative Assessment Enactment Model to Characterize Instructor Moves in a Learning-Assistant Supported Mechanics Course

Isabella Stuopis, Tufts University

Dr. Kristen B. Wendell, Tufts University

Work in Progress: Re-Interpreting Engineering Laboratory Literature Through the Lens of Cognitive Load

Gregory Wickham, Harvey Mudd College

Matthew Spencer, Harvey Mudd College

Work in Progress: Quantification of Problem-Complexity and Problem-Solving Skills with Directed Networks in a Sophomore Course in Mechanics of Materials

Dr. Radheshyam Tewari, Michigan Technological University

Dr. Aneet Dharmavaram Narendranath, Michigan Technological University

Dr. Jaelyn Johnson, Michigan Technological University

Work in Progress: Investigating the Relationship between Active Learning Strategies in Engineering Courses and Students' Sustainability Behaviors

Trevion S. Henderson, Tufts University

OnKee Min, Tufts University

Jessica Ostrow Michel,

Work in Progress: Qualitative Content Analysis of Quantitative Literacy in First-Year Engineering Courses

Dr. Raenita A. Fenner, Loyola University, Maryland

Dr. Peggy O'Neill, Loyola University, Maryland

Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Dr. Elliot P. Douglas, University of Florida

Work in Progress: Making Engineering Education Teams more Effective: An Exploration of a Nearly Epistemic Negotiation

Dr. Courtney June Faber, University of Tennessee, Knoxville

Lorna Treffert, University of Tennessee, Knoxville

Alexis Gillmore, University of Tennessee, Knoxville

Ms. Isabel A. Boyd, University of Tennessee, Knoxville

Chulin Chen, University of Tennessee, Knoxville

T215A - Electrical and Computer Engineering Division Business Meeting

9:15 A.M. - 10:45 A.M., CARROLL, HILTON BALTIMORE INNER HARBOR

Sponsor: Electrical and Computer Engineering Division (ECE)

This meeting will discuss the logistics and business aspects

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of the ECE Division. All ECE Division members are welcome to join.

Free ticketed event

T215B - Empowering Students: Self-Efficacy, Advising, and Transfer Success

9:15 A.M. - 10:45 A.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Cherian Mathews, University of the Pacific

Electrical & Computer Engineering Students' Approach to Academic Advising and Course Selection

Christopher Martinez, University of New Haven

April Yoder, University of New Haven

Concept-Centric Summative Assessments That Remain Authentic while Reducing Grading Effort

Prof. Curt Schurgers, University of California, San Diego

Identifying Student Profiles Related to Success in an Analog Signal Processing Course

Dr. Juan Alvarez, University of Illinois Urbana-Champaign

Dr. Jennifer R. Amos, University of Illinois Urbana-Champaign

Yael Gertner, University of Illinois Urbana-Champaign

Benjamin Cosman,

Transfer Success: A Qualitative Approach to Understanding Transfer Student Experiences at a Teaching-Focused Institution

Dr. Shiny Abraham, Seattle University

Dr. Agnieszka Miguel, Seattle University

Dr. Kenneth A. Connor, Rensselaer Polytechnic Institute

Lessons Learning from Developing and Teaching an Electromagnetic Compatibility (EMC) Course - From Concepts to Delivery

Dr. Victoria Shao, University of Illinois Urbana-Champaign

T216 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 3

9:15 A.M. - 10:45 A.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Matt Aldeman, Illinois State University; Robert Kerestes, University of Pittsburgh

Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 3.

Curriculum Development in Renewable Energy and Sustainability

Dr. Ali Zilouchian, Florida Atlantic University

Prof. Amir Abtahi, Florida Atlantic University

Dr. Nancy Romance, Florida Atlantic University

Design of a Massively Open Online Course on Electrical Microgrids with Real Datasets

Dr. Roxana Maria Melendez-Norona, Florida Atlantic University

Dr. Maria M. Larrondo-Petrie, Florida Atlantic University

Eduardo David Sagredo Asesor, Ministerio Energia y Minas Dom. Rep.

Enhancing job-readiness through short courses: A case study in power engineering

Mr. Hua Chai, University of New South Wales

Huiye Yu, University of New South Wales

Mr. Kuthsav Thattai, University of New South Wales

Dr. Jayashri Ravishankar, University of New South Wales

Enhancing participation, engagement, and retention in undergraduate and graduate curriculum through applied energy conversion course

Dr. Anveeksh Koneru, University of Texas of the Permian Basin

T217 - Engineering and Public Policy Division (EPP) Technical Session 2

9:15 A.M. - 10:45 A.M., KEY 3 & 4, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering and Public Policy Division

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(EPP)

Moderator: Sahithya Reddivari, Georgia State University

Did the NAE Changing the Conversation Campaign Introduce the Care Penalty into Engineering?

Dr. Daniel B. Oerther, Missouri University of Science and Technology

Native and Immigrant Students: An Analysis of Well-being Using PISA 2018

Mr. Syed Ali Kamal, University at Buffalo, The State University of New York

Matilde Luz Sánchez-Peña, University at Buffalo, The State University of New York

Mr. Ahmed Ashraf Butt, Purdue University at West Lafayette (COE)

Thinking Systemically to Better Serve Engineering Students' Mental Health Needs: Policy and Process Recommendations

Dr. Kacey Beddoes, San Jose State University

Dr. Andrew Danowitz, California Polytechnic State University, San Luis Obispo

WIP: NSF-funded Activity in Support of the LGBTQ+ Community: Award Search Strategy and Selection Criteria

Dr. Daniel A. Sanchez, University of Pennsylvania

Dr. Rocio C. Chavela Guerra, American Society for Engineering Education (ASEE)

Dr. Stephanie Farrell, Rowan University

T218 - EDG Division Business Meeting

9:15 A.M. - 10:45 A.M., KEY 9 & 10, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Design Graphics Division (EDGD)

T220 - Engineering Ethics Division (ETHICS) Technical Session_Tuesday June 27, 9:15 - 10:45

9:15 A.M. - 10:45 A.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Kenneth McDonald, United States Military Academy, Department of Systems Engineering; Koenraad Gieskes, State University of New York at Binghamton

Ethical Implications of COBOT Implementation

C.J. Witherell, Grand Valley State University

The Power of Playful Learning - Ethical Decision-Making in a Narrative-Driven, Fictional, Choose-Your-Own Adventure [Work In Progress]

Tori Wagner, University of Connecticut

Landon Bassett, University of Connecticut

Dr. Jennifer Pascal, University of Connecticut

Dr. Daniel D. Burkey, University of Connecticut

Dr. Scott Streiner, University of Pittsburgh

To Construct the Curriculum Effect Evaluation System of Engineering Ethics Education Based on the Kirkpatrick's Evaluation Model

Dr. Jiaojiao Fu, Peking University

User vs. Engineer: Student Perceptions of Responsibility in Social Media

Lazlo Stepback, Purdue University at West Lafayette (PPI)

Min Ha Hwang,

Dr. Stephanie Claussen, San Francisco State University

Yna Leonardo,

Using a Framework to Define Ways of Integrating Ethics across the Curriculum in Engineering

Dr. Laura Bottomley, North Carolina State University at Raleigh

Cynthia Bauerle,

Lisette Esmeralda Torres-Gerald,

Carrie Hall,

T221 - Engineering Libraries Division Business Meeting

9:15 A.M. - 10:45 A.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Free ticketed event

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

T222 - Engineering Management Division (EMD) Tech Session 2: Course-level strategies to positively impact student learning and experiences

9:15 A.M. - 10:45 A.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Management Division (EMD)

Moderator: Neal Lewis, University of Nebraska - Lincoln

Come to this session to learn about a project-based capstone course, a study-abroad program, and how to expand female entrepreneurship in STEM.

Design of a Unique Industry-Oriented Project-Based Capstone Course for Engineering Technical Managers

Dr. Wei Lu, Texas A&M University

Dr. Behbood Zoghi, Texas A&M University

Engineering Management Student Study-Abroad Opportunities:

Design Considerations for EM Programs and Faculty Mentors

Col. James Henry Schreiner, United States Military Academy

Trenton Robert Douthwaite,

An Evidence-Based Approach to Technology Workforce Expansion by Increasing Female Participation in STEM Entrepreneurship

Jonathan Eckhardt, University of Wisconsin - Madison

Minah Park, University of Wisconsin-Madison

Molly Carnes,

Dr. Jennifer Sheridan, University of Wisconsin - Madison

Markus Brauer, University of Wisconsin - Madison

Brent Goldfarb,

Subrahmaniam Tangirala, University of Maryland, College Park

T223 - Engineering Technology Division (ETD) Technical Session 9

9:15 A.M. - 10:45 A.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Bahar Zoghi, State University of New York,

College of Technology at Farmingdale

Engineering Technology related papers focused on teaching student learning

Development of Sensing and Programming Activities for Engineering Technology Pathways Using a Virtual Arduino Simulation Platform

Dr. Murat Kuzlu, Old Dominion University

Dr. Vukica M. Jovanovic, Old Dominion University

Dr. Otilia Popescu, Old Dominion University

Salih Sarp, Old Dominion University

Ms. Deborah Marshall,

Development of a Cobot Lab to Support Next-Generation Applied Engineering Technology

Jeritt Williams, Illinois State University

Development of a Data Science Curriculum for an Engineering Technology Program

Salih Sarp, Old Dominion University

Dr. Murat Kuzlu, Old Dominion University

Dr. Otilia Popescu, Old Dominion University

Dr. Vukica M. Jovanovic, Old Dominion University

Zafer Acar,

Development of a Raspberry PI-Controlled VEX Robot for a Robotics Technology Course

Dr. Lili Ma, New York City College of Technology

Justin Bartholomew, New York City College of Technology

Dr. Yu Wang, New York City College of Technology

Dr. Xiaohai Li, New York City College of Technology

Education and Training Program to Improve Preparedness and Increased Access to Energy Workforce for Engineering Technology Graduates

Dr. Kuldeep S. Rawat, Elizabeth City State University

Dr. Mehran Elahi, Elizabeth City State University

Prof. Bijandra Kumar,

T224 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 4: Curriculum and Programmatic Effects

9:15 A.M. - 10:45 A.M., ROOM 340, BALTIMORE

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CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderator: Kenneth Van Treuren, Baylor University

Examining the differences in the grade point average (GPA) for engineering students enrolled in entrepreneurial education programs

Dr. Prateek Shekhar, New Jersey Institute of Technology
Md Tarique Hasan Khan, New Jersey Institute of Technology
Akshata Ashok Patil, New Jersey Institute of Technology
Miss Bahar Memarian, University at Buffalo, The State University of New York

How Canadian Universities Align Their Curricular and Co-curricular Programs with Institutional Culture and Entrepreneurial Ambitions

Prof. Tate Cao, University of Saskatchewan
Dr. Shaobo Huang, University of Saskatchewan

Landscape Review of Entrepreneurship Education in Canada and the Presence of Systems Thinking

Mr. Amin Azad, University of Toronto
Dr. Emily Moore P.Eng., University of Toronto

Strengthening the STEM Pipeline from High School to University for Engineering Intrapreneurs

Dr. Heather Greenhalgh-Spencer, Texas Tech University
Dr. Tim Dallas, Texas Tech University

Work in Progress: An Exploration of Different Introductory Academic Opportunities in Innovation and Engineering Entrepreneurship

Dr. Keilin Jahnke, University of Illinois Urbana-Champaign

T225 - EED Panel Discussion: Exploring Career Paths in Academia— Learn, Network, and Thrive

9:15 A.M. - 10:45 A.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Fethiye Ozis, Northern Arizona University; David Sanchez, University of Pittsburgh

This EED panel will provide an opportunity to learn from and connect with faculty and leaders in the Environmental Engineering (EE) field, drawing on expertise from the premier academic organizations associated with

environmental engineering: the American Academy of Environmental Engineers and Scientists (AAEES), Association of Environmental Engineering and Science Professors, and American Society of Civil Engineers (ASCE). The panel is for all graduate students, post-docs, and early-career faculty who are interested in receiving advice and networking to advance their careers in environmental engineering.

Free ticketed event

Environmental Engineering Division Panel

Dr. Fethiye Ozis, Carnegie Mellon University
Dr. David V.P. Sanchez, University of Pittsburgh
Dr. Matthew Lucian Alexander P.E., Texas A&M University - Kingsville
Dr. Shannon L. Isovitsch Parks P.E., University of Pittsburgh at Johnstown
Dr. Daniel B Oerther P.E., Missouri University of Science and Technology

T226 - Experimentation and Laboratory-Oriented Studies Division (DELOS) Technical Session 6: Online, Remote, and Virtual Labs

9:15 A.M. - 10:45 A.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Ahmet Sabuncu, Worcester Polytechnic Institute

In this session, online, remote, and virtual laboratories are discussed in terms of a broad framework, learning outcomes, inequalities in access, and comparison among delivery modes. In addition, you will hear presentations of novel solutions for remote lab delivery including using depth cameras and an open source platform for medical device troubleshooting.

A democratized open-source platform for medical device troubleshooting

Dr. Sabia Zehra Abidi, Rice University
Victor Suturin, Monash University
Dr. Robert Lee Read, Public Invention
Nathaniel Bechard,

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TUESDAY, JUNE 27th SESSIONS

A Scoping Review of Online Laboratory Learning Outcomes in Engineering Education Research

Mr. Isaac D. Dunmoye, University of Georgia
Deborah Moyaki, University of Georgia
Dr. Adurangba Victor Oje, University of Georgia
Dr. Nathaniel J. Hunsu, University of Georgia
Dr. Dominik May, University of Wuppertal

A Framework for the Development of Online Virtual Labs for Engineering Education

Dr. Genisson Silva Coutinho, Instituto Federal de Educação, Ciência e Tecnologia da Bahia
Dr. Alejandra J. Magana, Purdue University at West Lafayette (COE)
Vinicius do Rego Dias,

Comparative analysis of remote, hands-on, and human-remote laboratories in manufacturing education

Mr. Joshua Grodotzki, Technical University Dortmund, Institute of Forming Technology and Lightweight Components
Prof. A. Erman Tekkaya, TU Dortmund University, Institute of Forming Technology and Lightweight Construction

RHLab: Digital Inequalities and Equitable Access in Remote Laboratories

Mr. Marcos Jose Inonan Moran, University of Washington
Animesh Paul, University of Georgia
Dr. Dominik May, University of Wuppertal
Mr. Animesh Paul,
Dr. Rania Hussein, University of Washington

Utilizing Depth Cameras for Active Remote Participation in Lab and Project Activities.

Dr. Piotr Hryniewicz, Widener University
Christopher Hallahan,

T227 - First-Year Programs Division (FYP) - Technical Session 4: Supporting Success 1

9:15 A.M. - 10:45 A.M., BRENT, HILTON BALTIMORE INNER HARBOR

Sponsor: First-Year Programs Division (FYP)

Moderator: Michelle Jarvie-Eggart, Michigan Technological University

The first of two full-paper sessions on the subject of student success.

Meaningful Moments: First-year Student Perceptions of Mindfulness and Meditation in the Classroom

Dr. Kathryn Schulte Grahame, Northeastern University
Dr. Angelina Jay, Northeastern University
Dr. Andrew L. Gillen, Northeastern University
Dr. Susan F. Freeman, Northeastern University

Analysis of factors that influence the academic performance of first-year Chilean engineering students

Ms. Cristian Saavedra-Acuna, Universidad Andres Bello, Concepcion, Chile
Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Santiago, Chile

A Systematic Review of Academic Self-Concept Measures in First-year Engineering Education

Jahnvi Dirisina, University of Oklahoma
Dr. Randa L. Shehab, University of Oklahoma

Exploring Chemistry Success in First-Year Engineering Students

Dr. Aysa Galbraith, University of Arkansas
Mrs. Leslie Bartsch Massey, University of Arkansas
Dr. Heath Aren Schluterman, University of Arkansas
Gretchen Scroggin,

Boosting Study Program Awareness via a Structured Introductory Experience to Engineering

Prof. Manuel A. Jimenez, University of Puerto Rico, Mayaguez Campus
Dr. Luisa Guillemard, University of Puerto Rico, Mayaguez Campus
Dr. Aidsa I. Santiago-Roman, University of Puerto Rico, Mayaguez Campus
Dr. Nayda G. Santiago, University of Puerto Rico, Mayaguez Campus
Dr. Pedro O. Quintero,
Dr. Carla Lopez Del Puerto, University of Puerto Rico, Mayaguez Campus
Prof. Nelson Cardona-Martinez, University of Puerto Rico, Mayaguez Campus
Dr. Manuel Rodriguez-Martinez,
Dr. Sonia M. Bartolomei-Suarez, University of Puerto Rico Mayaguez Campus

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T227B - First-Year Programs Division (FYP) - Technical Session 3: Evaluation & Assessment

9:15 A.M. - 10:45 A.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: First-Year Programs Division (FYP)

Moderator: William Guilford, University of Virginia

A full-paper session on the subject of evaluating and assessing student work, attitudes, and mindset.

Peer oral exams: A learner-centered authentic assessment approach scalable to large classes

- Marko V. Lubarda, University of California, San Diego
- Dr. Alex M. Phan, University of California, San Diego
- Dr. Maziar Ghazinejad, University of California, San Diego
- Dr. Nathan Delson, eGrove Education
- Dr. Saharnaz Baghdadchi, University of California, San Diego
- Prof. Curt Schurgers, University of California, San Diego
- Minju Kim, University of California, San Diego
- Josephine Relaford-Doyle, University of California, San Diego
- Dr. Carolyn L. Sandoval, University of California, San Diego
- Dr. Huihui Qi, University of California, San Diego

Using Machine Learning to Assess Breadboardia: a Technical Storybook

- Sr. Libby (Elizabeth) Osgood, University of Prince Edward Island
- Nadja Bressan,
- Aiden Hender McBurney,

Using Adaptive Comparative Judgment to Holistically Assess Creativity of Design Solutions: A Comparison of First-Year Students and Educators' Judgments

- Dr. Clodagh Reid, Technological University of the Shannon: Midlands Midwest
- Dr. Sheryl A. Sorby, University of Cincinnati
- Mr. Gibin Raju, University of Cincinnati
- Dr. Jeffrey Buckley, Royal Institute of Technology (KTH)
- Dr. Niall Seery, Technological University of the Shannon

Deadline Flexibility and the Effects on Assignment Resubmission Rates and Course Performance

- Dr. Matthew A. Verleger Ph.D. (He/His/Him), Embry-Riddle Aeronautical University - Daytona Beach

Evaluating Students' Entrepreneurial Mindset Attributes in

First-Year Design Projects

- Nicholas H. Cheong,
- Dr. Meagan Eleanor Ita, The Ohio State University
- Dr. Rachel Louis Kajfez, The Ohio State University
- Dr. Krista M. Kecskemety, The Ohio State University
- Mr. Ethan Cartwright, The Ohio State University
- Miss Amanda Marie Singer, The Ohio State University

Piloting a Flexible Deadline Policy for a First-Year Computer Programming Course

- Isha Bhatt, University of Michigan
- Dr. Laura K. Alford, University of Michigan
- Lesa Begley,
- Ryien Hosseini,
- Deborah A. Lichti, University of Michigan

T228 - Graduate Studies Division (GSD) Technical Session 4: Mentoring Programs in Graduate Education

9:15 A.M. - 10:45 A.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Himani Sharma,

LSAMP Bridges to the Doctorate: Preparing Future Minority Ph.D. Researchers through a Holistic Graduate Student Development Model

- Dr. Clay Gloster Jr., North Carolina Agricultural and Technical State University (TGC)
- Dr. Matthew Bonner Aurelius McCullough, North Carolina Agricultural and Technical State University (TCG)
- Ms. A. Ayanna Boyd-Williams, North Carolina Agricultural and Technical State University (CoST)
- Dr. Grace Gowdy,
- Shea Bigsby,
- Dawayne Whittington,
- Juanda Johnson-Taylor,

Developing a Research and Mentoring Training Tool for Minority Graduate Students in Engineering

- Ms. Nahndi Tirrell Kirk-Bradley, Texas A&M University
- Cara London, Texas A&M University
- Eldridge Raymond Jr., Texas A&M University

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Dr. Janie M. Moore, Texas A&M University

GRADS (Graduate & Advance Degree Students) Mentoring Groups: Building a Supporting Community for Hispanic Graduate Students in STEM

Dr. Dayna L. Martínez, Society of Hispanic Professional Engineers, Inc.

Susan Arnold Christian,

Esther Gonzalez,

Andrea D. Beattie,

Ashleigh Tierney,

Dr. Kimberly D. Douglas, Society of Hispanic Professional Engineers, Inc.

Future GR.A.D.S. (Graduate & Advanced Degree Students); A Mentoring Program to Support Undergraduate Hispanic Seniors through the Graduate School Application Process.

Susan Arnold Christian,

Dr. Dayna L. Martínez, Society of Hispanic Professional Engineers, Inc.

Esther Gonzalez,

Andrea D. Beattie,

Ashleigh Tierney,

Dr. Kimberly D. Douglas, Society of Hispanic Professional Engineers, Inc.

Writing in discipline-appropriate ways: An approach to teaching multilingual graduate students in mechanical engineering

Mr. Xixin Qiu, Pennsylvania State University

T229 - Industrial Engineering Division Business Meeting

9:15 A.M. - 10:45 A.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: Industrial Engineering Division (IND)

Moderator: Mckenzie Landrum, University of Florida

T230 - Computing and Information Technology Division (CIT) Technical Session 4

9:15 A.M. - 10:45 A.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Hashmath Fathima, Morgan State University; Drew Clinkenbeard,

BYOP: "Bring Your Own Project": How student-driven programming projects in an introductory programming course can drive engagement and continuous learning

Dr. Udayan Das, Saint Mary's College of California

Introducing Internet-of-Things (IoT) - A Remote Approach

Dr. Samia Tasnim, The University of Toledo

Wildfire Detection Using Wireless Sensor Networks and Internet of Things Technologies

Dr. Afsaneh Minaie, Utah Valley University

Dr. Reza Sanati-Mehrziy, Utah Valley University

Exploring the Potential of Deep Learning for Personalized Learning Environments

Mrs. Fadhla Binti Junus, Purdue University at West Lafayette (PPI)

Dr. Sean P. Brophy, Purdue University at West Lafayette (COE)

Mr. Joseph Ronald Sturgess,

Building and Testing an Economic Faraday Cage for Wireless, IoT Computing Education and Research

Colton Hotchkiss,

Dr. Ananth Jillepalli, Washington State University

Stu Steiner,

Daniel Conte de Leon,

Dr. Herbert L. Hess, University of Idaho

Dr. Brian K. Johnson P.E., University of Idaho

T231 - Instrumentation Division Business Meeting

9:15 A.M. - 10:45 A.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Instrumentation Division (INST)

Join colleagues to discuss the division's activities of the past year and plans for the upcoming year. Elections are not held this year, but all who are interested in Instrumentation as it applies to engineering education are welcome to join the discussion.

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TUESDAY, JUNE 27th SESSIONS

T232 - Transversal Skills Across the World: The Design and Implementation of Teaching Transversal Skills in Engineering Education

9:15 A.M. - 10:45 A.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Jeffrey Radloff, SUNY, Cortland

Speakers: Dr. Ibrahim H. Yeter, Nanyang Technological University; Jeffrey D Radloff, SUNY, Cortland; Mr. Moses Olayemi, Purdue University at West Lafayette (COE); Johannes Strobel, University of Texas at El Paso; Zach Simpson, ; Prof. Maartje E. D. Van Den Bogaard, Iowa State University of Science and Technology

For many years, the Accreditation Board for Engineering and Technology (ABET) has included a broad range of so-called “soft skills,” with several that are related to professional communication, such as the ability to function on multi-disciplinary teams, understand professional ethical responsibilities, communicate effectively, understand the impact of engineering solutions in a global and societal context, and recognize the importance of life-long learning.

This shift of attention to such “soft” or transversal skills is not limited to the U.S. or to higher education — the call for students develop 21st-century skills is heard throughout the educational landscape. Accreditation bodies, particularly those aligned with the International Engineering Alliance (IEA), are mandated to include requirements similar to ABET’s for engineering programs. This requirement can introduce challenges for accommodating such training and development and raises the question of how to position this type of content, because it is often considered to be far removed from the technical content of these programs.

Engineering is often seen as a technical discipline in which engineers need to communicate about their work to lay people. Another possible perspective is to frame engineering as a speech act that is essentially about communication. The designs and solutions engineers create are an outcome of communication and negotiation. Adding cultural, social, economic, and political dimensions in contexts outside the U.S. creates a complex picture of forces that shape the curricula offered to students.

There are two general approaches to this type of education: 1) separate courses that are taught, mostly early on, in the

program or 2) developing these competencies in integrated ways, such as adding a communication component or ethics element to a problem-based learning (PBL) course.

The presenters will share their experiences and work in this area of engineering education and represent the Netherlands, Singapore, South Africa, and Nigeria. The session will begin with consideration of the different philosophical approaches to transversal skills education.

Next the panelists will provide a brief introduction of their contexts and how transversal skill education is positioned and taught in their home institutions.

There will be significant opportunity for audience participation.

T233 - Connecting Efforts to Support Students of Color on Engineering Education Pathways

9:15 A.M. - 10:45 A.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Elizabeth Cady, National Academy of Engineering

This panel will bring together speakers and attendees who run programs focused on the various pathways for the transition from K–12 to higher education, including community college. Speakers have been encouraged to invite representative from their partnering institutions to join the panel.

Panelists will discuss program successes and lessons learned from these partnerships with the goal of encouraging similar program adoption in other locations.

The session will include elements from a spring 2022 National Academy of Engineering workshop about “Connecting Efforts to Support Minorities in Engineering Education.” Speakers from K–12 education, both in and out of school-time programs, community colleges, and four-year engineering schools discussed efforts to support students as they learn engineering skills and transition from one sector to the next along their educational pathways. The workshop included graduate education and faculty development, in addition to K–12 and undergraduate engineering education. Proceedings will be published in spring 2023.

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T233B - Pre-College Engineering Education Division (PCEE) Technical Session 8: Assessment, Frameworks, Standards, Oh My!

9:15 A.M. - 10:45 A.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Martha Cyr,

Engineering Integration Pedagogical Content Knowledge (EIPCK):
Development of a Conceptual Framework

Filiz Demirci, Purdue University

Dr. Senay Purzer, Purdue University at West Lafayette (COE)

P-12 Engineering Performance Matrices: Where Did They Come From and How Can They Be Used? (Research to Practice)

Dr. Greg J. Strimel, Purdue University at West Lafayette (PPI)

Mrs. Amy Evans Sabarre,

Dr. Tanner J. Huffman, The College of New Jersey

An Overview of State Developed P-12 Standards for Technological and Engineering Literacy (Other)

Dr. Tyler S. Love, University of Maryland Eastern Shore

Mr. Brandt Hutzler, Pennsylvania Department of Education

Dr. Sharon Brusnic, Millersville University of Pennsylvania

Evaluation of a High School Engineering Short Course Integrating the Engineering Design Process, Creativity, and Innovation (Evaluation)

Jose Capa Salinas, Purdue University

Dr. Morgan R Broberg, Purdue University

Danielle N. Wagner, Purdue University

Joshua Carpenter, Purdue University

T234 - Sociotechnical Thinking: Who, Why, and How?

9:15 A.M. - 10:45 A.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Jon Leydens, Colorado School of Mines

Papers in this session provide case studies in sociotechnical instruction and learning and research student development of sociotechnical understanding, and they propose new

theoretical frameworks to understand sociotechnical thinking

Charting a Research Direction to Explore Development of Sociotechnical Thinking in Engineering Design

Dr. Benjamin David Lutz, California Polytechnic State University, San Luis Obispo

Rogue Engineering: Teaching Frankenstein as a Parable of (Un)ethical Engineering Practice

Dr. Benjamin J. Laugelli, University of Virginia

Facilitation for Diversity, Equity, and Inclusion through Design Thinking

Dr. Patrice Marie Buzzanell, University of South Florida

Prof. Patrice Marie Buzzanell, University of South Florida

Dr. Sean M. Eddington, Kansas State University

Dr. Carla B. Zoltowski, Purdue University at West Lafayette (COE)

Dr. Andrew O. Brightman, Purdue University at West Lafayette (COE)

Characterizing student argument justifications in small group sociotechnical discussions

Dr. Chelsea Joy Andrews, Tufts University

Ms. Fatima Rahman, Tufts Center for Engineering Education and Outreach

T234B - Global Roles and Societal Responsibilities of Engineers

9:15 A.M. - 10:45 A.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: David Tomblin, University of Maryland, College Park

Papers in this session address the development of global competencies and consciences for engineers who seek to responsibly and sustainably "do good." Ethnographic and critical perspectives contextualize the questions at stake.

Cultivating "global competency" in a divided world: A collaborative autoethnography of the cross-border curriculum design

YiXiang Shawn Sun, National Taiwan University

Dr. Sharon Tsai-hsuan Ku, University of Virginia

Dr. Jongmin Lee, University of Science and Technology

Dr. Sean Michael Ferguson, CSUCI

Beyond uncritical blindness: How critical thinking about

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engineering for community development could lead to socially responsible and sustainable projects

Dr. Juan C. Lucena, Colorado School of Mines

Mateo F. Rojas, Colorado School of Mines

Sofia Lara Schlezak, Colorado School of Mines

Emma Chapman, Colorado School of Mines

Hybrid engineering: An auto-ethnographic story of hybrid curriculum development, learning, and teaching

Prof. Eunjeong Ma, Pohang University of Science and Technology

The Development of Career Resilience for Early Career Engineers in China: A Grounded Theory Study

Mr. Lichao Ma, Tsinghua University

Dr. Xiaofeng Tang, Tsinghua University

Moralizing Design Differences in the North: An Ethnographic Analysis

Dr. Todd E. Nicewonger, Virginia Polytechnic Institute and State University

Stacey Anne Fritz,

Dr. Lisa R. McNair, Virginia Polytechnic Institute and State University

T235 - Technology Integration in Manufacturing Curriculum

9:15 A.M. - 10:45 A.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Aditya Akundi, The University of Texas Rio Grande Valley; Yue Zhang,

Integrating Engineering Standards into Manufacturing Engineering Curriculum

Dr. Yue Zhang, Georgia Southern University

Haijun Gong,

Lianjun Wu,

Teaching Industrial Control with Open-Source Software

Dr. Hugh Jack P. Eng., Western Carolina University

Dr. Scott C. Rowe, Western Carolina University

Implement and Integrate Flipped Metrology Laboratory in Manufacturing Education

Wayne P. Hung, Texas A&M University

Artificial Intelligence Solutions for System Design

Dr. Hugh Jack P. E., Western Carolina University

Dr. Scott Rowe, Western Carolina University

T238 - Mechanical Engineering Division (MECH) Technical Session 9: Online Learning Environments

9:15 A.M. - 10:45 A.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Kenneth Van Treuren, Baylor University

This session brings together papers related to enhancing virtual/online student learning.

Effects of Online Versus In-Person Course Modalities on Student Participation in Flipped Classrooms in Engineering

Dr. Crystal Han, San Jose State University

Impact of Self-Directed Learning Modules on Preparing Students to Take the FE Exam

Dr. Tao Xing, University of Idaho

Dr. Steven W. Beyerlein, University of Idaho

Dr. John Crepeau, University of Idaho

Student Engagement with Interactive Engineering Textbook Reading Assignments When Tied to the Grade

Chelsea Gordon, zyBooks, A Wiley Brand

Dr. Adrian Rodriguez, University of Texas at Austin

Dr. Alicia Clark, zyBooks, A Wiley Brand

Mr. Bryan Gambrel, zyBooks, A Wiley Brand

Ms. Linda Ratts, zyBooks, A Wiley Brand

Jennifer L. Welter,

Dr. Ryan Barlow, zyBooks, A Wiley Brand

Dr. Yamuna Rajasekhar, zyBooks, A Wiley Brand

Dr. Nikitha Sambamurthy, zyBooks, A Wiley Brand

Lauren Fogg, zyBooks, a Wiley Brand

Jamie Emily Loeber,

Undergraduate Engineering Students' Time Management and Self Efficacy in Different Learning Formats

Tara Esfahani,

Dr. David A. Copp, University of California, Irvine

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T238B - Mechanical Engineering Division (MECH) Technical Session 10: Capstone and Design Education

9:15 A.M. - 10:45 A.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Breigh Roszelle, University of Denver

This session highlights design education in various forms from Capstone and Cornerstone to the entire ME curriculum.

Design Across the Curriculum: Improving Design Instruction in a Mechanical Engineering Program.

Dr. Sean Tolman, Utah Valley University

Dr. Matthew J Jensen, Utah Valley University

CAM and Design for Manufacturing: A Project-Based Learning Course

Stephen Pierson,

Benjamin Fleming,

Prof. Han Hu, University of Arkansas

Developing a Curiosity Mindset in Engineering Undergraduates via Hands-On, Inquiry-Based Learning Activities with Hidden Discoveries

Dr. Nathan Delson, University of California at San Diego

James Lynch, University of California at San Diego

Enhancing Effectiveness and Inclusivity of Introductory, Project-Based ME Courses: A Cognitive Psychology Approach

Mr. Frederic-Charles Krynen, Stanford University

Shima Salehi, Stanford University

Prof. Carl E. Wieman,

Tools for Comprehensive Assessment of the 7 ABET Student Outcomes in Mechanical Engineering, with Application to Capstone Design

Dr. Alex C. Szatmary, King's College, England

T240A - Analysis of Feedback Loops, Understanding the Impact of a LSAMP Scholar Program, Sustainable and Equitable Infrastructure, and Indigenous Innovators

9:15 A.M. - 10:45 A.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division (MIND)

Moderators: Nicholas Bittner, University of North Dakota; Shana Bender,

Training Construction Management Students about Sustainable and Equitable Infrastructure through Leveraging an Envision-Rating System in a Hispanic-Serving Institution

Miss Rubaya Rahat, Florida International University

Mr. Mohamed Elzomor, P.E., Florida International University

Indigenous Innovators: Creating Collaborative Student-Engineer Innovation Teams between Tribal Colleges and Research Institutions

Mr. Nicholas M. Bittner, University of North Dakota

Ms. Rebecca Kennedy, University of North Dakota

Miss Elizabeth Parton, University of North Dakota

The Quest for URM Doctoral Persistence: An Analysis of Feedback Loops in the Academic System

Ing. Martha Lucia Cano-Morales, Rowan University

Michael Corey Weinberg,

Eduardo Rodriguez Mejia,

Dr. Juan M. Cruz, Rowan University

Dr. Gwen Lee-Thomas, Quality Measures, LLC

Dr. Holly M. Matusovich, Virginia Tech

Dr. Mayra S. Artiles, Arizona State University

Abimelec Mercado Rivera, Arizona State University

Dr. Stephanie G. Adams, University of Texas at Dallas

Understanding the Impact of an LSAMP Scholar Program

Dr. Yang Lydia Yang, Kansas State University

Dr. Brenee King, Kansas State University

Dr. Amy Rachel Betz, Kansas State University

Shana Bender,

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T240B - Mentorship, Retention, Minority Participation, and Examining the Experiences of Women

9:15 A.M. - 10:45 A.M., KEY 7, HILTON BALTIMORE INNER HARBOR

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Chrystal Smith, University of South Florida; Carl Moore, Florida A&M University - Florida State University

Implementing Structured Mentorship to Broaden Participation of Underrepresented Minorities in Aerospace Engineering

Dr. Carl Anthony Moore Jr., Florida A&M University - Florida State University

Dr. Chiang Shih, Florida A&M University - Florida State University

Enhancing the Persistence and Retention Rates of the Underrepresented Minority Students in the Engineering Colleges through Strategic Interventions

Dr. Felix F. Udo-Eyo, Temple University

Examining the Experiences of Women and Underrepresented Students Who Leave Engineering Undergraduate Programs

Dr. Chrystal A. S. Smith, National Science Foundation

John Skvoretz Jr.,

Dr. Rebecca Campbell-Montalvo, University of Connecticut

Dr. Ellen Puccia, Beta Research Associates

Dr. Gladis Kersaint, University of Connecticut

Dr. Julie P. Martin, The Ohio State University

Dr. Hesborn Wao,

The New York City Louis Stokes Alliance for Minority Participation Bridge to the Doctorate: A Model for Underrepresented Students' Transition to the Doctoral Program 2008 to 2022

Dr. Claude Brathwaite, City University of New York, City College

T241 - Multidisciplinary Engineering Division (MULTI) Technical Session 9

9:15 A.M. - 10:45 A.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Brian McSkimming, University at Buffalo, The State University of New York; Ginger Scarbrough, New Mexico State University

Best Practices in an Undergraduate Engineering Course from Analyzing a Decade of Data from In-Class, Hybrid, and Online Environments

Samantha Hoang, Seattle University

Dr. Elizabeth G. Rasmussen, National Institute of Standards and Technology

Ava Marie Obenaus, University of Washington

A Generative Learning Approach to Teaching Engineering Calculations in an Introductory Course

Dr. Kathryn R. Gosselin, State University of New York, Maritime College

Dr. Martin S. Lawless, State University of New York, Maritime College

Cultivate the Problem Exploration Skills for Biomedical Innovation

Dr. George Tan, Texas Tech University

Sampa Halder,

Dr. Luke LeFebvre, University of Kentucky

Work in Progress: Development and Facilitation of a New Certificate/Class for Undergraduate Teaching Assistants in Engineering and Computing Programs

Dr. Jamie R. Gurganus, University of Maryland, Baltimore County

Prof. Mark Berczynski, University of Maryland, Baltimore County

Workshop on Unified Curriculum and Course Design for Mechatronics and Robotics Engineering

Dr. Gregory C. Lewin, Worcester Polytechnic Institute

Prof. Rui Li, New York University

Dr. Carlotta A. Berry, Rose-Hulman Institute of Technology

Dr. James A. Mynderse, Lawrence Technological University

Dr. Vikram Kapila, New York University

Prof. Michael A. Gennert, Worcester Polytechnic Institute

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T242 - Navigating Murky Waters: Launching Your Career When You're Thrown into the Deep End

9:15 A.M. - 10:45 A.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderators: Ashish Borgaonkar, New Jersey Institute of Technology; Derek Breid, Saint Vincent College

This panel will provide tips and advice for new educators who enter academia with limited to no training on classroom instruction and the tenure process. For most new faculty, arriving at the best practices that work specifically for them and their institutions is a trial-and-error process. Several institutions offer no mentorship in teaching and new educators are left to experiment with various pedagogies. They often find it hard to organize their classes in an effective way and keep students engaged in the course materials. With the abundance of literature on the pros and cons of various educational pedagogies, they might feel overwhelmed.

Aligning with the New Engineering Educators (NEE) Division's vision to support new educators, this panel takes the discussions from the NEE panels at the 2020–2022 annual conferences to the next level. In the 2023 version, new panelists from a variety of engineering disciplines will share their experiences and vision for launching a successful career.

The panel is designed as a platform to share the experiences of new educators who have tried various pedagogies. Participants will hear from both new and experienced educators about what works for them and what does not. Participants will also be able to share their experiences. This discussion is not designed to answer all the questions, but to provide a good starting point for those who are beginning their careers in academia. Participants will be able to ask open-ended questions and hear the perspectives of the panelists and other participants in the room.

Ticketed event

T245 - STEAM Education into the 2030s

9:15 A.M. - 10:45 A.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Carl Frederickson, University of Central Arkansas

Speakers: Prof. Angeles Dominguez, Tecnologico de Monterrey (ITESM); Dr. Teresa L. Larkin, American University

The session will examine P–12 Science, Technology, Engineering, Arts, and Math (STEAM) education as we move toward the 2030s, with attention to:

- STEAM education in a diverse and inclusive classroom
- Schools-University-Industrial-Government partnerships to prepare students to enter colleges
- Integrating new technologies with Experiential Learning activities for P–12 STEAM
- Strengthening the skills of teachers through additional training in the Experiential Learning approach
- STEAM education for underrepresented communities
- The future of STEAM in a global world

T247 - Student Division (STDT) Technical Session 6: Underserved Student Experiences

9:15 A.M. - 10:45 A.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Abigail Lehto,

A Comparative Analysis of Support Perceptions between Transfer and First-Time-in-College Students in Engineering, Science, and Mathematics Programs

Mr. Hamidreza Taimoory, Virginia Tech

Dr. David B. Knight, Virginia Tech

Dr. Walter C. Lee, Virginia Tech

Work in Progress: A Correlation Analysis of Engagement of First-Generation College Students in Engineering

Ms. Abigail Nichole Lehto, American Society of Engineering Education (ASEE)

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Prof. Ning Fang, Utah State University

Twenty-Four Hours in a Day: A Systematized Review of Community College Engineering Students with Outside Responsibilities

Ms. Anne Victoria Wrobletz, Front Range Community College, Colorado

Work in Progress: Bridging the Gap in Doctoral Engineering Education—Critically Investigating Factors Influencing Performance Outcomes on First Doctoral Degree Milestones

Ms. Nicole Adia Jefferson, Virginia Tech

Dr. Jeremi S. London, Virginia Tech

Push and Pull: Exploring the Engineering Retention Problem for Underrepresented Groups and Gauging Interest in Interdisciplinary Integration into Undergraduate Curriculum

Anastasia M. K. Schauer, Georgia Institute of Technology

August Kohls, Carnegie Mellon University

Dr. Katherine Fu, Georgia Institute of Technology

T249 - TELPhE Division Business Meeting

9:15 A.M. - 10:45 A.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPhE)

T251 - Women in Engineering Division (WIED) Technical Session 5

9:15 A.M. - 10:45 A.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Krystal Cruse, Louisiana Tech University

This session addresses a broader sense of diverse experiences of women in engineering and STEM.

Work in Progress: Connecting Engineering & Religious Identities: A Window into One College Woman Student's Journey

Dr. Sarah Rodriguez, Virginia Tech

Dr. Maria L. Espino, Iowa State University

J. Cody Nielsen,

Marin Jayne Fisher, Virginia Tech

"Are You Sure You Know What You're Talking About?": Epistemic Injustice Exposed by Stereotype Threat in Engineering

Kaitlyn Anne Thomas, University of Nevada, Reno

Dr. Adam Kim, University of Nevada, Reno

Dr. Kelly J. Cross, University of Nevada, Reno

Retention of Female Minority Students in Bachelor STEM Degree Programs: An Exploratory Study of Five Cohorts

Dr. Elizabeth Milonas, New York City College of Technology

Why We Should Be Using Our Stories and the Hero's Journey to Help Recruit a More Diverse Population for Engineering

Dr. Peter Jamieson, Miami University

Examining the Impact of State-Level Affirmative Action Bans on the Enrollment of Historically Excluded Students in Engineering Schools

Dr. Alison Leigh Banka, University of Georgia

Dr. Agnes Germaine d'Entremont, P.E., University of British Columbia, Vancouver

Dr. Katherine A. Lyon,

T252 - Community Engagement Division 3 - Engagement in Practice Lightning Round: Fostering Reciprocal Partnerships and Empowering Change

9:15 A.M. - 10:45 A.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderators: Marybeth Lima, Louisiana State University and A&M College; Lekshmi Sasidharan,

Engagement in Practice: Exploring Student and Instructor Perspectives in a Global Service Learning Experience towards a More Reciprocal and Decolonialized Partnership

Danielle N. Wagner, Purdue University, West Lafayette

Dr. William "Bill" C. Oakes, Purdue University, West Lafayette

Mr. Ashish, Indian Institute of Technology, Delhi, India

Engagement in Practice: Better Preparing Students for Community-Engaged Engineering by Restructuring an Academic Program, Minor, and Curriculum

Dr. Kristen M. Conroy, The Ohio State University

Patrick Sours, The Ohio State University

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Dr. Adithya Jayakumar, The Ohio State University
Mrs. Rachel Marie Tuttle,

Engagement in Practice: Computer Science Combating Crime in Houston (Collaboration between Houston Christian University and Crime Stoppers of Houston)

Dr. Marian K. Zaki, Houston Christian University

Work in Progress: Iterating Eco-Social Justice Learning Experiences Through Community-Partnered Capstone Design Projects

Dr. Marissa H. Forbes, University of San Diego

Prof. Gordon D. Hoople, University of San Diego

Engagement in Practice: Promoting Environmental Health Literacy to Raise Awareness of Antibiotic Resistance

Dr. Daniel B. Oerther, Missouri University of Science and Technology

T254 - SPONSOR TECH SESSION: Preparation for an On-Site Visit, Presented by ABET

9:15 A.M. - 10:45 A.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

This presentation aims to provide valuable insights into the visit process, which is undeniably one of the most crucial events in the accreditation cycle. The focus of the presentation is to guide institutions on how to effectively prepare for the visit, ensuring a smooth and successful process. Whether the visit is virtual or on-site, this presentation covers key aspects to consider. Leading the planning and execution of an on-site ABET visit necessitates establishing a supportive infrastructure involving multiple stakeholder groups. The presentation will offer best practices from the perspectives of both Program Evaluators and institutional representatives, making it relevant and beneficial for institutional representatives and anyone involved in preparing for on-site or virtual visits.

Speakers:

Leonard Bohmann, Ph.D., P.E., Associate Dean, Michigan Technological University; Raju Dandu, Ph.D., Professor, Director, Bulk Solids Innovation Center, Mechanical Engineering Technology, Kansas State University, Salina

T256 - Military and Veterans Division (MVD) Technical Session

9:15 A.M. - 10:45 A.M., DOUGLASS, HILTON BALTIMORE INNER HARBOR

Sponsor: Military and Veterans Division (MVD)

Moderator: Robert Rabb, Pennsylvania State University

Enhancing Student Veterans' Self-Efficacy and Sense of Belonging in a Targeted Learning Community: Four Years of Qualitative Results

Dr. Anthony W. Dean, Old Dominion University

Dr. Cynthia Tomovic, Old Dominion University

Dr. Vukica M. Jovanovic, Old Dominion University

Dr. Kim E. Bullington, Old Dominion University

Military Engineers: Unlikely Social Justice Warriors - Military Training That Supports Community Needs

Ms. Janice Higuera, University of Colorado - Boulder

Dr. Angela R. Bielefeldt, University of Colorado Boulder

WIP: Institutional Agents' Awareness and Perceptions of Military Students in Undergraduate Engineering Programs at Public Institutions in the Western United States

Hannah Wilkinson, Utah State University

Dr. Angela Minichiello P.E., Utah State University

T257 - Faculty Development Division Business Meeting

9:15 A.M. - 10:45 A.M., KEY 5, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute and State University

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T257B - Faculty Development Division (FDD) Technical Session 6

9:15 A.M. - 10:45 A.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Maria-Isabel Carnasciali, University of New Haven

Facilitating Engineering Faculty Mentorship with a Focus on the Entrepreneurial Mindset

Dr. Lindy Hamilton Mayled, Arizona State University
Dr. Ann F. McKenna, Arizona State University
Dr. Adam R. Carberry, Arizona State University
Dr. Jennifer M. Bekki, Arizona State University
Julianne L. Holloway, Arizona State University
Dr. Samantha Ruth Brunhaver, Arizona State University

Engineering Faculty Professional Development: Scholarship of Teaching and Learning (SOTL) Dissemination for Curriculum Integrating Entrepreneurial Mindset, STEAM, and Bio-Inspired Design

Dr. Lisa Bosman, Purdue University at West Lafayette
Dr. Katey Shirey, eduKatey LLC, STEAM Education Services
Karoline Jarr, Jarr Consulting
Dr. Alejandra J. Magana, Purdue University, West Lafayette
Dr. Nathalie Duval-Couetil, Purdue University, West Lafayette

Work in Progress: Self-Starter Faculty Learning Community to Implement Entrepreneurially-Minded Learning (EML) Micromoment Activities

Dr. Erick S. Vasquez, University of Dayton
Dr. Megan Morin, ASHLIN Management Group
Vinayak Vijayan, University of Dayton
Dr. Timothy Reissman, University of Dayton
Erin Landers Gibbemeyer, University of Dayton

Work in Progress: How to Get Faculty to Use and Leverage Makerspaces in Their Courses – A Peer-To-Peer Mentoring Model

Dr. Maria-Isabel Carnasciali, University of New Haven
Enakshie Prasad,
Eric Marcus, University of New Haven
Dr. Stephanie M. Gillespie, University of New Haven
Joseph Smolinski,

Unpacking Engineering Faculty's Discrepant Views of Mentoring through the Lens of Attachment Theory

Mrs. Jennifer Hadley Perkins, Arizona State University
Dr. Samantha Ruth Brunhaver, Arizona State University
Dr. Adam R. Carberry, Arizona State University

T259 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 7

9:15 A.M. - 10:45 A.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Exploring Undergraduate Engineering Students' Understanding of Power Dynamics

Kenya Z Mejia, University of Washington
Hailee Kenney, University of Washington
Tiffany Dewitt, University of Washington
Dr. Jennifer A Turns, University of Washington

Using Academic Controversy in a Computer Science Undergraduate Leadership Course: An Effective Approach to Examine Ethical Issues in Computer Science

Mariana A. Alvidrez,
Dr. Elsa Q. Villa, University of Texas, El Paso
Elaine Hampton,
Mary K. Roy,
Tomas Sandoval,
Andrea Villagomez,

Tuition Equity: A Study of the Impact of Upper/Lower Division Tuition Rates

Dr. Nicholas A. Baine. P.E., Grand Valley State University
Dr. Karl Brakora, Grand Valley State University

Making a Case for HyFlex Learning in Design Engineering Classes

Sourojit Ghosh, University of Washington, Seattle
Dr. Sarah Marie Coppola, University of Washington, Seattle

Analysis of Learning Assistants' Beliefs of Status and Their Role as Status Interventionists

Harpreet Auby, Tufts University
Dr. Milo Koretsky, Tufts University

Promoting Belonging and Breaking Down Gatekeeping in Youth-Centered Engineering Spaces

Kiana Alexa Ramos,
Julia Gardow,

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Emanuel Joseph Louime,
Eunice Yujin Kang,
Dr. Avneet Hira, Boston College

Analyzing the Needs of Engineering Teaching Assistants: Examining Hidden Deficit Ideas

Dr. Karina Ivette Vielma, The University of Texas, San Antonio
Dr. Joel Alejandro Mejia, The University of Texas, San Antonio

T259B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 8

9:15 A.M. - 10:45 A.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Increasing Contextualized Social Awareness through Multidisciplinary Teams in Global Service-Learning Projects

Dr. Susan J. Ely, University of Southern Indiana
Dr. Andrew Jason Hill, University of Southern Indiana
Kelly Marie Sparks, University of Southern Indiana

Increasing Equity in Access to Electric vehicles and Electrified infrastructure through Perceptions, Opinions and Knowledge of Underrepresented Communities in the Paso del Norte Region

Miss Liliana Lozada-Medellin, University of Texas, El Paso
Dr. Ivonne Santiago, University of Texas, El Paso
Dr. Yuanrui Sang,

Work in Progress: Engineering Health Equity: Perspective and Pedagogy of Interdisciplinary Teaching and Learning and Impact on Learners' Social Identity

Dr. Mayari I. Serrano, Purdue University, West Lafayette
Natalia M. Rodriguez,
Daniel Guberman,
Dr. Jacqueline Callihan Linnes, Purdue University, West Lafayette

Integrating Technical and Social Issues in Engineering Education: A Justice Oriented Mindset

Dr. Anne M. McAlister, The State University of New York, Buffalo
Miss Sarah Catherine Lilly, California State University, Channel Islands

Community-Driven, Participatory Engineering Design Frameworks to Shape Just, Liberatory Health Futures

Ms. Grace Wickerson, Northwestern University

Designing, Codifying, and Implementing Social Justice Content in a Required Course on Engineering and Research Skills for First-Year Graduate Students

Kavitha Chintam, Northwestern University
Dr. Alexis N. Prybutok, University of Washington
Adrien Deberghes,
Beth DiBiase,
Ruihan Li,
Jeffrey Richards,
Linsey Seitz,
Dr. Jennifer Cole, Northwestern University

T272 - INDUSTRY DAY: Do We Need a Global Skills Development Framework to Build the Future Engineering Workforce?

9:15 A.M. - 10:45 A.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Soma Chakrabarti, ANSYS, Inc.

Speakers: Dr. Elvira Osuna-Highley, MathWorks; Dr. Soma Chakrabarti, ANSYS, Inc.; Susannah Cooke, ANSYS, Inc.; Shannon O'Donnell, Siemens Digital Industries Software

In the era of rapidly changing technology where humans and robots may work together and a digital twin may completely alleviate the need of a maintenance engineer, how do we develop the engineering workforce to sustain economic growth? World regions traditionally respond to such needs differently, though future global skills requirements in the engineering workforce are well charted. The panelists will discuss skills development strategies and processes in different world regions and offer opinions on whether a standard global framework of new skills will be beneficial in developing a global engineering workforce of the future.

T273A - Zone I Business Meeting

9:15 A.M. - 10:45 A.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Council of Sections (COS)

Zone 1 Business Meeting

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T273B - Zone II Business Meeting

9:15 A.M. - 10:45 A.M., POE, HILTON
BALTIMORE INNER HARBOR

Sponsor: Council of Sections (COS)

Zone II Business Meeting

T273C - Zone III Business Meeting

9:15 A.M. - 10:45 A.M., TUBMAN, HILTON
BALTIMORE INNER HARBOR

Sponsor: Council of Sections (COS)

Zone III Business Meeting

T273D - Zone IV Business Meeting

9:15 A.M. - 10:45 A.M., CALLOWAY, HILTON
BALTIMORE INNER HARBOR

Sponsor: Council of Sections (COS)

Zone IV Business Meeting

T274 - EDC Data Committee Meeting

9:15 A.M. - 10:45 A.M., KEY 1 & 2, HILTON
BALTIMORE INNER HARBOR

Sponsor: Engineering Deans Council (EDC)

EDC Data Committee Meeting

T275 - Trends Impacting Early Faculty Career Path Progression Toward Promotion and Tenure

9:15 A.M. - 10:45 A.M., HOLIDAY 4, HILTON
BALTIMORE INNER HARBOR

Sponsor: Engineering Research Council (ERC)

Moderators: Robert Briber, University of Maryland, College Park; Vahid Motevalli, University of Maryland Eastern Shore

Select members of the Engineering Research Council (ERC)

Board of Directors will provide an interactive session to discuss the currently funded research trends which should be reflected in promotion and tenure policies at universities. There are increasing faculty contributions in translational research, workforce development, innovation, and entrepreneurship. There are a variety of approaches in colleges of engineering toward the evaluation of these activities.

Speakers:

Dr. Vahid Motevalli, Interim Vice Chancellor for Research and Director of School of Science, Engineering, and Technology, Pennsylvania State University, Harrisburg

Dr. Robert Briber, Associate Dean for Research and Professor of Materials Science and Engineering, A. James Clark School of Engineering, University of Maryland

T281 - STEM Equity and Decolonization: How Do I Even Do That?

9:15 A.M. - 10:45 A.M., ROOM 316, BALTIMORE
CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Ms. Christina Smith, Brown University; Stacey Lawrence, Brown University

This workshop is in two sections. The first will focus on defining educational equity and begin by asking participants where they fall on an educational equity journey — from beginning to developing, to taking action.

Facilitators will share where they fall as such and will stress that the session will move on this spectrum in different ways and contexts, and that there is no expectation that participants are at any particular stage.

Facilitators will introduce themselves and their educational journeys to humanize themselves; provide an example of how practitioners can describe their positionality in their classrooms; and highlight why the workshop is important in changing engineering culture and classroom practices. They will also provide a land acknowledgment and explanation of its limitations.

A short lecture will define educational equity and equity-focused policy or action, with a focus on the Indigenous community. Participants will work in pairs or small groups

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to discuss whether they currently implement equity-focused policies or actions in their courses, and brainstorm ways they could.

The second half of the workshop will focus on Indigenous ways of knowing, discussing how these are colonized and neglect to include Indigenous approaches. There will be an introduction to what decolonization can mean and look like, followed by a reflective activity to help participants recognize how the discipline reinforces or challenges knowledge creation.

The discussion will provide a pathway for participants to make their knowledge assumptions explicit so they can make informed decisions about how to challenge those assumptions in the final activity.

The session will include a short lecture on “holographic epistemology,” which comes from a Maori scholar and incorporates body, mind, and spirit ways of knowing.

By the end of the session, participants will have one framework to think about equity and how incorporating alternative ways of knowing is a form of decolonization.

T281B - How to Practice Stewardship Instead of Gatekeeping

9:15 A.M. - 10:45 A.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Meagan C Pollock, Engineer Inclusion

This workshop builds on, yet stands alone from, a previous session about inclusive leadership offered through CDEI. It will provide accessible and actionable strategies, and an easy-to-use tool.

Belonging and being valued are fundamental human needs, yet people from traditionally marginalized and minoritized groups are significantly less likely to experience treatment that meets these needs.

Gatekeeping behaviors directly influence performance, collaboration, and retention, but stewardship is being entrusted with what's in your care and creating an environment where people can grow and improve while enhancing their sense of well-being.

Participants will compare and contrast gatekeeping and

stewardship behaviors in the workplace, solve scenarios with stewardship guidelines, and create an action plan for employing inclusive stewardship practices that drive positive outcomes.

T294A - SPONSOR TECH SESSION: Presented by McGraw Hill

9:15 A.M. - 10:45 A.M., ROOM 302 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Tech session presented by McGraw Hill.

T294B - SPONSOR TECH SESSION: Bookending Engineering Education Through Interdisciplinary Experience with DEI Emphasis, Presented by Oregon State University

9:15 A.M. - 10:45 A.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join Oregon State University College of Engineering (COE) representatives to learn how Oregon State is evolving its engineering curriculum through a freshmen Engineering+ three-course experience and a multidisciplinary capstone program. Recently the ASEE Diversity Recognition Program awarded Oregon State with the Silver award for significant progress in increasing diversity, equity, and inclusion (DEI) within the college. Come learn how educators are increasing DEI content in these lower and upper-division courses to develop a cohesive curriculum across the entire College of Engineering.

Speakers:

Rachael Cate, Senior Instructor, School of Electrical Engineering and Computer Science; Natasha Mallette, Director of Engineering+, College of Engineering; Sarah Oman, Senior Instructor, School of Mechanical, Industrial, and Manufacturing Engineering; Ingrid Scheel, Project Instructor, School of Electrical Engineering and Computer Science

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T294C - SPONSOR TECH SESSION: Using the FE Exam for Effective Outcomes Assessment Presented by NCEES

9:15 A.M. - 10:45 A.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

This session highlights best practices in outcomes assessment using the NCEES Subject Matter Reports to provide participants with information about the strengths and weaknesses of students in a program. The presentation will specifically focus on using the FE results as one of a program's direct measures in assessing student outcomes. Attend and learn more about how the FE exam can be an effective tool for your program.

Speakers:

John Steadman, Ph.D., PE, is Professor and Dean Emeritus at the University of South Alabama. He has held faculty positions at the University of Wyoming, United States Air Force Academy, and the University of South Alabama. He is a Past President of the National Council of Examiners for Engineers and Surveyors (NCEES) and serves on the FE Exam Committee. He is a past Team Chair and current Program Evaluator for ABET. John is a Past President of IEEE-USA and serves on the Licensure and Registration Committee.

Rhonda Young is professor and chair of Civil Engineering at Gonzaga University. She has over 20 years of teaching experience with faculty and administrative positions at the University of Wyoming and Gonzaga University. Rhonda is a long-time member of the Fundamentals of Engineering Exam Committee for the National Council of Examiners for Engineers and Surveyors (NCEES) and is a Program Evaluator for ABET. She is also active in ITE, ASCE, and ASEE Professional Societies.

T301 - AERO 5: Student Success

11:00 A.M. - 12:30 P.M., BRENT, HILTON BALTIMORE INNER HARBOR

Sponsor: Aerospace Division (AERO)

Moderator: Waterloo Tsutsui, Purdue University at West Lafayette (COE)

Aerospace Technical Session

Unconventional Applications of Introductory-Level Aerospace Engineering Concepts: Evaluating Student Engagement and Performance in a Free-Response Exam Format

Benjamin Casillas, Texas A&M University

Dr. Kristi J. Shryock, Texas A&M University

Assessment of a Distributed Implementation of the Entrepreneurial Mindset in an Experimental Projects Capstone

Dr. Brian D. Ritchie, The Ohio State University

Identification of Student Outcomes for the Electric Propulsion Aircraft Industry Based on Industry-Developed Consensus Standards

Dr. Tracy L. Yother, Purdue University, West Lafayette

Prof. Mary E. Johnson, Ph.D., University of Illinois, Urbana-Champaign

Dissolving Interdisciplinary Barriers in STEM Curriculum Through Unconventional Hydrofoil Boat Educational Lab at the College Undergraduate Level

Dr. Kristi J. Shryock, Texas A&M University

Mr. Zachary Reinert, Texas A&M University

T302 - Architectural Engineering Division Technical Session

11:00 A.M. - 12:30 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Architectural Engineering Division (ARCHE)

Moderators: Rachel Mosier, Oklahoma State University; Mohsen Goodarzi, Ball State University; Eric Anderson, State University of New York, College of Technology at Farmingdale

Architectural Engineering Division technical session

A Novel Approach for Teaching System Architecture at the Undergraduate Engineering Level

Dr. Eric B. Dano, George Washington University

Dr. Joost R. Santos, The George Washington University

A Challenge-Based Specialization Diploma on Structural Health Monitoring for Civil Engineering and Architecture Programs

Saul E. Crespo, Tecnológico de Monterrey, Mexico

Prof. Miguel X. Rodriguez-Paz, Tecnológico de Monterrey, Mexico

Job R. Medina Hernandez, Tecnológico de Monterrey, Mexico

Ing. Luis Horacio Hernandez-Carrasco, Tecnológico de Monterrey, Mexico

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Prof. Milan Sokol, Slovak University of Technology in Bratislava, Slovakia

Implementing NACE Competencies in LEED Lab to Prepare a Career-Ready Workforce

Dr. Mohsen Goodarzi, Ball State University

The Foggy Mirror Experiment: Pedagogical Approach and Outcome for ABET's Design and Conducting Experiments for Architectural Engineering

Dr. Ryan L. Solnosky, P.E., Pennsylvania State University

Prof. Moses Ling, P.E., Pennsylvania State University

Implication of Developing Digital Twins to Improve Students' Learning Experiences

Dr. Mohammad Heidarinejad, Illinois Institute of Technology

Prof. Ankit Srivastava, Illinois Institute of Technology

T303 - Biological and Agricultural Engineering Division Business Meeting

11:00 A.M. - 12:30 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Biological and Agricultural Engineering Division (BAE)

T304A - Bringing the Biomedical Engineering Community Together to Develop its Future Workforce

11:00 A.M. - 12:30 P.M., BALLROOM 4, BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Sarah Rooney, University of Delaware; Aileen Huang-Saad, Northeastern University

Speakers: Youseph Yazdi, Johns Hopkins University; Dr. James Warnock, University of Georgia; Jeannie Epps, Terumo Medical Corporation; Dave Gutekunst, NIH NIBIB; Aftin Ross, FDA Center for Devices and Radiological Health

The ASEE Biomedical Engineering Division partners with the Biomedical Engineering Society (BMES) Education Committee to invite all members of the biomedical engineering community together for a panel and small-group dialogue about the future of the biomedical engineering workforce, what we are doing to prepare our students, and what the gaps are.

T305 - Chemical Engineering Division (ChED) Technical Session 5: First-Year & Sophomore Year Curriculum

11:00 A.M. - 12:30 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Maddalena Fanelli, Michigan State University; Joshua Enszer, University of Delaware

Work in Progress: Promotion of Growth Mindset in Introductory Mass and Energy Balance Course in Chemical Engineering

Dr. Nagma Zerín, Johns Hopkins University

Dr. Sakul Ratanalert, Johns Hopkins University

Work In Progress: A Teamwork Training Model to Promote the Development of Teaming Skills in Chemical Engineering Students.

Dr. Carlos Landaverde-Alvarado, University of Texas, Austin

Work in Progress: Studying Loss of Long-Term Knowledge Retention in Chemical Engineering Undergraduate Courses

Dr. Gaurav Giri, University of Virginia

Work in Progress: Lessons Learned from Teaching Culturally Relevant Engineering Design in K-12 Classrooms and Applying Them to Undergraduate Engineering Courses

Dr. Bethany Jean Klemetsrud, P.E., University of North Dakota

Frank M. Bowman, University of North Dakota

Julie Robinson, University of North Dakota

Work in Progress: Evolution of an ABET Assessment Program for Chemical Engineering at Texas A&M University-Kingsville, a Regional Hispanic-Serving Institution

Dr. Matthew Lucian Alexander, P.E., Texas A&M University, Kingsville

T305B - Chemical Engineering Division (ChED) Technical Session 6: Work-in-Progress Part 2

11:00 A.M. - 12:30 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

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Moderators: Matthew Liberatore, The University of Toledo;
Jennifer Fiegel, The University of Iowa

Reproducible High Reading Participation and Auto-Graded Homework Completion across Multiple Cohorts When Using an Interactive Textbook for Material and Energy Balances

Samantha Yanosko,
Prof. Matthew W. Liberatore, The University of Toledo

Clustering of Animation View Times in an Interactive Textbook for Material and Energy Balances

Tanner Hilsabeck,
Breanne Crockett,
Amir Parsaei,
Kevin S. Xu, Case Western Reserve University
Prof. Matthew W. Liberatore, The University of Toledo

Teaching Fugacity through Comics and Assessing the Impact on Student Confidence and Understanding

Dr. Lucas James Landherr, Northeastern University

Bridging the Gap between Industry and Academia, and Developing Students' Engineering Identity

Dr. Betul Bilgin, The University of Illinois, Chicago
Prof. James W. Pellegrino, The University of Illinois, Chicago
Hasiya Najmin Isa,
Emily Seriruk,
Cody Wade Mischel,

Experiments for a Computing Class

Dr. Christi L. Patton Luks, Missouri University of Science and Technology

T306A - Committee on Educational Policy Presents: Pillars of Professional Development

11:00 A.M. - 12:30 P.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Aaron Hill, United States Military Academy

Presenters will share initiatives primarily related to professional skills development in coursework and curriculum.

Towards Developing a Modernized Wind Engineering Curricula

Ms. Claudia Calle Müller, Florida International University

Patrizia Bethania Santaniello, Florida International University
Ioannis Zisis,
Amal Elawady,
Mr. Mohamed Elzomor, P.E., Florida International University

Evaluating Students' Attitudes Towards Synchronous Remote Course Delivery: An Analysis of Engineering Programs during the COVID-19 Pandemic in the US and EU

Dr. Zsuzsa Balogh, Metropolitan State University of Denver
Mrs. Zita Mangné Kardos, University of Pécs, Hungary, EU
Mr. Tamas Juhasz, University of Pecs, Hungary, EU

Equipping Our Students for Future Financial Success

Dr. Scott R. Hamilton, P.E., York College of Pennsylvania

Learning Styles Impact on Ill-Structured Problem Solving Processes of Engineering Students, Faculty and Professionals

Kyle P. Kelly, Michigan State University
Secil Akinci-Ceylan, Iowa State University of Science and Technology
Xiangxiu Zhang,
Dr. Kristen Sara Cetin, P.E., Michigan State University
Dr. Benjamin Ahn, Iowa State University of Science and Technology

Applications of Teams and Stories: Augmenting the Development of Entrepreneurial Mindset in Engineers

Dr. Ellen Zerbe, Georgia Institute of Technology
Dr. Adjo A. Amekudzi-Kennedy, Georgia Institute of Technology
Dr. Kevin Haas, Georgia Institute of Technology
Dr. Robert Benjamin Simon, Georgia Institute of Technology
Ms. Janece Shaffer,

Data Science in the Civil Engineering Curriculum

Dr. Ashraf Badir, Florida Gulf Coast University
Dr. Seneshaw Tsegaye, Florida Gulf Coast University
Dr. Long Duy Nguyen, P.E., Florida Gulf Coast University

T306B - Committee on Effective Teaching Presents: Models, Models, & More Models

11:00 A.M. - 12:30 P.M., JOHNSON , HILTON BALTIMORE INNER HARBOR

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Tonya Nilsson, Santa Clara University; James Hanson, Ross Hulman

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Presenters share a number of hands-on and interactive models used in various courses.

Physical and Digital Models for Timber Design and Analysis Courses

Paulina Robles, California Polytechnic State University, San Luis Obispo

Gabrielle Rose Favro, California Polytechnic State University, San Luis Obispo

Dr. Anahid Behrouzi, California Polytechnic State University, San Luis Obispo

Abby Lentz,

Utilization of Real-Life Hands-On Pedagogy to Motivate Undergraduate Students in Grasping Transportation Related Concepts

Adebayo Iyanuoluwa Olude, Morgan State University

Dr. Oludare Adegbola Owolabi, P.E., Morgan State University

Mr. Pelumi Olaitan Abiodun, Morgan State University

Hannah Abedoh, Morgan State University

Frank Efe,

Dr. Petronella A James, Morgan State University

Dr. Celeste Chavis, P.E., Morgan State University

Dr. Eazaz Sadeghvaziri, Morgan State University

Di Yang,

Neda Bazayar Shourabi, Pennsylvania State University, Berks Campus

Mojeed Olamide Bello, Morgan State University

Dr. Mulugeta T. Dugda, Morgan State University

Dr. Krishna Bista,

Amrita Bhandari, Morgan State University

Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

A Hands-On Concrete Laboratory Framework for Construction Management Education

Dr. Philip Warren Plugge, Central Washington University

Implementation of a Hands-On Timber Truss Design Project in Structural Analysis

Dr. Kevin Francis McMullen, United States Military Academy

Mr. Adrian Biggerstaff, P.E., Stanford University

Dr. Christopher H. Conley,

Col. Jakob C. Bruhl, P.E., United States Military Academy

Kevin Arnett,

Paul Moody,

Col. Aaron T. Hill Jr., United States Military Academy

Lynden Damon Crosbie,

T308 - COED: Skills for Moving from Computing Student to Professional

11:00 A.M. - 12:30 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Mudasser Wyne, National University

The papers in this session examine ways to support students in developing skills important to success as a computing professional.

Engaging Engineering Students through Environmental Data Science

Dr. Mary Kay Camarillo, University of the Pacific

Dr. Elizabeth Basha, University of the Pacific

Exposing Early CS Majors to Technical Interview Practices in the Form of Group-Based Whiteboard Problem Solving Activities

Dr. Edward Dillon, Morgan State University

Abigail Dina,

Mariah McMichael,

Theodore Wimberly Jr.,

Lauren Brown,

Krystal L. Williams, University of Georgia

Surveying the Importance of Integrating Technical Interviews into Computer Science Curriculums and Increasing Awareness in the Academy

Ms. Rachel Field, Morgan State University

Steven J. Fuller,

Edward Dillon, Morgan State University

Virtual Interview Training: Perceptions and Performance using Digital Hiring Managers

Stephanie Jill Lunn, Florida International University

Veon Brewster, Florida International University

T308B - COED: All about That Math

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11:00 A.M. - 12:30 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Jenna Wong, San Francisco State University

The papers in this session focus on various math topics that are critical for computing education.

Combining Game-Based and Inquiry-Oriented Learning for Teaching Linear Algebra

Dr. Ashish Amresh, Arizona State University

Dr. Vipin Verma, Arizona State University

Michelle Zandieh, Arizona State University

Identifying Student Profiles Related to Success in Discrete Math CS Courses

Prof. Yael Gertner, University of Illinois, Urbana-Champaign

Juan Alvarez, University of Illinois, Urbana-Champaign

Benjamin Cosman,

Dr. Jennifer R. Amos, University of Illinois, Urbana-Champaign

Mobile App: A Boost in Math Learning Motivation

Luz Maria Gregoria Gonzalez Canales, Tecnologico de Monterrey, Mexico

Yolanda Martinez-Trevino, Tecnologico de Monterrey, Mexico

T309 - Construction Engineering Division (CONST) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: John Tingerthal, Northern Arizona University; Luciana Debs, Purdue University Programs

An Approach in Designing and Teaching Hands-on and Immersive Construction Cost Estimating Course

Dr. George Okere, University of Cincinnati

Mr. Chris Souder, M.S.,

Work in Progress: Development of an AutoCAD Plugin to Increase Student's Spatial Visualization Skills

Omar Snosi,

Dr. Kimberly Grau Talley, P.E., Texas State University

Mr. Krishna Prasad Kisi, Texas State University

Developing a Simulated Experience to Capture the Bidding Process in a Cost-Estimating Course

Mr. Veto Matthew Ray, Indiana University–Purdue University, Indianapolis

Elizabeth Freije, Indiana University–Purdue University, Indianapolis

Marvin Louis Johnson, Indiana University–Purdue University, Indianapolis

Exploring Industry Solutions and Evaluating Teaching Methods for Delivering BIM in Senior Design Class

Raissa Seichi Marchiori, University of Alabama

Dr. Siyuan Song, The University of Alabama

Sepehr Khorshid, University of Alabama

T311 - CEED Board Meeting

11:00 A.M. - 12:30 P.M., POE, HILTON BALTIMORE INNER HARBOR

Sponsor: Cooperative and Experiential Education Division (CEED)

Monthly board meeting for all CEED Board members.

T313 - Design in Engineering Education Division (DEED) Technical Session 10

11:00 A.M. - 12:30 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Robert Loweth, University of Michigan

Multidisciplinary Design

Student Learnings and Teaching Insights from a Multidisciplinary Engineering Design Course

Dr. Nusaybah Abu-Mulaweh, Johns Hopkins University

Alissa Burkholder Murphy, Johns Hopkins University

Prof. Jenna Frye, Johns Hopkins University

Evaluating ABET Student Outcome (3) in a Multidisciplinary Capstone Project Sequence

Dr. Nicholas A. Baine, Grand Valley State University

Dr. Karl Brakora, Grand Valley State University

Dr. Christopher P. Pung P.E., Grand Valley State University

Democratizing the Practices of Design and Innovation through Transdisciplinary Coursework

Scott Thorne, Purdue University

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Dr. Greg J. Strimel, Purdue University at West Lafayette (PPI)

Teaching engineering design through a team-based multi-disciplinary humanitarian engineering project: effects on engineering identity and sense of belonging

Dr. Shannon Barker, University of Virginia

Prof. Lindsay Wheeler,

Jessica Taggart, University of Virginia

Design Argumentation on Multidisciplinary Teams: An Analysis of Engineering Design Team Communication Effectiveness

Mr. Robert E. Curtis, Jr. P.E., Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

Ms. Jessica Dolores Menold, Pennsylvania State University, University Park

Ms. Jessica Menold Menold, Pennsylvania State University

T313B - Design in Engineering Education Division (DEED) Technical Session 11

11:00 A.M. - 12:30 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Peer Education and Professional Development

Peer Mentorship Model to Enhance Design Engineering Education

Dr. Amit Shashikant Jariwala, Georgia Institute of Technology

Dr. Raghu Pucha, Georgia Institute of Technology

Terrence Pleasant,

Shivani Kundalia,

Amanda Nolen, Georgia Institute of Technology

Devesh Ranjan,

Student Peer Lecture in Capstone Design Project

Dr. Xiaobin Le, Wentworth Institute of Technology

An Approach for Young Professionals to Teach Design Courses

Dr. Robert Kidd, State University of New York Maritime College

Teaming Tribulations: A Design Course Simulation Game

Dr. Charlotte Marr de Vries, Pennsylvania State University, Behrend College

Advances in Graduate Training in Integrative Bioinformatics for Investigating and Engineering Microbiomes (IBIEM)

Dr. Glenda T. Kelly, Duke University

Dr. Joshua A. Granek, Duke University

Dr. Claudia K. Gunsch, Duke University

Dr. Joseph L. Graves Jr., North Carolina A&T State University

Dr. David Singleton, Duke University

T314A - Design Thinking and Student Design Teams

11:00 A.M. - 12:30 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Quamrul Mazumder, University of Michigan - Flint

Educational Research & Methods Division (ERM) Technical Session

Studying the Development of Design Thinking of Undergraduate Engineering Students in Singapore: Qualitative Reflection Analysis (Research)

Dr. Eileen Fong, Nanyang Technological University

Dr. Ibrahim H. Yeter, Nanyang Technological University

Shamita Venkatesh, Nanyang Technological University

Dr. Mi Song Kim, University of Western Ontario

Jingyi Liu, Nanyang Technological University

Design thinking in collaboration with students to identify and address learning challenges in two science and engineering courses

Dr. Andrea Hemmerich, McMaster University

Monica De Paoli, McMaster University

Dr. Robert V. Fleisig, McMaster University

Believing the Results: Validation of the Tuckman Team Development Questionnaire for Use with Engineering Student Design Teams

Dr. Natalie C.T. Van Tyne, Virginia Polytechnic Institute and State University

Mr. Tahsin Mahmud Chowdhury, Virginia Polytechnic Institute and State University

Dr. Dayoung Kim, Virginia Polytechnic Institute and State University

Dr. Juan David Ortega, Virginia Polytechnic Institute and State University / Universidad EAFIT

Dr. Michelle Soledad, Virginia Tech

Relationship between Motivation and Effective Communication in Engineering Capstone Projects Design

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TUESDAY, JUNE 27th SESSIONS

Clinics

Mrs. Nourhan E. Elatky, Rowan University
Dr. Juan M. Cruz, Rowan University
Dr. Smitesh Bakrania, Rowan University

Approaches to Evidencing Intra-Team Equity in Student Collaborative Design Decision-Making Interactions

Dr. Andrew David Moffat, University of Michigan
Dr. Robin Fowler, University of Michigan
Rebecca L. Matz, University of Michigan
Spencer JaQuay, University of California, Irvine

T314B - Research Methodologies – Session 2

11:00 A.M. - 12:30 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Emily Dringenberg, The Ohio State University

Educational Research & Methods Division (ERM)
Technical Session

A Bayesian Approach to Longitudinal Social Relations Model

Xingchen Xu, Arizona State University
Li Tan,

Validity evidence for measures of statistical reasoning and statistical self-efficacy with engineering students

Dr. Todd M. Fernandez, Georgia Institute of Technology
David S. Ancalle, Department of Civil and Environmental Engineering, Kennesaw State University

Death by 1000 cuts: Workshopping from Black engineering narratives from interview to stage

Dr. Debalina Maitra, Arizona State University, Polytechnic Campus
Dr. Brooke Charae Coley, Massachusetts Institute of Technology
Diego Reyes,

Is Natural Language Processing Effective in Education Research? A case study in student perceptions of TA support

Neha Kardam, University of Washington
Ms. Shruti Misra, University of Washington
Dr. Denise Wilson, University of Washington

Synthesizing Indicators of Quality across Traditions of Narrative Research Methods

Mr. Kanembe Shanachilubwa, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

T314C - Student Experiences and Development – Session 2

11:00 A.M. - 12:30 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Kai Jun Chew, Embry-Riddle Aeronautical University

Educational Research & Methods Division (ERM)
Technical Session

Student curiosity in engineering courses and research experiences: "I'm kind of torn between being a decent student and a decent engineer."

Dr. Natalie Evans, University of Virginia
Jessica Scoville, University of Virginia
Jamie J. Jirout, University of Virginia
Dr. Caitlin Donahue Wylie, University of Virginia
Elizabeth Opila,

Characterizing Perceptions of Engineering Intuition Based on Experience and Gender

Madeline Roth, Bucknell University
Dr. Elif Miskioglu, Bucknell University
Dr. Adam R. Carberry, Arizona State University
Dr. Kaela M. Martin, Embry-Riddle Aeronautical University - Prescott

Linking Undergraduate Engineering Students' Outcome Expectations, Interests, Career Goals, Self-Efficacy, Social Support, and Barriers in Singapore: A Social Cognitive Career Theory Study

Mr. Tejas Gupta, Nanyang Technological University
Dr. Ibrahim H. Yeter, Nanyang Technological University
Michael Jin Khoo,

The Use of Family Career Genogram in Assessing Undergraduate Engineering Student Success

Rawle D. Sookwah, University of South Carolina
Dr. Sona Gholizadeh, University of South Carolina
Mrs. Shanta A. Jerideau, University of South Carolina
Mr. Lindell D. Diez,
Dr. Ryan G. Carlson, University of South Carolina

Engineering Students' Perceptions of Learning Effectiveness: Implications from the Lived Experiences Amidst a Mixture of In-Person and Online Instruction

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Dr. Qin Liu, University of Toronto
Dr. Greg Evans P.Eng., University of Toronto
Yunze Wei, University of Toronto
Milad Moghaddas, University of Toronto
Kashish Mistry, University of Toronto, Faculty of Applied
Science and Engineering
Tamara Kecman, University of Toronto

T314D - Engineering Programs and Institutional Factors

**11:00 A.M. - 12:30 P.M., ROOM 309, BALTIMORE
CONVENTION CENTER**

**Sponsor: Educational Research and Methods
Division (ERM)**

Moderator: Shauna Adams,

Educational Research & Methods Division (ERM)
Technical Session

**Identifying student and institutional factors related to the
academic performance and persistence of vertical transfer
students pursuing baccalaureate engineering technology
degrees**

Dr. Courtney S. Green, P.E., University of North Carolina at
Charlotte

Dr. Sandra Loree Dika, University of North Carolina at Charlotte

**Progress Analytics in Support of Engineering Advising and
Program Reform**

Husain Al Yusuf, The University of Arizona

Prof. Gregory L. Heileman, The University of Arizona

Raian Islam, The University of Arizona

Yiming Zhang, The University of Arizona

Tanmay Agrawal,

Mr. Hayden William Free, Georgia Institute of Technology

Kristina A. Manasil, The University of Arizona

**Organizational Barriers to Conducting Engineering Education
Research in Education-adjacent Industries**

Dr. Nikitha Sambamurthy, zyBooks, A Wiley Brand

**Identifying curriculum factors that facilitate lifelong learning
in alumni career trajectories: Stage 2 of a sequential mixed-
methods study**

Nikita Dawe, University of Toronto

Dr. Lisa Romkey, University of Toronto

Amy Bilton,

**Creating Social Capital: Developing Resources in a Cohort
Program**

Miss Kiara Lynn Steinhorst, University of Nevada, Reno

Miss Kelsey Scalero, University of Nevada, Reno

Ms. Rachael Ciara Young,

Ms. Indira Chatterjee, University of Nevada, Reno

Dr. Ann-Marie Vollstedt, University of Nevada, Reno

Dr. Adam Kirn, University of Nevada, Reno

T314E - Reviewing Methods for Educational Research

**11:00 A.M. - 12:30 P.M., BALLROOM 3 ,
BALTIMORE CONVENTION CENTER**

**Sponsor: Educational Research and Methods
Division (ERM)**

Moderator: Elizabeth Strehl, University of Michigan

Educational Research & Methods Division (ERM)
technical session

**Narrative Inquiry in Engineering Education: A Systematic
Literature Review**

Ms. Alexandra Mary Jackson, Rowan University

Dr. Cheryl A. Bodnar, Rowan University

**A Systematic Review of Instruments Measuring College
Students' Sense of Belonging**

Mrs. Xiaoye Yang, University of Massachusetts, Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Giovanni Bautista, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts, Lowell

**By The Numbers: A Review of Quantitative Research Methods
in Journal of Engineering Education from 2012 to 2022**

Mr. Alfa Satya Putra, Purdue University, West Lafayette

Dr. Jason Morphew, Purdue University, West Lafayette

Li Tan, Arizona State University

**Exploring the Use of Social Media in Engineering Education—
Preliminary Findings from a Systematic Literature Review**

Mr. Khondhaker Al Momin, University of Oklahoma

Dr. Javeed Kittur, University of Oklahoma

Dr. Tahrira Rouf, University of Oklahoma

Dr. Arif Mohaimin Sadri, University of Oklahoma

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TUESDAY, JUNE 27th SESSIONS

T315A - NSF-Sponsored projects in EE and Computing fields

11:00 A.M. - 12:30 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsors: Electrical and Computer Engineering Division (ECE); Computers in Education Division (COED)

Moderator: Diane Rover, Iowa State University of Science and Technology

The ECE and CoED of ASEE divisions will jointly present this panel about National Science Foundation (NSF)-sponsored projects. Panelists include program directors of the NSF and several PIs, who will share information about their projects and discuss related electrical engineering and computing education aspects. The panelists will answer any questions from the audience.

T315B - Online and Remote Teaching

11:00 A.M. - 12:30 P.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Juan Alvarez,

Strategies to Develop an Online/Hybrid Signals and Systems Course

Dr. Mary Yvonne Lanzerotti, Virginia Polytechnic Institute and State University

Dr. Scott Dunning, Virginia Polytechnic Institute and State University

Prof. R. Michael Buehrer, Virginia Polytechnic Institute and State University

Prof. Ahmad Safaai-Jazi, Virginia Polytechnic Institute and State University

Dr. Nektaria Tryfona, Virginia Polytechnic Institute and State University

Mr. Jianqiang Zhang, Virginia Polytechnic Institute and State University

Dr. Luke Lester, Virginia Polytechnic Institute and State University

Max Mikel-Stites, Virginia Polytechnic Institute and State University

Dr. Kenneth Reid, University of Indianapolis

Student Earnestness in Online Circuit Analysis Textbook When Answer Is Available

Mohsen Sarraf,

Prof. Mark Atkins, Ivy Tech Community College Indianapolis

Ms. Jenny Welter, zyBooks, a Wiley brand

Yasaman Adibi, zyBooks, a Wiley Brand

Dr. Nikitha Sambamurthy, zyBooks, a Wiley Brand

Ms. Lauren Fogg, zyBooks, a Wiley Brand

Does student performance decline in online classroom setup? A study of students' performance in ECE controls class

Dr. Ahmed Dallal, University of Pittsburgh

Innovation for Remote Teaching of Digital Logic Laboratory Courses

Dr. Nazanin Mansouri, University of Portland

Hands-on Lab Exercises for Onsite and Remote Education Delivery in a CPS Communication Systems Course Using ISAAC

Dr. Ananth Jillepalli, Washington State University

Austin Ryan Gress, University of Idaho

Romulo Bainy,

Yacine Chakhchoukh,

Daniel Conte de Leon,

Dr. Herbert L. Hess, University of Idaho

Dr. Brian K. Johnson P.E., University of Idaho

Hari Challa,

Low-Cost DC Motor Control System Experiments for Engineering Students

Ms. Bhawana Bhatta, Youngstown State University

Prof. Ghassan Salim, Youngstown State University

Dr. Vamsi Borra, Youngstown State University

Dr. Frank X. Li, Youngstown State University

T320 - Ethics Division Business Meeting

11:00 A.M. - 12:30 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Ethics Division (ETHICS)

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TUESDAY, JUNE 27th SESSIONS

T321 - Engineering Libraries Division — Speed Dating with Databases and Tools

11:00 A.M. - 12:30 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: J Denise Lewis, Wake Forest University

In this session, attendees will learn about significant changes in traditional search tools and new research tools for engineering librarianship. Each tool user will have 15 minutes to speak for their tool in terms of resources included in the database/tool (pre-print, scholarly articles, encyclopedias, books/ebooks, technical reports, etc.), a brief overview of how to use it, and resources for learning or getting up to speed on the database/tool.

T322 - Engineering Management Division (EMD) Tech Session 3: Engineering Management — From Classroom to Practice

11:00 A.M. - 12:30 P.M., LATROBE HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Management Division (EMD)

Moderator: Basel Alsayed, Western Carolina University

Free ticketed event

The Complete Engineer: How the Whiting School's Engineering Management and Leadership Course Complements Senior Design

Dr. Mia Baytop Russell, The Johns Hopkins University

Ms. Illysa Izenberg, The Johns Hopkins University

Michael Agronin,

Aabhas Jain,

Measuring Team Effectiveness in Construction Projects: Team Members' Perceptions

Rebecca Kassa, University of Kansas

Monica Perrin, Arizona State University

Tolulope Ibilola Ogundare,

Dr. Brian Lines, The University of Kansas

Mr. Jake Smithwick, University of North Carolina at Charlotte

Prof. Kenneth Timothy Sullivan, Arizona State University

Alignment of Engineering Management and Education Using

Facility Condition Assessments

Derek Hillestad Ph.D, Arizona State University

Rebecca Kassa, The University of Kansas

T323A - Engineering Technology Division (ETD) Technical Session 10

11:00 A.M. - 12:30 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Eugene Kwak, State University of New York, College of Technology at Farmingdale

Engineering Technology related papers focused on teaching and student learning

Effects of the COVID Pandemic on Industrial Warehouse Personnel Training and Education

K. D. Pomeroy, Texas State University

Dr. Shaoping Qiu, The Institute of Technology-Infused Learning (TITIL), Texas A&M University

Lei Xie,

Dr. Malini Natarajarathinam, Texas A&M University

Dr. Michael Johnson, Texas A&M University

Enhancing Online Hands-On Learning in Engineering Education: Student Perceptions and Recommendations

Dr. Dalya Ismael, Old Dominion University

Enhancing Student Learning Using Article Reading Assignments

Te-shun Chou, East Carolina University

Evolving Engineering Technology Capstone Projects to Bring Students Closer to Industry

Prof. Susan Scachitti, Purdue University Northwest

Prof. James B. Higley P.E., Purdue University Northwest

Experience with a Method Allowing One Instructor to Teach a Course in Two

Classrooms Simultaneously at Different Locations

Dr. John W Blake P.E., Austin Peay State University

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TUESDAY, JUNE 27th SESSIONS

T323B - Engineering Technology Division (ETD) Technical Session 11

11:00 A.M. - 12:30 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Barbara Christe, State University of New York, College of Technology at Farmingdale

Engineering Technology related papers focused on teaching and student learning

Exploring the use of Photovoice with Entrepreneurial Design Projects as a High Impact Practice in Engineering Technology Education

Dr. Khalid H. Tantawi, University of Tennessee at Chattanooga
Dr. Lisa Bosman, Purdue University at West Lafayette (PPI)
Dr. Maged Mikhail, Purdue University Northwest
Dr. Arif Sirinterlikci, Robert Morris University
Prof. Jeff Ma,

From Grant to Graduates: The Development of a Regionally Unique Siemens Level-3 Mechatronics Engineering Technology Program

Prof. Matthew S. Anderson, Austin Peay State University
Alyssa Young, Austin Peay State University

Hands-Off: Perceptions of Biomedical Engineering Technology Internships under a Global Pandemic

Dr. Joie Marhefka, The Pennsylvania State University
Miss Dalynn D. Park,
Laura E. Cruz, The Pennsylvania State University

Implementation of Sustainability Concept in Capstone Projects

Dr. Asif Ahmed, State University of New York, Polytechnic Institute

Implementing an Effective ABET Assessment Program for a New Bachelor of Science in Engineering Technology Degree

Dr. Qudsia Tahmina, The Ohio State University at Marion
Ms. Kathryn Kelley, The Ohio State University
Dr. Sandra L. Furterer, The Ohio State University

T323C - Engineering Technology Division (ETD) Technical Session 8

11:00 A.M. - 12:30 P.M., DOUGLASS, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

Moderator: Amanda Bao, Rochester Institute of Technology (CET)

Engineering Technology related papers focused on student learning

Creating a Nature-Inspired Entrepreneurially Minded Manufacturing Podcast to Bolster Technical Communication Skills

Dr. Thomas Lucas, Purdue University
Ms. Bhavana Kotla, Purdue Polytechnic Institute, Purdue University
Dr. Lisa Bosman, Purdue University

Creating an Undergraduate Multidisciplinary Design Research Team to Achieve Zero Energy

Prof. Darrell D. Nickolson, Indiana University - Purdue University Indianapolis

Creation of an Engineering Technology Program

Dr. Robin A.M. Hensel, West Virginia University
Dr. Emily Spayde, West Virginia University

Developing a Streamlined Approach to Manage Program Documents and Assessment Data (Work in Progress)

Dr. Jacob Allen Cress P.E., University of Dayton
Prof. Scott Schneider, University of Dayton

T324 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 5: Exploring and Re-Examining Ideas in Engineering Entrepreneurship and Innovation Education

11:00 A.M. - 12:30 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering

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TUESDAY, JUNE 27th SESSIONS

Innovation Division (ENT)

Moderator: Ginger Scarbrough, New Mexico State University

Exploring the Role of Mentorship in Enhancing Engineering Students' Innovation Self-Efficacy

Dr. Azadeh Bolhari P.E., University of Colorado Boulder
Dr. Angela R Bielefeldt P.E., University of Colorado Boulder

Work in Progress: Examining the KEEN 3Cs Framework Using Content Analysis and Expert Review

Mr. Sanjeev M. Kavale, Arizona State University
Ms. Alexandra Mary Jackson, Rowan University
Dr. Cheryl A. Bodnar, Rowan University
Dr. Samantha Ruth Brunhaver, Arizona State University
Dr. Adam R. Carberry, Arizona State University
Dr. Prateek Shekhar, New Jersey Institute of Technology

Re-Evaluating the Examination of Minoritized Social Identities among I-Corps Hub Program Participants

Dr. Alanna Epstein, University of Michigan
Dr. Nathalie Duval-Couetil, Purdue University at West Lafayette

Needs Analysis and Requirements Delivery: Guiding the Development Approach with an Intuitive Framework

Dr. Vijay K. Kanabar, Boston University

The Nexus of Entrepreneurship and Innovation: A new approach to looking at the creative contributions of engineering graduates

Mr. Felix Kempf, King's College London
Nada Elfiki, Stanford University
Aya Mouallem, Stanford University
Dr. Helen L. Chen, Stanford University
Prof. George Toye,
Dr. Micah Lande, South Dakota School of Mines and Technology
Kei Hysi,
Dr. Xiao Ge, Stanford University
Prof. Sheri D. Sheppard, Stanford University

T326 - Experimentation and Laboratory-Oriented Studies Division (ELOS) Technical Session 2: Manufacturing, Simulation, Safety, and Technical Writing

11:00 A.M. - 12:30 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Hans Mayer, California Polytechnic State University, San Luis Obispo

In this session, authors will discuss the integration of experimentation, theory and simulation in projects involving thermoforming, 3d printing, and digital food design; as well as how to cultivate technical writing skills and develop a strong safety culture.

A thermoforming student project including experiments, simulations, and theory.

Josiah Kesler, Oral Roberts University
Christian Montgomery, Oral Roberts University
Dr. John E. Matsson, Oral Roberts University

Cultivating technical writing skills through a scaffold peer review-approach of lab reports in a junior-level laboratory course

Dr. Yan Wu, University of Wisconsin - Platteville

Edible Entertainment: Taste Diversity in Additive Manufacturing for Authentic Digital Food Design Solutions

Dr. Nandhini Giri, Purdue University - West Lafayette (COE)
Dr. Ajay P. Malshe, Purdue University at West Lafayette (COE)

Integration of Design Process, 3D printing, Simulations and Experimental Testing in a Laboratory through Design-Build-Test Cycle

Dr. Deeksha Seth, Villanova University
Dr. Garrett Miles Clayton, Villanova University
Dr. David Jamison, Villanova University

Lab Safety Awareness in Incident and Near-miss Reporting by Students Participating in Engineering Societies: A Case Study

Audrey Erin Concepcion,
Ryan Hekker,
Dr. Ean H. Ng, Oregon State University
Chukwudiebube Atagbuzia,
Thomas L Doyle, Oregon State University
Jenette K Paul, Oregon State University

Work in Progress: Virtual Reality for Manufacturing Equipment Training for Future Workforce Development

Dr. Jaejong Park, Prairie View A&M University
Razaul Islam,
Cullan Alexander King,

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TUESDAY, JUNE 27th SESSIONS

Lai Jiang,
Dr. Xiaobo Peng, Prairie View A&M University
Dr. Bugrahan Yalvac, Texas A&M University

T327 - First-Year Programs Division Business Meeting

11:00 A.M. - 12:30 P.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: First-Year Programs Division (FYP)

Moderators: J. Hylton, Ohio Northern University; Krista Kecskemety, The Ohio State University

Open business meeting for the First-Year Programs Division

T327B - First-Year Programs Division (FYP) - Technical Session 5: Supporting Success 2

11:00 A.M. - 12:30 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Andrew Gillen, Northeastern University

The second of two full-paper sessions on the subject of student success.

Examining Timely Positive Interventions Utilized by First-Year Students to Improve their Course Grades in Science and Engineering

Sunai Kim, California State Polytechnic University, Pomona
Dr. Andrew Forney, California State Polytechnic University, Pomona
Dr. Christopher Cappelli, Loyola Marymount University
Lambert Doezema,
Vanessa Corinne Morales, Loyola Marymount University
Pornchanok Ruengvirayudh Ph.D., Chiang Mai University

Predicting Student Retention via Expectancy Value Theory Using Data Gathered before the Semester Begins

Dr. Pamela Bilo Thomas, University of Louisville
Dr. Campbell R. Bego, University of Louisville
Arinan De Piemonte Dourado, University of Louisville

Changes in Perceived Wellness in First-Year Engineering Students

Dr. Matthew Cavalli, Western Michigan University
Ms. Anetra Grice, University of Tabuk

Learning-Journal, a Transformative Learning Tool for First-year Engineering Students

Ms. Sahar Mari, Northwestern University in Qatar
Ms. Sara AlBanna, SLB
Dr. Nayef Alyafei, Texas A&M University at Qatar

Analysis of Student Motivation in an Introductory Engineering Technology Gateway Course

Hernan David Moreno Rueda, Purdue University at West Lafayette (COE)
Kevin Michael Simonson,
Prof. Jeffrey J. Richardson, Purdue University at West Lafayette (COE)
Prof. Eddy Efendy, Purdue University at West Lafayette (COE)
Dr. Rustin Webster, Purdue University, New Albany
Dr. Brittany A. Newell, Purdue University at West Lafayette (COE)

T328 - Graduate Studies Division (GSD) Technical Session 5: Graduate Student Experience and Decision-Making

11:00 A.M. - 12:30 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Matthew McCullough, North Carolina A&T State University (CoE)

Why a PhD? An exercise with LEGO®. Using novel communication tools to express multilevel complex messages

Prof. Carmen Torres-Sanchez CEng MEng PhD PGCert FHEA MIMechE, Loughborough University
Prof. Paul Conway FREng CEng, Loughborough University

Returning and Direct Pathway Students: How the Decision-Making Process of Engineering Master's Degree Pursuit Is Influenced by Industry Experience

Alayna Grace Wanless,
Dr. Diane L. Peters, Kettering University
Dr. Elizabeth Gross, Sam Houston State University

A data-driven comparison of students' performance in asynchronous online versus in-person sections of an introductory graduate statistics course

Majid Nabavi, University of Nebraska - Lincoln
Dr. Jena Shafai Asgarpour, University of Nebraska - Lincoln

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TUESDAY, JUNE 27th SESSIONS

Faculty Perception of the GRE as a Graduate Admission Requirement

Animesh Paul, University of Georgia
Deborah Moyaki, University of Georgia
Dr. John Ray Morelock, University of Georgia
Dr. Racheida S. Lewis, University of Georgia

T329 - Industrial Engineering Division (IND) Technical Session 4

11:00 A.M. - 12:30 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Industrial Engineering Division (IND)

Moderator: Raymond Smith, East Carolina University

Automated Analytic Dataset Generation and Assessment for Engineering Analytics Education

Dr. Bruce Wilcox, University of Southern California
Yufan Fei,
Jihao LI, University of Southern California
Junqiang Wang,
Junmeng Xu, University of Southern California

An Analysis of Data Analytics Curriculum Development through an NSF Research Experience for Teachers (RET) Program in Arkansas

Dr. Eric Specking, University of Arkansas
Dr. Shengfan Zhang, University of Arkansas

Impacting engineering students' academic trajectories through a learning outcomes enhancement cycle

Mrs. Javiera Espinoza, Pontificia Universidad Catolica de Valparaiso
Mrs. Patricia Jimenez, Pontificia Universidad Catolica de Valparaiso
Prof. Nancy Zamorano, Pontificia Universidad Catolica de Valparaiso
Jimena Pascual,

Teaching Strategies in Industrial Engineering Programs in Brazil: Benchmarking in North American Universities

Laura Visintainer Lerman,
Mr. Italo Rodeghiero Neto, Universidade Federal Do Rio Grande Do Sul
Joana Siqueira de Souza, Universidade Federal Do Rio Grande Do Sul
Dr. Maria Auxiliadora Cannarozzo Tinoco, Universidade Federal Do Rio Grande Do Sul

Transfer Paths into and out of Industrial Engineering

Ms. Sara C. Vick, Mississippi State University
Dr. Lesley Strawderman P.E., Mississippi State University
Dr. Brian K. Smith, Mississippi State University

T330 - Computing and Information Technology Division (CIT) Technical Session 5

11:00 A.M. - 12:30 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Awatif Amin, Johnson C. Smith University; Mahima Agumbe Suresh,

WIP: Replication of a 1/5th-Scale Autonomous Vehicle to Facilitate Curriculum Improvement in Cyber Engineering

Dr. Wookwon Lee, Gannon University
Joseph Mendez,
Naveen Kumar Manimaran,

Work-in-progress: Exploring the computer science curriculum from undergraduate students' perspectives

Dr. Hye Rin Lee, University of Delaware
Sotheara Veng, University of Delaware
Yiqin Cao, University of Delaware
Juliana Baer, University of Delaware
Teomara Rutherford, University of Delaware
Austin Cory Bart,

WIP: Skip the Lecture: A Decoding First Approach to Introductory Computing Education

David Zabner,
Trevion S Henderson, Tufts University

Sense of Belonging in the Cybersecurity Field of Study

Dr. Robin A.M. Hensel, West Virginia University
Prof. Katerina Goseva-Popstojanova, West Virginia University
Dr. Erin Carll, University of Washington
Sadaf Amna Sarwari,

T332 - The Unseen Community: Untold Stories of Struggles and Resilience of International Students and Faculty in

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TUESDAY, JUNE 27th SESSIONS

Computing and Engineering Education

11:00 A.M. - 12:30 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Siqing Wei, Purdue University at West Lafayette (COE)

Speakers: Ms. Hoda Ehsan, The Hill School ; Dr. Syedah Zahra Atiq, The Ohio State University; Dr. Saira Anwar, Texas A&M University; Mr. Hossein Ebrahiminejad, Purdue University at West Lafayette (COE); Mr. Mohamed Aziz Dridi, Purdue University

This panel will share the unheard challenges that international students have faced in the USA while in engineering graduate programs. Many engineering students and faculty come from Middle East, South Asia, East Asia, and African countries where their people struggle with life on a daily basis, with challenges varying from natural disasters to brutality of their governments. Just recently, Turkey and Syria were struck by a deadly 7.8 magnitude earthquake, with more than 7,900 people killed and tens of thousands injured. In the recent past, and more personally to the panelists, Pakistan was hit by a deadly flood that killed many and left countless people homeless. A large protest, led by women, in Iran began as a result of police brutality in September 2022. As Iranians continue to fight for their basic rights, the regime has arrested and killed thousands of people.

As we struggle with these recent incidents, we realize that the engineering education community, which is home to many international students and faculty, often neglects to talk about them, which leaves students (and faculty) feeling unseen and unsupported. As graduates of engineering education programs who hold positions in and beyond academia, we understand how frustrating and challenging it is to feel unseen and invisible by advisors, mentors, peers, and university admins, especially at the time that one's beloved country and people are struggling. Unfortunately, these incidents happen very frequently in many developing countries, which puts students' health and mental health in jeopardy. Not only do they have to adjust to a new country and culture, they have to constantly worry about the lives of their loved ones in their home country.

This creates the need to advocate for international students in engineering and be their voices, by sharing first-hand stories of challenges and support. This session will be a place to share previously untold stories that need to be heard.

Panel Activities

1) Introduction: Panelists share their stories about where they are, especially in reference to being immigrants and internationals.

2) Collaborative, interactive discussion with open-ended guided questions and sharing challenges through stories:

a) What are the "unseen and unheard" challenges you have faced? How have you been supported — or not?

b) What were some of the strategies that you used to overcome those challenges?

c) Why or why not did you think that your voices were heard or not heard?

3) Community Support — examples of the questions:

a) What can an advisor do to support those unseen challenges that their international graduate students face?

b) What advice do you have for Ph.D. advisors and university administrators to better support the international graduate students?

c) What can we do as a community to support each other?

4) Q & A with panelists

T333 - Pre-College Engineering Education Division (PCEE)

Technical Session 9: Practices of Mentorship & Liaisons

11:00 A.M. - 12:30 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Elizabeth Parry, STEM Education Insights

"Fake it until you make it": Lessons learned from the design and implementation of a high school summer research internship program (Evaluation)

Prof. Adam T. Melvin, Louisiana State University and A&M College

Melissa Dean,

Raynesha Ducksworth, Louisiana State University and A&M College

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TUESDAY, JUNE 27th SESSIONS

Challenging the Notion of Role Models in Engineering Outreach Programs for Youth (Fundamental)

Dr. Kelli Paul, Indiana University-Bloomington
Dr. Karen Miel, University at Buffalo, The State University of New York
Dr. Adam Maltese, Indiana University-Bloomington
Dr. Merredith D Portsmore, Tufts University

Utilizing Culturally Responsive Strategies to Inspire African American Female Participation in Cybersecurity

Dr. Deanna Bailey, Morgan State University
Dr. Michel A. Kornegay, Johns Hopkins University
Mrs. LaDawn Partlow, Morgan State University
Charnee Bowens,
Dr. Karen Gareis, Goodman Research Group, Inc.
Dr. Kevin Kornegay, Morgan State University

T333B - Pre-College Engineering Education Division (PCEE) Technical Session 10: Broadening Participation in P12

11:00 A.M. - 12:30 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Abigail Clark, Miami University

Barriers to including engineering education into elementary classrooms (Fundamental)

Lajja Mehta, Tufts University

Virtual STEM Labs: Engaging and inspiring Hispanic youth to pursue STEM degrees and careers

Dr. Dayna L. Martínez, Society of Hispanic Professional Engineers, Inc.
Esther Gonzalez,
Deanna Drako,
Andrea D. Beattie,
Ashleigh Tierney,
Enrique Guzman,
Dr. Kimberly D Douglas P.E., Society of Hispanic Professional Engineers, Inc.

The Impact of Attending an Engineering Program on Underrepresented Middle School Students' Interest in STEM

(RTP)

Mrs. Natasha Wilkerson, Texas A&M University

T334 - Baltimore Community Leadership Toward Sociotechnical Justice

11:00 A.M. - 12:30 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsors: Liberal Education/Engineering & Society Division (LEES); Community Engagement Division (COMMENG); Equity, Culture & Social Justice in Education Division (EQUITY)

Moderator: Foad Hamidi, University of Maryland Baltimore County

Speakers: Xanthe Matychak, ; Stephanie Alphee, ; Erin Higgins, UMBC; Samantha "Sam" Musgrave,

This moderated panel discussion among Baltimore-area community organizers working toward environmental, racial, and technological justice will address issues of building and maintaining university-community partnerships, aspects of local infrastructure that reinforce inequity, collaborative projects uniting multiple forms of expertise, and signs of progress in their work.

T335 - Manufacturing Workforce Development

11:00 A.M. - 12:30 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Siamak Farhad, The University of Akron; Hayder Zghair, Pennsylvania State University, Berks Campus

Curriculum Alignment for Workforce Development in Advanced Manufacturing

Dr. Akbar M. Eslami, Elizabeth City State University
Dr. Kuldeep S. Rawat, Elizabeth City State University
Dr. Chandra Bhushan Asthana P.E., Elizabeth City State University

Preparing the manufacturing workforce for Industry 4.0 technology implementation

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Dr. Sheng-Jen Hsieh, Texas A&M University

Dr. Marilyn Barger, FLATE (Florida Advanced Technological Education Center of Excellence)

Ms. Suzy Gorospes Marzano, Society of Manufacturing Engineers

Dr. Juan Song, Alamo Colleges District

Implementing i4.0 Tech to Engineering Systems Lab for Smart Manufacturing Learning

Dr. Hayder Zghair, Southern Arkansas University

Dr. Rungun Nathan, Pennsylvania State University, Berks Campus

T338 - Mechanical Engineering Division (MECH) Technical Session 11: Project and Research-Based Learning Environments

11:00 A.M. - 12:30 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Alex Szatmary, King's College

This session highlights an array of project and undergraduate research-based learning experiences.

How Does Working on an Interdisciplinary Service-Learning Project vs. a Disciplinary Design Project Affect Peer Evaluators' Teamwork Skills?

Isaac Koduah Kumi, Old Dominion University

Dr. Stacie I Ringleb, Old Dominion University

Dr. Orlando M Ayala, Old Dominion University

Dr. Pilar Pazos, Old Dominion University

Mr. Francisco Cima, Old Dominion University

Dr. Krishnanand Kaipa, Old Dominion University

Min Jung Lee, Old Dominion University

Dr. Kristie Gutierrez, Old Dominion University

Dr. Jennifer Jill Kidd, Old Dominion University

Using the Kolb Cycle to Enhance Undergraduate Research Experiences

Dr. Daniel D. Jensen, Westmont College

Gregory Reich,

Joshua Guinto,

Jared Lush,

Mechatronics Research Projects: Engaging First-Generation Students and Others

Dr. Sara E. Wilson, The University of Kansas

The Impact of a Multidisciplinary Service-Learning Project on Engineering Knowledge and Professional Skills in Engineering and Education Students

Dr. Stacie I. Ringleb, Old Dominion University

Dr. Pilar Pazos, Old Dominion University

Mr. Francisco Cima, Old Dominion University

Isaac Koduah Kumi, Old Dominion University

Dr. Orlando M. Ayala, Old Dominion University

Dr. Krishnanand Kaipa, Old Dominion University

Dr. Jennifer Jill Kidd, Old Dominion University

Dr. Kristie Gutierrez, Old Dominion University

Min Jung Lee, Old Dominion University

Incorporation of Student-Generated Problems in an Online Textbook

Sr. Libby (Elizabeth) Osgood, University of Prince Edward Island

Ms. Emma Bodil Stryhn Christensen, University College Absalon, Denmark

Analiya Benny,

Matthew Hutchinson,

Gayla Cameron,

T338B - Mechanical Engineering Division (MECH) Technical Session 12: Prerequisite Skills and Knowledge

11:00 A.M. - 12:30 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Anveeksh Koneru, University of Texas of the Permian Basin

This session highlights interventions and learning experiences related to fundamental engineering skills and knowledge.

A Mentorship and Module-Based System to Ensure the Adequacy of Required Prerequisite Knowledge for Enhancing Student Success in Engineering

Dr. Ricardo Zaurin, University of Central Florida

Dr. Sudeshna Pal, University of Central Florida

Comparing Success Rates in Thermodynamics: The Effect of Transfer Credits in Prerequisite Calculus and Physics Courses

Dr. Randall D. Manteufel, The University of Texas at San

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Antonio

Dr. Amir Karimi P.E., The University of Texas at San Antonio

Prof. Ender A Finol, University of Texas at San Antonio

Facilitate Improved Student Learning through Bloom's Taxonomy-Based Assignments in an Undergraduate Fluid Mechanics Course

Dr. Arkasama Bandyopadhyay, Texas A&M University

Dr. Haejune Kim, Texas A&M University

Dr. Phapanin Charoenphol, Texas A&M University

Work in Progress: Promoting the Transfer of Math Skills to Engineering Statics

Dr. Alexander John De Rosa, University of Delaware

Dr. Teri Kristine Reed, University of Oklahoma

Angela E. Arndt,

T340A - The McKnight Doctoral Fellowship

11:00 A.M. - 12:30 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Dawn Martin,

The McKnight Doctoral Fellowship program is designed to address the underrepresentation of African American and Hispanic faculty at colleges and universities in the state of Florida by increasing the pool of citizens qualified with Ph.D. degrees to teach at the college and university levels. As a by-product, employment opportunities in industry are expected to expand.

For additional information, see: <https://fefonline.org/index.html>.

Panel members are:

- Dr. Lawrence Morehouse, president and CEO, Florida Education Fund
- Dr. Sylvia Thomas, College of Engineering, University of South Florida
- Dr. Claude Villers, College of Engineering, Florida Gulf Coast University

Morehouse is president and CEO of the Florida Education Fund (FEF) and an affiliate associate professor in the School of Interdisciplinary Global Studies at the University of South Florida (USF). Previously, he was tenured associate

professor, director of the Political Science Program, acting chair of the Department of Government and International Affairs, and director of the Pre-Law Program at USF.

His experience includes 36 years of teaching in higher education, developing educational policy, publishing, conference presentations, speaking engagements, and numerous TV and radio appearances.

T340B - Cohort-Based Postdoctoral Scholars Program, Transforming the National Engineering Education, Defining Accountability, and Evaluating the Low-Stakes Assessment Performance

11:00 A.M. - 12:30 P.M., KEY 7, HILTON BALTIMORE INNER HARBOR

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Jameka Wiggins, The Ohio State University; Claude Brathwaite, City University of New York, City College

City University of New York Louis Stokes Alliance For Minority Participation: Perceptions, Performance and Evaluations

Dr. Claude Brathwaite, City University of New York, City College

Doing Academia Differently: The Creation of a Cohort-Based Postdoctoral Scholars Program for Emerging Engineering Faculty

Ms. Jameka Wiggins, The Ohio State University

Dr. Monica Farmer Cox, The Ohio State University

Dr. Ayanna Howard, The Ohio State University

Martina Leveni,

Tatiana Z. Cuellar-Gaviria,

Colin Lee Hisey,

Daniel Raphael Ejike Ewim, The Ohio State University

Leonardo Rodrigues da Costa Moraes,

Beenish Saba,

Shawanee' Patrick, Texas A&M University

Winifred Opoku,

Engineering PLUS Alliance stEm PEER Academy for Faculty and Administrators: Transforming the National Engineering Education Landscape for Women and BIPOC Students

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Dr. Jennifer Ocif Love, Northeastern University
Mrs. Claire Duggan, Northeastern University
Mr. Jeffrey Xavier, SageFox Consulting Group
Ami N. Slater,
Kenneth Rath,

Evaluating the Low-Stakes Assessment Performance: Student-Perceived Accessibility, Belongingness, and Self-Efficacy in Connection to the Use of Digital Notes in Engineering and Computing Courses

Xiu hao Ding, University of Illinois, Urbana-Champaign
Kang Sun,
Zhiyuan Xiao, University of Illinois, Urbana-Champaign
Sujit Varadhan, University of Illinois, Urbana-Champaign
Jiaxi Li, University of Illinois, Urbana-Champaign
Noah Gersich,
Ananya Agarwal,
Meghana Gopannagari,
Alan Tao, University of Illinois, Urbana-Champaign
Dr. Chrysafis Vogiatzis, University of Illinois, Urbana-Champaign
David Dalpiaz, University of Illinois, Urbana-Champaign
Dr. Jennifer R Amos, University of Illinois, Urbana-Champaign
Dr. Lawrence Angrave, University of Illinois, Urbana-Champaign
Dr. Hongye Liu, University of Illinois, Urbana-Champaign
Dr. Jenny Amos, University of Illinois, Urbana-Champaign
Mr. Rob Kooper, University of Illinois, Urbana-Champaign

T341 - Multidisciplinary Engineering Division (MULTI) Technical Session 10

11:00 A.M. - 12:30 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Kavitha Chandra, University of Massachusetts Lowell; Lifford McLaughlan, Texas A&M University - Kingsville

Incorporating Design Justice Activities in Engineering Courses

Dr. Shuvra Das, University of Detroit, Mercy

A Self-Study of the IRE 5-Point Grading Scale for Promoting Growth Mindset

Dr. Lauren Singelmann, Minnesota State University, Mankato

Dr. Yuezhou Wang, Minnesota State University, Mankato
Dr. Darcie Christensen, Minnesota State University, Mankato

Designing Learning Experiences with a Low-Cost Robotic Arm

Prof. Eric Markvicka, University of Nebraska-Lincoln
Jason Daniel Finnegan,
Kasey Moomau,
Amie Sueann Sommers,
Dr. Markeya S. Peteranetz, University of Nebraska, Lincoln
Dr. Tareq A. Daher, University of Nebraska, Lincoln

Using Trained Tutors to Improve Mechanical Engineering Technology Student Writing

Dr. David Clippinger, Pennsylvania State University, Behrend
Ms. Ruth Camille Pflueger, Pennsylvania State University, Behrend College
Dr. Steven Nozaki, Pennsylvania State University, Behrend
Dr. Corinne C. Renguette, Indiana University - Purdue University, Indianapolis
Johanna Bodenhamer,
Dr. Brandon Sorge, Indiana University - Purdue University, Indianapolis
Dr. Annwesa Dasgupta, Purdue University, West Lafayette

Redesigning Senior Capstone Sequence with Multidisciplinary, Industry-Sponsored Projects

Dr. Reza Rashidi, SUNY University, Buffalo

T342 - A Re-Imagined Academy

11:00 A.M. - 12:30 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: New Engineering Educators Division (NEE)

Moderator: Rossana Villa Rojas, University of Nebraska - Lincoln

Speakers: Dr. Julie P Martin, The Ohio State University; Dr. Karin Jensen, University of Michigan; Dr. Sara A. Atwood, Elizabethtown College

Imagine an academy where the well-being and mental health of faculty are as cherished as research and teaching excellence. Institutions of higher learning are addressing academic workload, life-balance, inclusivity, and mental health in the student populations, but open discussions about these same challenges for the faculty are lacking.

Educators experience stressful effects such as burnout and depression from combined demands for excellence in teaching, research, and service; long working hours;

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ongoing comparison to peers; and expectations to secure long-term funding and continually publish high-quality research papers in (well-cited) archival journals, as well as a culture of chronic and competitive need for productivity.

This session will help attendees re-imagine a healthy academy through question such as:

- How do we mitigate the stresses of tenure requirements at academic institutions to better assure the mental health and well-being of junior faculty?
- Is it feasible to juggle teaching, grant-writing, paper-writing, student mentoring, and professional service in a 40-hour week? Are the demands on time even greater for women, faculty of color, or other marginalized groups?
- Can we really address mental health and well-being for students and staff if we don't do the same for faculty?
- How do we make effective systemic change that supports the mental health of faculty and the academy as a whole?

T345 - Using Computation and Modeling, Engineering Physics and Physics Division (EP2D) Technical Session 3

11:00 A.M. - 12:30 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderators: Tooran Emami, United States Coast Guard Academy; Lawretta Ononye, State University of New York, Canton

This session will focus on papers discussing the use of computation and modeling in physics classes.

Modeling the Movement: A Challenge-Based Learning Course for Engineering Students

Dr. Esmeralda Campos, Tecnológico de Monterrey, Mexico

Prof. Carlos Eduardo Martinez-Torteya, Tecnológico de Monterrey, Mexico

Prof. Genaro Zavala, Tecnológico de Monterrey, Mexico and Universidad Andres Bello, Chile

GR in VR: Using Immersive Virtual Reality as a Learning Tool for General Relativity

Kristen Schumacher, University of Illinois, Urbana-Champaign

Sonali Joshi, University of Illinois, Urbana-Champaign

Jina Kang, University of Illinois, Urbana-Champaign

Eric Shaffer, University of Illinois, Urbana-Champaign

Jessica Raley, University of Illinois, Urbana-Champaign

Jose Nijaid Arredondo, University of Illinois, Urbana-Champaign

Brandon Mark Buncher, University of Illinois, Urbana-Champaign

Rajan Patkar, University of Illinois at Urbana-Champaign

Katherine Zine, University of Illinois, Urbana-Champaign

Daniel Alfredo Caballero, University of Illinois, Urbana-Champaign

Dr. Alexandria Tucker, University of Illinois, Urbana-Champaign

Mireille Tan, University of Illinois, Urbana-Champaign

Christopher Vistian, Physics Outreach at Illinois Through New Technologies

Promoting Computational Thinking in Integrated Engineering Design and Physics Labs

Dr. Ruben D. Lopez-Parra, University of New Mexico

Ravishankar Chatta Subramaniam,

Dr. Jason Morphew, University of Illinois, Urbana-Champaign

An Innovative Laboratory Physics Course Using Specialized Software and Digital Media: Students' and Instructors' Perspectives

Mr. Carlos Pineida, Universidad Andrés Bello, Chile

Prof. Angeles Dominguez, Tecnológico de Monterrey (ITESM), Mexico

Study of Speeds of Collision in Traffic Accidents: Physics Modeling Competences and Soft-Skills Development

Dr. Rodrigo Cutri, Mauá Institute of Technology, Brazil

Dr. Nair Stem, Mauá Institute of Technology, Brazil

Dr. Octavio Mattasoglio Neto Neto, Mauá Institute of Technology, Brazil

T347 - Student Division (STDT) Technical Session 2: Student Success and Resources

11:00 A.M. - 12:30 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Moderator: Darby Riley, Rowan University

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Why Should You Join? Exploring the Role of Engineering Clubs on the Undergraduate Engineering Experience

Ms. Katherine Drinkwater, Duke University
Dr. Karis Boyd-Sinkler, Duke University
Dr. Rebecca Simmons, Duke University

The Meme Game: A Hands-On Activity to Introduce First-Year Engineers to Concepts in Mathematical/Computational Modeling

Luke Raus, Olin College of Engineering
Katherine Mackowiak,
Stephanos Matsumoto, Olin College of Engineering
Prof. Zachary Riggins del Rosario, Olin College of Engineering

Work in Progress: Developing an Ethnographic Observation and Reflection Template: An Example from Studying Epistemic Differences within EER Teams

Ms. Isabel Anne Boyd, University of Tennessee, Knoxville
Chulin Chen, University of Tennessee, Knoxville
Lorna Treffert, University of Tennessee, Knoxville
Alexis Gillmore, University of Tennessee, Knoxville
Dr. Courtney June Faber, University of Tennessee, Knoxville

An Approach to Understanding Problem Solving Using Multiple Solution Methods

Mr. Hao Li, Massachusetts Institute of Technology
Dr. Anette Hosoi, Massachusetts Institute of Technology

T351 - Graduate Student and Postdoctoral Fellow Perspectives on Advancing Women and Gender Equity in Engineering - for the Next 130 Years

11:00 A.M. - 12:30 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Lily Wang, University of Nebraska - Lincoln

Speakers: Dr. Baishakhi Bose, Purdue University at West Lafayette (COE); Haleh Barmaki Brotherton, Clemson University; Theo Hopper, ; Pamela Martínez Oquendo, ; Margaret Webb, Virginia Tech Department of Engineering Education; Hannah Wilkinson,

This panel features current graduate students and postdoctoral fellows as they reflect on their experiences in advancing women and gender equity in engineering,

envision the progress that should be made in the coming 130 years, and share ideas on how to achieve those visions. Scholarly work has been conducted on past and current experiences of womxn in engineering; in this panel, we focus instead on hearing from graduate students and postdoctoral fellows on how they have enacted self-agency towards shaping the future. Panelists were selected through a competitive process, which involved describing how each has demonstrated commitment to advancing equity for womxn and gender minorities in engineering. The selected panelists will present their vision of a future 130 years from now where engineers of all gender identities feel respected, experience gender equity, and are able to maintain a healthy work-life balance.

Panel: Graduate Student and Postdoctoral Fellow Perspectives on Advancing Women and Gender Equity in Engineering - for the Next 130 Years

Dr. Baishakhi Bose, Lawrence Berkeley National Laboratory
Haleh Barmaki Brotherton, Clemson University
Theo Hopper, University of Michigan
Pamela Martínez Oquendo, University of Nebraska-Lincoln
Dr. Lily M. Wang P.E., University of Nebraska-Lincoln
Margaret E.B. Webb, Virginia Tech
Hannah Wilkinson, Utah State University

T352 - Community Engagement Division 4 - Cultivating Engineering Excellence through Mentorship and Humanitarian Engineering

11:00 A.M. - 12:30 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: Community Engagement Division (COMMENG)

Moderator: Rajani Muraleedharan, Saginaw Valley State University

Robotics Mentorship as a Cross-Disciplinary Platform to Foster Engineering Soft Skills

Dr. Ping-Chuan Wang, State University of New York, New Paltz
Dr. Wenyen Huang, State University of New York, New Paltz
Graham Werner,
Darren Wang, State University of New York, New Paltz
James M. Amodio,

Creating Inclusive Engineers through Humanitarian

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Engineering: Quantitative Results from a Survey

Dr. Kirsten Heikkinen Dodson, Lipscomb University
Amelia Elizabeth Cook, Lipscomb University
Lewis Ngwenya, Lipscomb University
Ms. Hannah Grace Duke, Lipscomb University

Advancing Student Perspectives through Bi-Institutional Hemispheric Collaboration in Humanitarian Engineering

Prof. Aaron Brown, Metropolitan State University of Denver
Dr. Irma Livier De Regil Sanchez, Universidad del Valle de Atemajac, Guadalajara, Mexico

T357 - Faculty Development Division (FDD) Technical Session 7

11:00 A.M. - 12:30 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Jennifer Brown, Clemson University

Conceptual Framework for Empathy as a Teaching Practice in Engineering Education

Dr. Kate Youmans, Colorado School of Mines

Self-Reported Emotions of Engineering Instructors During and After a Sudden Change

Dr. Grace Panther, University of Nebraska, Lincoln
Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln
Mrs. Katie Mowat, University of Nebraska, Lincoln

Post-Pandemic Faculty Motivation: Causes for Burnout and Signs of Relief Through Support, Recognition and Positive Reinforcement

Mr. Veto Matthew Ray, Indiana University - Purdue University, Indianapolis
Dr. Brandon Sorge, Indiana University - Purdue University, Indianapolis
Dr. Katrenia Reed Hughes, Indiana University - Purdue University, Indianapolis
Kevin Rose,
Carol Rownd,

A Measure of Engineering Instructors' Adaptability Based on Cognitive, Behavioral, and Emotional Dimensions

Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln
Dr. Grace Panther, University of Nebraska, Lincoln
Kayla Osen,

T357B - Faculty Development Division (FDD) Technical Session 8

11:00 A.M. - 12:30 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Boni Yraguen, Georgia Institute of Technology

Leveraging Faculty Externship to Develop New Concentrations and Specializations in Construction Management Curricula

Dr. John Cribbs, Wentworth Institute of Technology
Dr. Hariharan Naganathan, Wentworth Institute of Technology
Christopher O'Neil,
Mr. Michael J. D'Agostino, Wentworth Institute of Technology

Developing a Grounded Framework for Implementing Ungrading in a Disciplinary Context

Dr. Sarah Marie Coppola, University of Washington
Dr. Jennifer A. Turns, University of Washington

Case Study: Encouraging Faculty Adoption of New Grading Software

Dr. Ben Mertz, Rose-Hulman Institute of Technology
Mr. Curtiss Larry Davis II, Rose-Hulman Institute of Technology
Daniel Tetteh-Richter,
Dr. Kay C. Dee, Rose-Hulman Institute of Technology

Work in Progress: Development of an Innovative Undergraduate Engineering Academic Advising Model

Margaret Ruth Hammond, Pennsylvania State University
Dr. Christine B. Masters, Pennsylvania State University

T359 - More Teaching to Transgress in Computing: Creating Identity-Inclusive Computing Experiences in K-16 Computing Education

11:00 A.M. - 12:30 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsors: Equity, Culture & Social Justice in Education Division (EQUITY); Faculty Development Division (FDD)

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Moderators: Alicia Washington, Duke University; Shaundra Daily, Duke University

Speaker: Mrs. Briana C Bettin, Michigan Technological University

While many K–16 interventions exist to broaden participation in computing, they often center on students from historically excluded groups (based on race, ethnicity, class, ability, sexuality, and their intersections) and their perceived deficits ([such as a lack of access to computer science [CS] courses, role models, computational/critical-thinking skills, and self-efficacy), while ignoring the people, policies, and practices affecting them.

Successfully broadening participation requires that everyone, especially those from dominant identities, learn identity-inclusive computing (that is, how identity affects and is affected by computing). This requires K–16 educators who not only understand identity-inclusive computing, but also are comfortable with engaging students in the classroom while accurately and effectively teaching these important topics.

It is important to consider educator fears with respect to shifting paradigms. Thus, programs that provide the opportunity to express these concerns while learning to create/lead identity-inclusive activities are a necessary part of departmental/institutional transformation. The Cultural Competence in Computing (3C) Fellows program (developed in the 2020–2021 academic year and rooted in hooks’s practices) was a pilot to provide space and place for current and future CS educators to understand identity, privilege, intersectionality, bias, discrimination, and oppression; identify academic policies and practices impeding the academic success of students and colleagues from historically excluded identities; and develop identity-inclusive courses, modules, and other activities at their organizations.

This two-year, virtual, cohort-based professional development (PD) program provides an opportunity to discuss, reflect, and (un)learn while working within and across organizations to create more equitable and inclusive environments.

This panel convenes four 3C Fellows from the first two cohorts to discuss their experiences in developing and leading identity-inclusive courses and activities. The goals of this panel are to: 1) define identity-inclusive computing, 2) understand the importance of (un)learning and community in doing this work, and 3) explain the benefits of every (future) K–16 CS and STEM educator doing this work to

effectively engage and educate students.

By the end of this panel, the audience will be able to identify strategies to build cultural competence in their courses and departments. This work contributes to the original creation of the ECSJ division, as defined by Dr. Stephen Secules: “the need to center topics such as culturally responsive pedagogy, critical analyses of dominant cultures, and opportunities for faculty to learn about equity.” The panel aligns specifically with the “Equitable practice” pillar of ECSJ, because each panelist will discuss curricula and other activities that have been used to develop student cultural competence, in the wake of the continued improvement of their own.

T359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 9

11:00 A.M. - 12:30 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Mixed in Engineering: Introducing Critical Multiracial Theory to Engineering Education Research

Ms. Michelle Choi Ausman, Virginia Tech

Dr. Qin Zhu, Virginia Tech

Race and Collaboration in Computer Science: A Network Science Approach

Dr. Crystal E. Peoples, Duke University

Alicia Nicki Washington, Ph.D., Duke University

Shaundra Bryant Daily, Duke University

Piloting a Socio-Culturally Responsive Peer-Mentoring Program to Promote HLX+ Students’ Sense of Belonging in Engineering Education: Lessons Learned from Year 1

Dr. Cole Hatfield Joslyn, Northern Arizona University

Dr. Diane Elisa Golding, University of Texas, El Paso

Dr. Peter Golding, University of Texas, El Paso

Teamwork Perception in Engineering Programs through the Lens of Gender and Race

Dr. Raheleh Miralami, Mississippi State University

Dr. Saeed Rokooei, Mississippi State University

Dr. Tonya W. Stone, Mississippi State University

Mr. George D Ford, P.E., Mississippi State University

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Intersectionality Between Race and Gender in LSAMP-NSF STEM Program Mentorship

Ms. Jennifer Ackerman, Texas A&M University

América Soto-Arztat, Texas A&M University

T372 - INDUSTRY DAY: Student and Industry Perspectives to Power Lifelong Learning

11:00 A.M. - 12:30 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Shannon O'Donnell, Siemens Digital Industries Software

Join ASEE's Corporate Member Council and Student Division for an interactive session discussing the future of engineering education for future and current workforce development. Hear from student and industry voices on critical topics needed to empower successful lifelong learning. Bring your voice and growth mindset to this important discussion.

T373 - Zone Best Paper Session

11:00 A.M. - 12:30 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Council of Sections (COS)

Zone Best Paper Session

T374 - EDC Diversity, Equity & Inclusion Committee Meeting (Deans Only)

11:00 A.M. - 12:30 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Deans Council (EDC)

EDC Diversity, Equity & Inclusion Committee Meeting (Deans Only)

T377 - ETC Executive Board Meeting

11:00 A.M. - 12:30 P.M., CARROLL , HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Council (ETC)

T381 - Safe Zone Ally Training — Level 2

11:00 A.M. - 12:30 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Kelly Cross, ; Dr. Mahesh Chand Aggarwal, Gannon University

The Level 2 Safe Zone workshop explores the concepts and implications of privilege and bias, the climate for LGBTQIA+ individuals in STEM and ways that allies can support LGBTQIA+ students and colleagues, and techniques for creating inclusive classroom environments.

Safe Zone Workshops are interactive, research-informed workshops for students, faculty, and the professional community to build the knowledge and skills needed to create a more inclusive and affirming environment for LGBTQIA+ individuals in engineering. The workshops have been developed by a community of science and engineering professionals and students, specifically for a STEM audience. Faculty, students, administrators, staff, and other professionals are encouraged to participate in these workshops.

ASEE Safe Zone Ally Training workshops are supported by the National Science Foundation through grants EEC-1539140 and EEC-1748499. To learn more and obtain free ally resources, visit <https://lgbtq.asee.org>.

T381B - From Awareness to Cultural Change: Strategies for Promoting Equity in the Engineering Classroom

11:00 A.M. - 12:30 P.M., ROOM 315, BALTIMORE

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Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Grenmarie Agresar, University of Michigan; Kellie Grasman, University of Michigan; Patricia Jaimes, University of Michigan; Dr. Tershia A. Pinder-Grover, University of Michigan

Diversity, equity, inclusion, and justice (DEIJ) efforts at many other institutions have focused on diversity and inclusion. These efforts have seen some success in attracting historically marginalized and minoritized groups to engineering, but only limited success in retaining them. In addition to deliberately cultivating a classroom climate where all students feel valued and supported in their learning, it is necessary to identify and remove barriers (both systemic and individual) to engagement for inclusion to succeed, and this requires a focus on equity.

Participants will engage in activities aligned to support a transition from “diversity and inclusion” to equity. The workshop will involve interactive, applied experiences that address these outcomes:

- Explain key aspects of what equity-focused teaching means and how it may look like in their classrooms.

- Articulate how their own social identities and experiences influence their approach to teaching.
- Apply specific teaching strategies to cultivate equity in their classrooms.

Participants will explore key elements of equity-focused teaching, defined as a tool that allows instructors to acknowledge and disrupt patterns of educational disenfranchisement that often negatively affect marginalized and minoritized students. Among other aspects, it recognizes that systemic inequities shape all students’ individual and group-based experiences in and outside of the classroom, which affect their learning and success.

Participants will examine the need for equity in engineering from a historical context and engage in an individual reflection activity to explore various aspects of their identity.

Another activity will explore specific scenarios (based on real-life examples) and identifying where they fall on a continuum of classroom climate.

The session will present an extensive catalog of focused strategies to promote equity in the classroom, organized under five key principles.

Participants will identify strategies they can use in their classrooms, create a plan to apply them, and share and discuss their plans with colleagues.

T386 - ASEE Fellows Lunch (ASEE Fellows Only)

11:00 A.M. - 12:30 P.M., EUTAW STREET RECEPTION AREA, HILTON BALTIMORE INNER HARBOR

Sponsor: Academy of Fellows

Free ticketed event

T393A - ASEE P-12 Engineering Education Commission Business Meeting

11:00 A.M. - 12:30 P.M., CALLOWAY, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Commission on P12 Engineering Education

T394A - SPONSOR TECH SESSION: Academic Integrity of Assessments in MATLAB-Based Courses, Presented by MathWorks

11:00 A.M. - 12:30 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Instructors using MATLAB to teach courses typically include programming assignments for learners to demonstrate skills mastery. With the recent media coverage of ChatGPT as well as questions raised in communities of practice, instructors may have concerns about the potential for cheating on MATLAB-based programming assignments. In this tech session, Jeff Alderson, Education Product Manager for MathWorks, will discuss how to use a combination of assessment design and academic integrity solutions to enforce existing academic integrity policies and reduce the

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motivation and ability for learners to cheat in MATLAB-based courses.

Speaker:

Jeff Alderson, M.Ed., Education Product Marketing, MathWorks

About the Speaker:

Jeff's current vocation is as product manager for MATLAB's autograding solution, MATLAB Grader, at MathWorks in Natick, MA., where he leads the company's marketing efforts in teaching and learning. Prior to joining MathWorks, Jeff was Principal Analyst for Technology at Eduventures, covering the emerging EdTech market in higher ed. Additionally, Jeff worked as Lead Architect for Houghton Mifflin Harcourt (formerly Choice P20 Solutions) in the education technology sector, supporting architecture and security engineering for clients such as the New York State Education Department. Previously, while at ConnectEDU for 10 years in a fast-paced education technology startup environment, Jeff held multiple technology and leadership roles in the organization, helping to grow the business from four to over 150 employees.

Jeff has over 20 years of experience in deploying secure, standards-based, data solutions for education and government, as well as five years of service as a commissioned officer in the U.S. Air Force. Mr. Alderson received his B.S. in Electrical and Computer Engineering from Worcester Polytechnic Institute in Massachusetts, and his M.Ed. in Education Policy, Organization, & Leadership from the University of Illinois at Urbana-Champaign.

T394B - SPONSOR TECH SESSION: Underrepresented Graduate Student Success through Professional Development and Enhanced Opportunities, Presented by University of Maryland Baltimore County

11:00 A.M. - 12:30 P.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Panelists from the University of Maryland, Baltimore County will discuss several initiatives that leverage institutional funds, through the College of Engineering and Information Technology and Graduate School Department, and grant support, through the NSF PROMISE Engineering Institute, to enhance the sense of community, academic, and career success of underrepresented graduate students. Activities include shepherded conference travel, an ambassador program, engagement in recruitment initiatives, networking opportunities, and a unique approach to providing graduate students with teaching experiences. The session will be highly interactive, and attendees will be invited to share their own campus initiatives and action plan on how they may adapt some of the presented approaches to their campuses.

Speakers:

Robin Cresiski, PhD, Asst. Vice Provost of Graduate Student Development

Neha Raikar, Ph.D., Senior Lecturer, Chemical, Biochemical, and Environmental Engineering

Yarazeth Medina, Assistant Director of Graduate Student Development and Postdoctoral Affairs

Chinoso Ezeobi, Doctoral Candidate in Electrical Engineering

T394C - SPONSOR TECH SESSION: Designing Embedded Machine Learning Curriculum, Presented by Edge Impulse

11:00 A.M. - 12:30 P.M., ROOM 302 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Edge and embedded machine learning (ML) is a growing field that helps solve unique problems in medicine, agriculture, industrial maintenance, and consumer electronics. However, it can be a difficult subject to cover, as it requires students to have a diverse background in machine learning, data science, high- and low-level programming, embedded systems, and digital signal processing.

This session will provide insights into designing an embedded ML curriculum for undergraduate and graduate students. We will examine low-code solutions that make

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embedded ML approachable for newcomers as well as look at topics and tools for stretching the skills of advanced students. Additionally, we will provide open-source curriculum content, scaffolding strategies, and example projects. Finally, we will invite any attendees with experience teaching embedded and edge ML to share their lessons learned in an open discussion format.

T469A - Exhibit Hall Open

12:30 P.M. - 6:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

T469C - ASEE Bistro

12:30 P.M. - 6:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

T469B - Free Time

12:30 P.M. - 1:30 P.M., FREE TIME, BALTIMORE
CONVENTION CENTER

Sponsor: ASEE Headquarters

T475B - RLI Planning Meeting

1:00 P.M. - 5:00 P.M., CARROLL, HILTON
BALTIMORE INNER HARBOR

Sponsor: Engineering Research Council (ERC)

RLI Planning Meeting

T401 - Future of Aerospace Education: Needs, Opportunities, Challenges, and Tools

1:30 P.M. - 3:00 P.M., ROOM 313, BALTIMORE
CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Moderator: Waterloo Tsutsui, Purdue University at West Lafayette (COE)

Speakers: Dr. Michael C. Hatfield, University of Alaska Fairbanks; Dr. M. Javed Khan, Tuskegee University; Dr. Michael S. Warner, ; Prof. Mary E. Johnson Ph.D., Purdue University at West Lafayette (PPI)

T403 - Biological and Agricultural Engineering Division (BAE) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 330, BALTIMORE
CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

A survey of biological and agricultural engineering students and faculty learning preferences

Dr. Lucie Guertault, North Carolina State University at Raleigh
Thomas Dalton Stephenson Jr.,

Weekly Self-rating of Proficiency with Course Learning Objectives: Gaining Insight into Undergraduate Students' Perceptions of their Learning

Miss Toluwalase Opanuga, University of Nebraska - Lincoln
Prof. Heidi A. Diefes-Dux, University of Nebraska - Lincoln

Self-learning Sandbox to Emulate Biological Systems

Mr. Benjamin Lubina, Gannon University
Dr. Ramakrishnan Sundaram, Gannon University

Why Not Studios? - What Engineering Can Learn from Architecture and Art Programs

Dr. Carmine C. Balascio P.E., University of Delaware

Creating Agricultural Technology Lessons for High School Students to Stimulate Interest in Long-Term Career Possibilities and Collegiate ABE and ASM Matriculation

Dr. Robert Merton Stwalley III, Purdue University at West Lafayette (COE)

Dr. Roger L. Tormoehlen, Purdue University at West Lafayette (COE)

T404 - Biomedical Engineering Division (BED) Business Meeting

1:30 P.M. - 3:00 P.M., BALLROOM 3 ,
BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Aileen Huang-Saad, Northeastern University; Tanya Nocera, The Ohio State University; Sarah Rooney, University of Delaware

Learn how to be involved in the Biomedical Engineering Division of ASEE. The division chairperson will present an overview and updates about the division. Elections will be

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held for the executive board of the division.

T405 - Chemical Engineering Division Business Meeting

1:30 P.M. - 3:00 P.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Chemical Engineering Division (ChED)

Moderators: David Silverstein, University of Kentucky; Reginald Rogers, University of Missouri - Columbia

The Business Meeting of the Chemical Engineering Division will include an annual update from all officers and election of new officers.

T406 - Committee on Educational Policy Presents: Holistic Students

1:30 P.M. - 3:00 P.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Leslie Nolen, American Society of Civil Engineers; Scott Hamilton, York College of Pennsylvania

Presenters share on a variety of topics related to developing holistic students, with primary focus on student development.

Say Yes to the Stress: Escape Rooms in Civil Engineering Classrooms

Major Brett Rocha, United States Military Academy
Dr. Kevin Francis McMullen, United States Military Academy
Capt. Michael Rocha, United States Military Academy

In Their Own Words: The Community College Experience toward an Engineering Baccalaureate Degree

Dr. Joan Z. Carter, Inver Hills Community College

Investigating Undergraduate Researchers' Perceptions of Mentoring Relationships

Dr. Simon Thomas Ghanat, P.E., The Citadel
Stephanie Laughton, Pennsylvania State University
Dr. Nandan Hara Shetty, The Citadel
Dr. Dena Garner,
M. Kristen Hefner, The Citadel
Dr. Mostafa Batouli, Pennsylvania State University
Thad Le-Vasicek, The Citadel
Todd Wittman,

A Near-Peer Mentoring Framework for a Civil and Environmental Engineering Curriculum

Marie Bond, University of Illinois, Urbana-Champaign
Prof. Ramez Hajj, University of Illinois, Urbana-Champaign
Prof. Jeffery R. Roesler, University of Illinois, Urbana-Champaign
Dr. Arthur R. Schmidt III, University of Illinois, Urbana-Champaign
Prof. Jacob Henschen, University of Illinois, Urbana-Champaign

Too Much Focus Leads to Success or Stress?

Dr. Anuja Kamat, Wentworth Institute of Technology
Dr. Tugba Arsava,

T406B - Committee on Instructional Technology Presents: Gamers

1:30 P.M. - 3:00 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Tonya Nilsson, Santa Clara University

Presenters share new ways to integrate technology into both the classroom and outreach engagements.

Geotechnical Site Characterization in a Box: Bringing the Full Site Characterization Experience to the Classroom

Dr. Timothy A. Wood, The Citadel
Dr. Kweku Tekyi Brown P.E., The Citadel
Prof. John C. Ryan, P.E., The Citadel

Work InProgress: Infrastructure Live! An Electric Experience on a Single Mobile Chalkboard

Lt. Col. Scott M. Katalenich, Ph.D., United States Military Academy
Dr. James Ledlie Klosky, P.E., United States Military Academy
Roderick Wilson,
Capt. Kevin Taylor Scruggs, United States Military Academy

Game-based and Virtual Reality Sandboxes: Inclusive, Immersive, Accessible, and Affordable Learning Environments

Mr. Damith Tennakoon, York University, Canada
Alexandro Salvatore Di Nunzio, York University, Canada
Dr. Mojgan A. Jadidi, P.E., York University, Canada

Design and Application of an Open-Science Electrical Resistivity Meter to Make Geotechnical Laboratory Education More Relevant and Engaging

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Benjamin D. Goffin, University of Virginia
Lindsay Ivey Burden,

Driving Simulators as Educational Outreach for Freight Transportation

Mr. Kwadwo Amankwah-Nkyi, University of Arkansas
Sarah Hernandez, University of Arkansas
Breanna Stoesz, University of Arkansas

T407 - College Industry Partnerships Division (CIP) Technical Session 1

1:30 P.M. - 3:00 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: College Industry Partnerships Division (CIP)

Changing the Conversation Surrounding Students' Professional Skills: Making the Case for the Importance of Professional Skills, and More Inclusive Language

Dr. Eric Holloway, Purdue University, West Lafayette
Dr. Jennifer S. Linvill, Purdue University, West Lafayette

All-Encompassing Skill Portal for Skills Management and Development

Dr. Basel Alsayed, Western Carolina University
Dr. Yanjun Yan, Western Carolina University

University Coursework as an Alternative to a Professional Certification Exam

Ms. Courtney Wright, INCOSE
Morenikeji Araloyin, Binghamton University

Empowering Trailblazers toward Scalable, Systematized, Research-Based Workforce Development

Martha Cervantes, Johns Hopkins University
Ms. Sydney Danielle Floryanzia, University of Washington and Johns Hopkins University
Jackie Sharp,
William Roberts Gray-Roncal,
Katherine-Ann Carr,
Mr. Erik C. Johnson, University of Illinois, Urbana-Champaign

Closing the Gap between Industry and Academia via Student Teams Support

Dr. Bridget Ogwezi, Ansys Inc.

Kaitlin Tyler, Ph.D., Ansys, Inc.
Navid Manai,
Christopher Lee Penny,

T408 - COED: Computing in K-12 / Early Childhood Education

1:30 P.M. - 3:00 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Steven Barrett, University of Wyoming

This session focuses on papers related to teaching computing in pre-college settings.

Active Project: Supporting Young Children's Computational Thinking Skills Using a Mixed-Reality Environment

Dr. Jaejin Hwang, Northern Illinois University
sungchul lee, Sun Moon University, South Korea
Yanghee Kim,
Mobasshira Zaman, Northern Illinois University
Sobhit Pokhrel,

Computational Thinking Pedagogical + Framework for Early Childhood Education

Dr. Safia Malallah, Kansas State University
Lior Shamir, Kansas State University
Dr. William Henry Hsu, Kansas State University
Joshua Levi Weese, Kansas State University
Mr. Salah Alfaiakawi, Kansas State University

Data Science (Dataying) for Early Childhood

Dr. Safia A. Malallah, Kansas State University
Lior Shamir, Kansas State University
Dr. William Henry Hsu, Kansas State University
Joshua Levi Weese, Kansas State University
Mr. Salah Alfaiakawi, Kansas State University

Development of a Hardware Educational Tool for Teaching Computational Thinking with Scratch®

Ing. Martha Lucia Cano, Pontificia Universidad Javeriana, Bogotá, Columbia
Alejandro Castro Martinez,
Prof. Jairo Alberto Hurtado JAH, Pontificia Universidad Javeriana, Bogotá, Columbia

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Eduardo Rodriguez Mejia, Pontificia Universidad Javeriana, Bogotá, Columbia

The "besTech" Technology Practice Framework for Early Childhood Education

Dr. Safia Malallah, Kansas State University

Joshua Levi Weese, Kansas State University

Mr. Khaled Nasser Alsalmi, The Public Authority for Applied Education and Training

T408B - COED Programming Education 2: Instructional Approaches

1:30 P.M. - 3:00 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Walter Schilling, Milwaukee School of Engineering

This session will focus on papers related to instructional approaches for teaching students how to program computers in the realm of CS1 and other programming courses.

Evaluating Self-paced Computational Notebooks vs. Instructor-Led Online Lectures for Introductory Computer Programming

Mr. Timothy James, Purdue University, West Lafayette

Dr. Alejandra J. Magana, Purdue University at West Lafayette

Graphics Library to Aid Student Learning of Object-Oriented Programming

Mr. Thomas Rossi, Penn State Erie

Mackenzie Sloan,

Ryan Joseph Pape,

The Superstition Lecture: The Music Theory of Stevie Wonder as a Metaphor for Computing Levels of Abstraction

Dr. Matthew Morrison, University of Notre Dame

What to Teach First, Hardware or Software? Improving Success in Introductory Programming Courses

Dr. Richard Whalen, Northeastern University

Dr. Joshua L. Hertz, Northeastern University

T409 - Construction Engineering Division (CONST) Technical Session 3

1:30 P.M. - 3:00 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Yong Bai, Marquette University; Kimberly Talley, Texas State University

Making the Case for Teaching Construction Contract Changes and Claims as an Elective Course in Construction-Related Programs

Dr. George Okere, University of Cincinnati

Prof. Raymond Paul Giroux Dist.M.ASCE, NAC, Purdue University, West Lafayette

Utilizing a Flipped Learning Approach to Construction Cost Estimating: Fostering Increased Student Engagement in Guided Active Learning Experiences

Mr. Veto Matthew Ray, Indiana University - Purdue University, Indianapolis

Brenda Morrow, Indiana University - Purdue University, Indianapolis

Teaching Structural Design in Construction Management Programs: The Challenge of Motivating Students to Learn

Dr. Souhail Elhouar, P.E., Bradley University

Learning Concrete in Construction Management Course through Bowling Ball Project

Prof. Pranshu Solanki, Illinois State University

Implementing Live Knowledge Transfer Based Pedagogy in CM Education through Faculty Externship

Dr. John Cribbs, Wentworth Institute of Technology

Dr. Hariharan Naganathan, Wentworth Institute of Technology

T411 - CEED Division Business Meeting

1:30 P.M. - 3:00 P.M., POE, HILTON BALTIMORE INNER HARBOR

Sponsor: Cooperative and Experiential Education Division (CEED)

Biannual division business meeting—open to all CEED members.

T413 - DEED Business Meeting

1:30 P.M. - 3:00 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

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Sponsor: Design in Engineering Education Division (DEED)

T413B - Design in Engineering Education Division (DEED) Technical Session 5

1:30 P.M. - 3:00 P.M., DOUGLASS, HILTON BALTIMORE INNER HARBOR

Sponsor: Design in Engineering Education Division (DEED)

Diversity, Equity and Inclusion

Engaging Future Engineers through Active Participation in Diversity, Equity, Inclusion, and Belonging.

Prof. Kavitha Chandra, University of Massachusetts Lowell
Dr. Sumudu Lewis, University of Massachusetts Lowell
Dr. Susan Thomson Tripathy, University of Massachusetts Lowell

Work in Progress: Design Activities in a Summer Engineering Program Implemented in Both Virtual and Hybrid Modality

Dr. Matthew Lucian Alexander P.E., Texas A&M University - Kingsville
Dr. Michael Preuss, Exquiri Consulting, LLC
Dr. Breanna Michelle Weir Bailey P.E., Texas A&M University - Kingsville
Dr. David Hicks, Texas A&M University-Kingsville
Mr. Rajashekar Reddy Mogiligidda, Texas A&M University - Kingsville
Dr. Mahesh Hosur,
Velda Basak Soydas,
Lihua Zuo,

Promoting Diversity, Equity, and Inclusion through Culture-Related Design in First-Year Engineering Curriculum: A Work in Progress

Dr. Lisa K. Murray, Western New England University
Dr. Andrea T. Kwaczala, Western New England University

(WIP): Students' Adoption of Critical Social Theories in Team-Based Engineering Design Projects

Dr. Trevion S. Henderson, Tufts University
David Zabner,

T414A - Investigating Student Pathways to and through Undergraduate and Graduate Programs

1:30 P.M. - 3:00 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jia Zhu, Florida International University

Educational Research & Methods Division (ERM) Technical Session

Structure versus Curiosity: Developing a model for understanding undergraduate students' childhood pathways into engineering

Collette Patricia Higgins,
Dr. Melissa Wood Aleman, James Madison University
Dr. Robert L. Nagel, James Madison University & Carthage College

Interest-Driven Major Pathways for Mid-Program Undergraduate Engineering Students

Ms. Kelsey Louise Scalero, University of Nevada, Reno
Ms. Indira Chatterjee, University of Nevada, Reno
Ms. Mackenzie C. Parker, University of Nevada, Reno
Dr. Ann-Marie Vollstedt, University of Nevada, Reno
Prof. Jeffrey C. LaCombe, University of Nevada, Reno
Dr. Adam Kirn, University of Nevada, Reno
Mr. Derrick James Satterfield, University of Nevada, Reno

Assessment of a Survey Instrument for Measuring Affective Pathways

Dr. Emma Treadway, Trinity University
Kailey Tubbs, Trinity University
Melissa Joan Caserto,
Michelle Lee, Trinity University
Dr. Jessica E. S. Swenson, University of Oklahoma

Why Students Choose STEM: A Study of High School Factors That Influence College STEM Major Choice

Dr. Joyce B. Main, Purdue University
Tram Dang, Purdue University
Beata Johnson, Purdue University at West Lafayette (COE)

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Qian Shi, Purdue University

Dr. Cesare Guariniello, Purdue University

Daniel Delaurentis, Purdue University

Exploring the Viability of Agent-Based Modeling to Extend Qualitative Research: Comparison of Computational Platforms

Samantha Splendido, Pennsylvania State University, University Park

Catherine G. P. Berdanier, Pennsylvania State University

T414B - Self-Regulation and Learning

1:30 P.M. - 3:00 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Amanda Emberley, California Polytechnic State University, San Luis Obispo

Educational Research & Methods Division (ERM) Technical Session

Quantitative Analysis of Self-Regulation in Engineering and Mathematics Education

Dr. Oenardi Lawanto, Utah State University

Dr. Angela Minichiello, Utah State University

Mr. Zain ul Abideen, Utah State University Logan Utah, USA

Talha Naqash, Utah State University

Mr. Assad Iqbal, Arizona State University

Exploring the relationship between key constructs of self-assessment components, motivation, and self-regulation in engineering

Taiwo Raphael Feyijimi, University of Georgia

Mr. Olanrewaju Paul Olaogun, University of Georgia

Mr. ISAAC DAMILARE DUNMOYE, Engineering Education and Transformation Institute, College of Engineering, University of Georgia, Athens, GA, USA

Dr. Nathaniel Hunsu, University of Georgia

Social ties, mental well-being and academic self-regulation. Exploring effects through Structural Equation Modeling.

Mr. Gabriel Astudillo, Pontificia Universidad Católica de Chile

Miss Isabel Hilliger P.E., Pontificia Universidad Católica de Chile

Dr. Jorge Baier, Pontificia Universidad Católica de Chile

Sofia Helena María Olmedo Saavedra, Pontificia Universidad Católica de Chile

Undergraduate Student Experience with Research Facilitated by Project Management and Self-regulated Learning Processes

Ms. Sakhi Aggrawal, Purdue University

Dr. Alejandra J. Magana, Purdue University at West Lafayette (COE)

Engaging Students with Gamification in Online Engineering Graduate Courses

Dr. Md Abu Shohag, University of North Alabama

T414C - Framework Studies

1:30 P.M. - 3:00 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Diana de la Rosa-Pohl, University of Houston

Educational Research & Methods Division (ERM) Technical Session

A tag-based framework for collecting, processing, and visualizing student learning outcomes

Tonghui Xu, University of Massachusetts Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts Lowell

Dr. Melissa Nemon, University of Massachusetts Lowell

Dr. Christopher Hansen, University of Massachusetts Lowell

John Hunter Mack,

Dr. David J. Willis, University of Massachusetts Lowell

A Gamification Framework for Exploratory Learning in Higher STEM Education

Dr. Yan Shi, University of Wisconsin - Platteville

Dr. Kyle S Horne, University of Wisconsin - Platteville

Yanwei Wu, UW Platteville

Applying the Five Dimensions of Effectiveness Framework to Evaluate the Effectiveness of a Research Practice Partnership Aimed at Increasing Equity in Computer Science Education

Monica McGill, CSEdResearch.org

Dr. Angelica Thompson, CSEdResearch.org

Darius Ellis James,

A Human Factors and Systems Engineering Evaluation Framework for Engineering Programs in Higher Education

Dr. Sara Kraemer, Blueprint for Education

T414D - Instrument Design and

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Development

1:30 P.M. - 3:00 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Hannah Budinoff, The University of Arizona

Educational Research & Methods Division (ERM)
Technical Session

Measuring the Authenticity of Engineering Learning in Community of Practice: An Instrument Development and Validation

Prof. Wei Zhang, Zhejiang University
Mr. Liang Wang, School of Public Affairs, Zhejiang University
Miss □ □, the School of Public Affairs, Zhejiang University

Development of an assessment for measuring knowledge transferred between the classroom and structural engineering practice.

Dr. John Tingerthal, Northern Arizona University
Davis Ray,
Dr. Joshua T. Hewes P.E., Northern Arizona University
Dr. Benjamin Z. Dymond, Northern Arizona University
Dr. Robin Tuchscherer, Northern Arizona University

Design and Testing of a Quantitative Instrument to Evaluate Engineering Research Center Participation

Mr. Marcus Vinicius Melo de Lyra, Arizona State University
Dr. Adam R. Carberry, Arizona State University
Dr. Jean S. Larson, Arizona State University
Dr. Zhen Zhao, Massachusetts Institute of Technology
Dr. Allison Godwin, Purdue University at West Lafayette (COE)
Ms. courtney argenti, Arizona State University
Dr. Wilhelmina C. Savenye, Arizona State University
Dr. Christopher Barr,

Development of a Questionnaire to Measure Students' Attitudes and Perceptions of Sociotechnical Engineering

Felicity Bilow, Clarkson University
Mohammad Meysami, Clarkson University
Dr. Jan DeWaters, Clarkson University

Capturing attrition decisions in engineering graduate students using longitudinal SMS data

Mr. Kyeonghun Jwa, Pennsylvania State University
Catherine G. P. Berdanier, Pennsylvania State University

The development of an artificial intelligence classifier to automate assessment in large class settings: Preliminary

results

Prof. Euan Lindsay, Aalborg University
Mohammad Naser Sabet Jahromi, Visual Analysis of People Laboratory (VAP), Aalborg University

T414E - Reviewing Emergent Topics and Theory in Engineering Education

1:30 P.M. - 3:00 P.M., KEY 3&4, HILTON BALTIMORE INNER HARBOR

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Trevor Franklin,

Educational Research & Methods Division (ERM)
technical session

A Comparative Literature Review: Comparing Approaches to Teamwork Assessment in Engineering Education in the US and China

Miss Yi Cao, Virginia Tech
Dr. Qin Zhu, Virginia Tech
Dr. Jennifer M. Case, Virginia Tech

A Theoretical Review: The Role of Knowledge-Based Symmetry in Engineering Student Collaboration

Mr. Jack Elliott, Utah State University

A Literature Review to Explore a Relationship: Empathy and Mindfulness in Design Education

Ms. Rubaina Khan, University of Toronto
Dr. Adetoun Yeaman, Wake Forest University
Dr. Diana Bairaktarova, Virginia Tech

Methods for Conducting a Scoping Literature Review on Institutional Culture and Transformational Change in Engineering Education

Kassandra Fernandez, University of Florida
Mrs. Amy G. Buhler, University of Florida
Dr. Sindia M. Rivera-Jiménez, University of Florida

A Narrative Literature Review: The Interplay of Motivational Theory and Cognition in STEM Education

Mr. Alexander V. Struck Jannini, Purdue University, West Lafayette
Dr. Muhsin Menekse, Purdue University, West Lafayette

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T415A - Work in Progress Papers in ECE

1:30 P.M. - 3:00 P.M., TILIGHMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Valentina Cecchi, University of North Carolina at Charlotte

(Work in Progress) Implementing the QFT to Incite Curiosity and Connections in an Introductory Electrical Circuits Course for Non-EE Majors

John M Pavlina Ph.D., Embry-Riddle Aeronautical University - Prescott

William Spencer Darby, Embry Riddle Aeronautical University
Parker D. Landon, Boston University

Work in Progress: Sensory feedback in electric circuit laboratories

Mr. Brian E. Faulkner, Milwaukee School of Engineering

Dr. Daniel Maguire, Valparaiso University

Jennifer Marley, Purdue University at West Lafayette (COE)

Take responsibility to understand engineering (TRUE): A qualitative investigation of student's engineering self-efficacy as a result of participation in a multi-stakeholder program

Dr. Dhinesh Balaji Radhakrishnan, Purdue University at West Lafayette (COE)

Dr. Wilfrido A. Moreno,

Prof. Jennifer Deboer, Purdue University at West Lafayette (COE)

Dr. Chris S. Ferekides, University of South Florida

Using Virtual Reality Cleanroom Simulation in a Mixed Nanoelectronics Classroom

Sean Letavish,

Ani Meliksetyan,

Victoria Ravel,

Dr. Hurriyet Aydin Ok, GWU

Dr. Natalie B. Milman, The George Washington University

Dr. Gina C. Adam, The George Washington University

WIP Using Automated Assessments for Accumulating Student Practice, Providing Students with Timely Feedback, and Informing Faculty on Student Performance

Dr. Brian F. Thomson, Temple University

Cory Budischak, Temple University

Maryam Alibeik,

T415B - Power Engineering & Curriculum Innovations

1:30 P.M. - 3:00 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Umer Farooq,

An Upper-level Undergraduate Course in Renewable Energy with Power Electronics and Simulink

Dr. Harry O Aintablian, University of Washington

Considerations for software-defined radio use within a project-based learning subject

Dr. Glenn J Bradford, University of Melbourne

Dr. Gavin Buskes, The University of Melbourne

Dr. Paul N Beuchat, The University of Melbourne

Introduction of SAM's Photovoltaic (PV) model for Utility Scale PV Solar Design and Analysis

Saurav Basnet, WentWorth Institute of Technol

Kesh Bahadur Pun,

Power Engineering Curriculum Update with Situative Pedagogy and Concept Maps as Evaluation Tool

Dr. Valentina Cecchi, University of North Carolina at Charlotte

Dr. Courtney S Smith-Orr, University of North Carolina at Charlotte

Dr. Paras Mandal, University of Texas at El Paso

Sukumar Kamalasan,

An analysis of relationships between course descriptions and student enrollment patterns

Dr. Agoritsa Polyzou, Florida International University

Joaquin Molto, Florida International University

Nicholas Sean Gonzalez, Florida International University

Dr. Trina L. Fletcher, Florida International University

Sophia Tavio Perez,

Challenges in Designing Complex Engineering Problems to Meet ABET Outcome 1

Dr. Bijan G Mobasser, Villanova Univeristy

Ms. Liesl Klein, Purdue University at West Lafayette (PPI)

Mr. Edward Stephen Char Jr., Villanova University

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T416 - Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Moderators: Tony Kerzmann, University of Pittsburgh;
Sandip Das, Kennesaw State University

Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE) Technical Session 2.

3D-Printed Piezoelectric Acoustic Energy Harvester

Michael A. Palmateer,
Jacob Plesums,
Ryan Santiago,
Mr. Austin Miller,
Dr. Reza Rashidi, SUNY University at Buffalo

Motor Augment for Automotive Applications

Prof. Bala Maheswaran, Northeastern University
Wendao LI,
Adam Ma, Northeastern University
Kalsang Tsering,

Power Generation Using the Bayous

Dr. Mahmud Hasan, University of Houston-Downtown
Julio Enrique Aleman, University of Houston-Downtown

Strategic Outreach for Nuclear Workforce Pipeline Development and Maintenance at a Historically Black College University (HBCU)

Dr. Antony Kinyua, Morgan State University
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University
Ezana Negusse,
Richard Damoah,
Dr. Willie S. Rockward, Morgan State University
Maajida Murdock,
Dr. Oludare Adegbola Owolabi P.E., Morgan State University
Jonathan Wilson, Morgan State University

SeaVolt: The Hydro-Powered Underwater Turbine

Prof. Bala Maheswaran, Northeastern University
Dylan Brady Wolter, Northeastern University

Julia Ariano,
Gabriella Marie Green,

T419 - Engineering Economy Division (EED) Technical Session

1:30 P.M. - 3:00 P.M., BALLROOM 1&2, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Economy Division (EED)

CIP 2030: A Strategy for Engineering Management to be Reclassified as an Engineering Discipline

Dr. Neal A Lewis, University of Nebraska - Lincoln
Dr. Jena Shafai Asgarpoor, University of Nebraska - Lincoln
Ipek Bozkurt,

Student Self-Assessment: A Method to Improve Students' Engagement

Dr. Robert A. Baffour, University of Georgia
Dr. Nathaniel Hunsu, University of Georgia
Dr. Eliza A Banu, University of Georgia
Adel W. Al Weshah, University of Georgia
Dr. Barbara Norton McCord P.E., University of Georgia
Marguerite Carol Brickman, University of Georgia

Diversity and Equity as Part of Personal Decision-Making

Dr. Neal A. Lewis, University of Nebraska - Lincoln
Dr. Ted Eschenbach, TGE Consulting

Research on the Power of Quality Assurance in Engineering Education within Engineering Department-Case of Worcester Polytechnic Institute

Dr. Ming Li, Beijing Foreign Studies University
Min Zhao, Graduate School of Education, Beijing Foreign Studies University

T420 - Engineering Ethics Division (ETHICS) Technical Session_Tuesday June 27, 1:30 - 3:00

1:30 P.M. - 3:00 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Ethics Division (ETHICS)

Moderators: Bruce Maxim, University of Michigan - Flint;

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Rosalyn Berne, University of Virginia

Assessing the Effects of a Short-Term Global Engineering Ethics Course on the Development of Engineering Students' Moral Reasoning and Dispositions [Traditional paper - research/evidence-based, DEI/research methods]

Dr. Rockwell Franklin Clancy III, Virginia Polytechnic Institute and State University

Dr. Scott Streiner, University of Pittsburgh

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

Dr. Andrea Gammon, Delft University of Technology

Xianghong WU,

Dr. Ryan Thorpe,

Ethics Education in Undergraduate Computer Science Programs in the United States

Lt. Col. Youna Jung, Virginia Military Institute

Mr. Jacob Ray Johnston, Virginia Military Institute

Aidan Noonan,

Assessment Instruments for Engineering Ethics Education: A Review and Opportunities

Dr. Dayoung Kim, Virginia Polytechnic Institute and State University

Dr. Diana Bairaktarova, Virginia Polytechnic Institute and State University

Character Development in the Engineering Classroom: An Exploratory, Mixed-Methods Investigation of Student Perspectives on Cultivating Character

Dr. Jessica Koehler, Wake Forest University

Dr. Olga Pierrakos, Wake Forest University

Dr. Adetoun Yeaman, Wake Forest University

Comparing engineering ethics education across institutions using case study: Methodological and conceptual problems [Work in Progress]

Dr. Rockwell Franklin Clancy III, Colorado School of Mines

Dr. Andrea Gammon, Delft University of Technology

Dr. Qin Zhu, Virginia Polytechnic Institute and State University

Dr. Scott Streiner, University of Pittsburgh

Dr. Ryan Thorpe,

T421 - Engineering Libraries Division (ELD) Technical Session 2: Understanding Our Users

1:30 P.M. - 3:00 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Erica Newcome,

Research Data Sharing in Engineering: A Report on Faculty Practices and Preferences Prior to the Tri-Agency Policy

Ms. Sarah Parker, University of British Columbia, Vancouver

Technical Standards in Engineering Education: A Survey Across Professional Sectors

Ms. Amy Kurr, University of Tennessee - Knoxville

Mr. Jimmy A. Landmesser Jr., UT-Battelle

Undergraduate Students Experience Cognitive Complexity in Basic Elements of Library Research

Erin Matas, Michigan Technological University

What do engineering students want in an academic library space?

Ms. Jean L. Bossart, University of Florida

Laura Spears,

T423 - Engineering Technology Business Meeting

1:30 P.M. - 3:00 P.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

This is the official business meeting of ETD during annual conference.

T423B - Engineering Technology Division (ETD) Technical Session 4

1:30 P.M. - 3:00 P.M., JOHNSON, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Division (ETD)

Moderator: Ilknur Aydin,

Engineering Technology related papers focused on teaching and student learning

Implementing the Engineering for One Planet Framework in a Civil Engineering Technology Program

Dr. Yewande S. Abraham, Rochester Institute of Technology (CET)

Dr. Amanda Bao, Rochester Institute of Technology (CET)

Industry 4.0 Edge Computing Demonstration Projects for Manufacturing Technology Education

Dr. Marilyn Barger P.E., FLATE (Florida Advanced

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Technological Education Center of Excellence)

Dr. Richard Gilbert, University of South Florida

Integration of OMNeT++ into a Networking Course in an Electrical Engineering Technology Program

Dr. Murat Kuzlu, Old Dominion University

Brian Emmanuel Tamayo,

Salih Sarp, Old Dominion University

Dr. Otilia Popescu, Old Dominion University

Dr. Vukica M. Jovanovic, Old Dominion University

Integration of Professional Publications in the Implementation of Industry 4.0 to Augment the Learning Experience in ETAC of ABET ET Programs

Prof. Ravi C. Manimaran, Department Chair, Engineering Technology, Austin Peay State University

Dr. Mahesh Kumar Pallikonda, Austin Peay State University

Introducing Circuit Analysis in an Introduction to Engineering and Technology Course

Dr. Kelly Korzeniowski,

T424 - Entrepreneurship & Engineering Innovation Division Business Meeting

1:30 P.M. - 3:00 P.M., TUBMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

T425 - Environmental Engineering Division (ENVIRON) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderator: Madhumi Mitra, University of Maryland Eastern Shore

Integrating Sustainability into Engineering Education: Building a Pathway to Scale

Ms. Victoria Matthew, Engineering for One Planet

Cynthia Anderson, Alula Consulting

Cindy Cooper, The Lemelson Foundation

Surbhi Godsay Lipkin-Moore, Amplify Evaluation

Engineering Education for Sustainable Development: A Case Study from East China University of Science and Technology

Dr. Huiming Fan, East China University of Science and Technology

Weijie GAO,

Shi Siyi,

Sustainability designation, introductory course, and a new textbook in an engineering curriculum

Jeremy Vanantwerp, Calvin University

Ms. Julie Anne Field Wildschut, Calvin University

Matthew Heun, Calvin University

Utilizing Online & Open-Source Machine Learning Toolkits to Leverage the Future of Sustainable Engineering

Dr. Andrew Schulz, Georgia Institute of Technology

Suzanne Stathatos, The California Institute of Technology

Cassandra Shriver, Georgia Institute of Technology

Roxanne Moore, Georgia Institute of Technology

Work in Progress: Student Reflections from a Semester-Long Place-Based Photovoltaic Solar Energy Project

Dr. Marissa H. Forbes, University of San Diego

Dr. Susan M. Lord, University of San Diego

T426 - ELOS Business Meeting

1:30 P.M. - 3:00 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DEL0S)

Experimentation and Lab-Oriented Studies Business Meeting

T427 - Tips for Surviving (and Thriving) as a Faculty Member in First-Year Engineering

1:30 P.M. - 3:00 P.M., HOLIDAY 4, HILTON BALTIMORE INNER HARBOR

Sponsors: First-Year Programs Division (FYP); New Engineering Educators Division (NEE)

Moderators: J. Hylton, Ohio Northern University; Robert Schaffer, Mission College

This invited panel will bring together faculty from a variety

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of program and institution types to share their tips and tricks for teaching first-year engineering students. Colleagues are invited to join the conversation, whether new to teaching, new to first-year engineering, or seasoned hands looking for some new ideas. This panel is jointly hosted by the First-Year Programs Division and New Engineering Educators Division.

T427B - First-Year Programs Division (FYP) - WIPS 2: Advising & Mentoring

1:30 P.M. - 3:00 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Andrew Bartolini, University of Notre Dame

A work in progress session focused on advising and mentoring. Expect a discussion orientated session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

WIP: Approaches to pairing proactive advising and teaching students how to learn

Ms. Lisa Trahan, University of California, San Diego
Ms. Jessica Baldis, University of California, San Diego
Jasmine L. Sadler, University of California, San Diego
Darren . Lipomi,

Work in Progress: Exploring the Use of Faculty and Peer Mentoring as a Tool to Support Engineering Transfer Students' Transition

Dr. Anna-Lena Dicke, University of California, Irvine
Dr. David A. Copp, University of California, Irvine
Miss Deniz Nikkhah, University of California, Irvine
Kameryn Denaro,
Dr. Hye Rin Lee, University of Delaware
Prof. Lorenzo Valdevit,

Work in Progress: Knowing Our First-year Students, Meeting Them Where They Are, and Supporting Them for Success

Dr. Kathleen A Harper, Case Western Reserve University
Dr. Kurt R. Rhoads, Case Western Reserve University

Work in Progress: Evaluation of 360 Coaching to Support Whole-Student Advising in the First-Year

Dr. Sophia T. Santillan, Duke University
Dr. Linda P. Franzoni, Duke University
Dr. Stacy L. Tantum, Duke University

WIP: Using Human-Centered Design and Data analytics to improve student access and success in an undergraduate pre-engineering program

Mr. Aishwary Pawar, University of Michigan - Dearborn
Ms. DeLean Tolbert Smith, University of Michigan - Flint

Work In Progress: Creating and building a Peer Advising Program to Increase Engagement with Pre-major Engineering Students

Maria Mosley, The Pennsylvania State University, Academic Adviser, Engineering Advising Center
Kellie Scofield,
Mrs. Jennifer Saltgiver, The Pennsylvania State University Engineering Advising Center within the College of Engineering
Dr. Christine B. Masters, The Pennsylvania State University

Work in Progress: Efficacy of a Peer Mentoring Program for Underrepresented First-Year Students at a Predominantly White Institution

Dr. Kelyn Rola, Southern Methodist University
Dr. Caitlin Anderson, Southern Methodist University

Work in Progress: Development of an Integrated Place-Based Learning Community for First-Year Precalculus-Level Engineering Students

Prof. Eric Davishahl, Whatcom Community College
Anna Wolff,
Mr. Patrick Burnett, Whatcom Community College
Anna Fay Booker,
Tran M. Phung,
Mei P. Luu,
Seth Greendale,

T428 - Graduate Studies Division (GSD) Technical Session 6: Challenges and Coping Strategies of Engineering Graduate Students

1:30 P.M. - 3:00 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Animesh Paul, University of Georgia

Literature Exploration of Graduate Student Well-Being as Related to Advising

Dr. Liesl Klein, Villanova University

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Dr. Greg J. Strimel, Purdue University at West Lafayette (PPI)

Understanding Stress and Relief: How Engineering Graduate Students Experience and Cope with Stress

Darby Rose Riley, Rowan University

Dr. Kaitlin Mallouk, Rowan University

Engineering graduate students' perceptions of challenges and stressors: A comparison of master's vs. doctoral students and domestic vs. international students

Dr. Eunsil Lee, University at Buffalo, The State University of New York

Dr. Walter C. Lee, Virginia Polytechnic Institute and State University

Dr. Susan Sajadi, Virginia Polytechnic Institute and State University

Engineering doctoral student retention and persistence from an organizational climate and intersectional perspective: A targeted review of engineering education literature

Dr. Julie Aldridge, The Ohio State University

Dr. Nicole M. Else-Quest, University of North Carolina at Chapel Hill

Dr. Joseph Roy, American Society for Engineering Education (ASEE)

Dr. So Yoon Yoon, University of Cincinnati

Work in Progress: Exploring the Landscape of Stressors Experienced by Doctoral Engineering Students

Mr. Joseph Francis Mirabelli, University of Illinois at Urbana - Champaign

Jennifer Cromley, University of Illinois Urbana - Champaign

Dr. Karin Jensen, University of Michigan

Dale Robbenolt,

Anne Hart, University of Tennessee, Memphis

T430 - CIT Division Business Meeting

1:30 P.M. - 3:00 P.M., KEY 5, HILTON BALTIMORE INNER HARBOR

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Afsaneh Minaie, Utah Valley University (Department of Computer Science); Mudasser Wyne, National University

T432 - International Division (INTL) Technical Session #2:

Global Engagement

1:30 P.M. - 3:00 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Maartje Van Den Bogaard, Iowa State University of Science and Technology

Assessment of an International Virtual Exchange Project with Civil Engineering Students from the US and Palestine: Global Competencies, Perceived Value, and Teamwork

Brad Putman, Bucknell University

Prof. Khaled A. Al-Sahili, An-Najah National University

Alia Gilbrecht, An-Najah National University

Karen Bunch Franklin,

Shilpa Girish, Clemson University

Fabricio Leiva,

Abdelhaleem Khader, An-Najah National University

Building a Renewable Energy Curriculum for Universities in Burundi

Dr. Pritpal Singh, Villanova University

Agnes Nakimana,

Chris Clement Igiraneza,

Focus Study of Collaborative Online International Learning (COIL) Engineering Projects

Ms. Meredith Blumthal, University of Illinois at Urbana - Champaign

Mrs. Gretchen M. Forman, University of Illinois at Urbana - Champaign

Juliana Roznowski,

Hannah Dougherty, University of Illinois at Urbana - Champaign

Ernest-John Ignacio, University of Illinois at Urbana-Champaign

Dr. Molly H Goldstein, University of Illinois at Urbana - Champaign

Dr. Brian Woodard, University of Illinois at Urbana - Champaign

Leveraging international academic partnerships for the design of a collaborative sustainability-focused graduate civil engineering program

Dr. Seth D. Mallett, Metropolitan State University of Denver

Dr. Jenő Balogh Ph.D., Metropolitan State University of Denver

Marcus Juby, University of Pécs, Faculty of Engineering and Information Technology

Dr. Zoltan Orban, University of Pecs Faculty of Engineering and Information Technology

Assessing Global Engagement Interventions to Advance

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Global Engineering Competence for Engineering Formation (Work in Progress)

Prof. Scott Schneider, University of Dayton
Dr. Corinne Mowrey, University of Dayton
Dr. Eric Janz P.E., University of Dayton
Dr. Erick S. Vasquez, University of Dayton
Dr. Homero Murzi, Virginia Polytechnic Institute and State University
Matthew A. Witenstein, University of Dayton
Jeanne Holcomb, University of Dayton

T433 - PCEE Business Meeting

1:30 P.M. - 3:00 P.M., KEY 9 & 10, HILTON BALTIMORE INNER HARBOR

Sponsor: Pre-College Engineering Education Division (PCEE)

T434 - Student Mental Health and Communities of Care

1:30 P.M. - 3:00 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderators: Megan Kenny Feister, CSUCI; Kaylla Cantilina, University of Michigan

Papers in this session address student mental health and emotional safety and the role of engineering educators and engineering culture in cultivating a community of care

A Longitudinal Study of Student Mental Health during the Course of the COVID-19 Pandemic

Dr. Andrew Danowitz, California Polytechnic State University, San Luis Obispo
Dr. Kacey Beddoes, San Jose State University

Dignity and well-being: Narratives of modifying the culture of engineering education to improve mental health among underrepresented STEM students

Katherine Robert, University of Denver
Dr. Jon A. Leydens, Colorado School of Mines

Hidden Curriculum and Emotions: Do Active or Passive Perceptions of the Hidden Curriculum Affect Students' Emotions

Dr. R. Jamaal Downey, University of Florida
Dr. Idalis Villanueva Alarcón, University of Florida

Highlighting Gaps in Engineering Education through Emotional Safety in Student Staff

Kylee Shiekh, Colorado School of Mines
Dr. Dean Nieuwsma, Colorado School of Mines

"It's very important to my professors...at least most of them": How messages from engineering faculty and staff influence student beliefs around seeking help for their mental health

Natalie Ban,
Lordina Odeibea Mensah,
Matthew Whitwer,
Lucy Elizabeth Hargis,
Ms. Courtney Janaye Wright, University of Kentucky
Dr. Joseph H Hammer,
Dr. Sarah A. Wilson, University of Kentucky

T434B - Values in Engineering: Ethics and Justice-Oriented Engineering

1:30 P.M. - 3:00 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Amy Slaton, Drexel University

Papers in this session confront the social responsibility of engineers and efforts to develop ethical and justice-oriented perspectives. Efforts centering justice and liberation are distinct from conservative/assimilationist structures that maintain the status quo.

Social responsibility views in science and engineering: An exploratory study among engineering undergraduate researchers

Kassandra Fernandez, University of Florida
Dr. Sinda M. Rivera-Jiménez, University of Florida

The Amazon Effect: A Case Study of Corporate Influence on Student Macro-Ethical Reasoning

Dr. Fatima Naeem Abdurrahman, University of Maryland, College Park
Sona Chudamani, University of Maryland, College Park
Dr. Chandra Anne Turpen, University of Maryland College Park
Dr. Jennifer Radoff, University of Maryland, College Park
Andrew Elby, University of Maryland, College Park
Dr. David Tomblin, University of Maryland, College Park

'It Gives Me a Bit of Anxiety': Civil and Architectural

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Engineering Students' Emotions Related to Their Future Responsibility as Engineers

Dr. Madeline Polmear, Vrije Universiteit Brussel

Shaping the macro-ethical reasoning of engineers through deliberate cultural practices

Dr. Jennifer Radoff, University of Maryland College Park
Dr. Chandra Anne Turpen, University of Maryland, College Park
Dr. David Tomblin, University of Maryland, College Park
Dr. Nicole Farkas Mogul, University of Maryland, College Park
Amol Agrawal,
Andrew Elby, University of Maryland, College Park

STEM students leading cultural change: How agency and capacity for collective action are cultivated within a distributed network

Mr. Robert P. Dalka, University of Maryland, College Park
Dr. Chandra Anne Turpen, University of Maryland, College Park
Devyn Elizabeth Shafer,
Dr. Brianne Gutmann, San José State University

T435 - Virtual and Augmented Reality Applications in Manufacturing Education

1:30 P.M. - 3:00 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Richard Zhao, University of Calgary; Sajan Saini,

Decision support model to leverage extended reality technologies to augment manufacturing education

Dr. Amit Shashikant Jariwala, Georgia Institute of Technology
Hasanain Karim,
Caroline Doughton Greiner,

Exploring Magic Interactions for Collaboration in Virtual Reality Learning Factory

Tyler Hartleb, University of Calgary
Haedong Kim, The Pennsylvania State University
Dr. Richard Zhao, University of Calgary
Dr. Faisal Aqlan, University of Louisville
Prof. Hui Yang,

Implementing Virtual Reality Project Activities for Enhancing Student Learning Experience in Robotics and Automation

Dr. Richard Y Chiou, Drexel University

Prof. Tzu-Liang Bill Tseng, University of Texas at El Paso

Skilling for and Acculturation to Integrated Photonics Industry Using VR Simulations, Game-Based Learning, and Augmented Reality Games

Dr. Sajan Saini, Massachusetts Institute of Technology

Erik Verlage,

Anuradha Murthy Agarwal,

Drew Michael Weninger,

Samuel Serna Otalvaro,

Saif Rayyan,

Dr. Glenda Simonton Stump, Massachusetts Institute of Technology

Trevor Morrisey, Massachusetts Institute of Technology

Christian Gabbianelli, Massachusetts Institute of Technology

Ira Fay, Massachusetts Institute of Technology

Ms. Caitlin Feeley, Massachusetts Institute of Technology

Mr. Jeff Bertrand,

Bhargav Vipul Upadhyay,

Achint Jain,

Richard Eberhardt, Massachusetts Institute of Technology

Dr. Alan R. Kost, University of Arizona

Dr. John Ballato, Clemson University

Dr. Kapil Chalil Madathil, Clemson University

Sri Priya Sundararajan,

Kenan Cicek,

Dominic Gastaldo,

Judith Perry, Massachusetts Institute of Technology

Eric Klopfer,

Prof. Randolph E. Kirchain Jr., Massachusetts Institute of Technology

Richard Roth, Massachusetts Institute of Technology

Dr. Frank R. Field III, Massachusetts Institute of Technology

Elizabeth Moore, Massachusetts Institute of Technology

Dr. George Westerman, Massachusetts Institute of Technology

Prof. Lionel C. Kimerling, Massachusetts Institute of Technology

T437 - Mathematics Division (MATH) Technical Session 1

1:30 P.M. - 3:00 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Mathematics Division (MATH)

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Developing Active Learning of Linear Algebra in Engineering by Incorporating MATLAB and Autograder

Dr. Meiqin Li, University of Virginia

Elaboration of a contextualized event for teaching eigenvalues and eigenvectors in the control and automation engineering course

Juliana Martins Philot, Instituto Mauá de Tecnologia - Brazil

Barbara Lutaif Bianchini, Pontificia Universidade Católica de São Paulo - Brasil

Eloiza Gomes, Instituto Mauá de Tecnologia - Brazil

Gabriel Loureiro de Lima, Pontificia Universidade Católica de São Paulo - Brasil

Dr. Octavio Mattasoglio Neto Neto,

Measuring the Impact of an Enrichment Program for First-Term Undergraduate Engineering Students in Mathematics and Engineering Curricula

Ms. Krystal Corbett Cruse, Louisiana Tech University

Carl Boyet,

Levi Savercool,

Hylie Jane Holloway,

T438 - Mechanical Engineering Division (MECH) Technical Session 3: Student Success

1:30 P.M. - 3:00 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Diane Peters, Kettering University

This session focuses on various aspects of student success beyond assigning grades.

A Visual Heat Transfer Exam Review Activity

Dr. Najmus Saqib, University of Indianapolis

Keeping Calm and Staying Balanced: Exploring the Academic Pressures Faced by Engineering Students to Attain High Grades and Their Impact on Mental Health

Dr. Eleazar Marquez, The University of Texas Rio Grande Valley

Dr. Samuel Garcia, Texas State University

Design of Entrepreneurially Minded (EM) Effective Learning Strategies for Engineering Students: Course Structure, Grading Rubrics, Syllabus Design, and In-Class Mini Labs for Student Motivation and Learning

Dr. Muzammil Arshad, Texas A&M University

Dr. Rebecca R. Romatoski, St. Ambrose University

Implementation of Instructor-Initiated Drop Policy after COVID Pandemic Period to Improve Student Learning and Success

Dr. Amir Karimi, The University of Texas at San Antonio

Dr. Randall D. Manteufel P.E., The University of Texas at San Antonio

T438B - Mechanical Engineering Division (MECH) Technical Session 13: Lab Experiences

1:30 P.M. - 3:00 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Mark Colton, Brigham Young University

This session highlights various laboratory experiences. Experiences range from mini-labs within a lesson to the structure of entire lab courses.

A Laboratory Course Design Strategy to Increase Student Confidence: Connecting Material Testing Standards to Course Material and Real Applications

Dr. Christopher John Greer, The Pennsylvania State University

Devon Eichfeld,

Brianne Hargrove,

Dr. Siu Ling Leung, Pennsylvania State University

Effectiveness of Transfer Focused Writing Pedagogy on Undergraduates' Lab Report Writing in Entry-Level Engineering Laboratory Courses at Three Universities

Dr. Dave Kim, Washington State University, Vancouver

Dr. Charles Riley, P.E., Oregon Institute of Technology

Dr. Ken Lulay, P.E., University of Portland

Dr. John D. Lynch,

Incorporating an Open-Ended Project to Address Complexity Solution of Engineer's Problem in Undergraduate Laboratory Course

wee sing Yeo, University of Cincinnati

Dr. P.K. Imbrie, University of Cincinnati

Azrul Abidin Zakaria,

Zubaidi Faiesal Bin Mohamad Rafaai,

wee sing Yeo, University of Cincinnati

Mini-Lab Activities to Stimulate Students' Conceptual Learning

Mr. Abdelrahman Atef Youssef,

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Prof. Shadi Balawi, Texas A&M University

Matt Pharr, Texas A&M University

T439 - Hands-On Mechanics

1:30 P.M. - 3:00 P.M., ROOM 242, BALTIMORE CONVENTION CENTER

Sponsors: Mechanics Division (MECHS); Mechanical Engineering Division (MECH); Civil Engineering Division (CIVIL)

Moderators: Geoffrey Recktenwald, Michigan State University; Phillip Cornwell, Rose-Hulman Institute of Technology

In this session, educators have 5 minutes each to show off their most effective classroom demonstrations and hands-on activities. The session is co-sponsored by the Mechanical Engineering and Civil Engineering Divisions, but any and all demonstrations are welcome. C'mon by and show what you do!

T440A - Mentoring, Case Study of Racial and Ethnic Diversity, Identity Dilemmas, Cultural Homelessness and Intersectionality, and Transfer Students

1:30 P.M. - 3:00 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Allison Murray, Marquette University; Olukemi Akintewe, University of South Florida

Defining Accountability among Black and White Women Accomplices

Dr. Monica Farmer Cox, The Ohio State University

Dr. Kristen Moore, University at Buffalo, The State University of New York

What Difference Does Difference Make? A Case Study of Racial and Ethnic Diversity in a Summer Intensive Research Institute

Tryphenia B. Peele-Eady, Ph.D., University of New Mexico

Dr. Tahira Reid, Pennsylvania State University

Identity Dilemmas, Cultural Homelessness and Intersectionality: A Discourse Analysis of the Experiences of a Female Undergraduate International and Transracial Adoptee

in Engineering (Research)

Maimuna Begum Kali, Florida International University

Dr. Stephen Secules, Florida International University

Work In Progress: Exploring the Impact of a Mentoring Structure on Female Persistence in Engineering

Dr. Olukemi Akintewe, University of South Florida

T440B - Peer Mentorship, Cross-Race Mentoring Relationships, Race, Gender, Student Success, and Career Outcomes

1:30 P.M. - 3:00 P.M., BRENT, HILTON BALTIMORE INNER HARBOR

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Allison Murray, Marquette University; Yan Li, Dartmouth College

A Preliminary Factor Analysis on the Success of Computing Major Transfer Students

Xiwei Wang, Northeastern Illinois University

Shebuti Rayana, SUNY, Old Westbury

Dr. Sherrene Bogle, California Polytechnic, Humboldt

Dr. Palvi Aggarwal, University of Texas, El Paso

Yun Wan, University of Houston, Victoria

On the Relationship Between Race, Gender, and Student Success from First Year to Second Year in Engineering

Allison Kelly Murray, Marquette University

Kathryn Ermentrout,

Peer Mentorship in a Virtual University Setting: A Hispanic Perspective on How Mentorship Broadens Participation in Advanced Degrees

Federico Cifuentes-Urtubey, University of Illinois, Urbana-Champaign

Paola A. Baldaguez Medina, University of Illinois, Urbana-Champaign

Julie E. Lorenzo, University of Illinois, Urbana-Champaign

Dr. Natasha Mamaril, University of Illinois, Urbana-Champaign

Keys to Successful Cross-Race Mentoring Relationships: Perspectives from Mentees and Mentors

Dr. Sylvia L. Mendez, University of Colorado, Colorado Springs

Dr. Jennifer Tygret,

Anneke Bruwer,

Dr. Comas Lamar Haynes, Georgia Tech Research Institute

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Dr. Pamela McCauley,
Dr. Billyde Brown,
Dr. Jacqueline A. El-Sayed, American Society for Engineering Education
Ray Phillips, American Society for Engineering Education

T440C - NSF CISE Access and Inclusion Landscape

1:30 P.M. - 3:00 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Minorities in Engineering Division(MIND)

Moderator: Gholam Shaykhian, NASA EPSCoR

Speakers: Subrata Acharya, NSF; Michelle L Rogers, National Science Foundation

NSF and its partners support the continued growth of a broad and diverse interdisciplinary research community for the advancement of artificial intelligence (AI) and AI-powered innovation, providing a unique opportunity to broadly promote the NSF vision and core values, especially inclusion and collaboration. The Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) program aims to significantly broaden participation in AI research, education, and workforce development through capacity development projects and through partnerships within the National AI Research Institutes ecosystem.

The CISE Minority-Serving Institutions (MSIs) Research Expansion Program (CISE-MSI Program) began in 2021 with the goal of broadening participation in computing by increasing the number of CISE-funded research projects from MSIs. The long-term goal of the program is to develop its research capabilities with the aim of producing successful proposals for core CISE programs. MSIs include Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs).

The panelists will share information related to Access and Inclusion and CISE Research Expansion Efforts across NSF. National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) is continuing its support of access and inclusion research expansion, through three comprehensive mechanisms. MSIs are central to inclusive excellence: They foster innovation, cultivate current and future undergraduate and graduate computer and information science and engineering talent, and bolster long-term U.S. competitiveness.

Panelists :

Dr. Subrata Acharya, acharyas@nsf.gov

Dr. Michelle Rogers, mlrogers@nsf.gov

Dr. Abby Ilumoka, ailumoka@nsf.gov

T441 - Teaching Newly Identified Multidisciplinary Team Skills

1:30 P.M. - 3:00 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Collaborative work has increased dramatically in recent years and engineering-related industries are signaling the need for effective multidisciplinary teams to address complex modern challenges such as clean water, energy storage, new materials, and novel systems design. Google's Project Aristotle and previous ASEE sessions have relayed basic team skill needs and how to teach these basic team skills.

Recently, documentation has identified previously unpublished multidisciplinary skills that new hires often lack as they begin work in STEM settings. These include adapting to different work and communication styles, demonstrating respect for other fields and individuals with different skills/knowledge base, translating information into forms that can be used by other disciplines, and demonstrating comfort with one's own lack of knowledge in certain arenas.

Each panelist teaches graduate and undergraduate engineering courses that employ multidisciplinary teams and have encountered many of the identified skill-deficit issues. They have designed learning experiences to teach some of these necessary new skills.

Panelists will discuss the type and frequency of skill needs and describe learning activities created to teach the skills.

Ticketed event

T442 - Teaching Tools: Student Experience and Reflection (NEE)

1:30 P.M. - 3:00 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Sponsor: New Engineering Educators Division (NEE)

Moderators: Rossana Villa Rojas, University of Nebraska - Lincoln; Bruce Wilcox,

This session contains works that explore different aspects of student and faculty experience. These include student involvement in courses, using narrative frameworks in engineering courses, embedding self-reflection activities to improve the metacognition of students, strategies for recruitment and retention, and reflections on administrators returning to the classroom.

Student Involvement in Choice of Work in Progress: Course Activities and the Impact on Student Experience

Dr. Taru Malhotra, University of Waterloo
Dr. Carolyn G. MacGregor, University of Waterloo
Mr. Richard Li, University of Toronto, Canada
Alexander Edwin Kay Glover,

Implementing Transmedia Using a Narrative Framework for an Introductory Engineering Course

Dr. Jeremiah Pina, Smith College
Dr. Glenn W. Ellis, Smith College
Mr. Al Rudnitsky, Smith College
Dr. Rebecca Mazur,

Pairing Self-Evaluation Activities with Self-Reflection to Engage Students Deeply in Multiple Metacognition Strategies

Anu Singh, University of Nebraska, Lincoln
Prof. Heidi A. Diefes-Dux, University of Nebraska, Lincoln

A Pre-College Civil Engineering Course: Fostering Interest in Engineering Among High School Students and Developing Future Engineering Educators

Dr. Morgan R. Broberg, Purdue University
Jose Capa Salinas, Purdue University
Danielle N. Wagner, Purdue University

Work in Progress: New Faculty Experiences in Integrating Retention Support Programming into Teaching

Dr. Mesude Bayrakci Boz, Pennsylvania State University
Dr. Joseph Ranalli, Pennsylvania State University
Dr. Katina Moten,

Return to the Teaching Trenches – Lessons Learned, and Lessons Relearned

Dr. Christine B. Masters, Pennsylvania State University
Dr. Ibukun Samuel Osunbunmi, Pennsylvania State University

T443 - ASEE New Board

Orientation

1:30 P.M. - 3:00 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Board of Directors

Orientation for incoming ASEE Board members. Current Board Members are welcome to attend as well.

T445 - Student Projects in Physics Education, Engineering Physics and Physics Division (EP2D) Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderators: Angeles Dominguez, Tecnologico de Monterrey (ITESM); Carl Frederickson, University of Central Arkansas

This session (along with the Poster session) presents a variety of student projects and their application in the classroom.

Bridging the Gap between Higher Education and Career through a "Job Talk" in an Upper-Level Environmental Engineering Course

Dr. Joe Dallas Moore, Carnegie Mellon University

Determination of Road Load Coefficients with Smartphone Accelerometers

Dr. Günter Bischof, Joanneum University of Applied Sciences, Austria
Felix Mayrhofer, Joanneum University of Applied Sciences, Austria
Domenic Mönnich, Joanneum University of Applied Sciences, Austria
Mr. Christian J. Steinmann, Joanneum University of Applied Sciences, Austria

Hybrid Fuel-Cell and Battery Power Plant Design

Ms. Jacquelyn Autumn Carter, United States Coast Guard Academy
Alexandra Murphy,
Sarah Schollenberger,
Caleb Holdridge,
Ryan Thomas Flynn,
Dr. Tooran Emami Ph.D., United States Coast Guard Academy

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TUESDAY, JUNE 27th SESSIONS

"Design of Integrated 5G Chip-set with Microstrips Modules for Mobile Communications with Its Integration in MMIC Course"

Dr. Kanti Prasad, University of Massachusetts, Lowell

Graywater Flow: Generating Sustainable Energy

Prof. Bala Maheswaran, Northeastern University

Sophie Ray,

Matthew Rock,

Dilyn McHugh,

Kyle Potts,

David Ian Hunter,

T447 - The Use of Generative AI in Engineering Education – the Concerns and Opportunities

1:30 P.M. - 3:00 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsors: Student Division (STDT); Computers in Education Division (COED)

Moderator: Viyon Dansu, Florida International University

Speakers: Dr. Andrew Katz, Virginia Polytechnic Institute and State University; Dr. Aditya Johri, George Mason University; Linjue Wang, The Ohio State University; Kerrie Danielle Hooper, Florida International University

The need for engineers to abide by professional and ethical conduct in the discharge of their duties is of great importance in ensuring the safety of people and the reputation of the engineering profession. Likewise, engineering students should abide by a code of academic integrity in their preparation to become professional engineers. In light of this, stakeholders in engineering education are concerned about how to maintain a culture of academic integrity and ethics in the wake of the increased cases of self-reported academic dishonesty among students. In recent times, this concern has been worsened by the advent of generative artificial intelligence (AI) technologies that can be used to create any type of content for students with just a text prompt. While the use of some of these technologies has been described as unethical due to their abilities to enhance plagiarism, some are of the opinion that they could be used to transform teaching and learning.

This session will look at: What is the place of generative AI technologies in engineering education? What concerns do they pose and what opportunities do they provide to transform engineering and computing education?

T448 - Systems Engineering Division (SYS) Technical Session 1

1:30 P.M. - 3:00 P.M., KEY 7, HILTON BALTIMORE INNER HARBOR

Sponsor: Systems Engineering Division (SYS)

Moderator: Radu Babiceanu, Embry-Riddle Aeronautical University - Daytona Beach

Applying a Competency-Based Education Approach for

Designing a Unique Interdisciplinary Graduate Program:

A Case Study for a Systems Engineering Program

Dr. Amy Thompson, University of Connecticut

Prof. Matthew D. Stuber, University of Connecticut

Dr. Song Han, University of Connecticut

Dr. Abhishek Dutta, University of Connecticut

Dr. Hongyi Xu, University of Connecticut

Dr. Shengli Zhou, University of Connecticut

Dr. Qian Yang, University of Connecticut

Dr. Fei Miao, University of Connecticut

Dr. George M. Bollas, University of Connecticut

Assessing Student's Stakeholder Awareness Skills in an Introductory Engineering Design Course through Systems Thinking Scenarios

Dr. Mengyu Li, University of Florida

Dr. John Alexander Mendoza, University of Florida

Dr. Andrea Goncher, University of Florida

Implementing Systems Engineering with Elementary School Students

Rachel Brennan, Tufts University

Mohammed Tonkal, Tufts University and King Abdulaziz University, Saudi Arabia

Prof. Chris Buerger Rogers, Tufts University

Integrating Equity in the Systems Engineering Curriculum: A Pilot Study

Dr. Julie Drzymalski, Temple University

Measuring Systems Thinking Using Stealth Assessment

Ing. Andrea Ramirez-Salgado, University of Florida

Eric Wright, University of Florida

T449 - Integrating Non-Cognitive (soft) Skills in Engineering

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TUESDAY, JUNE 27th SESSIONS

Education: A Panel Discussion of Best Practices

1:30 P.M. - 3:00 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Technological and Engineering Literacy/Philosophy of Engineering Division (TELPHE)

Moderator: Soheil Fatehiboroujeni, Colorado State University

Speakers: Dr. Lakshmi N. Reddi P.E., New Mexico State University; Dr. Soheil Fatehiboroujeni, Colorado State University; Dr. Soma Chakrabarti, ANSYS, Inc.

The purpose of this panel is to facilitate the exchange of best practices in providing effective interpersonal and intrapersonal skills to engineering students. The experiences and perspectives that panelists will share are based on their collaborative work with four engineering colleges and the College of Engineering at New Mexico State University, as well as partnering industries.

A cursory review of the literature and engagement with multiple engineering education conferences around the world can show that the range of practices focused on providing non-cognitive skills in engineering education varies widely. Some rely on general education courses, some provide learning opportunities through capstone projects and other experiential courses, and some attempt to integrate these skills through a specific model of loosely structured interactions between faculty and students.

This panel is structured through a set of key questions to lay out the philosophical and sociological framework that represents cognitive skills, interpersonal skills, and intrapersonal skills as three vertices of an equilateral triangle to symbolize a well-rounded citizen engineer. Panelists also present specific practices adopted at different universities involved with their collaborative work. Expectations of accreditation agencies, prospective employers, and engineering industries will be discussed in terms of how to optimally attend to them without expanding the number of credit hours students must take or creating time-consuming labor for faculty. Pedagogical initiatives and their successful implementation to be presented have received a national award from the Council of Graduate Schools.

The panel, which will include an open-floor discussion and Q&A, should provide a gamut of translatable and effective solutions for incorporating non-cognitive skills in engineering education.

Ticketed event

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TUESDAY, JUNE 27th SESSIONS

T450 - Two-Year College Potpourri

1:30 P.M. - 3:00 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Two-Year College Division (TYCD)

Moderator: Daniel Green,

This session deals with a variety of topics at two-year colleges.

A Proven Strategy to Improve Funding Success Rates for Two-Year Colleges Seeking Grants from the National Science Foundation Advanced Technological Education Program

Ms. Elaine L. Craft, Florence-Darlington Technical College

Pamela J. Silvers, Asheville-Buncombe Technical Community College

A Systematic Approach to Teaching the Foundational Concepts of Programming Using LEGO and Matlab

Il Yoon, University of North Georgia

Faculty Use of Active Learning in Community Colleges

Ariel Chasen, University of Texas, Austin

Ms. Lea K. Marlor, University of Michigan

Dr. Cynthia J. Finelli, University of Michigan

Dr. Maura Borrego, University of Texas at Austin

Dr. Jenefer Husman, University of Oregon

Dr. Michael J. Prince, Bucknell University

Dr. Matthew Charles Graham,

Promoting Building and Technical Skilled Trades and Not Leaving Engineering Out of the Equation

Dr. Chris A. O'Riordan-Adjah, Durham Technical Community College

Work in progress: Guidelines on Developing Writing Prompts and Exploring How Its Quality Predicts Outcomes in a YouTube Role Model Intervention

Dr. Hye Rin Lee, University of Delaware

Kevin Francisco Ramirez, University of California, Irvine

Nathanael Quinn Forde, University of California, Irvine

Zhong Cao, University of California, Irvine

Anna-Lena Dicke, University of California, Irvine

Kameryn Denaro,

T451A - Women in Engineering Division (WIED) Technical Session 7

1:30 P.M. - 3:00 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderators: Rachelle Reisberg, Northeastern University; Natalie Van Tyne, Virginia Polytechnic Institute and State University

This session addresses issues of belongingness for women engineers.

Fostering Community at the Graduate Level: One University's Student-led Approach

Haroula M. Tzamaras, Pennsylvania State University

Sierra Hicks,

Gabriella M. Sallai, Pennsylvania State University

Christine Mathilda Cummings,

Lauren Elizabeth Dennis,

Dr. Hannah Nolte, Pennsylvania State University

Andrea Mesa Restrepo,

Dr. Cynthia Howard-Reed, Pennsylvania State University

Belongingness of Chilean Engineering Students: A Gender Perspective Approach

Macarena Becerra-Cid,

Prof. Monica Quezada-Espinoza, Universidad Andrés Bello, Santiago, Chile

Prof. Maria Elena Truyol, Universidad Andrés Bello, Santiago, Chile

Imperfect Interventions for Speaking Up and Supporting Women in STEM

Dr. Kristen Moore, University at Buffalo, The State University of New York

Dr. Meg Handley, Pennsylvania State University

Ms. Jessica Dolores Menold, Pennsylvania State University

Understanding the Male Student Perception of Culture Climate for Women in Engineering Education

Ms. Alexis Nicole Barney, Iowa State University

Dr. Benjamin Ahn, Iowa State University of Science and Technology

Mr. Matthew Nelson, Iowa State University of Science and Technology

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T452 - Community Engagement Division 5 - Nurturing Well-Being and Promoting Awareness

1:30 P.M. - 3:00 P.M., ROOM 339, BALTIMORE
CONVENTION CENTER

**Sponsor: Community Engagement Division
(COMMENG)**

**Moderator: Joan Schuman, Missouri University of Science
and Technology**

Lessons Learned from Offering in-Department Wellness Programs

Dr. Jacquelyn Kay Nagel, James Madison University
Dr. Jenna P. Carpenter, Campbell University

Community Reception of Student Developed App to Help Community Members in Mental Health Crisis

Mr. Thomas Rossi, Penn State Behrend
Sarah Lengel,

Promoting Tsunami Risk Awareness through Service Learning and the Application of the Disaster Imagination Game (DIG) in Ocean Engineering: an Analysis of Students' Perceptions Years Later

Gianina Morales, Universidad de Valparaíso, Chile
Mr. Mauricio Reyes Gallardo, Universidad de Valparaíso, Chile

T455 - Joint Technical Session: Engineering Leadership Development Division and Engineering Management Division

1:30 P.M. - 3:00 P.M., ROOM 338, BALTIMORE
CONVENTION CENTER

**Sponsors: Engineering Leadership Development
Division (LEAD); Engineering Management
Division (EMD)**

Moderator: Kim Wolfinbarger, University of Oklahoma

This technical session will feature papers from the Engineering Leadership Development Division (LEAD) and the Engineering Management Division (EMD). Papers were selected based on their alignment with the objectives and interests of both divisions.

Engineering Leadership: Bridging the Culture Gap in Engineering Education

Dr. John R. Donald, P.E., University of Guelph, Canada

Dr. Marnie V. Jamieson, University of Alberta, Canada

Examining Leadership within the Unique Context of Engineering Consulting

Ms. Jessica J. Li, P.E., University of Toronto, Canada
Dr. Andrea Chan, University of Toronto, Canada
Catherine MacKenzie Campbell,
Elham Marzi, University of Toronto, Canada
Dr. Emily Moore, P.E., University of Toronto, Canada

What Engineering Leaders Lead: The Career Outcomes of an Engineering Leadership Program's Alumni Community

Dr. James N. Magarian, Massachusetts Institute of Technology
Dr. Reza S. Rahaman, Massachusetts Institute of Technology

Shaping the Engineering Leadership Research Agenda: Results of a 2022 Special Session

Col. Brian J. Novoselich, United States Military Academy
Dr. Meg Handley, Pennsylvania State University
Dr. Meagan R. Kendall, University of Texas, El Paso

T456 - Military and Veterans Division Business Meeting

1:30 P.M. - 3:00 P.M., ROOM 334, BALTIMORE
CONVENTION CENTER

Sponsor: Military and Veterans Division (MVD)

**Moderators: Alyson Eggleston, Pennsylvania State
University; Bobby Crawford, Quinnipiac University**

At the annual Business Meeting of the Military and Veterans Division, members will elect new officers for 2023–24 and discuss plans for the upcoming year.

T457 - Faculty Development Division (FDD) Technical Session 4

1:30 P.M. - 3:00 P.M., ROOM 344, BALTIMORE
CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

**Moderator: Todd Fernandez, Georgia Institute of
Technology**

A Professional Development Program for Emerging STEM Education Researchers

Shams El-Adawy, Kansas State University
Christopher Hass,

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TUESDAY, JUNE 27th SESSIONS

Eugene Y. Vasserman, Kansas State University
Dr. Mary Bridget Kustus, DePaul University
Dr. Scott Franklin, Rochester Institute of Technology
Dr. Eleanor C. Sayre, Kansas State University and Rochester Institute of Technology

Evaluation of a Postdoctoral Early Career Fellowship Program Developing Future Faculty Members

Sydni Alexa Cobb, University of Texas, Austin
Audrey Boklage, University of Texas, Austin
Dr. Maura Borrego, University of Texas, Austin
Lydia Contreras,

A Mind Map for Active Learning Techniques

Dr. Andrew L. Gerhart, Lawrence Technological University

Redesigning the Course and Teacher Ratings: Methods, Outcomes, and Lessons Learned

S. Stavros Valenti, Hofstra University
Kevin Patrick Nolan, Hofstra University
Dr. Lynn A. Albers, Hofstra University

Lessons Learned: Faculty Search Committees' Attitudes Towards and Against Rubrics

Dr. Gabriella Coloyan Fleming, University of Texas, Austin
Dr. Maura Borrego, University of Texas, Austin

T457B - Faculty Development Division (FDD) Technical Session 9

**1:30 P.M. - 3:00 P.M., ROOM 327, BALTIMORE
CONVENTION CENTER**

Sponsor: Faculty Development Division (FDD)

**Moderator: Megan Morin, University of North Carolina at
Chapel Hill**

Understanding Faculty Perspectives of Interdisciplinary Graduate Programs

Maya Menon, Virginia Tech
Dr. Marie C. Paretti, Virginia Tech
Margaret Webb, Virginia Tech

Work in Progress: Let's Play – Improving Our Teaching by Reversing Roles and Being a Learner with Board Games

Dr. Peter Jamieson, Miami University
Dr. Eric James Rapos, Miami University
Nathaniel Bryan,

WIP: Faculty Use of Metaphors When Discussing Assessment

Amanda Ross, Virginia Tech
Dr. Andrew Katz, Virginia Tech
Dr. Holly M. Matusovich, Virginia Tech
Kai Jun Chew, Embry-Riddle Aeronautical University

Work in Progress: Creating Effective Prompts for "Teaming" Sessions

Dr. Jennifer A. Turns, University of Washington
Dr. Yen-Lin Han, Seattle University
Dr. Kathleen E. Cook, Seattle University
Dr. Gregory Mason, P.E., zyBooks, A Wiley Brand
Dr. Teodora Rutar Shuman, Seattle University

T459 - Supporting Student Teams for Equitable Outcomes

**1:30 P.M. - 3:00 P.M., ROOM 305, BALTIMORE
CONVENTION CENTER**

**Sponsor: Equity, Culture & Social Justice in
Education Division (EQUITY)**

Speaker: Dr. Robin Fowler, University of Michigan

This facilitated group activity will discuss how inclusive instruction requires oversight of teamwork through feminist and CRT lenses.

T459B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 4

**1:30 P.M. - 3:00 P.M., ROOM 335, BALTIMORE
CONVENTION CENTER**

**Sponsor: Equity, Culture & Social Justice in
Education Division (EQUITY)**

An NSF-Funded Professional Development Series for Advancing Inclusion at a Hispanic-Serving Institution

Dr. Pheather R. Harris,
Dr. Dianne G. Delima, University of California, Irvine

On Faculty Responsibility for Increasing Students' Sense of Support in the Classroom: Lessons from I-MATTER about Black and Brown Students

Stephanie Masta, Purdue University, West Lafayette
Ms. Janelle Grant, University of Illinois, Urbana-Champaign
Dr. Cara Margherio, University of Washington
Darryl Dickerson, Florida International University
Dr. Matthew W. Ohland, Purdue University, West Lafayette

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Dr. Alice L. Pawley, Purdue University, West Lafayette

Creating Inclusivity in Engineering Teaching and Learning Contexts: Adapting the Aspire Summer Institute Model for Engineering Stakeholders

Dr. Selyna Perez Beverly, University of Wisconsin-Madison
Donald L. Gillian-Daniel,

DEIB in Engineering Teaching programs in the US

Dr. John L. Irwin, Michigan Technological University
Prof. Martin E. Gordon DFE P.E., Rochester Institute of Technology
Dr. Clay Gloster Jr., North Carolina Agricultural and Technical State University
Dr. Barbara L. Christe, State University of New York, College of Technology at Farmingdale
Prof. Ronald E. Land, Pennsylvania State University, New Kensington
Ms. Lara L. Sharp, Springfield Technical Community College

Examining an Equity-Focused Collective Impacted Project through the Lens of Alliance Members' Prior Experiences

Rebecca Zarch, SageFox Consulting Group
Dr. Monica McGill, CSEdResearch.org
Prof. Amy Slaton, Drexel University

Common Metrics: Lessons from Building a Collaborative Process for the Examination of State-level K-12 Computer Science Education Data

Rebecca Zarch, SageFox Consulting Group
Sarah T. Dunton,
Jayce R. Warner, University of Texas, Austin
Mr. Jeffrey Xavier,
Joshua Childs, University of Texas, Austin
Dr. Alan Peterfreund, SAGE

T472 - INDUSTRY DAY: Preparing Future Engineers through Academia/Industry Collaboration

1:30 P.M. - 3:00 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Eva Mejia, IDEO

Speakers: P.j. Boardman, MathWorks; Dr. Gregory E Triplett, Virginia Commonwealth University; Cindy Cooper, The Lemelson Foundation; Eva Mejia, IDEO; Mrs. Dora Smith, Siemens Digital Industries Software

Join this panel discussion sponsored by the ASEE Corporate

Member Council to explore ways we can reimagine and design how we prepare students with both the technical and leadership skills needed for employability today and in the future. We will discuss trends fueling industry hiring demands and ways industry can collaborate with universities to address emerging areas for job opportunities, and better fill skills gaps through curriculum and co-curricular activities, capstone projects, and internships/co-ops to encourage and nurture the skills needed by students for the jobs of today and tomorrow.

T475A - Engineering Research Council (ERC) Business Meeting

1:30 P.M. - 3:00 P.M., BLAKE, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Research Council (ERC)

The Board of the Engineering Research Council meets at the ASEE annual conference as one of its required in-person meetings per the ERC bylaws.

T481A - Diversity, Equity, and Inclusion: 100

1:30 P.M. - 3:00 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Christina Anlynette Alston, Rice University

Diversity, equity, and inclusion (DEI) starts with us. This session aims to answer the questions What is DEI? Why should I care about it? What do I need to do to become a more equitable educator?

Participants will identify ways to expand awareness through self-analysis and will engage in learning activities that provide an introductory overview of DEI, including reflection on their own identities, privileges, biases, spheres of influences, and beliefs related to DEI.

T481B - Diversity, Equity, and Inclusion: 200

1:30 P.M. - 3:00 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

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Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Mrs. Brianna Benedict McIntyre, Purdue University at West Lafayette (PPI); Mrs. Kayla R. Maxey, Purdue University at West Lafayette (COE)

Diversity, equity, and inclusion (DEI) starts with us, but individual awareness and action are not enough. To transform institutions and organizations to be more diverse, equitable, and inclusive requires understanding the larger systems we construct, operate within, and sustain.

This session will introduce a systems-thinking framework through case study analysis to help with identifying organizational successes and opportunities for improvement in becoming catalysts for institutional change.

This session aims to raise the collective awareness of institutional biases to promote shared accountability and create equitable engineering education communities at every organizational level.

T481C - Sex, Gender, and Engineering: Sexual Harassment at Work and in School Special (or Workshop)

1:30 P.M. - 3:00 P.M., BALLROOM 4, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Jennifer J Vanantwerp, Calvin University; Dr. Denise Wilson, University of Washington

Sexual harassment in engineering has shifted in the six years since #MeToo went viral. The good news is that egregious acts like sexual coercion have declined. The bad news is that gender harassment has been increasing. Since gender harassment is often subtle, this workshop will define the bounds of gender harassment and examine what it looks like within engineering. Practical strategies for addressing harassment will be discussed, relevant to junior as well as more senior personnel.

At the end of this workshop, the participant will be able to:

- Articulate the difference between sexist and sexual gender harassment.
- Differentiate examples of sexual harassment from

examples of other negative workplace incidents and culture in engineering.

- Identify instances in the workplace where sexual harassment was experienced or observed.
- Describe bystander intervention techniques that feel comfortable to the participant.
- Discuss how to effectively use employee voice to address sexual harassment.
- Identify strategies for addressing sexual harassment at the home institution or organization.

T482 - Industry 4.0: What Are the Impacts on Curriculum Given the Post-COVID GenZ Population?

1:30 P.M. - 3:00 P.M., KEY 6, HILTON BALTIMORE INNER HARBOR

Sponsors: Undergraduate Experience Committee (UEC); College Industry Partnerships Division (CIP)

Moderator: Mary Besterfield-Sacre, University of Pittsburgh

The pandemic wreaked havoc on business supply chains, tourism and entertainment, employment continuity, and education. Without question, the educational fall-out is significant, both in terms of academic readiness but also apathy towards college. The ACT reported that only one-third of high school students met college readiness benchmarks in math and science in 2022, down by 10% since the beginning of the pandemic in 2020. Further, it is widely known that student engagement and material retention is low, with mental health issues partly to blame.

As STEM higher education prepares students for Industry 4.0 (and Industry 5.0), several concerns become apparent in the post-COVID GenZ era. Specifically, employers strive for graduates who possess skills that current students may lack. According to a recent AAC&U report, employers seek students who possess a range of mindsets that include drive/work ethic, ability to take initiative, self-confidence, resilience, and connection with the workplace, to name a few. In this session, we will grapple with how engineering schools should meet the curricular and co-curricular needs of Industry 4.0, while tending to the generational shifts of Pre-COVID GenZ students to Post-COVID GenZ students. What should the core curriculum entail? How

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might we partner with industry to get students motivated and prepared for industry?

T492 - Title: How to Launch, Grow, and Sustain a Grand Challenges Scholars Program

1:30 P.M. - 3:00 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: Organizations Outside ASEE

Description: The first Grand Challenges Scholars Program (GCSP) was established in 2009, and now almost 100 institutions from around the world have approved programs, in various stages of implementation and growth. In this interactive session, several GCSP leaders and directors from a variety of institutional contexts will discuss strategies and practices for launching, growing, and sustaining their local GCSPs. The GCSP proposal process, including key elements of establishing an institutional GCSP, will be discussed to encourage participants to think about how GCSP connects with their own institutional missions, supporting programs, and practices. Participants will have the opportunity to consider what strategies and practices they might implement in their own new or evolving GCSP through facilitated discussions.

Facilitators:

Katie Evans, Houston Christian University

Amy Trowbridge, Arizona State University

Speakers:

TBD

T494A - SPONSOR TECH SESSION: Integrating 3DEXPERIENCE into Classroom and Capstone Projects—Harnessing the Power of Digital Design, Presented by Dassault Systèmes

1:30 P.M. - 3:00 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Join us for an interactive technical session where we introduce 3DEXPERIENCE—a powerful, collaborative platform that unifies the product lifecycle from design to simulation to manufacturing. Learn how to harness the potential of the digital thread and seamlessly integrate it into your curriculum and/or capstone projects to enhance student-learning experiences, from 3D modeling with SOLIDWORKS or CATIA to FEA with SIMULIA and manufacturing with DELMIA.

In this session, participants will:

1. Gain an understanding of the 3DEXPERIENCE platform and its capabilities, with a focus on collaboration, the digital thread, simulation, and its role in streamlining engineering knowledge to develop skills
2. Discover how to leverage the platform's features to facilitate collaboration, data sharing, and project management in classroom settings and capstone projects
3. Explore real-world examples and case studies displaying the successful integration of 3DEXPERIENCE in engineering education, highlighting the platform's impact on student learning outcomes and industry readiness
4. Participate in hands-on activities and demonstrations, providing a firsthand experience of utilizing 3DEXPERIENCE in a classroom or capstone project context—activities can be done on any device in your during the conference, phone, tablet, computer, PC, or Mac
5. Engage in a Q&A session with Dassault Systèmes experts, addressing any questions or concerns about implementing the platform into your class or curriculum, and the extent of the scientific coverage of the solution

By attending this session, you will be equipped with the knowledge and resources needed to effectively incorporate 3DEXPERIENCE into your teaching practices, transforming the way students learn and collaborate in the ever-evolving world of engineering.

Speaker:

Florent Salako, Senior Lead Consultative Academic Program Advisor and Ambassador

T494B - SPONSOR TECH SESSION: Why Good Math Tools Make Engineering Education Even Better, Presented by

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Maplesoft

**1:30 P.M. - 3:00 P.M., ROOM 302 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

Mathematics lies at the heart of all engineering, but it can be both a blessing and a curse when it comes to engineering education. Truly understanding the underlying mathematics can lead to a deeper understanding of fundamental engineering concepts, but the mechanics of the computations can also impede that understanding, as students get lost in the calculations and lose sight of why they are doing them.

Technology can help a lot. In this session, you will discover how a good math tool can:

- Help students learn important concepts by relieving the burden of tedious, error-prone calculations that can prevent students from focusing on what's most important when learning new material.
- Keep students engaged with motivating examples and realistic applications that would be too difficult or time-consuming to do by hand.
- Encourage experimentation and iterative designs by exploring the effects of changing parameter values and “what if” explorations, where calculations and graphs are done automatically.
- Increase student understanding with illuminating explanations and visualizations that help make mathematical and engineering concepts more tangible.

In the process, you will get a close look at two math tools from Maplesoft: Maple, and Maple Flow, a new tool created specifically to make it easy for engineers to brainstorm, develop, and document design calculations.

Presenter: Karishma Punwani, Director of Academic Product Management, Maplesoft

**T494C - SPONSOR TECH
SESSION: Real-World, Accessible
Electronic Devices, Test
Equipment, and Software Tools
for Engineering Education,
Presented by Analog Devices**

**1:30 P.M. - 3:00 P.M., ROOM 303 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

Analog Devices is the leading global high-performance analog technology company. The ADI University Program strives to make engineering education accessible through hundreds of free Active Learning lab exercises, affordable test instrumentation, low-cost parts kits, and hardware modules designed to back up a textbook theory with hands-on experience.

In this session, we will discuss Analog Devices' educational offerings, including:

- Free, open-source lab exercises on basic circuits, data conversion (A to D and D to A), amplifiers, filters, oscillators, transmission lines, radio, and more
- Affordable, student-accessible test equipment that is also at home on a professional's lab bench
- A free, complete course on Software Defined Radio for Engineers
- A power electronics learning module that exposes the operation of buck and boost converters, without requiring expensive test equipment
- An exciting new Artificial Intelligence Microcontroller with Neural Network Accelerator, bringing modern computer science to the physical world

We will have hardware on hand for live demos and will encourage active discussion during the session.

Speakers:

- Mark Thoren, Principal Engineer, System Design
- Nathan Frey, Product Marketing Manager

**T494D - SPONSOR TECH
SESSION: Using the FE Exam for
Effective Outcomes Assessment,
Presented by NCEES**

**1:30 P.M. - 3:00 P.M., ROOM 314, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

This session highlights best practices in outcomes assessment using the NCEES Subject Matter Reports to provide

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participants with information about the strengths and weaknesses of students in a program. The presentation will specifically focus on using the FE results as one of a program's direct measures in assessing student outcomes. Attend and learn more about how the FE exam can be an effective tool for your program.

Speakers:

John Steadman, Ph.D., PE, is Professor and Dean Emeritus at the University of South Alabama. He has held faculty positions at the University of Wyoming, United States Air Force Academy, and the University of South Alabama. He is a Past President of the National Council of Examiners for Engineers and Surveyors (NCEES) and serves on the FE Exam Committee. He is a past Team Chair and current Program Evaluator for ABET. John is a Past President of IEEE-USA and serves on the Licensure and Registration Committee.

Rhonda Young is professor and chair of Civil Engineering at Gonzaga University. She has over 20 years of teaching experience with faculty and administrative positions at the University of Wyoming and Gonzaga University. Rhonda is a long-time member of the Fundamentals of Engineering Exam Committee for the National Council of Examiners for Engineers and Surveyors (NCEES) and is a Program Evaluator for ABET. She is also active in ITE, ASCE, and ASEE Professional Societies.

T501 - Aerospace Division Business Meeting

3:15 P.M. - 4:45 P.M., PACA, HILTON BALTIMORE INNER HARBOR

Sponsor: Aerospace Division (AERO)

Moderator: Nadir Yilmaz, Howard University

T504 - Building Pathways to Publication in Biomedical Engineering Education

3:15 P.M. - 4:45 P.M., ROOM 316, BALTIMORE CONVENTION CENTER, TBD

Sponsor: Biomedical Engineering Division (BED)

Moderators: Ann Saterbak, Duke University; Brian Helmke, University of Virginia; Aileen Huang-Saad, Northeastern University

How do we create scholarship about our teaching to share with our colleagues? This session will outline some types of education-focused publications based on research questions, application of evidence-based best practices, and tips for faculty development. Participants will have the opportunity to reflect on their innovations in teaching and learning, as well as how to know if they're successful. An opportunity to share feedback will help participants build collaborations and begin or continue to map a path toward publishing their work in biomedical engineering education.

T505 - Open Mic: ChatGPT in ChE and Other Topics

3:15 P.M. - 4:45 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Chemical Engineering Division (ChED)

Moderator: Jason Keith, Mississippi State University

In response to the advent of ChatGPT, the usual Open Mic session will include a special focus on the role of artificial intelligence (AI) in chemical engineering education (ChE). A panel of faculty will highlight their experiences with ChatGPT, then open up the session for more general discussion. The session can include broader discussion about any topic related to the current state of ChE, as well as ideas for future ASEE meetings.

T506 - Special Topic: Empowering the Next Generation of Engineers

3:15 P.M. - 4:45 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Allen Estes, California Polytechnic State University, San Luis Obispo; Beth Hartmann, Iowa State University of Science and Technology

Mr. Ashraf Habibullah, Founder, President, and CEO of Computers and Structures, Inc., believes we are the key to empowering the next generation of engineers to lead, influence, and inspire a changing world.

Ashraf will initiate a conversation about social skills development in civil engineers. Dr. Al Estes and friends will moderate the session which will include a presentation

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by Mr. Habibullah followed by guided discussions related to professional skills and "people skills" development strategies for young professionals.

The session is intended to inspire change which can be implemented immediately by individuals in attendance with the genuine goal of encouraging and supporting the continued development of pedagogy related to holistic engineer training.

T507 - College Industry Partnerships Division (CIP) Technical Session 2

3:15 P.M. - 4:45 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

A Review of Promising Practices in STEM Bridge Programs Serving High School and College Native American Indigenous Communities

Dr. Araceli Martinez Ortiz, The University of Texas, San Antonio

Recruiting and Retaining a Diverse S-STEM Program

Dr. Tim Dallas, Texas Tech University
Dr. Heather Greenhalgh-Spencer, Texas Tech University
Dr. Kelli M. Frias, American University

Active Participation of Industry in a Community-Engaged Design Program

Andrew Pierce, Purdue University, West Lafayette
Dr. William "Bill" C. Oakes, Purdue University, West Lafayette
Robin D. Terwilliger, Purdue University, West Lafayette
Jorge Martinez, Purdue University, West Lafayette

Evaluating Student Project Ranking in an Industry-Sponsored Multidisciplinary Capstone Program to Improve Student Placement and Project Proposals

Edward Latorre, University of Florida
Dr. Catia Silva, University of Florida
Elizabeth Louise Meier, University of Florida

Building Action-Oriented Collaborations with Industry Advisory Boards to Promote Entrepreneurial Mindset Learning (EML)

Dr. Jagadish Torlapati, Rowan University
Dr. Jodi F. Prorise, University of Wisconsin, Platteville
Dr. Philip J. Parker, P.E., University of Wisconsin, Platteville
Dr. Kauser Jahan, Rowan University

Moira Kelly Smith,

T508 - Computers in Education (CoED) Business Meeting

3:15 P.M. - 4:45 P.M., KEY 11 & 12, HILTON BALTIMORE INNER HARBOR

Sponsor: Computers in Education Division (COED)

Moderators: Mahnas Mohammadi-Aragh, Mississippi State University; Steven Barrett, University of Wyoming

Join colleagues for the annual Computers in Education (CoED) Business Meeting.

T509 - Construction Division Business Meeting

3:15 P.M. - 4:45 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Construction Engineering Division (CONST)

Moderator: Nicholas Tymvios, Bucknell University

Business Meeting for Construction Division members.

T513 - Design in Engineering Education Division (DEED) Technical Session 6

3:15 P.M. - 4:45 P.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Applications of Design Thinking

Consolidating engineering design and design thinking frameworks for teaching design to engineering students at liberal arts universities

Dr. Abdullah Umair Bajwa, Habib University
Dr. Abdul Basit Memon, Habib University

Course Design Thinking: Navigating Tensions at the Intersection of Design Thinking and Engineering Course Design

Dr. Nicholas D. Fila, Iowa State University of Science and Technology
Dr. Diane T. Rover, Iowa State University

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Dr. Henry Duwe, Iowa State University of Science and Technology

Dr. Mani Mina, Iowa State University of Science and Technology

Dr. Phillip H. Jones III, Iowa State University of Science and Technology

Supporting Empathy Engagement throughout the Design Thinking Process

Dr. Katherine Brichacek, Northwestern University

Dr. Ordell Brown, Northwestern University

Laura Maria Pigozzi PhD, Northwestern University

Developing Design Thinking in Senior Capstone Bioengineering Student

Mr. Brandon K Harrison,

Mr. Michael Alexander Phelan,

Vahid Alizadeh,

Aratrik Guha,

Dr. Yah-el Har-el, Temple University

Dr. Ruth Ochia, Temple University

T513B - Design in Engineering Education Division (DEED) Technical Session 12

3:15 P.M. - 4:45 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Moderator: Jeremy Edmondson, North Carolina State University at Raleigh

Student Perspectives

Student perspectives on engineering design, decision-making, adaptability, and support in capstone design

Ms. Shruti Misra, University of Washington

Dr. Denise Wilson, University of Washington

Soyoung Kang, University of Washington

Cornerstone to Capstone Engineering Design: Evolving Student Perspectives through the Academic Journey with Implementable Curricular Implications

Dr. Kris Jaeger-Helton, Northeastern University

Prof. Constantine Mukasa, Northeastern University

Dr. Richard Whalen, Northeastern University

Is senior design preparing engineering students for a post-academic mindset?

Dr. Rachel E. Horenstein, University of Denver

Daniel D. Auger,

Prof. Peter J. Laz, University of Denver

Exploring engineering students' self-reported feedback needs in an art in engineering Class

Dr. Cassie Wallwey, Virginia Polytechnic Institute and State University

Dr. Benjamin Daniel Chambers, Virginia Polytechnic Institute and State University

Teacher and Student Perception of Engineering Design Notebook Utility

Michael Dunham, Purdue University

Prof. Jennifer Deboer, Purdue University at West Lafayette (COE)

Dr. Dhinesh Balaji Radhakrishnan, Purdue University at West Lafayette (COE)

Nrupaja Bhide, Purdue University at West Lafayette (PPI)

T514A - ERM Business Meeting

3:15 P.M. - 4:45 P.M., BALLROOM 3, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

The Educational Research Methods (ERM) Division will hold its Business Meeting.

T514B - Virtual Training, Online and Open Education; Instructional Technology

3:15 P.M. - 4:45 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Adrian Gentry, Purdue University at West Lafayette (COE)

Educational Research & Methods Division (ERM) Technical Session

Developing and Evaluating a Virtual Training Process for Energy Audit Education

Behlul Kula, Michigan State University

Andreana Louise Roxas,

Dr. Kristen Sara Cetin P.E., Michigan State University

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Dr. Annick Anctil,
George Berghorn, Michigan State University
Ryan Patrick Gallagher,

The Effectiveness of Supplemental Instructional Videos in Construction Education

Dr. Andrew Floyd Barnes, University of North Florida
Andrew McCoy, Virginia Polytechnic Institute and State University

IMPACT OF OPEN EDUCATIONAL RESOURCE ON IMPROVING LEARNING PERFORMANCE OF STUDENTS

Dr. Atefe Makhmalbaf, The University of Texas at Arlington

Using a scenario-based learning approach with instructional technology to teach conflict management to engineering students

Olivia Ryan, Virginia Tech Department of Engineering Education
Marin Jayne Fisher, Department of Engineering Education at Virginia Tech
Lisa Schibelius, Virginia Tech Department of Engineering Education
Dr. Mark Vincent Huerta, Virginia Polytechnic Institute and State University
Dr. Susan Sajadi, Virginia Tech

A Comparative Study on Student Performance using Traditional and Interactive Textbooks

David Pabst,
Lee A. Dosse, University of Pittsburgh
Miss Samantha E Wismer, University of Maryland
Prof. Matthew M. Barry, University of Pittsburgh

T514C - Disciplinary Engineering Education Research – Session 1

3:15 P.M. - 4:45 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Jahnvi Dirisina, University of Oklahoma

Educational Research & Methods Division (ERM) Technical Session

Biomedical and Agricultural Engineering Undergraduate Students Programming Self-Beliefs and Changes Resulting from Computational Pedagogy

Ms. Joreen Arigye, Purdue University
Dr. Alejandra J. Magana, Purdue University at West Lafayette

(COE)
Mr. Joseph A. Lyon, Cornell University
Elsje Pienaar,

Enhancing Undergraduate Materials Science Labs for Experiential Learning

Mr. Mackinley Love, University of Calgary
Dr. Philip Egberts, University of Calgary
Prof. Joanna Wong, University of Calgary
Miriam Nightingale, University of Calgary

Do I need to know this?: A comparison of mechatronics program offerings to industry expectations for necessary on-the-job skillsets.

Nisha Raghunath M.S., Oregon State University
Dr. Karl R. Haapala, Oregon State University
Dr. Christopher A. Sanchez, Oregon State University

How Does Students' Use of Speech Ground and Embody Their Mechanical Reasoning during Engineering Discourse?

Matthew M. Grondin, University of Wisconsin - Madison
Michael I. Swart, University of Wisconsin - Madison
Arushi Renschler Pandey, University of Wisconsin-Madison
Dr. Katherine Fu, University of Wisconsin - Madison
Prof. Mitchell Nathan, University of Wisconsin - Madison

T514D - Computer Science Education and AI research

3:15 P.M. - 4:45 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Muhammad Dawood, New Mexico State University

Educational Research & Methods Division (ERM) Technical Session

Taking the Next Course: Barriers and Facilitators Reported by Computer Science Majors

Dr. Amari N. Lewis, University of California San Diego
Prof. Mia Minnes, University of California, San Diego
Kristen Vaccaro, University of California San Diego
Prof. Joe Gibbs Politz, University of California San Diego

Comparing Computational Thinking Competencies Across Undergraduate Engineering Majors: A Qualitative Analysis

Miss Na Zhao, Nanyang Technological University

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Dr. Ibrahim H. Yeter, Nanyang Technological University

Dr. Cristina Diordieva, Texas Tech University

“Just a little bit on the outside for the whole time”: Social belonging confidence and the persistence of machine learning and artificial intelligence students

Katherine Mao,

Sharon Ferguson, University of Toronto

James N. Magarian, Massachusetts Institute of Technology

Dr. Alison Olechowski, University of Toronto

Developing Post-pandemic Learning Community on an Urban Commuter Campus

Prof. Lily R. Liang, University of the District of Columbia

Dr. Briana Lowe Wellman, University of the District of Columbia

Rui Kang, Georgia College & State University

Strategies to Optimize Student Success in Pair Programming Teams

Dr. Ayesha Johnson, University of South Florida, College of Nursing

Dr. Zachariah J Beasley P.E., University of South Florida

T515 - Curricular Innovations in Computing -2

3:15 P.M. - 4:45 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Mohammad Khan,

Incorporation of Significant Project Experiences within the Undergraduate Engineering Curriculum

Dr. Ramakrishnan Sundaram, Gannon University

Incorporating a Teach for Mastery System in a Computer Science Course

Lea Wittie, Bucknell University

Introducing High-Level Synthesis in Computer Engineering Curricula

Prof. Amr Hassan, University of Pittsburgh

Dr. Ahmed Dallal, University of Pittsburgh

Mr. Mohamed A. S. Zaghoul,

Dr. Samuel J Dickerson, University of Pittsburgh

Implementing Laboratory and Project-Based Embedded Control Sequence Courses in Electrical and Computer Engineering

Dr. Maryam Nasri, SUNY Buffalo State University

Patch Antenna Calculations and Fabrication Made Simple for Cyber Security Research

Mr. Erwin Karincic, Virginia Commonwealth University

Dr. Erdem Topsakal, Virginia Commonwealth University

Ms. Lauren Linkous, Virginia Commonwealth University

Promoting Success through Building Community for Computer Science and Computer Engineering Undergraduates

Prof. Sarah L. Harris, University of Nevada - Las Vegas

Dr. Yingtao Jiang, University of Nevada - Las Vegas

Christine Clark,

Ed Jorgensen,

Tiberio Garza, Florida International University

Norma A Marrun, University of Nevada - Las Vegas

Valerie L. Taylor,

T515B - Assessment-Driven Practices in ECE

3:15 P.M. - 4:45 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Zekeriya Aliyazicioglu, California State Polytechnic University, Pomona

Design of an ECE Technical Communication Course for Accelerating Engineering Careers

Thomas Garrison, Portland State University

Ms. Yuchen Huang, Portland State University

Prof. Branimir Pejcinovic, Portland State University

Protein Molecules as Robotic Mechanisms: An Interdisciplinary Project-Based Learning Experience at the Intersection of Biochemistry and Robotics

Prof. Alireza Mohammadi, University of Michigan-Dearborn

Prof. Destin Heilman,

Teamwork Assessment in Measurement and Instrumentation Course

Dr. Cyrus Habibi, University of Wisconsin - Platteville

Tina Alaei,

Oral Assessments as an Early Intervention Strategy

Curt Schurgers, University of California, San Diego

Dr. Saharnaz Baghdadchi, University of California, San Diego

Dr. Alex Phan, University of California, San Diego

Dr. Huihui Qi, University of California, San Diego

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Dr. Maziar Ghazinejad, University of California, San Diego
Dr. Minju Kim, University of California, San Diego
Marko V. Lubarda, University of California, San Diego

Lessons from an industry-university partnership for student research projects

Miss Rebekah Turner, Villanova University
Mr. Jared Halsey, Villanova University
Karla Trotman, Electro Soft, Inc
Dr. Rosalind M. Wynne, Villanova University

Renewable Energy Projects Enhance Pedagogy in Foundational ECE Course

Mr. Devin Connor Whalen, Bucknell University
Dr. Peter Mark Jansson P.E., Bucknell University

T516 - ECCNED Business Meeting

3:15 P.M. - 4:45 P.M., TUBMAN, HILTON BALTIMORE INNER HARBOR

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

T521 - Engineering Libraries Division (ELD) Technical Session 3: Instruction & Information Literacy

3:15 P.M. - 4:45 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Amani Magid, New York University

A Rubric-Based Assessment of Information Literacy in Graduate Course Term Papers

Dr. Bridget M. Smyser, Northeastern University
Jodi Bolognese, Northeastern University

Mapping Graduate Student Workshops to Career Readiness Frameworks

Seth Vuletich, Colorado School of Mines
Ms. Brianna B. Buljung, Colorado School of Mines
Mr. Joseph R. Kraus, Colorado School of Mines

Using Decision-based Learning to Develop Expert Information Literacy Behaviors in Engineering Undergraduates

Mr. David Pixton, Brigham Young University

Why IF I APPLY isn't CRAAP: The evolution of source

evaluation with [institution name] STEM Libraries in the engineering classroom

Ms. Denise Amanda Wetzel, Pennsylvania State University
Mr. Paul McMonigle, Pennsylvania State University

T523 - Engineering Technology Division (ETD) Technical Session 2

3:15 P.M. - 4:45 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Michael Shenoda, State University of New York, College of Technology at Farmingdale

Engineering Technology related papers focused on teaching and student learning

Introducing ROS-Projects to Undergraduate Robotic Curriculum

Dr. Lili Ma, New York City College of Technology
Dr. Yu Wang, New York City College of Technology
Dr. Chen Xu, New York City College of Technology
Dr. Xiaohai Li, New York City College of Technology

Involving Multidisciplinary Undergraduate Students in the Design and Development of an Innovative Device for the Detection of Plant Nematodes

Dr. Junkun Ma, Sam Houston State University
Dr. Faruk Yildiz, Sam Houston State University
Dr. Reg Recayi Pecan, Sam Houston State University
Mr. Marc Casper, Association for Computing Machinery
Austin Wayne Weirich,

IoT in Project-Based Learning

Dr. Hugh Jack P. Eng., Western Carolina University
Mr. Adam Harris, Western Carolina University

Laboratory Experiment for Improving Understanding of Grain Refinement in Aluminum Castings

Dr. Wei Vian, Purdue University at West Lafayette

Position Verification in a GD&T Course: A Longitudinal Study

Dr. Theodore J. Branoff, Illinois State University

T523B - Engineering Technology Division (ETD) Technical Session 5

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3:15 P.M. - 4:45 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Ahmed Khan, DeVry University, Addison

Engineering Technology related papers focused on teaching and student learning

Practical Project in Linear Design Course During COVID-19

Dr. Kenny Fotouhi, University of Maryland Eastern Shore
Mahdi Joseph Fotouhi, University of Maryland Eastern Shore
Joel Michael Tomlinson, University of Maryland Eastern Shore

Preparing Students to Solve Challenges Related to a Changing Climate

Dr. Mujde Erten-Unal, Old Dominion University
Dr. Dalya Ismael, Old Dominion University
Ms. Carol L. Considine, Old Dominion University

Providing a new space for student learning: A pilot implementation of self-generated student stories and informal peer assessments in mechanical engineering technology education

Dr. Carmen Cioc, The University of Toledo
Dr. Noela A. Haughton, The University of Toledo
Dr. Sorin Cioc,

RAM Pump as a Teaching Tool in Fluid Power Laboratory

Dr. Srikanth B. Pidugu, University of Arkansas at Little Rock
Dr. Ashokkumar Misarilal Sharma,
Cody Capocelli,

Recruiting and Mentoring the Mentors: Practices from the STEM+C MentorCorps Project

Dr. Shaoping Qiu, Texas A&M University
Prof. Francis Quek, Texas A&M University
Dr. Malini Natarajathinam, Texas A&M University
Ting Liu,

T524 - Entrepreneurship & Engineering Innovation Division (ENT) Technical Session 6: Undergraduate and Faculty Research

3:15 P.M. - 4:45 P.M., ROOM 340, BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Moderator: Nicholas Fila, Iowa State University of Science and Technology

Development of entrepreneurial mindset-driven training materials for undergraduate researchers

Dr. Maysam Nezafati, Georgia Institute of Technology
Dr. Irene Reizman, Rose-Hulman Institute of Technology
Dr. Michelle Marincel Payne, Rose-Hulman Institute of Technology
Dr. Liping Liu, Lawrence Technological University

Factors Influencing Academic Researchers' Motivation for Technology Commercialization and Entrepreneurship: An Overview of the Literature

Dr. Nathalie Duval-Couetil, Purdue University at West Lafayette (COE)
Dr. Alanna D. Epstein, University of Michigan
Dr. Aileen Huang-Saad, Northeastern University

Undergraduate Research as a Tool for Building Entrepreneurial Mindset in Engineering Students

Dr. Heather Dillon, University of Washington
Dr. Jenna P. Carpenter, Campbell University
Dr. Rachel Louis Kajfez, The Ohio State University
Dr. Brooke K. Mayer, Marquette University
Dr. Shane W. Rogers, Clarkson University
Prof. Ben Tribelhorn, University of Portland

Undergraduate students are the "secret sauce" to help research programs be successful

Dr. Kenneth W. Van Treuren, Baylor University
Dr. Liping Liu, Lawrence Technological University
Dr. Anthony M. Jacobi, University of Illinois at Urbana-Champaign
Sophie Wang,
Kyriaki Kalaitzidou,

Work-In-Progress: Early Student Exposure to an Entrepreneurial Mindset in Engineering Research

John Peponis, Lawrence Technological University
Dr. Mary Lauren Benton, Baylor University
Dr. Kenneth W. Van Treuren, Baylor University
Dr. Blake Everett Johnson, University of Illinois Urbana-Champaign
Dr. Liping Liu, Lawrence Technological University
Dr. Anthony M. Jacobi, University of Illinois at Urbana-Champaign

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T525 - EE/NEE Joint Panel Discussion: Ideas for an Enjoyable and Productive Sabbatical

3:15 P.M. - 4:45 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsors: Environmental Engineering Division (ENVIRON); New Engineering Educators Division (NEE)

Moderators: Ashish Borgaonkar, New Jersey Institute of Technology; Shannon Parks, University of Pittsburgh at Johnstown

Navigating the sabbatical process and deciding on a productive activity can be challenging. A sabbatical can take many different forms depending on career goals, interests, and institution. This panel discussion will provide faculty with ideas for activities and the process. A variety of personal experiences will be presented of sabbatical activities that were enjoyable and productive, such as sabbaticals focused on independent engineering research, engineering education research, development of classes or programs, industry or government collaboration, and/or travel. Discussion topics will also include requirements for applying, conducting, and documenting the outcomes of a sabbatical.

The session will feature:

- Introduction of topic and panelists
- Overview of each panelist's sabbatical activity
- Brief Q&A session
- Small group discussion with documentation:
 - When or how often have you conducted a sabbatical?
 - What were the requirements for your sabbatical?
 - What resources were helpful in planning your sabbatical?
 - What was the timeframe of planning, applying for, conducting, and documenting your sabbatical?
- Discussion of learnings

Panel Discussion: Ideas for an Enjoyable and Productive Sabbatical

Dr. Jean M. Andino P.E., Arizona State University
Dr. David V.P. Sanchez, University of Pittsburgh
Dr. Michelle Marincel Payne, Rose-Hulman Institute of Technology

Dr. John D. Carpinelli, New Jersey Institute of Technology
Dr. Shannon L. Isovitsch Parks P.E., University of Pittsburgh at Johnstown
Dr. Daniel B Oerther P.E., Missouri University of Science and Technology

T526 - Experimentation and Laboratory-Oriented Studies Division (DELOS) Technical Session 4: Bring Your Own Experiments +

3:15 P.M. - 4:45 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Andrew Tubesing, University of St. Thomas

Join ELOS for an interactive session in which speakers will share and demonstrate some of their best new experiments and discuss fun and engaging labs involving a Flight Simulator, redesigning toys, and geospatial imaging.

BYOE: A Laboratory Experiment with a Stirling Engine for Troubleshooting Education in Mechanical Engineering

Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute
Mitra Varun Anand, Worcester Polytechnic Institute
Mr. Peter Hefti, Worcester Polytechnic Institute
Dr. Curtis Abel, Worcester Polytechnic Institute

BYOE: Engineering Mechanics with a Twist: Design and Implementation of a Custom Torsion-Testing Apparatus

Dr. Jacob Bishop, Southern Utah University

Engaging Undergraduate Students in Research through Interactive xFlight Simulation Project Using Eye Tracking Device

Dr. Adeel Khalid, Kennesaw State University
Dr. Awatef Omar Ergai, Kennesaw State University

Engineering pedagogical content knowledge for undergraduate engineering and technology programs: Accelerating graduates' preparedness for the 4IR geospatial industry

Dr. Huiran Jin, New Jersey Institute of Technology
Dr. Laramie Potts, New Jersey Institute of Technology

Toy Adaptation in a Laboratory Course: An Examination of Laboratory Interests and Career Motivations

Dr. Alyssa Catherine Taylor, University of California, San Diego

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TUESDAY, JUNE 27th SESSIONS

Dr. Molly Y. Mollica, University of Maryland, Baltimore County

T527 - First-Year Programs Division (FYP) - Technical Session 6: Mentors & Teams

3:15 P.M. - 4:45 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Qudsia Tahmina, The Ohio State University at Marion

A full-paper session on the subject of mentors and teams.

What Makes an Effective Peer Mentor? Perceptions of Undergraduate Engineering Students During COVID-19

Dr. Darcie Christensen, Minnesota State University, Mankato

Dr. Idalis Villanueva Alarcón, University of Florida

Quinn Alessandro Corrigan, Minnesota State University, Mankato

Lessons Learned: Implementing Equitable Teaming Practices in First-year GE Courses

Matthew B. James, Virginia Polytechnic Institute and State University

Mr. Tahsin Mahmud Chowdhury, Virginia Polytechnic Institute and State University

Dr. Juan David Ortega-Alvarez, Virginia Polytechnic Institute and State University / Universidad EAFIT

Dr. Jennifer Lyn Benning, Virginia Polytechnic Institute and State University

Dr. Natalie C.T. Van Tyne, Virginia Polytechnic Institute and State University

Prof. Jenny L Lo, Virginia Polytechnic Institute and State University

Predicting Team Function Using Bayesian and Cognitive Diagnostic Modeling Approaches

Mr. Jeong Hin Chin, University of Michigan

Ms. Jing Ouyang, University of Michigan

Dr. Robin Fowler, University of Michigan

Gongjun Xu, University of Michigan

Rebecca L Matz, University of Michigan

Making Meaning through Mentorship: A Student-Led Layered Peer Mentorship Program

Miriam Howland Cummings Ph.D., University of Colorado Denver

William Taylor Schupbach,

Prof. Tom Altman,

Dr. Michael S. Jacobson,

Prof. Katherine Goodman, University of Colorado Denver

Prof. Maryam Darbeheshti, University of Colorado Denver

Developing Inclusive Leadership Training for Undergraduate Engineering Teaching Assistants

Dr. Ingrid Paredes, New York University Tandon School of Engineering

Kaz Burns,

Dr. Jack Bringardner, New York University Tandon School of Engineering

Dr. Rui Li, New York University Tandon School of Engineering

Mr. Peter Yuk Li, New York University Tandon School of Engineering

Ameya Palav,

Elena Rose Hume,

Ms. Victoria Bill, New York University Tandon School of Engineering

Chris Woods, NYU

Data-driven Strategy for Maintaining an Effective Team Collaboration in a First-year Engineering Course

Dr. Rui Li, New York University Tandon School of Engineering

Ms. Victoria Bill, New York University Tandon School of Engineering

Ingrid Paredes, New York University Tandon School of Engineering

Dr. Jack Bringardner, New York University Tandon School of Engineering

T527B - First-Year Programs Division (FYP) - Technical Session 7: Making

3:15 P.M. - 4:45 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Matthew Cavalli, UNIVERSITY OF TABUK

A full-paper session on the subject of making.

Assessing Various Pedagogical Features of Remote Versus In-Person Iterations of a First-Year Engineering, Makerspace Course

Dr. Brian Scott Robinson, University of Louisville

Dr. Thomas Tretter, University of Louisville

Mr. Nicholas Hawkins, University of Louisville

Dr. James E. Lewis, University of Louisville

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Teaching Engineering Design, Basic Circuit Design and Coding to First-Year Engineering Students Using a 3-D Printed Robotic Hand-Based Project

Jason Morlock,
Louis Josef Handwerker,
Dr. Ludvik Alkhoury, New Jersey Institute of Technology
Dr. Jaskirat Sodhi, New Jersey Institute of Technology
Dr. Ashish D. Borgaonkar, New Jersey Institute of Technology

Impact of Inclusion of Makerspace and Project Types on Student Comfort with Additive Manufacturing and Three-Dimensional Modeling in First-Year Engineering Program

Dr. Andrew Charles Bartolini, University of Notre Dame
Simran Moolchandaney, University of Notre Dame
Dr. G. Alex Ambrose,

Evaluation of Undergraduate Staff Experiences and Infrastructure in a First-Year Engineering Makerspace

Dr. Benjamin Daniel Chambers, Virginia Polytechnic Institute and State University
Zachary D. Dowell,
Nicholas Bedard,

Student Comprehension of and Growth in Creating Value with an Entrepreneurial Mindset

Sherri Youssef, The Ohio State University
Dr. Meagan Eleanor Ita, The Ohio State University
Dr. Rachel Louis Kajfez, The Ohio State University

T528 - Graduate Studies Division (GSD) Business Meeting

3:15 P.M. - 4:45 P.M., CALLOWAY, HILTON BALTIMORE INNER HARBOR

Sponsor: Graduate Studies Division (GSD)

Moderator: Diane Peters, Kettering University

This event is the business meeting for the Graduate Studies Division (GSD). Everyone is welcome to attend.

T530 - Computing and Information Technology Division (CIT) Technical Session 6

3:15 P.M. - 4:45 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Cheryl Resch, University of Florida; Hashmath Fathima, Morgan State University

Capstone Project: CPU Design with Multiplexer

Prof. Yumin Zhang, Southeast Missouri State University

Efficient and Smart Home Projects in Computer Engineering Program Using Wireless Sensor Networks and Internet of Things Technologies

Dr. Afsaneh Minaie, Utah Valley University
Dr. Reza Sanati-Mehrziy, Utah Valley University

Computing students' design preferences and barriers when solving short programming problems

Joseph Paul Hardin,
Marc Diaz,
Amanpreet Kapoor,

Rule-Based Database System for Airplane Maintenance Project

Dr. Reza Sanati-Mehrziy, Utah Valley University
Cody Lance Strange,
Dr. Afsaneh Minaie, Utah Valley University

Development of Amphibious Water Sampling Rover for Mosquito Research via Capstone project

Dr. Byul Hur, Texas A&M University
Nathan Alexander,
Mr. James Kyle McIlhaney,
Christian Hurst,
Leo Colom,

T532 - International Division (INTL) Technical Session #3: Student Perspectives

3:15 P.M. - 4:45 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: José Carlos Quadrado, P. PORTO

Reflections on an Immersive International Engineering Program Focused on Sustainable Energy in Brazil: A Student's Perspective

Chaney E. Dietz, Northeastern University
Aidan J. Kane, Northeastern University
Dr. Courtney A. Pfluger, Northeastern University

Comparison of student global perspectives pre- and post-COVID for a study abroad program

Lisa Schibelius, Virginia Tech Department of Engineering Education

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TUESDAY, JUNE 27th SESSIONS

Mr. Tahsin Mahmud Chowdhury, Virginia Polytechnic Institute and State University

Andrea Schuman, Virginia Polytechnic Institute and State University

Dr. Homero Murzi, Virginia Polytechnic Institute and State University

Excellence, Belonging, and the American Dream: An Auto-ethnography on Being International in Engineering

Dr. Sreyoshi Bhaduri, ThatStatsGirl

Dr. Racheida S. Lewis, University of Georgia

Mrs. Indrani Sen, Georgia Institute of Technology

Dr. Columbia Mishra, Maxar Technologies

Mona Mona,

Ms. Venkata Sai Naveena Bathula, SWE

Understanding international graduate engineering students' well-being: What do they need to thrive? (Work in Progress)

Manuel José Alejandro Baquero-Sierra, Purdue University at West Lafayette (PPI)

Mr. Cristián Eduardo Vargas-Ordóñez, Purdue University at West Lafayette (COE)

Dr. Jacqueline E McDermott,

Stephen Mark McBride, Purdue University

Understanding the Academic Journey of an International West African Engineering Graduate Student in the United States

Mr. Daniel Ifeoluwa Adeniranye, Florida International University

Dr. Bruk T. Berhane, Florida International University

T533 - Don't Underestimate a Secondary Engineering School Teacher — Let's Discuss.

3:15 P.M. - 4:45 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsors: Pre-College Engineering Education Division (PCEE); First-Year Programs Division (FYP)

Moderator: Stacy Klein-Gardner, Vanderbilt University

Have you ever wondered how middle and high school teachers teach engineering design? Secondary teachers are powerful and talented as the first contacts in creating and recruiting engineers. Secondary educators place engineering design problems in authentic real-world problems, often using computational and other tools. Ask them how they do it in this panel session.

T533B - Pre-College Engineering Education Division (PCEE) Technical Session 6: Engineering in the Home

3:15 P.M. - 4:45 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Pamela Lottero-Perdue, Towson University

Exploring the nature of engineering during home-based engineering activities designed for Spanish- and English-speaking families with young children (Fundamental, Diversity)

Catherine Wagner, University of Notre Dame

Dr. Gina Navoa Svarovsky, University of Notre Dame

Mia Lettau, University of Notre Dame

Kimberly Marfo,

Andrea Lorena Ortiz, Pontificia Universidad Católica de Chile

Delaney Ryan,

Dr. Scott A. Pattison,

Smirla Ramos-Montañez,

Viviana López Burgos,

Sabrina De Los Santos Rodríguez,

Maria D. Quijano,

Amy R Corbett,

Fortitude in frustration, failure: Exploring emotional responses within an at-home elementary engineering program.

Peter N. Knox, University of Vermont

Amber Simpson, State University of New York at Binghamton

Dr. Adam V. Maltese, Indiana University-Bloomington

Developing Habits of Mind through Family Engineering at Home

Jubie Tan, State University of New York at Binghamton

Amber Simpson, State University of New York at Binghamton

Dr. Peter N. Knox, University of Vermont

Ms. Sawsan Werfelli, State University of New York at Binghamton

Dr. Adam Maltese, Indiana University-Bloomington

Caregivers' Roles in Supporting Children's Engagement in Engineering Activities at Home (Fundamental)

Dr. Kelli Paul, Indiana University-Bloomington

Lauren Penney, Indiana University-Bloomington

Dr. Adam Maltese, Indiana University-Bloomington

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TUESDAY, JUNE 27th SESSIONS

Amber Simpson, State University of New York at Binghamton
Dr. Jungsun Kim, Indiana University-Bloomington

T534 - LEES Business Meeting

3:15 P.M. - 4:45 P.M., KEY 9 & 10, HILTON
BALTIMORE INNER HARBOR

Sponsor: Liberal Education/Engineering & Society
Division (LEES)

T535A - Project-Based and Experiential Learning in Manufacturing

3:15 P.M. - 4:45 P.M., ROOM 311, BALTIMORE
CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Md Fashiar Rahman, ; Hannah Budinoff, The
University of Arizona

Exploring Systems Performance Using Modeling and Simulation
- Project-based Study and Teaching

Dr. Md Fashiar Rahman, The University of Texas at El Paso
Dr. Aditya Akundi, The University of Texas Rio Grande Valley
Jakia Sultana, University of Texas at El Paso
Prof. Tzu-Liang Bill Tseng, University of Texas at El Paso
Dr. Amit J. Lopes,
Sergio Luna,

Development of Al/Steel Resistance Spot Weld for Industrial
Applications

Mr. Peter Woodruff, California State Polytechnic University,
Pomona
Dr. Moe Rabea, California State Polytechnic University, Pomona
Dr. Moe Rabea, California State Polytechnic University, Pomona

Integrating Entrepreneurially Minded and Project-Based
Learning into a Manufacturing Supply Chain Course

Dr. Yalcin Ertekin, Drexel University

Using online learning modules to improve students' use of
technical standards in additive manufacturing courses and
projects

Dr. Hannah D Budinoff, The University of Arizona
Andrew Wessman,
Kargi Chauhan,

T535B - Manufacturing Division Panel: Four Pillars of

Manufacturing Knowledge Revision

3:15 P.M. - 4:45 P.M., ROOM 342, BALTIMORE
CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: John Irwin, Michigan Technological University;
Suzanne Marzano,

Speakers: Dr. Jyhwen Wang, Texas A&M University; Dr.
Niaz Latif, Purdue University Northwest; Dr. Ismail Fidan,
Tennessee Technological University; Dr. Neil Littell, Ohio
University

The SME Manufacturing Education and Accreditation
Committee has completed validating data from a "Four
Pillars of Manufacturing Knowledge 2021 Survey," and
as a result, will present the "Four Pillars" revision. The
panelists will highlight the changes made in each "knowledge
block," and provide an opportunity for discussion of each.
Participants will receive a link to the updated "Four Pillars"
with a request for feedback. The goal of this project is to
maintain the "Four Pillars" as a living document. This
Committee will periodically review and consider the
feedback for later revisions.

T538 - Mechanical Engineering Division (MECH) Technical Session 4: Professional Preparation

3:15 P.M. - 4:45 P.M., ROOM 320, BALTIMORE
CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Dave Kim, Washington State University-
Vancouver

This session highlights ideas for assessing and preparing
undergraduate mechanical engineering students for
professional work.

A Comparison Study of Engineering Standards Taught in
Mechanical Engineering Programs in Two Countries

Mr. Talha Bin Asad, Virginia Polytechnic Institute and State
University

Dr. Diana Bairaktarova, Virginia Polytechnic Institute and State
University

Beyza Nur Guler, University of California, Irvine

Application of Product Lifecycle Management in the
University Classroom and Laboratory

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TUESDAY, JUNE 27th SESSIONS

David Procopio,
Mr. John Morris, Clemson University
Dr. John R. Wagner P.E., Clemson University
Dr. Gregory Mocko, Clemson University

Mapping Skill Recognition and Development of Undergraduate Mechanical Engineering Students for the Automotive Industry

Sommer Scott,
Dr. Micah Lande, South Dakota School of Mines and Technology

Pro-Op Education: An Integrated Effort to Prioritize the ABCs of the Profession

Dr. Greg Kremer, Ohio University
Dr. Timothy Cyders,
Cody Petitt,
Kouree Michael Chesser,

T538B - Mechanical Engineering Division (MECH) Technical Session 14: Curriculum and Course Assessment in and Outside the Classroom

3:15 P.M. - 4:45 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Joshua Gargac, Ohio Northern University

This session focuses on curricular and co-curricular assessment.

Application of Extracurricular Course Teaching Product Lifecycle Management Concepts to Undergraduates

Mr. John Morris, Clemson University
Dr. John R. Wagner, P.E., Clemson University
Dr. Gregory Mocko, Clemson University

Measuring the Impact of Extra-/Co-Curricular Participation on Professional Formation of Engineers

Dr. Aimee Monique Cloutier, Rose-Hulman Institute of Technology
Dr. Holly M. Matusovich, Virginia Tech
Carol Geary, Virginia Tech
Natali C. Huggins, Virginia Tech

Quarter to Semester Transition: Lessons Learned from a Mechanical Engineering Case

Dr. Amanda C. Emberley, California Polytechnic State University, San Luis Obispo

Dr. Jennifer M. Peuker, California Polytechnic State University, San Luis Obispo

The Application of Small Batch Sizes to the Design and Delivery of Engineering Courses

Dr. John A. Mirth, St. Cloud State University

T539 - Digital Methods in Mechanics: Teaching with Digital Tools

3:15 P.M. - 4:45 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Joseph Rencis, California State Polytechnic University, Pomona; Kevin McMullen, United States Military Academy

This session explores the use of digital technologies for teaching mechanics. Topics include an app for FBDs, augmented reality, virtual laboratories, and system identification. Learn how faculty are leveraging technology, from homemade to Labview or MATLAB, to improve student learning,

WIP: Toward a Free-Body Diagram Mobile Application

Dr. Andrew R. Sloboda, Bucknell University
Prof. Sarah Wodin-Schwartz, P.E., Worcester Polytechnic Institute
Dr. Kimberly Lechasseur, Worcester Polytechnic Institute
Jennifer deWinter, Illinois Institute of Technology

In-Situ Bending Moment Visualization of a Structure Using Augmented Reality and Real-Time Object Detection

Dr. Diana Arboleda, University of Miami
Dr. James Giancaspro, P.E., University of Miami
Max Cacchione, University of Miami
Mert Okyay, University of Colorado, Boulder

Employing Live Scripts for Implementing Virtual Laboratories and Activities

Dr. Rick Hill, University of Detroit, Mercy

Oscillators for System ID and Inertia Measurement in Undergraduate Dynamics

Dr. Michael P. Hennessey, University of St. Thomas
Amir Ahmad Naqwi,

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TUESDAY, JUNE 27th SESSIONS

T540 - Self-Advocacy, Sense of Belonging, Measuring Authentic Diversity, Equity, and Inclusion, and Construction Management Education Programs

3:15 P.M. - 4:45 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division (MIND)

Moderators: Simonne Whitmore, Southern University and A&M College; Allison Murray, Marquette University

Career Outcomes of New York City Louis Stokes Alliance for Minority Participation Graduate Student Activities Coordinators 1998 to Present

Dr. Claude Brathwaite, City University of New York, City College

Work in Progress: Evaluating Teaching Self-Advocacy to Historically Minoritized Graduate Students in STEM

Prof. Carmen Maria Lilley, The University of Illinois, Chicago
Prof. Gregory V. Larnell,

Are Construction Management Education Programs Producing Sufficient Numbers of Minority Graduates to Meet Demand?

Simonne Renee Whitmore, Southern University and A&M College
Opeyemi Peter Ojajuni,

Work in Progress: Measuring Authentic Diversity, Equity, and Inclusion Efforts in a Multiscale Sustainable-Food System Research Network

Winifred Opoku, The Ohio State University
Jameka Wiggins, The Ohio State University
Dr. Monica Farmer Cox, The Ohio State University
Kaitlyn Harper,

T541 - Multidisciplinary Engineering Division (MULTI) Technical Session 2

3:15 P.M. - 4:45 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Khondhaker Al Momin, ; Filza Walters, Texas A&M University

Creating Innovation for Interdisciplinary Robotics Workshops: Solving Issues in the Online Project-Based Learnings in Engineering Education

Prof. Hatsuko Yoshikubo, Shibaura Institute Of Technology, Japan

Dr. Sumito Nagasawa, Shibaura Institute of Technology, Japan

Hiroyuki Ishizaki, Shibaura Institute of Technology, Japan

Development of a Multidisciplinary Engineering Program within the Liberal Arts Environment

Dr. Kathryn Hasz, Carthage College

Dr. Robert L. Nagel, James Madison University & Carthage College

Project-Based Learning for Robot Control Theory: A Robot Operating System (ROS)-Based Approach

Dr. Siavash Farzan, Worcester Polytechnic Institute

An Interdisciplinary Myoelectric Prosthetic Hand Capstone Project

Dr. Eleanor Leung, York College of Pennsylvania

Dr. Stephen Andrew Wilkerson, P.E., York College of Pennsylvania

Dr. Kala Meah, York College of Pennsylvania

T541B - Multidisciplinary Engineering Division (MULTI) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Pamela Gilchrist, Virginia Tech Innovation Campus; Cynthia Barnicki, Milwaukee School of Engineering

What's in a Name? General, Interdisciplinary, and Integrated Engineering Programs

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

How "Multidisciplinary" Is It? Measuring the Multidisciplinary of Classes and Student Teams

Ms. Julie Sonnenberg-Klein, Georgia Institute of Technology

Prof. Edward J. Coyle, Georgia Institute of Technology

Kartik Saigal,

Influence of Interdisciplinary Teaching System on

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TUESDAY, JUNE 27th SESSIONS

Interdisciplinary Competence of Engineering Graduate Students: Analysis of Mediating Effects of Interdisciplinary Identity

Miss peiyun xu, Zhejiang University
Prof. Wei Zhang, Zhejiang University, China
Weijia Zhang, Zhejiang University, China

Multidisciplinary Engineering Programs: Does Combining Engineering Focus Areas with Courses outside of Traditional Engineering Add Value to Students' Degree and Career Pathway?

Robert Lijun Wang, University of Colorado, Boulder
Dr. Malinda S. Zarske, University of Colorado, Boulder

Multidisciplinary Authoring - A Critical Foundation for Augmented Reality Systems in Training and Education

Emi Aoki, University of Massachusetts, Lowell
Bach Tran, University of Akron
Nathan Esosa Uhunsere, University of Massachusetts, Lowell
Dr. Susan Thomson Tripathy, University of Massachusetts, Lowell
Prof. Charles Thompson, Ph.D., University of Massachusetts, Lowell
Prof. Shivakumar Sastry, University of Akron
Prof. Kavitha Chandra, University of Massachusetts, Lowell

T542 - Teaching Tools: Communication (NEE)

3:15 P.M. - 4:45 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Rossana Villa Rojas, University of Nebraska - Lincoln

This session contains works that explore the impact of communication styles on teaching, the use of an inclusive glossary, alternative technical communication for laboratory courses, implementing instructional modules in laboratory report writing, resources to navigate the age of misinformation, assessment of student anxiety and sense of belonging, and student perception of HyFlex courses.

Impact of Communication Styles on Teaching Engineering

Dr. Laura Wieserman, University of Pittsburgh, Johnstown
Dr. Sami Alshurafa,
Dr. Maher M. Murad, University of Pittsburgh, Johnstown

The Inclusive Glossary: An Embedded, Interactive Approach to

Accessible and Inclusive Learning

Jiayi Li, University of Illinois Urbana-Champaign
Mr. Colin P. Lualdi, University of Illinois, Urbana-Champaign
Yijun Lin, University of Illinois, Urbana-Champaign
Aarya Bhatia,
Jihong Cai, University of Illinois at Urbana-Champaign
Sujit Varadhan, University of Illinois at Urbana-Champaign
Mr. Rob Kooper, University of Illinois, Urbana-Champaign
Dr. Lawrence Angrave, University of Illinois, Urbana-Champaign

A Survey of Alternative Modes of Technical Communication in Engineering Laboratory Courses

Dr. Maryam Mirabolghasemi, Mississippi State University

Assessing Faculty Implementation of Laboratory Report Writing Instructional Modules

Dr. Sean St. Clair, Oregon Institute of Technology
Dr. Dave Kim, Washington State University, Vancouver
Dr. Charles Riley, P.E., Oregon Institute of Technology

Resources and Exercises for STEM Educators and Students Navigating the "Misinformation Age"

Ms. Alexis P. Nordin, Mississippi State University
Mr. John Aaron Louis Grimes, Mississippi State University
Ms. Amy K. Barton, Mississippi State University
Shelly Sanders, Mississippi State University

Work in Progress: Design of Mastery-Based-Learning Course Structure to Assess Student Anxiety and Belonging

Meghan Williams, Elizabethtown College
Dr. Elizabeth Dolin Dalton,
Dr. Mark Brinton, Elizabethtown College

Preliminary Results from a Work in Progress Assessing Student Perceptions of the Benefits of Continuing HyFlex Course Format Beyond the COVID-19 Pandemic

Dr. Nicole Becklinger, University of Southern Indiana

T545 - Pedagogy in Physics Education, Engineering Physics and Physics Division (EP2D) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

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TUESDAY, JUNE 27th SESSIONS

Moderators: Kanti Prasad, University of Massachusetts Lowell; Carl Frederickson, University of Central Arkansas

This session will present work examining different pedagogical approaches to teaching physics.

A New Normal: Pedagogical Implications for Physics and STEM Teaching and Learning in the Post-Pandemic Era

Dr. Teresa L. Larkin, American University

Dr. Baishakhi Bose, Lawrence Berkeley National Laboratory

How Students' Efforts Outside of the Classroom Correlate to Their Learning Outcome in Both Online and Face to Face Classes

Dr. Lawretta C. Ononye, State University of New York, Canton

Comparison of the Effectiveness of In-Person and Remote Labs for Undergraduate Physics Students at an HBC

Frank Efe,

Dr. Antony Kinyua, Morgan State University

Ezana Negusse,

Neda Bazyar Shourabi, Pennsylvania State University, Berks

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Krishna Bista,

Dr. Uttam Gaulee,

Hannah Abedoh, Morgan State University

Dr. Oludare Adegbola Owolabi P.E., Morgan State University

Arnesto Bowman, Morgan State University

Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

Dr. Steve Efe, Morgan State University

Krishna Bista, Morgan State University

Working Adult Students' Perceptions of Flipped Classroom Videos in an Undergraduate Physics Course

Mr. Rodrigo Alonso Vergara, Universidad Andres Bello, Chile

Prof. Genaro Zavala, Tecnológico de Monterrey, Mexico; Universidad Andres Bello, Chile

Students' Perception of Active Learning in the Acoustic Physics Course

Johanna Antonia Perasso,

Prof. Angeles Dominguez, Tecnológico de Monterrey, Mexico; Universidad Andres Bello, Chile

T547 - Student Division (STDT) Technical Session 4: Minoritized Student Experiences

**3:15 P.M. - 4:45 P.M., ROOM 349, BALTIMORE
CONVENTION CENTER**

Sponsor: Student Division (STDT)

Moderator: Jessica Manning, Clemson University

Highlighting Community Cultural Wealth of Black Students Raised in the United States by Parents Born and Raised Abroad

Miss Aimee Sayster, Clemson University

Ms. Jessica Allison Manning, Clemson University

Dr. Catherine E. Brawner, Research Triangle Educational Consultants

Dr. Catherine Mobley, Clemson University

Dr. Marisa K. Orr, Clemson University

Dr. Rebecca Brent, Education Designs, Inc

Attracting Black Students to Undergraduate Engineering Programs: A Rapid Review for Broadening Participation

Micaha Dean Hughes, North Carolina State University, Raleigh

John Roberts, UK College of Engineering

Supporting Students with Minoritized Gender Identities in Research: the Design and Assessment of an Initiative in Electrical and Computer Engineering

Ms. Mei-Yun Lin, University of Illinois, Urbana-Champaign

Hsinju Chen, University of Illinois, Urbana-Champaign

Prof. Holly M. Golecki, University of Illinois, Urbana-Champaign

Leah Espenhahn,

Erin Marie Raftery,

Alyssa Huang,

Mayura Kulkarni,

Supporting Graduate Women in Engineering: The Approach and Findings of a Year-Long Program at UIUC

Ms. Aadhy Parthasarathy, University of Illinois, Urbana-Champaign

Rupal Nigam, University of Illinois, Urbana-Champaign

Aanchal Gupta, University of Illinois, Urbana-Champaign

Ms. Tove Elisabeth Kopperstad, University of Illinois, Urbana-Champaign

Ani Pirozmanishvili, University of Illinois, Urbana-Champaign

Theresa Ann Saxton-Fox, University of Illinois, Urbana-Champaign

The Effect of a Collaborative Environment on Engineering Students' Social Networks

Hannah Corbin,

Noor Aulakh, Rowan University

Alex Herrman, Rowan University

Conor Peterson,

Shahir Shariful Mollah,

Darby Rose Riley, Rowan University

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TUESDAY, JUNE 27th SESSIONS

Dr. Kaitlin Mallouk, Rowan University

T550 - Two-Year College Division

3:15 P.M. - 4:45 P.M., KEY 1 & 2, HILTON BALTIMORE INNER HARBOR

Sponsor: Two-Year College Division (TYCD)

Moderator: Dominic Dal Bello, Allan Hancock College

Annual business meeting.

T551 - Women in Engineering Division (WIED) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Suzanne Zurn-Birkhimer, Purdue University at West Lafayette (COE)

This session presents about women students in their first-years in college as well as during the pre-college experiences.

Linking Engineering to Life: Expanding Gender Diversity in STEM Through an Afterschool Program

Dr. Amber L Doiron, University of Vermont

Katherine O'Shea,

Ms. Nicole M Miller, Vermont Afterschool, Inc.

Tracy L Truzansky,

Gendered patterns in first-year engineering students' career aspirations and expectations

Ms. Catherine MacKenzie Campbell, University of Toronto, Canada

Dr. Andrea Chan, University of Toronto, Canada

Jessica J. Li, P.E., University of Toronto, Canada

Philip Asare, University of Toronto, Canada

Dr. Emily Moore, University of Toronto, Canada

Increasing the Persistence of Black Women in STEM (WiSTEM) by Implementing and Sustaining a Successful Cohort Model for First-Year Undergraduate Women at an HBCU

Dr. Monica Stephens, Spelman College

Dr. Tiffany Renee Oliver, Spelman College

Dr. Pamela M Leggett-Robinson, PLR Consulting

Qualitative Study of Women's Personal Experiences of Retention and Attrition in Undergraduate Engineering

Programs

Elle Ann Kreiner, University of Maryland Baltimore County

Dr. Jamie R Gurganus, University of Maryland Baltimore County

Examining First-Year Student Success and Attitudes During Challenging Times

Ms. Hannah Boyce, Massachusetts Institute of Technology

Madeline JoAnna Szoo, Northeastern University

Dr. Paul A. DiMilla, Northeastern University

Ms. Rachelle Reisberg, Northeastern University

T551B - Women in Engineering Division (WIED) Technical Session 6

3:15 P.M. - 4:45 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Karen Rambo-Hernandez, Texas A&M University

This session addresses faculty-level concerns for women in engineering.

Work in Progress: The Power of Cross-Institutional "Speed" Mentoring and Networking Program in Advancement of Women, URM, and Foreign Born/Trained Engineering Faculty

Dr. Arezoo Sadrinezhad,

Dr. Lalita G. Oka, California State University, Fresno

Dr. Kimberly Stillmaker, P.E., California State University, Fresno

Dr. Lizabeth L. Thompson, California Polytechnic State University, San Luis Obispo

Catalina Eleonora Cardenas Arriaga,

Dr. Maryam Nazari,

Prof. Sue Rosser, San Francisco State University

Kira Abercromby,

Exploring Institutional Retention Support Initiatives for Retaining Women of Color STEM Faculty

Dr. Tonisha B. Lane, Virginia Tech

Dr. Johnny C. Woods Jr., Virginia Tech

Natali Huggins, Virginia Tech

Dr. Sylvia W. Thomas, University of South Florida

Samuel Asare Darko,

Faika Tahir Jan,

Dr. Sandra Johnson Austin, Charis Consulting Group, LLC

2023 ASEE ANNUAL CONFERENCE

TUESDAY, JUNE 27th SESSIONS

Dr. Lidia Kos, Florida International University

Work In Progress: Serendipity and Synergy in Promoting Equity

Dr. Andrea E. Surovek, South Dakota School of Mines and Technology

Dr. Brooke Lamonte Long-Fox, South Dakota School of Mines & Technology

Arley Williams, South Dakota School of Mines and Technology

Lisa A. Kunza,

Sara Elizabeth Racz,

Work In Progress: Engineering Faculty and Role Models

Mr. Syed Ali Kamal, University at Buffalo, The State University of New York

Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York

Esther Jose, University at Buffalo, The State University of New York

How to Make Engineering Programs Worse for Women: A Reverse Brainstorming Session with SWE Students

Mrs. Sandra Furnbach Clavijo, Stevens Institute of Technology

T552 - Community Engagement Division Business Meeting

3:15 P.M. - 4:45 P.M., POE, HILTON BALTIMORE INNER HARBOR

Sponsor: Community Engagement Division (COMMENG)

Moderator: Malini Natarajarathinam, Texas A&M University

Community Engagement Division Business Meeting

T555 - Engineering Leadership Development Division (LEAD) Business Meeting

3:15 P.M. - 4:45 P.M., KEY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Leadership Development Division (LEAD)

Moderator: Cindy Rottmann, University of Toronto

LEAD business meeting

T557 - Faculty Development

Division (FDD) Technical Session 5

3:15 P.M. - 4:45 P.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Tershia Pinder-Grover, University of Michigan

Work In Progress: The Benefits and Challenges of Faculty Development through Interdisciplinary Public Outreach

Cassandra Wallwey, Virginia Tech

Dr. Renee M. Desing, Oregon State University

Dr. Rachel Louis Kajfez, The Ohio State University

Innovation Training and Its Impact on Faculty Approach to Curricular and Pedagogical Changes

Prof. Arun R. Srinivasa, Texas A&M University

Rujun Gao, Texas A&M University

Prof. M. Cynthia Hipwell, Texas A&M University

Dr. Mindy Bergman, Texas A&M University

David Christopher Seets,

Emma Edoga, Texas A&M University

Luis Angel Rodriguez,

Guillermo Aguilar, Texas A&M University

Dr. Andreas A. Polycarpou, Texas A&M University

Faculty Development by Design

Dr. Kathryn Dimiduk, Cornell University

A Qualitative Exploration of Resource-Related Barriers Associated with EBIP Implementation in STEM Courses

Jeff Knowles, Oregon State University

Dr. Amy L. Brooks, Oregon State University

Elliott Clement, Oregon State University

Dr. Prateek Shekhar, New Jersey Institute of Technology

Dr. Shane A. Brown, P.E., Oregon State University

Mustafa Aljabery, Oregon State University

Faculty Workshop on Teaching Sustainability

Prof. Elisabeth Smela, University of Maryland College Park

Dr. Vincent Nguyen, University of Maryland, College Park

Dr. David Isaac Bigio, University of Maryland, College Park

Dr. Natasha Andrade, University of Maryland, College Park

Dr. Nicole Farkas Mogul, University of Maryland, College Park

Dr. David Tomblin, University of Maryland, College Park

Andrew Elby, University of Maryland, College Park

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T559 - Equity, Culture, & Social Justice Business Meeting

3:15 P.M. - 4:45 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Equity, Culture, & Social Justice Business Meeting.

T572 - INDUSTRY DAY: The Future of Upskilling and Lifelong Learning

3:15 P.M. - 4:45 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Corporate Member Council (CMC)

Moderator: Stephanie Harrington, ABET

Speakers: Mr. Jeffrey Alderson, MathWorks; Dr. Soma Chakrabarti, ANSYS, Inc.; Dr. Patrick R Kane, Cypress Semiconductor Corp.; Jessica Silwick, ABET

This session will explore the future of upskilling and lifelong learning, emphasizing the importance of technical and essential skills for personal and professional growth. We will discuss the significance of mentor training in effectively cultivating these skills. Participants will gain insights into the evolving landscape of upskilling in the digital age, recognize the value of both technical and essential skills in a rapidly changing world, and explore how mentorship facilitates the acquisition of these skills. The session will provide practical guidance on effective mentor training strategies and methodologies, with a focus on emerging trends, essential technical skills, and the transformative power of mentorship. By embracing continuous learning and mentorship, participants will be empowered to shape a successful future.

T573 - North Midwest Section (NWS) Business Meeting

3:15 P.M. - 4:45 P.M., KEY 8, HILTON BALTIMORE INNER HARBOR

Sponsor: Council of Sections (COS)

This meeting is for members of the ASEE North Midwest Section.

T581 - ASEE Commission on Diversity, Equity, and Inclusion (CDEI) Roundtable

3:15 P.M. - 4:45 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Homero Murzi, Virginia Polytechnic Institute and State University; Dr. Meagan C Pollock, Engineer Inclusion; Dr. Jeremi S London, Virginia Polytechnic Institute and State University

This roundtable session will be a guided, open conversation for members of the community to engage in provocative and productive discussions about key issues (accessibility, inclusive practices, etc.) in diversity, equity, and inclusion in engineering education. There will be several tables with leaders serving as moderators and leading the topic of conversation. Several alternative topics will be offered.

After about 10 minutes of small-group introductions, the rest of the time will be open for conversation. The moderator will start with an opening question and let people expand the conversation from there. People will bring different perspectives and levels of expertise, and everyone will contribute to the discussion equally.

T582 - UEC Business Meeting

3:15 P.M. - 4:45 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: Undergraduate Experience Committee (UEC)

Moderators: Michelle Sabick, University of Denver; Mary Besterfield-Sacre, University of Pittsburgh

The Undergraduate Experience Committee (UEC) of the Engineering Deans Council will meet to discuss topics of interest to deans and associate deans, such as recruiting new members and identifying subjects for upcoming meetings.

T594A - SPONSOR TECH SESSION: Expanding the STEM Pipeline through Partnerships and Outreach, Presented by Texas A&M Engineering

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**3:15 P.M. - 4:45 P.M., ROOM 303 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

Texas A&M Engineering has a legacy of working with partners to deliver high-impact, innovative programs that engage and inspire students of all ages to pursue careers in engineering. This session will highlight programs such as SPARK! PK–12 Education Outreach, engineering academies, and Texas A&M University at Qatar's pre-university engineering enrichment programs that broaden recruitment and matriculation of engineering students and support their success.

Speakers:

Ben Cieslinski, Texas A&M University at Qatar; Dr. Cindy Lawley, Texas A&M University, College of Engineering

T594B - SPONSOR TECH SESSION: Remotely Accessible STM32 Microcontrollers with LabsLand and Digi-Key; Connecting the Hands-on Labs to Real-World Applications through the Internet, Presented by STMicroelectronics

**3:15 P.M. - 4:45 P.M., ROOM 301 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

Join us for an engaging presentation on the benefits of remote laboratories in engineering education, featuring a collaboration between LabsLand, Digi-Key, and STMicroelectronics. The session will highlight the unique advantages of using remote laboratories, with a particular focus on the STMicroelectronics' Nucleo development board remote laboratories, developed by LabsLand and Digi-Key for ARM-based embedded system development.

During this workshop, we will discuss how remote laboratories allow students to build real-world applications, and offer students greater flexibility and accessibility, allowing them to access ST boards 24/7. This innovative approach to engineering education provides students with hands-on experience that may not be feasible in a traditional

lab setting, preparing them for the challenges of the modern workforce.

By attending this sponsored talk, you will gain insights into the potential impact of remote laboratories on engineering education and the future of professional embedded systems development. Learn how you can integrate remote laboratories into your curriculum to enhance student learning and prepare the next generation of engineers for success.

Speaker:

Pablo Orduna is the Co-founder and CEO of LabsLand, a global network of remote laboratories. He obtained his Ph.D. in Computer Science at the University of Deusto.

T594C - SPONSOR TECH SESSION: The AVEVA Academic Competition—Building a Sustainable Future through Simulation by Helping Your Students Develop New Simulation Skills While Working on a Sustainable Design Project, Presented by AVEVA

**3:15 P.M. - 4:45 P.M., ROOM 302 - SPONSOR
TECH SESSION ROOM, BALTIMORE
CONVENTION CENTER**

Sponsor: Sponsor Technical Sessions

As a faculty member, you play a crucial role in inspiring and preparing your students for the challenges of the future. One excellent opportunity to do so is by encouraging them to participate in the AVEVA Academic Competition. This competition is designed to promote sustainable development by challenging students to develop innovative solutions to real-world problems using AVEVA Process Simulation. By incorporating this solution, students can create a digital twin that delivers a seamless design, with modern software architecture and open-model writing, allowing them to switch between steady state, rating, and dynamic modes.

By promoting this competition to your students, you can help them gain valuable experience in sustainability and putting their ideas into practice, while also learning AVEVA Process Simulation. Additionally, this competition offers students the chance to win prizes, recognition, and network with excellent professionals, enhancing their academic and professional development.

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Overall, the AVEVA Academic Competition is an outstanding opportunity for students to develop their skills and contribute to a better world. As a faculty member, you can encourage and support your students to participate in this competition by joining our workshop and learning more about it.

T669 - FOCUS ON EXHIBITS: Networking Social Sponsored by the Premier Institutional Partners

5:00 P.M. - 6:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

FOCUS ON EXHIBITS: Networking Social

T705 - Chemical Engineering Division Banquet

6:00 P.M. - 9:00 P.M., OFFSITE, B&O AMERICAN BRASSERIE AT THE KIMPTON HOTEL MONACO BALTIMORE, 201 NORTH CHARLES STREET, BALTIMORE, MD 21201

Sponsor: Chemical Engineering Division (ChED)

Moderators: Janie Brennan, Washington University in St. Louis; Neha Raikar, University of Maryland Baltimore County

At the annual banquet of the Chemical Engineering Division, its annual awards will be presented.

Ticketed event: \$75.00 advanced registration and \$85.00 on site registration

T725 - EED Dinner Social at Luna Del Sea

6:30 P.M. - 8:30 P.M., OFFSITE, LUNA DEL SEA, 300 WEST PRATT STREET, BALTIMORE MD

Sponsor: Environmental Engineering Division (ENVIRON)

Moderators: Shannon Parks, University of Pittsburgh at Johnstown; David Sanchez, University of Pittsburgh

Join the Environmental Engineering Division for a casual Dinner Social. Family members are welcome! Payment will be made on an individual basis at the venue. A limited menu will be available, including New York strip steak, seafood, and vegetarian options. Space is limited, so please register

by May 31.

Free ticketed event

T750 - Two-Year College Division Social

6:30 P.M. - 9:00 P.M., OFFSITE, PICKLES PUB 520 WASHINGTON BLVD BALTIMORE, MD 21230, 520 WASHINGTON BOULEVARD BALTIMORE, MD 21230

Sponsor: Two-Year College Division (TYCD)

Moderator: Philip Regalbuto, Trident Technical College

Members and prospective members of the Two-Year College Division will share food, drink, and fellowship at Pickles Pub, 520 Washington Blvd., Baltimore, MD 21230.

T701 - Aerospace Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, LUNA DEL SEA STEAK & SEAFOOD BISTRO., 300 W PRATT ST, BALTIMORE, MD 21201.

Sponsor: Aerospace Division (AERO)

Moderator: Waterloo Tsutsui, Purdue University at West Lafayette (COE)

The 2023 Aerospace Division Social Event will be held from 7–9 p.m. on Tuesday, June 27, at the Luna Del Sea Steak & Seafood Bistro (300 W. Pratt Street, Baltimore, MD 21201; <https://www.lunadelsea.com/>).

Reservations will be under ASEE Aerospace Division, Waterloo Tsutsui.

Note: Attendees will pay for their own food.

T704 - Biomedical Engineering Division (BED) Social and Awards Banquet

7:00 P.M. - 9:00 P.M., OFFSITE, LA SCALA RISTORANTE ITALIANO, 1012 EASTERN AVE, BALTIMORE, MD 21202

Sponsor: Biomedical Engineering Division (BED)

Moderators: Yanfen Li, University of Massachusetts Lowell; Jennifer Choi, University of California, Davis

The social/networking event and awards banquet for the

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Biomedical Engineering Division (BED) is a ticketed event; dinner is included in the ticket cost. New and returning BED members are encouraged to attend!

Ticketed event: \$80.00 advanced registration and \$90.00 on site registration

T706 - Civil Division Awards Dinner

7:00 P.M. - 9:00 P.M., OFFSITE, THE HISTORIC WESTMINSTER HALL & BURIAL GROUND, 519 WEST FAYETTE STREET BALTIMORE, MARYLAND 21201

Sponsor: Civil Engineering Division (CIVIL)

Join the members of the Civil Division in recognizing the achievements of colleagues. All division members are encouraged to attend to learn more about the history and activity of the division.

Attendees have been invited to tour the grounds of the property and tour guides will be hosting walk-throughs to discuss its history and lore. Wear comfortable shoes to participate in the walks.

A social hour will allow everyone to participate in tours and enjoy pre-dinner drinks. Dinner will be provided with a light awards program. Citron will cater this event.

Ticketed event: Civil Engineering Division Awards Dinner - \$50.00 advanced registration and \$60.00 on site registration

T709 - Construction and Architectural Division Social

7:00 P.M. - 9:00 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsors: Construction Engineering Division (CONST); Architectural Engineering Division (ARCHE)

Social event for the Construction and Architectural Division

T713 - DEED Social Function

7:00 P.M. - 9:00 P.M., OFFSITE, BALTIMORE INNER HARBOR OUTDOOR STAGE, BALTIMORE INNER HARBOR

Sponsor: Design in Engineering Education Division (DEED)

T715 - ECE Division Social/Dinner

7:00 P.M. - 9:00 P.M., OFFSITE, TBD, TBD

Sponsor: Electrical and Computer Engineering Division (ECE)

ECE Division Social/Dinner

T716 - Engineering Conversion, Conservation and Nuclear Engineering Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, TBD, TBD

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

ECCNE Division Social

Attendees will pay on their own, on-site.

T718 - EDG Division Social

7:00 P.M. - 9:00 P.M., EUTAW STREET RECEPTION AREA, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Design Graphics Division (EDGD)

Free ticketed event

T721 - Engineering Libraries Division Annual Banquet

7:00 P.M. - 9:00 P.M., OFFSITE, THIS EVENT IS HELD OFF-SITE BY INVITE ONLY. ELD MEMBERS SHOULD CHECK THE MEMBER LISTSERV FOR EVENT DETAILS. , TBD

Sponsor: Engineering Libraries Division (ELD)

This event is held offsite by invitation only. ELD members should check the member listserv for details.

Free ticketed event

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T722 - Joint Social Event: EMD, EED, IND, SYS

7:00 P.M. - 9:00 P.M., CARROLL, HILTON BALTIMORE INNER HARBOR

Sponsors: Engineering Management Division (EMD); Engineering Economy Division (EED); Industrial Engineering Division (IND); Systems Engineering Division (SYS)

This session will feature a joint social and awards ceremony for four divisions: Engineering Management (EMD), Engineering Economy (EED), Industrial Engineering (IND), and Systems Engineering (SYS).

Ticketed event: \$80.00 advanced registration and \$90.00 on site registration

T724 - Entrepreneurship & Engineering Division Reception & Poster Session, Presented by Engineering Unleashed

7:00 P.M. - 9:00 P.M., BALLROOM 1 & 2 , BALTIMORE CONVENTION CENTER

Sponsor: Entrepreneurship & Engineering Innovation Division (ENT)

Entrepreneurship & Engineering Division reception & poster session presented by Engineering Unleashed

Free ticketed event

T732 - International Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, HARD ROCK CAFE, 601 E. PRATT STREET, INNER HARBOR, BALTIMORE, MD 21202

Sponsor: International Division (INTL)

Moderator: James Warnock, University of Georgia

Given the ASEE-wide financial challenge and that no divisions can withdraw any divisional funds, the International Division cannot subsidize this year's social event.

To attend, participants must purchase this \$40 ticket that covers the meal at the Hard Rock Café (601 E. Pratt Street, Inner Harbor, Baltimore, MD 21202) in a reserved room. Registration for this social event has to happen by two days

before the conference so we will have the exact head count to update our restaurant reservation. No onsite registration is possible. We will email the the detailed meeting information to the registered participants list. Please check your emails when the conference gets close.

We sincerely hope to see as many members and members-to-be as possible.

Ticketed event: \$40.00 advanced registration and \$50.00 on site registration

T734 - LEES & Friends Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, BLACKWALL HITCH, 700 E PRATT ST., BALTIMORE, MD 21202

Sponsors: Liberal Education/Engineering & Society Division (LEES); Community Engagement Division (COMMENG); Equity, Culture & Social Justice in Education Division (EQUITY)

Enjoy a cross-disciplinary social event as an off-site celebration. RSVP via link on fliers.

T735 - Manufacturing Division Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, RUSTY SCUPPER, 402 KEY HIGHWAY, BALTIMORE , MD 21230.

Sponsor: Manufacturing Division (MFG)

Manufacturing Division Social Event

Ticketed event: Manufacturing Division Social - \$85.00 advanced registration and \$95.00 on site registration

T736 - Materials Division Social

7:00 P.M. - 9:00 P.M., OFFSITE, PERI-PERI CHICKEN AND SAUCES, RESTAURANT CHAIN FROM THE UK, SPECIALIZING IN SOUTH AFRICAN FLAME-GRILLED

Sponsor: Materials Division (MATS)

Get to know other Materials Division members at this fun social event, to be held Nando's near the convention center. Note: At this time, the division is unable to pay for attendees' food and offers apologies.

2023 ASEE ANNUAL CONFERENCE TUESDAY, JUNE 27th SESSIONS

T739 - Mechanics Division Awards Banquet

7:00 P.M. - 9:00 P.M., OFF SITE

Sponsor: Mechanics Division (MECHS)

Moderators: Phillip Cornwell, Rose-Hulman Institute of Technology; Geoffrey Recktenwald, Michigan State University; Chris Venters, East Carolina University; Julian Davis, University of Southern Indiana

Enjoy a great meal with mechanics colleagues, meet new fellow mechanics educators, and share in celebrating award honorees for best paper at this year's conference and best presentation from last year's conference. All are welcome.

Ticketed event: \$75.00 advanced registration and \$85.00 on site registration

T742 - NEE Social Event

7:00 P.M. - 9:00 P.M., OFFSITE, WE INVITE YOU TO COME AND MEET NEW AND SEASONED FACULTY. WE WILL CELEBRATE AND RECOGNIZE OUR BEST PAPER AUTHORS.

DRINK AND FOOD WILL BE AVAILABLE FOR PURCHASE, TBD

Sponsor: New Engineering Educators Division (NEE)

Free ticketed event

T752 - Community Engagement Division Social Function

7:00 P.M. - 9:00 P.M., OFFSITE, BLACKWALL HITCH, 700 E PRATT ST, BALTIMORE, MD 21202

Sponsor: Community Engagement Division (COMMENG)

Moderator: Shoshanah Cohen, Stanford University

The Community Engagement Division's Social will be held with the LEES Social as a cross-disciplinary off-site celebration.

RSVP via link on fliers or at <https://tinyurl.com/ASEECEDSocial>.

T756 - Military and Veterans Division Dinner Social

7:00 P.M. - 9:00 P.M., OFFSITE, TO BE DETERMINED, TO BE DETERMINED

Sponsor: Military and Veterans Division (MVD)

Moderator: Jerry Dahlberg, University of Tennessee, Space Institute

Annual no-host dinner for members of the Military and Veterans Division and those interested.

T772 - INDUSTRY DAY: Institutional Council Reception (By Invite Only)

7:00 P.M. - 9:00 P.M., OFFSITE, UNIVERSITY OF MARYLAND, COLLEGE PARK CAMPUS, A. JAMES CLARK HALL, 8278 PAINT BRANCH DR. COLLEGE PARK, MD 20742

Sponsors: Corporate Member Council (CMC); Engineering Deans Council (EDC); Engineering Research Council (ERC)

By Invitation Only

Free ticketed event

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WEDNESDAY, JUNE 28th SESSIONS

W192 - Prayer Breakfast

7:00 A.M. - 8:00 A.M., KEY 1&2, HILTON BALTIMORE INNER HARBOR

Sponsor: Organizations Outside ASEE

Please join Christian faculty and staff for our annual prayer breakfast at the ASEE Conference on Wednesday morning of this year's conference. We meet to discuss challenges facing Christian faculty and staff in academia, in living their faith, and in sharing their faith in today's academic environment. In addition to sharing our experiences, we have invited a speaker to provide challenge and wisdom.

Though the theme is the challenges facing Christian faculty and staff, anyone attending this ASEE conference is welcome to attend this Prayer Breakfast. We will enjoy making new friends at this breakfast and renewing our old friendships.

Please bring your own coffee and light breakfast items if you like. There is no catering for this session. Then plan to meet with us to begin the conference's last day.

W169A - Sunrise Yoga

7:00 A.M. - 7:45 A.M., CONVENTION CENTER TERRACE GRADEN - 3RD FLOOR, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

W169B - Registration & Poster Board Viewing

8:00 A.M. - 4:00 P.M., EXHIBIT HALL ABCD , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

W101 - TOPICAL PLENARY: Engineering Education from the Perspective of Customers in the Government & Military

8:00 A.M. - 9:00 A.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Aerospace Division (AERO)

Speaker: Dr. Michael S. Warner,

Engineering education often focuses on preparing students to be product or service providers (in government speak, working for a contractor). However, the government, as the customer for products and services, also needs engineers to focus on setting requirements (rather than design), maintaining (rather than building), operational testing, reverse engineering, and researching technology without a clear business case.

This session will survey the key differences between serving as an engineer and as a customer in the government, with application for educators preparing customers and solution providers alike.

W114 - TOPICAL PLENARY: Leveraging Your Agency to Promote Diversity, Equity, and Inclusion (DEI) in the Engineering Education Ecosystem

8:00 A.M. - 9:00 A.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Speaker: Dr. Tershia A. Pinder-Grover, University of Michigan

This session will discuss ways to leverage an agency to promote diversity, equity, and inclusion (DEI) in the engineering education ecosystem more effectively.

W115 - TOPICAL PLENARY: What We Learned at the Revolution: Insight and Impact in the Context of the 2015 and 2016 NSF RED Projects

8:00 A.M. - 9:00 A.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsors: Electrical and Computer Engineering Division (ECE); Biomedical Engineering Division (BED); Chemical Engineering Division (ChED); Civil Engineering Division (CIVIL); Mechanical Engineering Division (MECH)

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This topical plenary will explore the impact of the NSF Revolutionizing Engineering and Computer Science Departments (RED) program on the institutions that were funded in 2015 and 2016. Now that those projects are complete, we can learn a great deal about academic change and the transformation of engineering curricula in the middle years of undergraduate education.

Each of the RED project participants served on their institution's respective RED teams as PI, disciplinary faculty, or engineering education expert. Their perspectives will provide insights about the impact of RED on their departments and what non-RED departments can learn and apply to their own educational contexts.

The session will appeal to attendees in all disciplines of engineering and computer science, since the RED program is open to all disciplines. The session will encourage the dissemination of RED project products through collaboration between RED and non-RED departments and for individuals to learn more about the RED program and submit their own proposals as a result.

W134 - TOPICAL PLENARY: Saying the Words: Centering Racism and Other Critical Frameworks for 21st-Century Engineering Education

8:00 A.M. - 9:00 A.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsors: Liberal Education/Engineering & Society Division (LEES); Equity, Culture & Social Justice in Education Division (EQUITY)

Speakers: Prof. Amy Slaton, Drexel University; Prof. Sepehr Vakil, ; Stephanie Masta, Purdue University at West Lafayette (PPI); Dr. Meagan C. Pollock, Engineer Inclusion; Mrs. Kayla R. Maxey, Purdue University at West Lafayette (COE)

This session will provide historical context for diversity, equity, inclusion, and justice (DEIJ) efforts, and a moderated discussion of challenges and opportunities by scholars and activists representing pro-Black, Indigenous, queer, or disability perspectives on engineering education.

W140 - TOPICAL PLENARY: Advancing Antiracism, Diversity, Equity, and Inclusion in

Engineering

8:00 A.M. - 9:00 A.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division (MIND)

Speakers: Karl Reid, ; Dr. Erick Jones, The University of Texas at Arlington

Ensuring that higher education incorporates Antiracism, Diversity, Equity, and Inclusion (ADEI) into its operations can make engineering education more accessible, meaningful, and engaging for students of all racial and ethnic backgrounds.

W144A - TOPICAL PLENARY: Maritime Workforce Development with Industry

8:00 A.M. - 9:00 A.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsors: Ocean and Marine Division (OMED); Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE); Instrumentation Division (INST); Multidisciplinary Engineering Division (MULTI)

This plenary will discuss workforce development at the intersection of engineering and the maritime trades. Time and conditions permitting, a one-hour tour of local facilities will follow the plenary.

Free ticketed event

W154 - TOPICAL PLENARY: From Changing Engineering Courses to Changing the Course of Engineering: Seizing Today's Sustainability Opportunity

8:00 A.M. - 9:00 A.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

Moderator: Jenna Carpenter, Campbell University

Speakers: Cindy Cooper, The Lemelson Foundation; Dr. Michael K. J. Milligan P.E., ABET; Dr. Adebayo Ogundipe, James Madison University; Mrs. Dora Smith, Siemens Digital Industries Software

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Engineering education produces highly skilled professionals, and engineers from all disciplines have an impact on the world in large and small ways every day. The work of engineers has increased life expectancy, produced life-saving technologies, improved the ability to connect with distant places and people, enabled communications around and beyond the ends of the Earth, and created joyful media and entertainment experiences, to name just a few.

However, many engineered solutions have also led to unintended negative social and environmental impacts. The negative effects of climate change, pollution, and health disparities have a disproportionate impact on people from historically marginalized communities. People of color and women are underrepresented in engineering, but their perspectives and lived experiences are critical to developing the best engineering solutions that no longer perpetuate environmental, economic, or social disparities.

Engineering educators are increasingly seeking to introduce sustainability into coursework. This session will provide teaching tools, capacity-building, and course buy-outs or resources to do so.

To both address and avoid negative impacts of the range of activities that engineers undertake, engineers must be prepared in a broad range of skills under the broad umbrella of sustainability. These include technical skills such as Life-Cycle Assessment and energy measurement, and high-demand professional skills such as communication, teamwork and leadership, and critical thinking to evaluate ethical issues and trade-offs.

As the aspirations of employers turn toward imbuing sustainability across engineering and business functions, the demand for sustainability skills is outweighing the supply.

W169D - TOPICAL PLENARY: The Coalition for Life Transformative Education: Preparing Students for a Lifetime of Wellbeing

8:00 A.M. - 9:00 A.M., ROOM 327, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

Speaker: Dr. Keith W Buffinton, Bucknell University

Over the past decade, colleges and universities have focused their efforts on student success as measured by increased graduation rates and reduced time to degree. These efforts

have led to major gains, and they are ongoing. They have also naturally led to the next frontier in higher education where success is measured not only by graduation rates but also by impact on students' wellbeing long after graduation.

This greater goal is as appropriate to small liberal arts colleges as it is to regional and national public universities. If college is in fact meant to prepare students to achieve financial viability, find meaning in their human relationships and their work, contribute to the common good, and achieve lifelong well-being and satisfaction, higher education needs to establish which experiences during a student's education are most likely to lead to these life-transformative outcomes. This talk will describe some of the forces that are currently buffeting higher education as well as the work of the Coalition for Life Transformative Education in moving us toward a future in which students are empowered with identity, agency, and purpose.

W181 - TOPICAL PLENARY: I Know That's Right: The Importance of Critical Mentorship in Engineering Education

8:00 A.M. - 9:00 A.M., BALLROOM 1 & 2, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speaker: Dr. Jeremy A. Magruder Waisome, University of Florida

This topical plenary provides experiences of researchers, practitioners, and beneficiaries of critical mentorship in engineering education. The conversational-style session will expose attendees to the positive and negative experiences of minoritized individuals in engineering. Engineering is rife with examples of interventions that fail students from minoritized backgrounds. For decades, organizations and institutions have sought to diversify engineering talent at all levels by introducing programs that offer "mentorship," but fail to design, assess, and/or evaluate the impacts of those programs.

The session will look at critical mentorship as a way to address inequities in a way that is effective and rooted in anti-deficit notions for members of historically marginalized groups — a "nothing about us without us" approach that centers the voice of mentees. It offers a counternarrative to ideologies of knowledge and power, so students can take ownership of their personal and professional development.

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This session seeks to ask and answer questions about what mentorship should be in engineering education, especially higher education. It will highlight scholarship in mentorship that is culturally relevant and intersectional, and involves a community-based participatory approach. It will offer effective mentorship strategies for developing a diverse engineering workforce, so access, equity, and inclusion in engineering can increase.

W169C - Exhibit Hall Open

9:00 A.M. - 12:00 P.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

W144B - Coast Guard Yard Tour

9:00 A.M. - 12:00 P.M., OFFSITE, THE COAST
GUARD YARD, TRANSPORTATION LEAVES AT
9:00 AM FROM THE CONVENTION CENTER

Sponsors: Ocean and Marine Division (OMED);
Energy Conversion, Conservation and Nuclear
Engineering Division (ECCNE); Instrumentation
Division (INST); Multidisciplinary Engineering
Division (MULTI)

9–10 a.m. travel to Coast Guard Yard

10–11 a.m. tour of Coast Guard Yard

11–12 noon return to ASEE Conference at the Convention
Center

Travel details to follow.

Free ticketed event

W232 - International Division (INTL) Technical Session #4: Global DEI

9:15 A.M. - 10:45 A.M., ROOM 339, BALTIMORE
CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: James Warnock, University of Georgia

International Division Technical Session 7

Fulbright Scholar Grant: How to Get It and Make It Successful?

Dr. Mudasser Fraz Wyne, National University

Case Study: International Summer Research Programming
Experiences Sponsored by TAMUS LSAMP

Dr. Michael D. Preuss, Exquiri Consulting, LLC
Mr. John Albert Avila Sr., Texas A&M University
Dr. Karen L. Butler-Purry, P.E., Texas A&M University
Dr. Shannon Walton, Texas A&M University
Ahmarlay Myint, Texas A&M University
Dr. Maria Claudia Alves, Texas A&M University
Dr. John Walewski, Texas A&M University
Zenon Medina Cetina,
Kim Withers,
Keisha D. Bahr, Texas A&M University
Sasha Sentz,
Barbara Szczerbinska, Texas A&M University

Telling Half a Story: A Mixed Methods Approach to
Understanding Culturally Relevant Engineering Education in
Nigeria and the U.S.

Moses Olayemi, Purdue University, West Lafayette

Understanding How International Graduate Students in
Engineering Fit into American Culture through the Lens of
Gender Pronouns: A Pilot Study

Miss Xiaping Li, University of Michigan

Dr. Cynthia J. Finelli, University of Michigan

Engineering Educators' International Recognition: How and
What for

Prof. Jose Carlos Quadrado, ENTER Network

Dr. Kseniya Zaitseva, ENTER Network

W269 - FOCUS ON EXHIBITS: Networking Break & NSF Grantees Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

This session is sponsored by the Premier Institutional
Partners.

W278 - NSF Grantees Poster Session

9:15 A.M. - 10:45 A.M., EXHIBIT HALL ABCD ,
BALTIMORE CONVENTION CENTER

Sponsor: NSF Grantees Poster Session

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Board 196: A Framework to Assess Debugging Skills for Computational Thinking in Science and Engineering

Derrick Hylton, Spelman College

Dr. Shannon Hsianghan-huang Sung, Institute for Future Intelligence

Xiaotong Ding,

Mary Johanna Van Vleet,

Board 198: A Mixed-Methods Investigation of Engineers Targeting the Consequences of Variability

Prof. Zachary Riggins del Rosario, Olin College

Board 205: A Web-Based Writing Exercise Employing Directed Line of Reasoning Feedback for a Course on Electric Circuit Analysis

Prof. James P. Becker, Montana State University, Bozeman

Dr. Douglas J. Hacker, University of Utah

Christine Johnson,

Board 211: An Educational Game Using Multiphysics Enriched Mixed Reality for Integrated Geotechnical Engineering Education

Weiling Cai, Rowan University

Mr. Chenchen Huang, Rowan University

Dr. Ying Tang, Rowan University

Prof. Cheng Zhu, Rowan University

LuoBin Cui,

Board 218: Assessing Scientific Literacy across the Undergraduate Curriculum: Preliminary Results from the Collaboration Across Boundaries (CAB) Pedagogical Study

Dr. S. Monisha Pulimood, The College of New Jersey

Prof. Kim E. Pearson, The College of New Jersey

Dr. Diane C. Bates, The College of New Jersey

Board 235: Chemical Engineers in Chemistry Coursework: Longitudinal Impacts on Engineering Identity

Dr. Michael Geoffrey Brown, Iowa State University of Science and Technology

Dr. Monica H. Lamm, Iowa State University of Science and Technology

Mr. Md Intiajul Alam, Iowa State University of Science and Technology

Board 243: CS Frontiers: Module 4—A Software Engineering Curriculum for High School Females

Dr. Veronica M. Catete, North Carolina State University, Raleigh
Isabella Gransbury,

Marnie Hill,

Devin Jean,

Brian Broll,

Dr. Akos Ledeczi, Vanderbilt University

Tiffany Michelle Barnes,

Shuchi Grover,

Board 255: Development and Application of Assessment Tools for a Research Experience for Teachers Site

Prof. Weihang Zhu, University of Houston

Peter Weber,

Board 258: Diversifying the Graduate Student Pipeline to Academia: Challenges in Recruitment of Low-Income, High Achieving Students to Graduate School—Award # 2130403

Janna Jobel, University of Massachusetts, Lowell

Dr. Yanfen Li, University of Massachusetts Lowell

Dr. Hsien-Yuan Hsu, University of Massachusetts, Lowell

Board 267: Engineering a Transfer Friendly Experience with Alternative Pathways to Excellence

Dr. Katherine Acton, University of St. Thomas

Dr. Deborah Besser P.E., University of St. Thomas

Dr. Kundan Nepal, University of St. Thomas

Dr. Jennifer E. Holte, University of St. Thomas

Board 280: Evaluation of a Three-Year Research Experiences for Undergraduates Site Focused on Engineering Solutions in Support of Communicative Disorders

Dr. Todd Freeborn, The University of Alabama

Dr. Memorie Gosa,

Dr. Debra Moehle McCallum, The University of Alabama

Board 282: Examining the Community of Practice in the NSF RED Program

Dr. Julia M. Williams, Rose-Hulman Institute of Technology

Dr. Eva Andrijcic, Rose-Hulman Institute of Technology

Dr. Sriram Mohan, Rose-Hulman Institute of Technology

Dr. Elizabeth Litzler, University of Washington

Selen Güler, University of Washington

Board 285: Exploring Impacts of Socially Engaged Engineering Training: What Do Students' Attend to in Scenario-Based Interviews?

Ms. Kelley E Dugan, University of Michigan

Dr. Erika Mosyjowski, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Board 286: "Exploring Other People's Mind, Exploring Your Own Mind"—A Story of Divergent Thinking from Mechanical Engineering Practice

Laura R. Murphy, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Thanina Makhlof,

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Dr. Colleen M. Seifert, University of Michigan

Board 291: Final Year of an S-STEM Summer, Sophomore Bridge: Successes of Three Cohorts

Katie Evans, Houston Christian University

Dr. Marisa K. Orr, Clemson University

Dr. Mitzi Desselles, Louisiana Tech University

Board 294: First-Year Engineering Students' Desired Practices in Mechanical Engineering

Dr. Jingfeng Wu, University of Michigan

Shannon M. Clancy, University of Michigan

Dr. Erika Mosyjowski, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Dr. Lisa R. Lattuca, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Board 296: Fostering Leaders in Technology Entrepreneurship (FLiTE): Program Goals and First-Year Activities

Dr. Paul M. Yanik, Western Carolina University

Dr. Chip W Ferguson, Western Carolina University

Dr. Andrew Ritenour, Western Carolina University

Wendy Cagle,

Dr. Scott Rowe, Western Carolina University

Dr. Wesley L. Stone, Western Carolina University

Board 299: Funds of Knowledge and Intersectional Experiences of Identity: Graduate Students' Views of Their Undergraduate Experiences

Prof. Jessica Mary Smith, Colorado School of Mines

Dr. Juan C. Lucena, Colorado School of Mines

Dr. Kevin L. Moore, P.E., Colorado School of Mines

Dr. Junko Munakata Marr, Colorado School of Mines

Dr. Megan Sanders, Colorado School of Mines

Jeffrey C. Shragge,

Board 312: Implementing an Ecosystem to Expand Capabilities and Opportunities for STEM-Scholars

Dr. Carla Lopez Del Puerto, University of Puerto Rico, Mayaguez

Prof. Monica Alfaro,

Dr. Carmen M. Bellido,

Matias J. Cafaro,

Bernadette M. Delgado, University of Puerto Rico, Mayaguez

Board 313: Implementing Computational Thinking Strategies across the Middle/High Science Curriculum

Dr. Thomas Tretter, University of Louisville

Dr. Olfa Nasraoui, University of Louisville

Dr. Jason Immekus,

Kyle Dylan Spurlock,

Breanna Graven, University of Louisville

Board 323: Integrating Servingness in a Mini-Capstone Project: Resilient and Sustainable Emergency Housing Design

Dr. Carla Lopez Del Puerto, University of Puerto Rico, Mayaguez

Prof. Humberto Eduardo Cavallin, University of Puerto Rico, Rio Piedras

Dr. Luisa Guillemard, University of Puerto Rico, Mayaguez

Prof. Fabio Andrade Rengifo, University of Puerto Rico, Mayaguez

Ruben Esteban Leoncio Caban,

Board 329: Investigating the Impact of Context Choice on Learning Experience via Immersive Simulations in an Object-Oriented Programming Course

Dr. Sabahattin Gokhan Ozden, Pennsylvania State University, Abington

Dr. Ashkan Negahban, Pennsylvania State University, Great Valley

Dr. Omar Ashour, Pennsylvania State University, Behrend

Dr. Daniel Knight, University of Colorado, Boulder

Board 334: Master's Individual Development Plans as an Essential Tool in Workforce Development

Deborah Silver, Rutgers, The State University of New Jersey

Elizabeth Friedman, The University of Illinois, Chicago

Board 363: Promoting the Dispositional Dimension of Competency in Undergraduate Computing Programs

Dr. Bonnie Kathleen MacKellar, St John's University

Dr. Natalie Kiesler, DIPF | Leibniz Institute for Research and Information in Education

Dr. Rajendra K. Raj, Rochester Institute of Technology

Dr. Mihaela Sabin, University of New Hampshire

Dr. Renee McCauley, College of Charleston

Amruth N. Kumar, Ramapo College of New Jersey

Board 330: Iron Range Engineering Academic Scholarships for Co-Op Based Engineering Education

Dr. Catherine MCGough Spence, Minnesota State University, Mankato

Dr. Emilie A. Siverling, Minnesota State University, Mankato

Dr. Michelle Soledad, Virginia Tech

Board 333A: Lessons Learned from a Capacity-Building Workshop for Two-Year Colleges Seeking U.S. National Science Foundation Funding

Mrs. Marialice Mastronardi, University of Texas, Austin

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Dr. David R. Brown, Foundation for California Community Colleges

Dr. John Krupczak Jr., Hope College

Dr. Maura Borrego, University of Texas, Austin

Board 335: Material Agency with Summer STEM Youth Designing with Micro:bits

Ms. Madalyn Wilson-Fetrow, University of New Mexico

Dr. Vanessa Svihla, University of New Mexico

Dr. Sherry Hsi, BSCS Science Learning

Board 336: Math to Makerspace: Evolution of a Bridge Program to Support Cohort Development

Prof. Jill Davishahl, Western Washington University

Dr. Sura Alqudah, Western Washington University

Dr. Joseph Arthur Brobst, Old Dominion University

Dr. Elizabeth Litzler, University of Washington

Prof. Andrew G. Klein, Western Washington University

Board 338: Mental Health in Engineering Education Before, During, and After COVID-19 Related Disruptions

Dr. Andrew Danowitz, California Polytechnic State University, San Luis Obispo

Dr. Kacey Beddoes, San Jose State University

Board 341: Mobile Learning in STEM: A Case Study in an Undergraduate Engineering Course

Dr. Krishna Pakala, Boise State University

Maeve Bakic, Boise State University

Dr. Diana Bairaktarova, Virginia Tech

Dr. Devshikha Bose, Boise State University

Board 343: Native American Student Research Experiences in IoT-Enabled Environmental Monitoring Technologies: An Analysis of North Dakota Tribal Student Experiences in Beijing, China and Mobile, Alabama

Dr. Jill M. D. Motschenbacher, University of Nebraska, Lincoln

Prof. Jinhui Wang, University of South Alabama

Amber D. Finley,

Board 361: Progress in S-STEM Program Electrical Engineering Scholars at the Benjamin Franklin Cummings Institute of Technology

Dr. Lisa Shatz, Benjamin Franklin Cummings Institute of Technology

Dr. Nicole P. Pitterson, Virginia Tech

Helen Zhang, Boston College

Board 370: Relationship between Mindset and Grit on Undergraduate Engineering Student Retention

tina Cartwright, Marshall University

Julie Lynn Snyder-Yuly, Marshall University

Dr. Wook-sung Yoo, Marshall University

Board 368: Regional Assets, Factors, and Strategies Supporting Engineering Pre-Transfer Pathways

Dr. Kristin Kelly Frady, Clemson University

Randi Sims,

Board 373: Renewable Energy Systems Training (REST) Project Final Report

Dr. Mohsen Azizi, New Jersey Institute of Technology

Board 378: Responsive Support Structures for Marginalized Students in Engineering: Insights from Years 1-3

Dr. Walter C. Lee, Virginia Tech

Ms. Malini Josiam, Virginia Tech

Taylor Y. Johnson, Virginia Tech

Mrs. Janice Leshay Hall, Florida International University

Crystal M. Pee,

Artre Reginald Turner, Virginia Tech

Board 381: REU-PATHWAYS: Pathways for Community College Students to Enrich Their Education and Careers

Dr. Ibrahim F. Zeid, Northeastern University

Mrs. Claire Duggan, Northeastern University

Dr. Jennifer Ocif Love, Northeastern University

Board 388: S-STEM: Creating Retention and Engagement for Academically Talented Engineers—Lessons Learned

Dr. Indira Chatterjee, University of Nevada, Reno

Miss Kelsey Scalero, University of Nevada, Reno

Dr. Ann-Marie Vollstedt, University of Nevada, Reno

Prof. Jeffrey C. LaCombe, University of Nevada, Reno

Dr. Julia M. Williams, Rose-Hulman Institute of Technology

Dr. Adam Kim, University of Nevada, Reno

Board 389: Strengthening Student Motivation and Resilience through Research and Advising

Dr. Zhaoshuo Jiang, San Francisco State University

Dr. Xiaorong Zhang, San Francisco State University

Fatemeh Khalkhal,

Dr. Jenna Wong, San Francisco State University

Dr. David Quintero, San Francisco State University

Dr. Yiyi Wang, San Francisco State University

Dr. Wenshen Pong, P.E., San Francisco State University

Dr. Robert Petruilis,

Board 396: The Community as “Surroundings” in a Classroom Ecosystem

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Dr. Renee M Clark, University of Pittsburgh
Prof. Autar Kaw, University of South Florida
Dr. Rasim Guldiken, University of South Florida
Matthew Allan Moss,

Board 402: The Importance of Career Competencies for Engineering Students

Dr. Karen L. Webber, University of Georgia
Amy Stich, University of Georgia
Matthew Grandstaff, University of Georgia
Collin Case, University of Georgia

Board 408: The S-STEM Program for Mathematics Majors at the University of Texas at Arlington

Prof. Tuncay Aktosun, The University of Texas, Arlington
Dr. Yolanda Parker, Tarrant County College District
Prof. Jianzhong Su, The University of Texas, Arlington

Board 422: Using Adaptive Learning Platform Metrics for Early Identification and Personalized Support of Low-Performing Students

Prof. Autar Kaw, University of South Florida
Dr. Ali Yalcin, University of South Florida
Dr. Renee M. Clark, University of Pittsburgh

Board 423: Using Agile Principles for Cohort Building in a Graduate Software Engineering Program

Dr. Stan Kurkovsky, Central Connecticut State University

Board 425: Using Neural Networks to Provide Automated Feedback on Elementary Mathematics Instruction

Peter Youngs, University of Virginia
Mrs. Scout Beron Crimmins , University of Virginia
Dr. Jonathan Foster, University of Virginia
Matthew Korban, University of Virginia
Dr. Ginger S. Watson, Old Dominion University
Dr. Scott T. Acton, California State University, Channel Islands

Board 263: Elective Track Choice and Career Attitudes in Engineering Undergraduate Education: Antecedents, Gender Differences, and Implications

Dr. Teresa Cardador,
Prof. Karin Jensen, University of Michigan
Ms. Grisel Lopez-Alvarez, University of Illinois, Urbana - Champaign
Isabel Miller, University of Michigan
Hannah Chiou,
Andrea J. Kunze, Delta State University
Dr. Kelly J. Cross, University of Nevada, Reno

Sohee Kim, University of Illinois, Urbana - Champaign

Board 199: A Move to Sustainability: Launching an Instructor Interface

Dr. Kimberly Grau Talley, P.E. , Texas State University
Jeron Tyler Rogers,
Justin Keeper,
Dr. Kristi J. Shryock, Texas A&M University

Board 293: First Cohort Experiences During an International Research Experiences for Undergraduates Program Focused on Fractional-Order Circuits and Systems

Dr. Todd Freeborn, The University of Alabama
Dr. Debra Moehle McCallum, The University of Alabama
Sarah T Dunlap, The University of Alabama

Board 273: Engineering PLUS (Partnerships Launching Underrepresented Students) - Eddie Bernice Johnson INCLUDES National Alliance

Mrs. Claire Duggan, Northeastern University
Mr. Richard R Harris, Northeastern University
Michael Silevitch,
Dr. Jacqueline A. El-Sayed, American Society for Engineering Education

Board 435: Work in Progress: Teaching Ethics Using Problem-Based Learning in a Freshman Introduction to Electrical and Computer Engineering

Dr. Todd Freeborn, The University of Alabama
Claire Major, The University of Alabama
Miriam E. Sweeney,
Dr. Debra Moehle McCallum, The University of Alabama
Sarah T Dunlap, The University of Alabama

Board 391: Supporting and Understanding Undergraduates' Computing Pathways Through the Flit-GAP S-STEM Program

Dr. Stephen Secules, Florida International University
Ms. Nivedita Kumar, Florida International University
Dr. Mark A Weiss, Florida International University
Mrs. Tiana Solis, Florida International University
Dr. Michael Georgiopoulos, The University of Arizona
Mrs. Jacqueline Faith Sullivan, The University of Arizona
Dr. Rafael A Perez, University of South Florida
Maimuna Begum Kali, Florida International University
Bailey Bond-Trittipo, Florida International University

Board 220: Audio for Inclusion: Broadening Participation in Engineering Through Audio Dissemination of Marginalized Students' Narratives

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Dr. Stephen Secules, Florida International University
Dr. Cassandra J McCall, Utah State University
Maimuna Begum Kali, Florida International University
Gabriel Van Dyke, Utah State University
Thomas Matthew Heaps, Utah State University

Board 394: Sustaining and Scaling the Impact of the MIDFIELD project at the American Society for Engineering Education (Year 1)

Dr. Susan M Lord, University of San Diego
Dr. Matthew W. Ohland, Purdue University, West Lafayette
Dr. Richard A. Layton,
Dr. Marisa K. Orr, Clemson University
Mr. Russell Andrew Long, Purdue University, West Lafayette
Dr. Catherine E. Brawner, Research Triangle Educational Consultants
Dr. Joseph Roy, American Society for Engineering Education (ASEE)
Hayaam Osman, University of Illinois, Urbana - Champaign

Board 314: Implementing the Vertically Integrated Projects (VIP) Model at a Public Urban Research University in the Southeastern United States

Dr. Chrysanthe Preza, The University of Memphis
Dr. Stephanie S Ivey, The University of Memphis
Dr. Craig O. Stewart, University of Memphis

Board 279: Ethics in Artificial Intelligence Education: Preparing Students to Become Responsible Consumers and Developers of AI

Dr. Helen Zhang, Boston College
Ms. Irene A. Lee, MIT STEP Lab
Katherine Strong Moore, Massachusetts Institute of Technology
Sheikh Ahmad Shah, Boston College

Board 225: Building a Culture of "Engineering with Engineers"

Prof. Yen-Lin Han, Seattle University
Dr. Jennifer A Turns, University of Washington
Dr. Kathleen E. Cook, Seattle University
Dr. Gregory Mason P.E., Seattle University
Dr. Teodora Rutar Shuman, Seattle University

Board 315: Improving Students' Decision-Making Behavior in Choosing an Engineering Pathway

Mr. Debapratim Ghosh, University of Illinois, Urbana - Champaign
Samuel Harford,
Prof. Houshang Darabi, The University of Illinois, Chicago
Prof. Jennifer R. Amos, University of Illinois, Urbana

- Champaign

Board 233: CAREER: Supporting Mental Health and Wellness in Engineering Culture to Promote Equitable Change

Prof. Karin Jensen, University of Michigan
Jeanne Sanders, University of Nevada, Reno
Eileen Johnson, University of Michigan
Mr. Joseph Francis Mirabelli, University of Illinois, Urbana - Champaign
Ms. Sara Rose Vohra, University of Illinois, Urbana - Champaign

Board 410: Thematic Maps of Interdependent Engineering Judgment Processes in Undergraduate Systems Engineering Capstone Projects

Dr. Royce A. Francis, The George Washington University
Dr. Marie C. Paretti, Virginia Tech
Dr. Rachel Claire Riedner, George Washington University

Board 195: A Comparison of an Integrated Nonlinear Storytelling and Simulation-Based Learning Game Module Assigned Outside-the-Classroom versus Inside-the-Classroom

Ashley Seamon,
Marcus James,
Zoe Mouchantaf,
Dr. Omar Ashour, Pennsylvania State University, Behrend

Board 307: Imagining and Co-designing a Supportive College Experience for First Generation Students through an NSF S-STEM Program

Dr. Katherine C. Chen, Worcester Polytechnic Institute
Haley McDevitt,
Dr. Hermine Vedogbeton, Worcester Polytechnic Institute
Ms. Debra Boucher, Worcester Polytechnic Institute
Mr. Arnold Mitchell Lane Jr., Worcester Polytechnic Institute
Brianna Raphino, Worcester Polytechnic Institute
Dr. Olufunmilayo Ayobami,

Board 398: The Effects of COVID-19 on Students' Tool Usage in Academic Makerspaces

Mr. Samuel Enrique Blair, Texas A&M University
Claire Crose,
Dr. Julie Linsey, Georgia Institute of Technology
Dr. Astrid Layton, Texas A&M University

Board 283: Expanding and Sustaining Education Programs beyond the Nsf Support Period

Prof. Shasta Ihorn, San Francisco State University
Anagha Kulkarni, San Francisco State University
Michael Savvides, San Francisco State University

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WEDNESDAY, JUNE 28th SESSIONS

Prof. Ilmi Yoon,

Board 298: From Cohort to Classroom: Transitioning to Year 2 in a Faculty Learning Community

Prof. Katherine Goodman, University of Colorado, Denver

Dr. Heather Lynn Johnson,

Prof. Maryam Darbeheshti, University of Colorado, Denver

Prof. David C. Mays,

Prof. Tom Altman,

Board 387: Sociotechnical Systems Perspective of Underrepresented Minority Student Success at a Predominantly White Institution

Dr. Arunkumar Pennathur, University of Texas, El Paso

Priyadarshini R. Pennathur, University of Texas, El Paso

Dr. Emily G. Blosser, University of Louisiana, Lafayette

Prof. Nicholas A. Bowman, University of Iowa

Board 259: Early Research Scholars Program Update and Reflection Study

Dr. Renata A. Revelo, The University of Illinois, Chicago

Ms. Angela Beatrice Warren Lichauco, University of Illinois, Chicago

Anastasiia Rozhkova,

Diana Diaz,

Board 262: Effects of an Intervention on Student Self-Efficacy and Integration in Chemical Engineering Sophomores

Brad Ciccirelli, Louisiana Tech University

Dr. Timothy Reeves, Louisiana Tech University

Mrs. Catherine Hendricks Belk, Clemson University

Dr. Marisa K. Orr, Clemson University

Eric Sherer, Louisiana Tech University

Board 234: ChangeMaker K12: A Platform To Support Teacher Candidates in Systems Thinking, Engineering Education, and Change

Dr. Douglas Charles Williams, University of Louisiana, Lafayette

Aimee Barber,

Dr. Peter Sheppard,

aimee barber,

Board 409: The Stressors for Doctoral Students Questionnaire: Year 2 of an RFE Project on Understanding Graduate Engineering Student Well-Being and Retention

Jennifer Cromley, University of Illinois, Urbana - Champaign

Mr. Joseph Francis Mirabelli, University of Illinois, Urbana - Champaign

Dr. Karin Jensen, University of Michigan

Board 320: Integrating Computational Thinking into a Neural Engineering High School Curriculum

Susan Meabh Kelly, University of Connecticut

Ido Davidesco, University of Connecticut

Dr. Aaron Kyle, Columbia University in the City of New York

Board 275: Enhance Data Science Education for Non-Computing Majors through Accessible Hands-on Experiences

Dr. Xumin Liu, Rochester Institute of Technology

Erik Golen,

Board 379: RET Site: Enhancing Teacher Knowledge & Skills in Modern Manufacturing - Lesson and Feedback

Wayne P Hung, West Texas A&M University

Board 403: The NSF S-STEM Program at a Rural, Hispanic Serving Institution

Dr. Anitha Sarah Subburaj, West Texas A&M University

Dr. Vinitha Hannah Subburaj, West Texas A&M University

Dr. Pamela Renee Lockwood-Cooke, West Texas A&M University

Dr. Emily M. Hunt P.E., West Texas A&M University

Dr. Audrey Meador, West Texas A&M University

Board 352: NSF S-STEM: Inclusive Hackathon Themes to Attract Underrepresented Community College Students into Computing Disciplines

Dr. Vinitha Hannah Subburaj, West Texas A&M University

Dr. Anitha Sarah Subburaj, West Texas A&M University

Dr. Pamela Renee Lockwood-Cooke, West Texas A&M University

Dr. Audrey Meador, West Texas A&M University

Board 197: A Gamified Approach for Active Exploration to Discover Systematic Solutions for Fundamental Engineering Problems

Dr. Mohammad Ilbeigi, Stevens Institute of Technology

Dr. Diana Bairaktarova, Virginia Tech

Romina Ehsani,

Board 214: An Investigation of Women Engineering Undergraduate Student Belonging in an Academic Makerspace

Elisa Bravo, University of Michigan

Dr. Shanna R. Daly, University of Michigan

Jesse Austin-Breneman,

Board 276: Enhancing Early Childhood Educators' Knowledge of Computer Science and Engineering Concepts to Spark Young Children's Early Interest in STEM Careers

Dr. Gisele Ragusa, University of Southern California

Lilian Leung, University of Southern California

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Board 257: Development and Initial Outcomes of an NSF RIEF Project in Understanding Teamwork Experience and its Linkage to Engineering Identity of Diverse Students

Dr. Yiyi Wang,
Dr. Stephanie Claussen, San Francisco State University
Dr. Xiaorong Zhang, San Francisco State University
Fatemeh Khalkhal,

Board 393: Supporting Student Internships with the Nsf Hsi Program at a Medium-Sized Hispanic-Serving Institution

Dr. Alberto Cureg Cruz, California State University, Bakersfield
Dr. Dennis Derickson, California Polytechnic State University, San Luis Obispo
Dr. Amin Malek, California State University, Bakersfield

Board 246: Designing a Curriculum to Broaden Middle School Students' Ideas and Interest in Engineering

Dr. Shawn Y. Stevens, WGBH Educational Foundation
Dr. Joshua Littenberg-Tobias, GBH
Ranida McKneally, GBH
Ethan Cayko,

Board 375: Reporting the Progress and Performance Evaluation of an Ongoing Integrated Program for Recruitment, Retention, and Graduation of High-Achieving, Low-income Engineering Students

Prof. Houshang Darabi, The University of Illinois, Chicago
Mrs. Rezvan Nazempour, The University of Illinois, Chicago
Dr. Peter C. Nelson, The University of Illinois, Chicago
Dr. Renata A. Revelo, The University of Illinois, Chicago
Prof. Jeremiah Abiade,
Dr. Shanon Marie Reckinger, The University of Illinois, Chicago
Prof. Didem Ozevin, The University of Illinois, Chicago
Dr. Betul Bilgin, The University of Illinois, Chicago
Dr. Anthony E. Felder, The University of Illinois, Chicago

Board 221: Beyond Surveys: Using Visual Data to Evidence Achievement of Proposed Learning Objectives

Dr. Luisa Guillemard, University of Puerto Rico, Mayaguez
Maryliz Soto, University of Puerto Rico, Mayaguez
Dr. Carla Lopez Del Puerto, University of Puerto Rico, Mayaguez
Prof. Humberto Eduardo Cavallin, University of Puerto Rico, Rio Piedras

Board 278: Enriching the REU Experience through Student-Led Outreach Activities

Dan DelVescovo, Oakland University
Darlene Groomes, Oakland University
Bianca Bryant,

Laila Guessous, Oakland University

Board 404: The Process of Building Faculty Buy-in for Course-Based Adaptations of an Ecological Belonging Intervention to Transform Engineering Representation at Scale

Dr. Linda DeAngelo, University of Pittsburgh
Dr. Allison Godwin, Purdue University, West Lafayette
Dr. Erica M. McGreevy, University of Pittsburgh
Dr. Eric Trevor McChesney, University of Pittsburgh
Kevin R. Binning, University of Pittsburgh
Prof. Natascha Trellinger Buswell, University of California, Irvine
Dr. Christian D. Schunn, University of Pittsburgh
Charlie Díaz, University of Pittsburgh
Gerard Dorvè-Lewis, University of Pittsburgh
Kevin Jay Kaufman-Ortiz, Purdue University, West Lafayette
Beverly Conrique, University of Pittsburgh
Maricela Bañuelos, University of California, Irvine
Carlie Laton Cooper, M.Ed., University of Georgia
Anne-Ketura Elie, University of Pittsburgh
Rachel Kelly Forster, University of Pittsburgh
Ms. Brianna Julia Gonzalez, University of Pittsburgh
Danielle Vegas Lewis, SUNY Fredonia
Dr. Heather Lee Perkins, University of Illinois, Urbana - Champaign
Nelson O. O. Zounlomè,

Board 306: IM STEM: LSAMP- In Situ Inclusive Mentoring

Dr. Audrey Boklage, University of Texas, Austin
Emily Violet Landgren,
Dr. Benjamin C. Flores, University of Texas at El Paso

Board 322: Integrating Internet of Things into Mechatronics to Prepare Mechanical Engineering Students for Industry 4.0

Dr. Hakan Gurocak, Washington State University, Vancouver
Dr. Xinghui Zhao, Washington State University, Vancouver
Dr. Kristin Lesseig,

Board 274: Engineering Students Definitions of and Perceptions of Entrepreneurial Failure

Dr. Thomas M. Katona, California Polytechnic State University, San Luis Obispo
Dr. Sarah E. Zappe, Pennsylvania State University
Cade Robert Creason, California Polytechnic State University, San Luis Obispo

Board 284: Exploring and Supporting Non-STEM Teachers' Engineering Identity Development during Implementation of an Engineering Design Elective Course in Rural Middle

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Schools

Micaha Dean Hughes, North Carolina State University, Raleigh

Callie Womble Edwards, North Carolina State University at Raleigh

Dr. Tameshia Ballard Baldwin, North Carolina State University, Raleigh

Board 431: Why Research Involvement Makes an Engaging Learning Experience for Neurodiverse Students

Dr. Alexandra Hain, University of Connecticut

Dr. Arash Esmaili Zaghi, P.E., National Science Foundation

Mr. Alexander T. Grey, University of Connecticut

Board 222: Broadening Participation in Computing and Artificial Intelligence at a Hispanic-Serving Community College

Dr. Sarah Rodriguez, Virginia Tech

Anabel Mederos,

antonio delgado,

Board 260: Educational Contexts that Support Student Motivation Lead to Better Academic Outcomes in STEM: The Role of Mathematics Instructors in Student Motivation

Dr. Chris S. Hulleman, University of Virginia

Delaram A Totonchi, University of Virginia

Joshua Davis, University of Virginia

Michelle Francis, University of Virginia

Emma Huelskoetter,

Yoi Tibbetts, University of Virginia

Board 204: A Trajectory-Clustering Framework for Assessing AI-Based Adaptive Interventions in Undergraduate STEM Learning

Dr. Mohammad Rashedul Hasan, University of Nebraska, Lincoln

Bilal Khan,

Board 321: Integrating Design Thinking and Digital Fabrication into Engineering Technology Education through Interdisciplinary Professional Learning

Dr. Christopher Russell, Northern Virginia Community College

Mr. Josh Labrie, Northern Virginia Community College

Antarjot Kaur,

Board 344: Neural Correlates of Learning Preferences and Individual Differences in Design Fixation: Preliminary Evidence from Functional Magnetic Resonance Imaging (fMRI)

Dr. EVANGELIA G. CHRYSIKOU, Drexel University

Dr. John S. Gero, University of North Carolina, Charlotte

Julie Milovanovic, University of North Carolina, Charlotte

DongHo Kim, Drexel University

Board 244: CyberSecurity for Advanced Manufacturing Organizations

Tony Hills, Northwest State Community College

Board 217: Assessing Awareness and Competency of Engineering Freshmen on Ethical and Responsible Research and Practices

Dr. Michael Johnson, Texas A&M University

Prof. Amarnath Banerjee, Texas A&M University

Dr. Bimal P. Nepal, Texas A&M University

Glen Miller,

Board 325: International Interdisciplinary Undergraduate Research Program on Big Data in Energy and Related Infrastructure: Challenges and Lessons Learned from the COVID-19 Pandemic and University Policies and Practices

Prof. Eakalak Khan,

Sayeda Ummeh Masrura,

Dr. Bimal P. Nepal, Texas A&M University

Prof. Om Prakash Yadav, North Carolina A&T State University

Board 433: Work in Progress: Building a "Project-Based Learning for Rural Alabama STEM Middle School Teachers in Machine Learning and Robotics" RET Site

Dr. Xiaowen Gong, Auburn University

Dr. Daniela Marghitu, Auburn University

Dr. Thaddeus A. Roppel, Auburn University

Chih-hsuan Wang,

Melody L. Russell,

Board 333: Lessons Learned Doing Secondary Data Analysis in EER

Dr. Jennifer M. Case, Virginia Tech

Dr. Holly M. Matusovich, Virginia Tech

Dr. Marie C. Paretti, Virginia Tech

Dr. Lisa Benson, Clemson University

Dr. David A. Delaine, The Ohio State University

Dr. Shawn S. Jordan, Arizona State University

Dr. Rachel Louis Kajfez, The Ohio State University

Dr. Susan M. Lord, University of San Diego

Rhonda Papp, University of San Diego

Edward Tyler Young, The Ohio State University

Dr. Yevgeniya V. Zastavker, Olin College of Engineering

Board 287: Exploring the Broader Impact of the NSF S-STEM program on the Culture of a Community College Engineering Department

Ms. Jan Edwards, College of Lake County

Ana Karen Pizano, College of Lake County

Bradford C. Petersen, College of Lake County

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Board 421: Using a Timeline of Programming Events as a Method for Understanding the Introductory Students' Programming Process

Dr. Phyllis Jean Beck, Mississippi State University
Dr. Mahnas Jean Mohammadi-Aragh, Mississippi State University

Board 289: Fab Friday and Its Impact on Computer Science Majors' Motivation and Career Readiness

Marisol Clark-Ibanez, California State University, San Marcos

Board 413: Towards an Understanding of the Impact of Community Engaged Learning Projects on Enhancing Teachers' Understanding of Engineering and Intercultural Awareness

Dr. Kellie Schneider, University of Dayton
Dr. Leanne Petry, Central State University
Dr. Margaret Pinnell, University of Dayton
Kelly Bohrer, University of Dayton
Dr. Amy Anderson,
Elizabeth Generas,
Mrs. Marjorie Langston Langston,
Sharath Krishna,

Board 309: Impact of RET Summer Program Designs on Teachers' Technological-Content Knowledge and Lesson Plan Development Outcomes

Dr. Shenghua Zha, University of South Alabama
Dr. Na Gong, University of South Alabama
Erin Bosarge, University of South Alabama

Board 416: Undergraduate Student Experiences With FossilSketch Software to Learn Basics of Micropaleontology

Dr. Anna Stepanova, Texas A&M University
Dr. Saira Anwar, Texas A&M University
Christina Belanger,
Dr. Tracy Anne Hammond, Texas A&M University
Dr. Christine A Stanley, Texas A&M University

Board 415: Transforming Engineering Education for Neurodiversity: Epistemic Communities as a Model for Change

Dr. Maria Chrysochoou, University of Connecticut
Dr. Arash Esmaili Zaghi P.E., University of Connecticut
Ms. Connie Mosher Syharat, University of Connecticut

Board 392: Supporting Low-Income Engineering Transfer Students' Transition from Community College to a 4-Year University through a Comprehensive Scholarship Program

Dr. Anna-Lena Dicke, University of California, Irvine
Kameryn Denaro,

Analia E. Rao,
Dr. David A. Copp, University of California, Irvine
Dr. Hye Rin Lee, University of Delaware
Dr. Gregory Diggs-Yang, University of California, Irvine
Dr. Sharnnia Artis, George Mason University
Prof. Lorenzo Valdevit,

Board 281: Examining Scripts of Whiteness in Engineering Education

Dr. Diana A. Chen, University of San Diego
Prof. Gordon D Hoople, University of San Diego
Dr. Joel Alejandro Mejia, The University of Texas, San Antonio
Dr. Susan M Lord, University of San Diego

Board 316: Improving Two-Year Students' Spatiotemporal Computing Skills through START Internship

Dr. Jia Lu, Valdosta State University

Board 226: Building Data Center Career Pathways Through K-12 Industry Externships

Mr. Josh Labrie, Northern Virginia Community College
Christopher Russell,
Antarjot Kaur,

Board 297: Foundational Strategies to Support Students with Diverse Backgrounds and Interests in Early Programming

Aakash Gautam, San Francisco State University
Prof. Shasta Ihorn,
Prof. Ilmi Yoon,
Anagha Kulkarni, San Francisco State University
Michael Savvides, San Francisco State University

Impacts of Inclusive Maker Programming on Students' Engineering Knowledge and Interest

Ms. Shari L. Gardner, SRI International
Adrienne D. Woods,
Wendy B. Martin,
Ariana Riccio,

Board 202: A Preliminary Analysis of Identity Development in the Figured Worlds of High-Achieving, Low-Income Engineering Students

Bethani Cogburn, University of North Carolina, Charlotte
Dr. Rachel Saunders, University of Cincinnati
Dr. Stephanie Galloway,
Dr. Brett Tempest, University of North Carolina at Charlotte

Board 327: Investigating Role Identities of Low-Income Engineering Students Prior to Their First Semester of College

Dr. Ryan Scott Hassler, Pennsylvania State University, Berks

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Dr. Catherine L. Cohan, Pennsylvania State University
Dawn Pfeifer Pfeifer Reitz,
Janelle B Larson, Pennsylvania State University

Board 268: Engineering Connections in Culturally-Responsive Mathematical Modeling Problems

Dr. Corey E. Brady, Vanderbilt University
Dr. Hyunyi Jung, University of Florida
JOSE DAVID DE LEON ALEJANDRO, University of Florida
Dr. Chonika C Coleman-King, University of Florida
Zandra de Araujo, University of Florida
Kayla Sutcliffe, University of Florida

Board 331: Latinx Engineering Students Surviving the Odds to Accomplish Their College Degree

Dr. Hilda Cecilia Contreras Aguirre, New Mexico State University
Nicole Delgado, New Mexico State University
Dr. Luis Rodolfo Garcia Carrillo, New Mexico State University

Board 326: Investigating Creativity, Confidence, and an Entrepreneurial Mindset through Curricular Modification and Community Engagement

Dr. Katrina J. Donovan, South Dakota School of Mines and Technology
Dr. Jon J Kellar, South Dakota School of Mines and Technology
Dr. Michael West, South Dakota School of Mines and Technology
Dr. Stuart D. Kellogg P.E., South Dakota School of Mines and Technology
Dr. William Cross, South Dakota School of Mines and Technology
Dr. Cassandra M. Birrenkott, South Dakota School of Mines and Technology

Board 236: Children's Identity Conception in Engineering Activities in the Home Environment

Ms. Sawsan Werfelli, State University of New York, Binghamton
Amber Simpson, State University of New York, Binghamton
Dr. Peter N. Knox, University of Vermont
Dr. Kelli Paul, Indiana University, Bloomington
Dr. Adam Maltese, Indiana University, Bloomington

Board 288: Exploring the Importance of Bonding and Bridging Capital for Graduate Women Accessing Academic and Professional Pathways in STEM

Dr. Tonisha B. Lane, Virginia Tech
Dr. Luanna B. Prevost, University of South Florida
Dr. Sarina J. Ergas, P.E., University of South Florida
David Bruce Lewis, University of South Florida

Dr. Johnny C. Woods Jr., Virginia Tech
Rebecca Steele, Virginia Tech

Board 207: ACCESS in STEM: An S-STEM Project Supporting Economically Disadvantaged STEM-Interested Students in Their First Two Years

Erica Cline,
Menaka Abraham,
Sarah Alaei,
Dr. Heather Dillon, University of Washington, Tacoma
Joyce Dinglasan-Panlilio,
Jutta Beneken Heller,
Zaher Kmail,
Prof. Seung-Jin Lee, University of Washington, Tacoma
Eva Yihua Ma,
Marc Nahmani,
Amanda Sesko,
Ka Yee Yeung,

Board 377: Research Experiences for Teachers in Simulation and Visualization for Innovative Industrial Solutions: Year 2

Mr. John Moreland, Purdue University, Northwest
Mr. Kyle Alexander Toth, Purdue University Northwest
Mr. Nicholas Walla,
Dr. Chenn Q. Zhou, Purdue University Northwest
Tyamo Okosun, Purdue University, Northwest
Armin Silaen,

Board 350: NSF S-STEM Academy of Engineering Success: Reflections on a Seven-Year Journey

Dr. Robin A.M. Hensel, West Virginia University
Dr. David A. Wyrick PE, CPEM, West Virginia University

Board 407: The SD-FIRST Program - Impact on First-Generation Students

Dr. Cassandra M Birrenkott, South Dakota School of Mines and Technology
Dr. Jon J Kellar, South Dakota School of Mines and Technology
Dr. Michael West, South Dakota School of Mines and Technology
Lisa Carlson, South Dakota School of Mines and Technology
Jesse Herrera,

Board 397: The Development of Professional Mentors to Supplement Low Socio-Economic Students' Webs-of-Support

Ms. Grace Lynn Baldwin,
Ms. Virginia Lynn Booth-Womack, Purdue University, West Lafayette

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Sarah Larose,

Dr. Carol S. Stwalley, Purdue University, West Lafayette

Dr. Robert Merton Stwalley III P.E., Purdue University, West Lafayette

Board 426: Using the ARCS Model of Motivation to Design 9-12 CS Curriculum

Dr. Prateek Shekhar, New Jersey Institute of Technology

Dr. Pramod Abichandani, New Jersey Institute of Technology

Ms. Heydi L. Dominguez, New Jersey Institute of Technology

Craig Iaboni,

Kevin Alexander Nino,

Board 277: Enhancing the Transfer Experience through a Collaborative Cohort Program for Engineering Scholars, Years 3 and 4 of an NSF S-STEM

Dr. Claire L. A. Dancz, Clemson University

Dr. Elizabeth A. Adams, Cuesta College

Dr. Nihal Orfi, Fresno City College

Carol Haden,

Dr. Yushin Ahn,

Board 339: Mentoring Competencies From the Perspective of Mentors and Their Racially Marginalized STEM Mentees

Miss Vibhavari Vempala, University of Michigan

Emily Buten, University of Michigan

Dr. Joi-lynn Mondisa, University of Michigan

Board 223: Broadening Participation in Engineering via the Transfer Student Pathway: Findings from an S-STEM-Enabled Partnership

Dr. David B. Knight, Virginia Tech

Mrs. Amy Richardson, P.E., Virginia Tech

Dr. Walter C. Lee, Virginia Tech

Dr. Beville A. Watford, Virginia Tech

Mr. Hamidreza Taimoory, Virginia Tech

Rene Alberto Hernandez, Virginia Tech

Board 354: Organizational Partnerships S-STEM Research Hub

Dr. David B Knight, Virginia Tech

Dr. Beville A. Watford, Virginia Tech

Dr. Walter C. Lee, Virginia Tech

Dr. Jacob R. Grohs, Virginia Tech

Dr. Teri Kristine Reed, University of Oklahoma

Dr. P.K. Imbrie, University of Cincinnati

Dustin Grote, Weber State University

Mrs. Amy Richardson, Virginia Tech

Dr. Michelle D. Klopfer, Virginia Tech

Dr. Saundra Johnson Austin, Virginia Tech

Dr. Bruk T. Berhane, Florida International University

Board 203: A Research Study on Assessing Empathic Formation in Engineering Design

Dr. Justin L. Hess, Purdue University, West Lafayette

Dr. Nicholas D. Fila, Iowa State University of Science and Technology

Dr. Corey T. Schimpf, University of Buffalo, SUNY

Dr. Allison Godwin, Purdue University, West Lafayette

Elizabeth A. Sanders, Purdue University, West Lafayette

Board 301: Growing Entrepreneurially Minded Researchers with New Product Development in Applied Energy: NSF REU Comparison of Traditional Delivery vs. Virtual

Dr. Lisa Bosman, Purdue University, West Lafayette

Dr. Jason Ostanek, Purdue University, West Lafayette

Dr. Walter D. Leon-Salas, Purdue University, West Lafayette

Esteban Soto Vera,

Board 272: Engineering Pathways for Appalachian Youth: Design Principles and Long-term Impacts of School-Industry Partnerships

Malle R Schilling, Virginia Tech

Dr. Jacob R Grohs, Virginia Tech

Board 364: Promoviendo el Éxito Estudiantil a través de un Sistema de Apoyo (PromESA): Promoting Student Success through a Holistic Support System in Engineering Education

Dr. Cole Hatfield Joslyn, Northern Arizona University

Board 210: AMPLIFY Institute: A Professional Development Program Designed for and with Engineering Instructional Faculty

Julian Rodrigo Sosa Molano, Florida International University

Mr. Henry Salgado, University of Texas, El Paso

Gemma Henderson, University of Miami

Dr. Alexandra Coso Strong, Florida International University

Ines Basalo, University of Miami

Mr. Viyon Dansu, Florida International University

Dr. Meagan R. Kendall, University of Texas at El Paso

Dr. Brett Tallman, University of Texas, El Paso

Yamile Aidee Urquidi, University of Texas at El Paso

Board 239: Community as "Surroundings" in a Classroom Ecosystem

Dr. Renee M Clark, University of Pittsburgh

Mr. Matthew Allan Moss, University of South Florida

Prof. Autar Kaw, University of South Florida

Dr. Rasim Guldiken, University of South Florida

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Board 428: Utilization of Social Management Theoretical Framework and Program Management Tool to Successfully Manage Large Multi-Department STEM Projects

Dr. Oludare Adegbola Owolabi, Morgan State University
Mr. Pelumi Olaitan Abiodun, Morgan State University
Adekemisola Olufunmilayo Asahiah, Morgan State University
Hannah Abedoh, Morgan State University
Dr. Mehdi Shokouhian, Morgan State University
Neda Bazyar Shourabi, Pennsylvania State University, Berks
Dr. Krishna Bista,
Dr. Uttam Gaulee,
Dr. Md Mahmudur Rahman, Morgan State University
Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University
Dr. Olushola V. Emiola-Owolabi, Morgan State University

Board 292: Findings & Implications of an Exploration into Smartness in Engineering

Dr. Cassie Wallwey, Virginia Tech
Amy Kramer P.E., The Ohio State University
Dr. Rachel Louis Kajfez, The Ohio State University
Dr. Emily Dringenberg, The Ohio State University

Board 369: Reimagining International Research for Students in a Virtual World

Dr. David B Knight, Virginia Tech
Dr. Kirsten A. Davis, Purdue University, West Lafayette
Dr. Nicole P. Sanderlin, Virginia Tech
Dr. Jessica Deters, University of Nebraska, Lincoln
Miss Alaa Abdalla, Virginia Tech
Ms. Katherine Maul, Purdue University, West Lafayette
Ms. Anne Victoria Wrobetz, University of Colorado, Boulder

Board 424: Using Badging to Promote Makerspace Participation and Engineering Identity Development: Emergent Themes and Lessons Learned from a Pilot

Dr. Hannah D Budinoff, The University of Arizona
Dr. Edward J. Berger, Purdue University, West Lafayette
Jannatul Bushra,
Ann Shivers-McNair,

Board 194: A Community-Driven Process for Developing NSF Review Panelists

Dr. Rebecca A Bates, Minnesota State University, Mankato
Dr. Lisa Benson, Clemson University
Ms. Randi Sims, Clemson University
Kelsey Watts, Clemson University
Dr. Karin Jensen, University of Michigan

Ms. Evan Ko, University of Illinois, Urbana - Champaign
Dr. Gary Lichtenstein, Arizona State University

Board 254: Developing Tools, Pedagogies, and Policies for Computer-Based Collaborative Learning Activities

Morgan M. Fong, University of Illinois, Urbana - Champaign
Liia Butler, University of Illinois, Urbana - Champaign
Dr. Abdussalam Alawini, University of Illinois, Urbana - Champaign
Dr. Geoffrey L. Herman, University of Illinois, Urbana - Champaign
Prof. Mariana Silva, University of Illinois, Urbana - Champaign

Board 302: Helping Rural and Underrepresented Students Succeed in STEM

Dr. Carol S. Gattis, University of Arkansas
Dr. Paul D. Adams, University of Arkansas
Xochitl Delgado Solorzano, University of Arkansas
Dr. Wenjuo Lo, University of Arkansas
Jennie S Popp Ph.D.,
Divya Muralidhara, University of Arkansas

Board 231: CAREER: Characterizing Master's-Level Departure from the Engineering Doctorate through Multiple Stakeholders' Perspectives

Dr. Catherine Berdanier, Pennsylvania State University

Board 290: Faculty Experiences with Hands-on Models for Calculus Instruction

Prof. Eric Davishahl, Whatcom Community College
Dr. Kathryn Mary Rupe, Western Washington University
Dr. Lee Singleton, Whatcom Community College

Board 384: Setting the Stage for Co-Creation: Using Workshops to Scaffold Interdisciplinary Research, Collaboration, and Community Building

Dr. Trina C. Kershaw, University of Massachusetts, Dartmouth
Dr. Susan Thomson Tripathy, University of Massachusetts, Lowell
Dr. Hong Liu, University of Massachusetts, Dartmouth
Prof. Kavitha Chandra, University of Massachusetts, Lowell

Board 310: Impact of Student/Team Characteristics on Design Project Outcomes in Senior Design Courses

Mr. Hrushikesh Godbole, Rochester Institute of Technology
Dr. Elizabeth A. Debartolo, Rochester Institute of Technology
Dr. Shun Takai, Northern Illinois University
Marcos Esterman Jr., Rochester Institute of Technology

Board 305: HSI Implementation and Evaluation Project: Commitment to Learning Instilled by Mastery-Based

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Undergraduate Program (CLIMB-UP)

Dr. Dina Verdin, Arizona State University
Sharona Krinsky, California State University, Los Angeles
Dr. David Raymond P.E., California State University, Los Angeles
Eva Schiorring, STEMEVAL
Dr. Emily L. Allen, California State University, Los Angeles
Carlos Luis Perez,

Board 230: CAREER: 'Support our Troops': Re-storying Student Veteran and Service Member Deficit in Engineering through Professional Formation and Community Advocacy—Year 2

Dr. Angela Minichiello, Utah State University
Hannah Wilkinson, Utah State University

Board 240: Computational Thinking in the Formation of Engineers: Year 3

Dr. Noemi V Mendoza Diaz, Texas A&M University
Dr. Russ Meier, Milwaukee School of Engineering
Dr. Deborah Anne Trytten, University of Oklahoma
Dr. Janie M Moore, Texas A&M University
Dr. So Yoon Yoon, University of Cincinnati
Dr. Harry A. Hogan, Texas A&M University

Board 249: Developing and Creating Affective Knowledge Spaces for Teachers as Advocates for Social Justice

Mrs. Sabrina Lynette Strong-Nasabal, University of Illinois, Urbana-Champaign
Lara Hebert, University of Illinois, Urbana - Champaign
Dr. Meagan C Pollock, Engineer Inclusion
Dr. Lynford Goddard, University of Illinois, Urbana - Champaign
Dr. Luisa-maria Rosu,

Board 271: Engineering Instruction Action Team (E-IAT): Improving Teaching Methods in Engineering

Dr. Robert A Baffour, University of Georgia
Nathaniel Hunsu, Washington State University, Vancouver
Adel W. Al Weshah, University of Georgia
Dr. Eliza A Banu, University of Georgia
Dr. Grace Amarachukwu Pokoo-Aikins, University of Georgia
Dr. Ramana Pidaparti, University of Georgia
Dr. Kun Yao, University of Georgia
Dr. Barbara Norton McCord P.E., University of Georgia
Adam Wineland, University of Georgia
Ms. Hillary Smith Tanner, University of Georgia

Board 216: Areas of Improvement and Difficulty with Lab Report Writing in the Lower-Division Engineering Laboratory

Courses across Three Universities

Dr. Dave Kim, Washington State University, Vancouver
Dr. Franny Howes, Oregon Institute of Technology

Board 308: Impact of Engineers Without Borders USA Experiences on Professional Preparation

Dr. William "Bill" C. Oakes, Purdue University, West Lafayette
Paul A. Leidig P.E., Purdue University, West Lafayette
Dr. Eric Holloway, Purdue University, West Lafayette

Board 229: Can You See Yourself Here? Broadening Participation in STEM through Virtual Reality Career Exploration

Dr. Sarah Lynn Ferguson, Rowan University
Christopher J Winkler, Rowan University
Kara P. Ieva,
Marjorie Blicharz, Rowan University
Theresa E. Cann,
Ashley Elmes,

Board 432: Work in Progress: Assessing a Faculty Community of Practice and Identifying Its Opportunities to Enhance Equitable Infrastructure Education

Dr. Rodolfo Valdes-Vasquez, Colorado State University
Dr. Kristen L. Sanford P.E., Lafayette College
Dr. Frederick Paige, Virginia Tech
Dr. Philip J. Parker, P.E., University of Wisconsin, Platteville

Board 371: Relationships Between Metacognitive Monitoring During Exams and Exam Performance in Engineering Statics

Dr. Chris Venters, East Carolina University
Dr. Saryn Goldberg, Hofstra University
Amy Masnick, Hofstra University
Kaelyn Marks, Hofstra University
Kareem Panton, Hofstra University

Board 406: The Rising Doctoral Institute: Helping Racial and Ethnic Minority Students Overcome the Transition into the Engineering Ph.D.

Dr. Mayra S Artiles, Arizona State University
Abimelec Mercado Rivera, Arizona State University

Board 193: A Collective Action Approach to Broadening Participation in Computing

Dr. Alicia "Nicki" Nicki Washington, Duke University
Prof. Shaundra Bryant Daily, Duke University
Cecilé Sadler, Massachusetts Institute of Technology

Board 208: Achieving Active Learning through Collaborative Online Lab Experiences

Prof. Julia Yoo, Lamar University

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Dr. selahattin sayil, Lamar University

Board 380: REU Site on UAV Technologies: Exposing Participants to Multidisciplinary Environment

Dr. Subodh Bhandari, California State Polytechnic University, Pomona

Dr. Amar Raheja,

Dr. Zekeriya Aliyazicioglu, California State Polytechnic Institute, Pomona

Fang Tang,

Board 317: Improving Undergraduate STEM Writing: A Collaboration Between Instructors and Writing Center Directors to Improve Peer-Writing Tutor Feedback

Dr. Robert Weissbach, Indiana University - Purdue University, Indianapolis

Ms. Ruth Camille Pflueger, Pennsylvania State University, Behrend

Dr. Immanuel Edinbarough, P.E., The University of Texas, Rio Grande Valley

Dr. Corinne C. Renguet, Indiana University - Purdue University, Indianapolis

Prof. Jonathan Alan Meckley, Pennsylvania State University, Behrend

Dr. Brandon Sorge, Indiana University - Purdue University, Indianapolis

Dr. Gamini P. Mendis, Pennsylvania State University, Behrend

Matthew Rothrock,

Annwesa Dasgupta,

Johanna Bodenhamer, IUPUI

Board 242: Connecting Classroom Curriculum to Local Contexts to Enhance Engineering Awareness In Elementary Youth

Dr. Rebekah J Hammack, Montana State University, Bozeman

Dr. Nicholas Lux Lux, Montana State University, Bozeman

Dr. Paul Gannon, Montana State University, Bozeman

Dr. Douglas J Hacker,

Dr. Brock J. Lamer, Montana State University, Bozeman

Blake Wiehe,

Ms. Tugba Boz, University of Georgia

Board 256: Development and Evolution of Workshops to Support Online Undergraduate Research

Dr. Robert Deters, Embry-Riddle Aeronautical University, Worldwide

Dr. Brent Terwilliger, Embry-Riddle Aeronautical University, Worldwide

Emily Faulconer, University of Florida

Dr. Kelly A George, Embry-Riddle Aeronautical University, Worldwide

Board 419: Using a Situational Leadership Framework to Understand the Role of Mentors in Cultivating Innovative Thinking Skills in STEM Education

Jeffrey Stransky, Rowan University

Brittany Lynn Butler,

Cayla Ritz, Rowan University

Dr. Emily Dringenberg, The Ohio State University

Dr. Elif Miskioglu, Bucknell University

Dr. Cheryl A Bodnar, Rowan University

Board 420: Using a Situational Leadership Framework to Understand the Role of Mentors in Cultivating Innovative Thinking Skills in STEM Education

Dr. Sadan Kulturel-Konak, Pennsylvania State University, Berks

Dr. Abdullah Konak, Pennsylvania State University, Berks

Chithra Adams, VentureWell

Miss Alexa Joelle Prince,

Prof. David Robert Schneider,

Prof. Khanjan Mehta,

Board 247: Designing Learning Environments for Knowledge, Skills, and Mindset Development

Dr. Ellen Zerbe, Georgia Institute of Technology

Dr. Adjo A Amekudzi-Kennedy, Max Planck Institute for Intelligent Systems

Dr. Kevin Haas, Georgia Institute of Technology

Dr. Donald R. Webster, Georgia Institute of Technology

Board 366: Rebuilding and Reinforcing Creativity through Assessment in Engineering Students and Practitioners

Dr. Bret N Lingwall, P.E., South Dakota School of Mines and Technology

Dr. Andrea E Surovek, P.E., South Dakota School of Mines and Technology

Roni Reiter-Palmon,

Board 383: Self-Regulation of Cognition and Self-Regulation of Motivation in Problem Solving

Dr. Oenardi Lawanto, Utah State University, Logan

Dr. Angela Minichiello, Utah State University, Logan

Mr. Zain ul Abideen, Utah State University, Logan

Talha Naqash, Utah State University, Logan

Mr. Assad Iqbal, Arizona State University

Board 400: The impact of Oral Exams on Engineering Students' Learning

Dr. Huihui Qi, University of California, San Diego

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Dr. Minju Kim, University of California, San Diego
Dr. Carolyn L Sandoval, University of California, San Diego
Zongnan Wang, University of California, San Diego
Prof. Curt Schurgers, University of California, San Diego
Marko V. Lubarda, University of California, San Diego
Dr. Saharnaz Baghdadchi, University of California, San Diego
Xuan emily Gedney,
Dr. Alex M. Phan, University of California, San Diego
Dr. Nathan Delson, eGrove Education
Dr. Maziar Ghazinejad, University of California, San Diego

Board 382: RHLab RELIA: A Remote Integrated Environment for Embedded Computing and RF Communication Systems

Brian Chap, University of Washington
Marcos Jose Inonan Moran, University of Washington
Zhiyun Zhang, University of Washington
Pablo Orduna, LabsLand
Payman Arabshahi, University of Washington
Dr. Rania Hussein, University of Washington

Improving Access to Career and Educational Development for Talented, Low-Income Students through the Flexible Internships-Research-Education Model

Dr. Matthew Wettergreen, Rice University
Dr. Jacqueline M Jackson, Jackson State University
Dr. Sherri S Frizell, Prairie View A&M University
Dr. Yvette E. Pearson P.E., University of Texas, Dallas

Board 251: Developing Micro-Credentials to Infuse Cybersecurity into Technician Education

Dr. Evelyn C. Brown, North Carolina State University, Raleigh
Zackary Tyler Hubbard,

Board 228: Building Partnerships for Advanced Manufacturing Programs

Dr. Karen Wosczyzna-Birch, National Center for Next Generation Manufacturing

Board 269: Engineering Ethics through High-Impact Game-Based Ethical Interventions: Design and Playful Assessment

Dr. Daniel D. Burkey, University of Connecticut
Dr. Scott Streiner, University of Pittsburgh
Dr. Kevin D. Dahm, Rowan University
Dr. Richard Tyler Cimino, New Jersey Institute of Technology
Dr. Jennifer Pascal, University of Connecticut

Board 374: Replicating a Community-Engaged Educational Ecosystem: First-Year Findings

Dr. Danielle Wood, University of Notre Dame

Dr. Hazel Marie, Youngstown State University
Dr. Faisal Aqlan, University of Louisville
Dr. Jay B. Brockman, University of Notre Dame
Daniel Lapsley, University of Notre Dame
Dr. Kerry Meyers, University of Notre Dame
Emily C. LaPorte,
Khalid Oladeji Bello, University of Louisville

Board 328: Investigating the Effects of Culture and Education on Ethical Reasoning and Dispositions of Engineering Students: Initial Results and Lessons Learned

Dr. Qin Zhu, Virginia Tech
Dr. Scott Streiner, University of Pittsburgh
Dr. Rockwell Franklin Clancy III, Colorado School of Mines
Dr. Andrea Gammon, Delft University of Technology
Dr. Ryan Thorpe,

Board 345: NSF ATE: Internet of Things Education Project

Prof. Gary J. Mullett, Springfield Technical Community College

Board 347: NSF Grantee Poster Session Undergraduate's Social Capital and Engineering Professional Skills: Comparison between Different Types of Institutions

Ms. Tiantian Li, Purdue University, West Lafayette
Dr. Eric Holloway, Purdue University at West Lafayette (COE)
Dr. Kerrie A Douglas, Purdue University, West Lafayette
Dr. Julie P Martin, The Ohio State University
Ms. Victoria Bill, New York University
Giselle Guanes Melgarejo, The Ohio State University

Board 346: NSF DUE 2142666 and NSF DUE 2142685. Collaborative Research-Engineering Empathetic Engineers (E³): Effects of the Humanities on Engineers' Critical Thinking and Empathy Skills

Dr. John Carrell, Texas Tech University
Dr. Joshua M. Cruz,
Dr. Andrew Mark Herbert,
Dr. Michael Scott Laver, Rochester Institute of Technology
Emily Lazarus,
Iris V. Rivero,
Erika Nuñez, Texas Tech University
Nafisha Tabassum,

Board 340: Mentoring to Support Community Colleges through the NSF ATE Proposal Submission Process

Dr. Karen Wosczyzna-Birch, National Center for Next Generation Manufacturing

Board 227: Building Interest in Technology Careers through a Five-Week Saturday Program

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WEDNESDAY, JUNE 28th SESSIONS

Dr. Karen Wosczyzna-Birch, National Center for Next Generation Manufacturing

Board 367: Reflections from an Interdisciplinary Team Research Project during a 10-week NSF REU Program

Prof. Eric Markvicka, University of Nebraska, Lincoln
Benjamin Hage,
Ethan J Krings,
Dr. Greg Bashford, University of Nebraska, Lincoln

Board 386: Sketchtivity, an Intelligent Sketch Tutoring Software: Broadening Applications and Impact

Dr. Hillary E. Merzdorf, Texas A&M University
Ms. Donna Jaison, Texas A&M University
Samantha Ray, Texas A&M University
Anna Stepanova, Texas A&M University
Dr. Vimal Kumar Viswanathan, San Jose State University
Dr. Vinayak Krishnamurthy,
Prof. Wayne Li, Georgia Institute of Technology
Dr. Julie S Linsey, Georgia Institute of Technology
Dr. Tracy Anne Hammond, Texas A&M University
Dr. Kerrie A Douglas, Purdue University, West Lafayette

Board 318: Inclusive Engineering Classrooms and Learning Communities: Reflections and Lessons Learned from Three Partner Universities in Year 2

Miss Jessica Moriah Vaden, University of Pittsburgh
Dr. Melissa M. Bilec, University of Pittsburgh
Dr. Amy Hermundstad Nave, Colorado School of Mines
Prof. Kristen Parrish, Arizona State University
Dr. Amy E Landis,
Dr. April Dukes, University of Pittsburgh

Board 427: US-Sweden Bioinformatics IRES Year 2: Improving Student Preparedness

Prof. Mark A Chapman, University of San Diego

Board 319: Inclusive, Asset-Based Instructional Strategies in Engineering Design: Empowering Faculty with Professional Development

Dr. Hannah D Budinoff, The University of Arizona
Dr. Vignesh Subbian, The University of Arizona
Ann Shivers-McNair,

Board 237: Classroom Skills Desired by Students

Dr. Muhammad Dawood, New Mexico State University

Board 355: Outcomes & Observations in the Transfer Success Co-Design in Engineering Disciplines (TranSCeND) Program at

the University of Tennessee, Knoxville

Dr. Rachel McCord Ellestad, University of Tennessee, Knoxville
Dr. David J. Keffer, University of Tennessee, Knoxville
Dr. Jennifer Retherford, University of Tennessee, Knoxville
Dr. Travis Griffin, University of Tennessee, Knoxville
Ms. Mary kocak, University of Tennessee, Knoxville

Board 332: Learning by Evaluating (LbE): Engaging Students in Evaluation as a Pedagogical Strategy to Improve Design Thinking

Dr. Andrew Jackson, University of Georgia
Prof. Nathan Mentzer, Purdue University, West Lafayette
Dr. Scott R. Bartholomew, Brigham Young University
Ms. Wonki Lee, Purdue University, West Lafayette
Jessica Marie Yauney,
Mr. Scott Thorne, Purdue University, West Lafayette
Mr. Daniel Bayah,

Board 365: Reaching Consensus: Using Group Concept Mapping in a Multi-Site STEM Hub Research Team

Mr. Anthony Weiss, University of Missouri, Kansas City
Dr. Darran Cairns, West Virginia University
Tiffani Riggers-Piehl, University of Missouri, Kansas City
Dr. Jacob Marszalek, University of Missouri, Kansas City
Dr. Michelle Maher, University of Missouri, Kansas City

Board 206: Academic Success of STEM College Students with Attention Deficit Hyperactivity Disorder and the Role of Classroom Teaching Practices: Project Update

Nolgie O. Oquendo-Colón, University of Michigan
Laura Carroll, University of Michigan
Dr. Cynthia J. Finelli, University of Michigan

Board 238: Collaborative Research: ACEP FC-PAM: Project ELEVATE (Equity-focused Launch to Empower and Value ACEP Faculty to Thrive in Engineering)

Dr. Alaine M Allen, Carnegie Mellon University
Darlene Saporu,
Elisa Riedo,
Shelley L Anna,
Dr. Linda DeAngelo, University of Pittsburgh
Dr. Andrew Douglas, The Johns Hopkins University
Nathalie Florence Felciai,
Dr. Neetha Khan, Carnegie Mellon University
Dr. Jelena Kovacevic, New York University
Stacey J Marks,

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WEDNESDAY, JUNE 28th SESSIONS

Dr. William Harry Sanders, Carnegie Mellon University
Dr. Tuvia "Ed" E. Schlesinger, The Johns Hopkins University
Yao Wang,
Ms. Jacqueline Ann Rohde, Purdue University, West Lafayette
Charlie Diaz, University of Pittsburgh
Nelson O. O. Zounlome,

Board 411: Thinking Inversely in Engineering Design: Towards an Operational Definition of Generative Design Thinking

Mr. John Zachary Clay, The University of Texas, Austin
Xingang Li, The University of Texas, Austin
Onan Demirel,
Dr. Molly H Goldstein, University of Illinois, Urbana - Champaign
Rundong Jiang,
Dr. Charles Xie,
Darya Zabelina,
Dr. Zhenghui Sha, The University of Texas, Austin

Board 412: Thinking with Mechanical Objects: A Think-Aloud Protocol Study to Understand Students' Learning of Difficult and Abstract Thermodynamic Concepts

Beyza Nur Guler, Virginia Tech
Mr. Talha Bin Asad, Virginia Tech
Dr. Diana Bairaktarova, Virginia Tech

Board 399: The Freshman Year Innovator Experience (FYIE): Bridging the URM Gap in STEM

Dr. Noe Vargas Hernandez, The University of Texas, Rio Grande Valley
Dr. Arturo A Fuentes, The University of Texas, Rio Grande Valley
Dr. Karen Lozano, The University of Texas, Rio Grande Valley
Dr. Javier A. Ortega,
Dr. Eleazar Marquez, The University of Texas, Rio Grande Valley

Board 311: Impacts of the ProQual Institute: Building Communities of Technical Stem Faculty for Long-Term Engagement in Educational Research

Dr. John Ray Morelock, University of Georgia
Dr. Dominik May, University of Wuppertal
Dr. Aileen Reid, University of North Carolina, Greensboro
Dr. Ayesha Sherita Sherita Boyce,
Dr. Nicola W. Sochacka, University of Georgia
Dr. Joachim Walther, University of Georgia
Chaturved Janaki,

Board 390: Student Perceptions of Confidence in Learning

and Teaching before and after Teaching Improvements

Dr. Sarah Lynn Orton P.E., University of Missouri, Columbia
Fan Yu, University of Missouri, Columbia
Rose M Marra, University of Missouri, Columbia
Dr. Lisa Y. Flores, University of Missouri, Columbia

Board 337: Measuring the "Thinking" in Systems Thinking: Correlations between Cognitive and Neurocognitive Measures of Engineering Students

Dr. Tripp Shealy, Virginia Tech
Dr. John S. Gero, University of North Carolina, Charlotte
Paulo Ignacio Jr.,

Board 250: Developing and Implementing Innovation-based Academic Content and Experiences for First-Year Low-Income Students

Dr. Karl D. Schubert, FIET, University of Arkansas
Dr. Carol S. Gattis, University of Arkansas
Xochitl Delgado Solorzano, University of Arkansas
Mrs. Leslie Bartsch Massey, University of Arkansas
Jennie S Popp, Ph.D., University of Arkansas
Divya Muralidhara, University of Arkansas
Mr. Thomas Carter III, University of Arkansas

Board 395: Testing the Performance of Outcome Measures for LGBTQ STEM Students and Their Peers

Dr. Bryce E. Hughes, Montana State University, Bozeman
Sidrah MGWatson,

Board 219: Asset-Based Practices in a Steam Middle School: Lessons Learned from Teachers' Perspectives

Dr. Joel Alejandro Mejia, The University of Texas, San Antonio
Dr. Alberto Esquinca, San Diego State University
Luis E Montero-Moguel, The University of Texas, San Antonio

Board 252: Developing Optical Laboratories for Teaching Engineering and Physics

Dr. Nathan Lemke, Bethel University
Dr. Karen Irene Rogers, Bethel University
Gabriel Michael Hjelle,
Zachary Erickson,

Board 209: Adaptive Expertise: A Potential Tool for Supporting S-STEM Student Retention and Graduation

Dr. Alexander John De Rosa, University of Delaware
Dr. Ashley Lytle,
Dr. Maxine Fontaine, Stevens Institute of Technology
Prof. Frank T. Fisher, Stevens Institute of Technology

Board 348: NSF Grantees Poster Session: Power Engineering

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Curriculum Update: Preliminary Evaluation of Student Concept Maps on Energy Forecasting

Dr. Courtney S. Smith-Orr, University of North Carolina, Charlotte
Prof. Valentina Cecchi, University of North Carolina, Charlotte
Dr. Paras Mandal, University of Texas at El Paso
Sukumar Kamalasadana,

Effects of Community Cultural Wealth on Black and Hispanic Women's Persistence in Undergraduate Computing Education

Dr. Shetay Ashford-Hanserd, Texas State University

Board 261: Effectiveness of Vertically-Integrated Project Teams in Tackling an Engineering Grand Challenge

Avinash Danda,
Prof. Bruce L Tai,
Dr. Vinayak Krishnamurthy,
Prof. Mathew Kuttolamadom, Texas A&M University

Board 303: High Tech and High Touch: Inclusive Ecosystems for Community College Engineering and Engineering Technology Student Success

Prof. eugene leo draine mahmoud, Mt. San Antonio Community College
Prof. Carolyn Robinson,
Prof. Martin S Mason,

Board 266: Engaging Transfer Students in a College of Engineering

Dr. Christy Wheeler West, University of South Alabama
Dr. Eric Steward P.E., University of South Alabama
Dr. Joseph David Richardson,
Tom Thomas,
Nicole Carr,

Board 359: Potential Interventions to Promote Engineering Technology Adoption among Faculty

Dr. Michelle E Jarvie-Eggart P.E., Michigan Technological University
Shari Stockero,

Board 351: NSF S-STEM Track 3: Scaling Up Student Success through Broadening Participation Beyond our S-STEM Cohort

Dr. Maryam Darbeheshti, University of Colorado, Denver
Miriam Howland Cummings PhD, University of Colorado, Denver
William Taylor Schupbach,
Dr. David J. Russomanno, Indiana University - Purdue University, Indianapolis
Dr. Stephanie S Ivey, The University of Memphis

Dr. Karen D Alfrey, Indiana University - Purdue University, Indianapolis

Prof. Tom Altman,
Dr. Michael S. Jacobson,
Craig O. Stewart, University of Memphis
Prof. Katherine Goodman, University of Colorado, Denver

Board 353: On ACCESS Program Support for Students' Academic Success in the Cybersecurity Field

Prof. Katerina Goseva-Popstojanova, West Virginia University
Dr. Erin Carll, University of Washington
Dr. Robin A.M. Hensel, West Virginia University

Board 342: Moving Toward Transdisciplinary Learning Around Topics of Convergence: Is it really Possible in Higher Education Today?

Dr. Greg J. Strimel, Purdue University, West Lafayette
Douglas Edward Pruim,
Deana Lucas,
Dr. Todd Kelley, Purdue University, West Lafayette
Jung Joo Sohn, Purdue University, West Lafayette

Board 224: Brownian Motion or Intentional Engagement? Addressing Practical Obstacles Between Two- and Four-Year STEM Transfer Institutions

Dr. Michelle Maher, University of Missouri, Kansas City
Dr. Darran Cairns, West Virginia University
Prof. Reagan Curtis, West Virginia University
Dr. John Kevern, University of Missouri, Kansas City
Dr. Jacob M. Marszalek Ph.D., University of Missouri, Kansas City
Miss Kathleen O'Shea,
Mrs. Carol Nicole Pflum, Longview Community College
ANTHONY WEISS,

Board 357: Pilot Study of the Impacts of a Robotics Curriculum on Student's Subject-Related Identities and Understanding of Engineering

Prof. Holly M Golecki, University of Illinois, Urbana Champaign
Ms. Elizabeth Ann McNeela, University of Illinois, Urbana Champaign
Thomas Tran, University of Illinois, Urbana-Champaign
Dr. Karin Jensen, University of Michigan

Board 349: NSF INCLUDES ALRISE Alliance : Accelerate Latinx Representation in STEM Education.

Ms. Anna C Tanguma-Gallegos, Arizona State University
Caroline VanIngen-Dunn, Arizona State University
Cynthia Kay Pickering, Arizona State University

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Board 360: Practicing Facilitating STEM Discussions: A Study on the Use of a Digital Simulation Tool for Teachers

G. R. Marvez, Tufts University

Camila Lee, Massachusetts Institute of Technology

Justin Reich, Massachusetts Institute of Technology

Board 324: Intelligently Preparing the Future Construction Engineering Workforce by Connecting the Professional and Educational Communities

Dr. Homero Murzi, Virginia Tech

Andres Nieto Leal,

Anthony Olukayode Yusuf, Virginia Tech

Dr. Abiola Akanmu, Virginia Tech

Sheryl Ball,

Dr. Andrea Nana Ofori-Boadu, North Carolina A&T State University

Board 245: Description, Assessment, and Outcomes of Several Interventions within a National Science Foundation Research Traineeship (NRT): Graduate Certificate, Field Trips, Internships and International Experiences

Dr. Eduardo Santillan-Jimenez, University of Kentucky

Carissa B. Schutzman, Ph.D., University of Cincinnati

Keren Mabisi,

Apala Biswas, University of Cincinnati

Board 200: A New Mentoring and Undergraduate Research Experience Model between REUs and RETs at the Stevens REU/RET Site Program on Sustainable Energy and Bioengineering

Dr. Patricia Muisener, Stevens Institute of Technology

Prof. Pinar Akcora, Stevens Institute of Technology

Board 418: Understanding Context: Propagation and Effectiveness of the Concept Warehouse in Mechanical Engineering at Five Diverse Institutions and Beyond - Results from Year 4

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

Dr. Milo Koretsky, Tufts University

Dr. Susan Bobbitt Nolen,

Prof. Dominic J Dal Bello, Allan Hancock College

Dr. James M Widmann, California Polytechnic State University, San Luis Obispo

Dr. Michael J. Prince, Bucknell University

Prof. Christopher Papadopoulos, University of Puerto Rico, Mayaguez

Mr. Thomas W Ekstedt, Oregon State University

Board 376: Representation of Engineering Structures Concepts in Academic and Workplace Contexts

Dr. Shane A. Brown P.E., Oregon State University

Mr. Matthew Stephen Barner, Oregon State University

Mr. Sean Lyle Gestson, Oregon State University

Dr. Renee M. Desing, The Ohio State University

Board 429: Variations in Motivation for Learning to Use MATLAB among First-Year Engineering Students

Dr. Alison K Polasik, Campbell University

Board 213: An Expanded Integrated Achievement and Mentoring (iAM) Program to Promote Access to STEM Professions

Dr. Jessica Santangelo, Hofstra University

Dr. Lynn A. Albers, Hofstra University

Prof. Margaret A Hunter, Hofstra University

Kristin Weingartner,

Rosebud Elijah, Hofstra University

Richard Cohen, Nassau Community College

Scott T Lefurgy,

Rakhi Yogendra,

Lisa Filippi, Hofstra University

Board 265: Engaging Students in Exploring Computer Hardware Fundamentals Using FPGA Board Games

Andrea Ramirez-Salgado, University of Florida

Tanvir Hossain,

Tamzidul Hoque,

Dr. Swarup Bhunia, University of Florida

Mary Jo Koroly,

Bradford Davey,

Dr. Pavlo Antonenko, University of Florida

Board 215: Applying Research Results in Instructor Development to Reduce Student Resistance to Active Learning: Project Update

Ms. Lea K. Marlora, University of Michigan

Dr. Cynthia J. Finelli, University of Michigan

Dr. Maura Borrego, University of Texas, Austin

Dr. Michael J. Prince, Bucknell University

Dr. Jenefer Husman, University of Oregon

Dr. Matthew Charles Graham,

Ariel Chasen, University of Texas, Austin

Board 304: HighSchoolers' Understanding about "Engineering" and Their Perception of the Coding-Engineering Relationship

Sheikh Ahmad Shah, Boston College

Prof. Mike Barnett,

Jaai Uday Phatak,

Dr. Avneet Hira, Boston College

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WEDNESDAY, JUNE 28th SESSIONS

Helen Zhang, Boston College

Board 201: A New Public Dataset for Exploring Engineering Longitudinal Development by Leveraging Curricular Analytics

Dr. David Reeping, University of Cincinnati
Dr. Matthew W. Ohland, Purdue University, West Lafayette
Dr. Kenneth Reid, University of Indianapolis
Dr. Hossein EbrahimiNejad, Drexel University
Nahal Rashedi,

Board 372: Remote Engaged Student Learning through Hands-on Internet of Things

Dr. Lifford McLauchlan, Texas A&M University, Kingsville
Dr. David Hicks,
Dr. Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

Board 401: The Impact of Pre-Service Teachers' Perceptions of Engineering on Their Self-Efficacy with Teaching Engineering

Dr. Betsy Chesnutt Ph.D., University of Tennessee, Knoxville
Mr. Daniel Patrick Mountain, University of Tennessee, Knoxville
Dr. Courtney June Faber, University of Tennessee, Knoxville

Board 417: Understanding Capstone Design Activity Engagement in Mechanical Engineering

Elliott Clement, Oregon State University
Sarah Oman,
Dr. James L. Huff, Harding University
Dr. Shane A. Brown, P.E., Oregon State University

Board 232: CAREER: Disrupting the Status Quo Regarding Who Gets to Be an Engineer—Highlights from Year 2

Dr. Jeremi S. London, Virginia Tech
Dr. Brianna Benedict McIntyre, Virginia Tech
Ms. Nicole Adia Jefferson, Virginia Tech

Board 264: Endeavour S-STEM Program for First-Year Students: 3rd-Year Results

Dr. Diana G. de la Rosa-Pohl, University of Houston

Board 358: Post-COVID Professional Development and Community Building for a Pedagogical Change Project

Prof. Jill K. Nelson, George Mason University
Jessica Rosenberg, George Mason University

Board 405: The REU Site in Nanotechnology for Health, Energy and the Environment: Best Practices for Enhancing Research Skills, Professional Development, and Diversity

Dr. Gary P. Halada, Stony Brook University
Lisa Ospitale, Stony Brook University

Board 414: Tracking the Progress Towards an Engineering Degree of Three Cohorts of Low-income Engineering Students Supported by a Track 3 Multi-Institutional S-STEM Grant

Dr. Ricky T. Castles, East Carolina University
Dr. Chris Venters, East Carolina University

Board 270: Engineering Faculty Members' Experience of Professional Shame: Summary of Insights from Year Two

Dr. James L. Huff, Harding University
Dr. Amy L. Brooks, Oregon State University
Halle Miller, Harding University
Grant R. Countess, Harding University
Kyle Shanachilubwa, Harding University

Board 385: Shark AI: Teaching Middle School Students AI Fundamentals Using Fossil Shark Teeth

Dr. Jeremy A. Magruder Waisome, University of Florida
Dennis R. Parnell Jr., University of Florida
Dr. Pasha Antonenko, University of Florida
Brian Abramowitz, University of Florida
Victor Perez,

Board 434: Work in Progress: Building a Sustainable Institutional Structure to Support STEM Scholars

Dr. Donald W. Mueller Jr. P.E., Purdue University, Fort Wayne
Dr. Josue Njock Libii, Purdue University, Fort Wayne
Donna Dea Holland, Purdue University, Fort Wayne
Omonowo David Momoh, Purdue University, Fort Wayne
Peter A Ng, Purdue University, Fort Wayne
Dr. Reynaldo Pablo,
Dr. Suleiman A. Ashur, Purdue University, Fort Wayne

Board 212: An Engineering/Computer Science Project with Community Service Focus

Prof. Tariq Khraishi, University of New Mexico
Ms. Kristine Denman, University of New Mexico

Board 248: Developing a National Framework for Recognition of Engineering and Engineering Technology Faculty Instructional Excellence

Dr. Donald P. Visco Jr., The University of Akron
Dr. Jenna P. Carpenter, Campbell University
Dr. Alan Cheville, Bucknell University
Dr. Douglas Bohl, Clarkson University
Dr. Jacqueline A. El-Sayed, American Society for Engineering Education

Board 295: Five Year Assessment for Educating Diverse Undergraduate Communities with Affordable Transport Equipment

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Zeynep Ezgi Durak, Washington State University
Prof. Bernard J. Van Wie, Washington State University
David B. Thiessen, Washington State University
Dr. Prashanta Dutta, Washington State University
Dr. Olusola Adesope, Washington State University
Kitana Kaiphanliam, Washington State University
Mrs. Olivia Reynolds, Washington State University
Miss Carah Elyssa Watson, Campbell University
Oluwafemi Johnson Ajeigbe, Washington State University
Natalie Kallish,
Jacqueline Gartner, Ph.D., Campbell University
Aminul Islam Khan, Washington State University

Board 300: Greater Equity, Access, and Readiness for Success in Engineering and Technology (GEARSET) - An Alternate Pathway to Engineering and ET

Dr. Lesley M. Berhan, The University of Toledo
Mr. Bryan Thomas Bosch,

Board 253: Developing Professional Identity: Integrating Academic and Workplace Competencies within Engineering Programs

Dr. Betul Bilgin, The University of Illinois, Chicago
Hasiya Najmin Isa,
Emily Seriruk,
Cody Wade Mischel,

Board 241: Connected Learning Spaces Supporting Engineering Interest Development: A Case Study of Ego-Centric Network Analysis of Relationships

Mr. Raul Mishael Sedas, University of California, Irvine
Mizuko Ito,

Board 356: Perspectives from an Intervention Model to Improve Retention and Success Among Low-income Hispanic Engineering Students

Dr. Manuel A. Jimenez, University of Puerto Rico Mayaguez
Dr. Luisa Guillemard, University of Puerto Rico, Mayaguez
Dr. Aidsa I. Santiago-Roman, University of Puerto Rico, Mayaguez
Prof. Oscar Marcelo Suarez, University of Puerto Rico, Mayaguez
Dr. Nayda G. Santiago, University of Puerto Rico, Mayaguez
Dr. Carla Lopez Del Puerto, University of Puerto Rico, Mayaguez
Dr. Pedro O. Quintero,
Dr. Anidza Valentin, University of Puerto Rico, Mayaguez
Prof. Nelson Cardona-Martinez, University of Puerto Rico,

Mayaguez
Dr. Sonia M. Bartolomei-Suarez, University of Puerto Rico, Mayaguez
Dr. Manuel Rodriguez-Martinez,

Board 362: Promoting Research-Driven Data Analytics Curriculum in High School through an NSF RET Site

Dr. Shengfan Zhang, University of Arkansas
Dr. Eric Specking, University of Arkansas

Board 430: What Constitutes Research Excellence? Experimental Findings on Factors Driving Faculty Perceptions of Tenure Candidates in STEM

Dr. John K. Wagner, University of New Mexico
Lizandra C. Godwin, University of New Mexico
Magda Hinojosa, Arizona State University
Dr. Nadia Singh, University of Oregon
Elizabeth A. Wentz, Arizona State University
Benjamin Jose Aleman, University of Oregon
Prof. Mala Htun, University of New Mexico

W304A - Biomedical Engineering Education Showcase

11:00 A.M. - 12:30 P.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Amy Adkins, Northwestern University; Sharon Miller, Indiana University - Purdue University Indianapolis; Joe Tranquillo, Bucknell University

Biomedical engineering educators will take 5 minutes each to demonstrate their most effective classroom activities, such as icebreakers, hands-on activities, team building, classroom demonstrations, technology tips, and pedagogical strategies.

W305 - Chemical Engineering Division (ChED) Technical Session 7: Innovative Pedagogy

11:00 A.M. - 12:30 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Matthew Cooper, North Carolina State University at Raleigh; Joanne Beckwith, University of Michigan

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WEDNESDAY, JUNE 28th SESSIONS

Numerical Problem Solving across the Curriculum with Python and MATLAB Using Interactive Coding Templates: A Workshop for Chemical Engineering Faculty

Austin N. Johns, The State University of New York, Buffalo
Dr. Robert P. Hesketh, Rowan University
Prof. Matthew D. Stuber, University of Connecticut
Dr. Ashlee N. Ford Versypt, The State University of New York, Buffalo

Sensemaking of Block Flow Diagrams in Chemical Engineering

Prof. Jiamin Zhang, University of California, Riverside
John Ellington Byars, Auburn University
Prof. Eric Burkholder, Auburn University

Chemical Engineers' Creating Concept Maps: A Prewriting Activity

Dr. Elif Miskioglu, Bucknell University

A Comparison between Individually-Prepared and Team-Prepared Study Guides in a Sophomore Chemical Engineering Thermodynamics Course

Dr. Donald P. Visco Jr., University of Akron
Nidaa Makki, University of Akron
William Grover Brown,

Ungrading in Chemical Engineering: Attempting to Eliminate Exams, Deadlines, and Anxiety by Refocusing on Learning Instead of Grades

Dr. Lucas James Landherr, Northeastern University

W305B - Chemical Engineering Division (ChED) Technical Session 8: Lab Module Development

11:00 A.M. - 12:30 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Robert Hesketh, Rowan University; Daniel Anastasio, Rose-Hulman Institute of Technology

An Inquiry-Based Learning STEM Outreach Module to Teach Principles of Bioadhesives and Tissue Repair

Mr. Christopher James Panebianco, Icahn School of Medicine, Mount Sinai
Neharika Bhadouria,
Olivia Saebyul Kim,

Jillian R. Frost, The Cooper Union for the Advancement of Science and Art

Angela Huang,

Poorna Dutta,

Andrea Vernengo,

Dr. Jennifer Weiser, The Cooper Union for the Advancement of Science and Art

Process Control Experiment Using an Arduino Board and LED Lights

Dr. Maddalena Fanelli, Michigan State University

Mr. Ryan Daniel Atkinson, Michigan State University

Development and Use of an Adaptable Arduino-Based Control System for Bench-Top Process Control Experiments

Dr. Stacy K. Firth, University of Utah

Prof. Anthony Butterfield, University of Utah

Mason John,

Design and Study of a Packed Absorption Column for CO₂ Scrubbing

Dr. Maddalena Fanelli, Michigan State University

Alexis Chuong,

Mr. Robert Selden, Michigan State University

Design, Construction, and Analysis of a Chemical Engineering Unit Operations Laboratory Pumping Experiment

Dr. Andrew Maxson, The Ohio State University

Jacob Strayer,

Introduction of a Carbon Dioxide Capture Experiment in a Senior Chemical Engineering Laboratory Course

Iram Rahman, The Cooper Union for the Advancement of Science and Art

Dr. Amanda Simson, The Cooper Union for the Advancement of Science and Art

W306A - Committee on Educational Policy Presents: Pillars of Our Classrooms

11:00 A.M. - 12:30 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Joel Sloan,

Presenters will focus primarily on laboratory and project-based learning techniques to enhance learning experiences.

Impact of Project-Based Assignments on Students' Learning

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WEDNESDAY, JUNE 28th SESSIONS

Experience in Inclusive Courses

Dr. Mousumi Roy, P.E., University of Connecticut
Dr. Sarira Motaref, P.E., University of Connecticut
Dr. Manish Roy, University of Connecticut

Teaching Civil Engineering through Integrated Projects in GIS

Dr. Kevin A. Waters, P.E., Villanova University

Service Learning Capstone Projects to Enhance Civil Engineering Education

Dr. Xi Wang, Drexel University
Dr. Hans M. Tritico, University of Mount Union
Kathleen M. Short,
Vahraz Honary,

Client-Focused Technical Writing through Laboratory Report Preparations in Geotechnical Engineering: A Case Study

Dr. Nirmala Gnanapragasam, Seattle University

W306B - Committee on Effective Teaching Presents: Teaching Mode Active-ated

11:00 A.M. - 12:30 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Manish Roy, University of Connecticut

Presenters share a variety of engagement techniques seeking to improve engagement and course performance.

Classroom Climate Analysis of Flipped Structural Classrooms with Active Learning: A Case Study

Dr. Ryan L Solnosky, P.E., Pennsylvania State University
Thomas Gonzalez O'Halloran,

Enriching Student Learning through Compelled Active Participation in a Coastal Resiliency Course

Dr. Corinna Marie Fleischmann, P.E., United States Coast Guard Academy
Cmdr. Brian Maggi, P.E., United States Coast Guard Academy
Prof. Hudson V. Jackson, P.E., United States Coast Guard Academy

Post-Pandemic Student Reception of Flipped Classrooms in Civil Engineering Education

Dr. Bret N Lingwall, P.E., South Dakota School of Mines and Technology
Dr. Andrea E Surovek, P.E., South Dakota School of Mines and Technology

Lessons Learned from a Game-Based Learning Intervention in Civil Engineering

Dr. Casper Harteveld, Northeastern University
Victoria Bennett, Rensselaer Polytechnic Institute
Dr. Tarek Abdoun, Rensselaer Polytechnic Institute
Dr. Yevgeniya V. Zastavker, Olin College of Engineering
Dr. Usama El Shamy, P.E., Southern Methodist University
Dr. Binod Tiwari, University of Michigan
Dr. Evangelia Ieronymaki, Manhattan College
Dr. Anirban De, P.E., Manhattan College
Xenia Wirth,
Kejun Wen, Jackson State University
Dr. David A Saftner, Northern Arizona University
Prof. Beena Ajmera, Iowa State University
Scott Brandenburg, University of California, Los Angeles
Dr. Jonathan Stewart, University of California, Los Angeles
Prof. Brina Montoya, P.E., North Carolina State University, Raleigh
Dr. Alison Rose Kennicutt, York College of Pennsylvania
Surya Sarat Chandra Congress,
Anthony Tessari,
Mehdi Omidvar,
Ashly Cabas,
Dr. Cassandra Rutherford,

How to Develop Engaging Engineering Content for the Classroom and Online Videos (Mini-Class Demo)

Dr. Anthony Battistini, Angelo State University

W308 - COED: Grading Systems

11:00 A.M. - 12:30 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Mahnas Mohammadi-Aragh, Mississippi State University

This session will focus on the presentation of papers that deal with computer-based tools that aid in the grading of undergraduate students.

How Much Deadline Flexibility on Formative Assessments Should We Be Giving to Our Students?

Mr. Chenyan Zhao, University of Illinois, Urbana-Champaign
Prof. Matthew West, University of Illinois, Urbana-Champaign
Prof. Mariana Silva, University of Illinois, Urbana-Champaign

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WEDNESDAY, JUNE 28th SESSIONS

Automated Grading of LabVIEW Files

Dr. Keith Hekman, California Baptist University

Effect of Automated Instantaneous Feedback, Unlimited Submission Attempts, and Optional Exercises on Student Engagement, Performance, and Academic Integrity in an Introductory Computer Programming Course for Engineers

Marko V. Lubarda, University of California, San Diego

Dr. Alex M. Phan, University of California San Diego

Aidan Daniel Carrigg,

Karthik Srinivasan,

Josephine Relaford-Doyle, University of California, San Diego

First Try, No (Autograder) Warm Up: Motivating Quality Coding Submissions

Liia Butler, University of Illinois, Urbana-Champaign

Dr. Geoffrey L. Herman, University of Illinois, Urbana-Champaign

Mastery Grading in a Software Engineering Course

Carlos Rojas, San Jose State University

Prof. Gina M. Quan, San Jose State University

W309 - Construction Engineering Division (CONST) Technical Session 4

11:00 A.M. - 12:30 P.M., ROOM 335, BALTIMORE CONVENTION CENTER

Sponsor: Construction Engineering Division (CONST)

Moderators: Paul Ackerman, York College of Pennsylvania; Nicholas Tymvios, Bucknell University

Cultivating Sustainable Infrastructure Project Delivery through Integrated Design and Envision-Rating System within Construction Education

Miss Rubaya Rahat, Florida International University

Mr. Mohamed Elzomor, P.E., Florida International University

Transforming Education Pedagogies to Include Life-Work Balance in Engineering

Ms. Erika Judith Rivera, Florida International University

Mr. Mohamed Elzomor, P.E., Florida International University

Mr. Piyush Pradhananga, Florida International University

Remedial Courses Effectiveness on Timely Graduation Rates and Degree Progression within Construction Engineering Students

Prof. Carmen Paz Paz Muñoz, Universidad Andres Bello, Santiago, Chile

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Santiago, Chile

Factors Affecting On-Time Graduation of Engineering and Construction Management Undergraduates at a Minority Serving Institution

Ms. Claudia Calle Müller, Florida International University

Mais Kayyali, Florida International University

Mr. Mohamed Elzomor, P.E., Florida International University

From Need Assessment to Accreditation: Lessons Learned from Creating a New Construction Engineering Program

Dr. Mostafa Batouli, The Citadel

Dr. Rebekah Burke, P.E., Pennsylvania State University

Dr. Ronald W. Welch, The Citadel

Dr. William J. Davis, P.E., Pennsylvania State University

Dr. Nahid Vesali, P.E., Pennsylvania State University

W313 - Design in Engineering Education Division (DEED) Technical Session 7

11:00 A.M. - 12:30 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Discipline Specific Design Instruction and Experiences

Development of Student Comfort with Various Fabrication Methods in Aerospace and Mechanical Engineering Design Curriculum

Dr. Tyler Carter Kreipke, CSC, University of Notre Dame

Dr. Kerry Meyers, University of Notre Dame

Adopting a Common Product Design Process across the Undergraduate Mechanical Engineering Curriculum

Katherine Mathieu,

Dr. Micah Lande, South Dakota School of Mines and Technology

Dr. Karim Heinz Muci-Kuchler, Texas State University

Redesigning an Introductory Mechanics Course to Include Meaningful Design Experiences

Capt. Damon Kirkpatrick, U.S. Air Force Academy

Dr. Michael Anderson, U.S. Air Force Academy

Dr. Phillip Cornwell, U.S. Airforce Academy

Engaging Aerospace Students with Experiential Learning in

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WEDNESDAY, JUNE 28th SESSIONS

Hybrid Project-based Courses

Dr. Sonia Travaglini, Stanford University
Dr. Sheri Sheppard, Stanford University
Dr. Helen L. Chen, Stanford University

Analysis of Engineering Undergraduates' Confidence with Hands-on Tasks - Preparation for Collaborative Manufacturing Environments in the Era of Industry 4.0

Xiaou Yang, University of Georgia
Ashlyn Claire Floyd,
Mr. Logan Alexander Smith, University of Georgia
Dr. Beshoy Morkos, University of Georgia

W313B - Design in Engineering Education Division (DEED) Technical Session 13

11:00 A.M. - 12:30 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Sustainability and Global Considerations in Design Education

Embedding Sustainable Design into a Sophomore Materials Science and Engineering Labs: Use of Materials Selection and Screening and Life Cycle Analysis

Dr. Nancy Ruzycki, University of Florida

Sustainable Materials Design in Undergraduate Engineering Education

Cecelia Kinane, University of Michigan
Kaitlin Tyler PhD, ANSYS, Inc.
Abdon Pena-Francesch,
Alan Taub,

Supporting Engineering Students' Incorporation of "Context" into Global Health Design Processes

Grace Burlison, University of Michigan
Dr. Kathleen H. Sienko, University of Michigan
Kentaro Toyama, University of Michigan

Review of a Design Methodology in a Client-Based, Authentic Design Curriculum

Dr. Megan Hammond, University of Indianapolis
Dr. Kenneth Reid, University of Indianapolis
Dr. Stephen J. Spicklemire, University of Indianapolis
Dr. Joseph B. Herzog, University of Indianapolis

Dr. Suranga Dharmarathne, University of Indianapolis

Dr. David Olawale, University of Indianapolis

Dr. Najmus Saqib, University of Indianapolis

Christopher M. Stanley,

Dr. George D. Ricco, University of Indianapolis

Work in Progress: Measuring Interdisciplinary Teams' Sustainable Design with an SDG lense - Case Study

Dr. Miguel Andres Guerra, Universidad San Francisco de Quito USFQ

W314A - Instrument Design and Development

11:00 A.M. - 12:30 P.M., ROOM 308, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Susan Gentry, University of California, Davis

Educational Research & Methods Division (ERM) Technical Session

On Measuring Cultural Competence: Instrument Design and Testing

Alicia Nicki Washington Ph.D., Duke University

Anna Romanova, Winthrop University

Philip Nelson,

Dr. Siobahn Day Grady, North Carolina Central University

Dr. Legand Burge, Howard University

Response Process Validity of the CBE Adaptability Instrument When Used with Engineering Instructors

Mr. Yashin Brijmohan, University of Nebraska Lincoln

Grace Panther, University of Nebraska - Lincoln

Prof. Heidi A. Diefes-Dux, University of Nebraska - Lincoln

Introducing The Focus & Action of Students & Teachers Observation Protocol (FASTOP)

Dr. Clifton L. Kussmaul, Green Mango Associates, LLC

Dr. Patricia B. Campbell, Campbell-Kibler Associates

Ms. Maria Torres-Demas, Westminster College of Salt Lake City

Dr. Chris Mayfield, James Madison University

Dr. Helen Hu, Westminster College of Salt Lake City

Confirmatory factor analysis of the framing agency survey

Madalyn Wilson-Fetrow, University of New Mexico

Dr. Vanessa Svihla, University of New Mexico

Dr. Andrew Olewnik, University at Buffalo, The State

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WEDNESDAY, JUNE 28th SESSIONS

University of New York

W314B - Entrepreneurship and Inventive Thinking & Student Beliefs

11:00 A.M. - 12:30 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Amy Isvik,

Educational Research & Methods Division (ERM) Technical Session

Measuring Engineering Students' Entrepreneurial Self-Efficacy in an Entrepreneurship Education Program

Dr. Ying Wang, Georgia Institute of Technology
Dr. Joy Harris,
Karthik Ramachandran, Georgia Institute of Technology

A Measure of Inventive Mindset for Use in K-12 Engineering and Invention Education

Dr. Joanna K. Garner, Old Dominion University
Dr. Melissa G. Kuhn, Old Dominion University
Jayme M. Cellitoci,
Matthew Carter,

Criteria Conundrum: Engineering Students' Beliefs about the Role of Competing Criteria in Process Safety Judgements

Cayla Ritz, Rowan University
Jeffrey Stransky, Rowan University
Dr. Cheryl A. Bodnar, Rowan University
Dr. Emily Dringenberg, The Ohio State University
Dr. Elif Miskioglu, Bucknell University

Understanding Needs of Undergraduate Engineering Students Who View Degree Attainment as "Transactional"

Mr. Matthew S. Sheppard, Clemson University
Alyssa Patrick,
Dr. Lisa Benson, Clemson University

W314C - Problem- and Project-Based Learning

11:00 A.M. - 12:30 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods

Division (ERM)

Moderator: Fatima Rahman, Tufts Center for Engineering Education and Outreach

Educational Research & Methods Division (ERM) Technical Session

Understanding and Developing Complex Problem-Solving Competency: An Exploration Based on Engineering Teachers' Perspectives

Dr. Ji Yu, Tsinghua University
Wangqi Shen, Tsinghua University
Anqi Ma, Tsinghua University

I Can Be an Engineer: Using Problem-Based Learning to Enhance Students' Engineering Experiences (Fundamental Research)

Dr. Abeera P. Rehmat, Georgia Institute of Technology
Dr. Marissa Christina Owens, University of Nevada - Las Vegas
Jasmine Choi, Georgia Institute of Technology

A Study Report in the Web Technologies Course: What Makes Feedback Effective for Project-based Learning?

Alaa Jaber,
Dr. Kimberly Lechasseur, Worcester Polytechnic Institute
Khairul Mottakin,
Prof. Zheng Song, UMDearborn

Learning through PBL with Emphasis on People, Process, and Product Across Courses

Dr. Micah Lande, South Dakota School of Mines and Technology

Understanding Expert Perceptions of PBL Integration in Introductory Aerospace Engineering Courses: Thematic Analysis of Focus Groups with PBL and Aerospace Engineering Instructors

Dr. Andrew Olewnik, University at Buffalo, The State University of New York
Dr. Laine Schrewe, University at Buffalo
Dr. Scott M. Ferguson, North Carolina State University at Raleigh

W314D - Student Teams and Teamwork

11:00 A.M. - 12:30 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Logan Perry, University of Nebraska - Lincoln

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WEDNESDAY, JUNE 28th SESSIONS

Educational Research & Methods Division (ERM) Technical Session

Qualitative analysis of the relationships between the teamwork experiences of diverse students and their engineering identities at a Hispanic-serving institution

Dr. Stephanie Claussen, San Francisco State University
Fatemeh Khalkhal,
Dr. Xiaorong Zhang, San Francisco State University
Ana Karen Biviano,
Dr. Yiyi Wang, San Francisco State University

A Quantitative Analysis on Teamwork Behavior, Disagreement, and Their Linkages to Students' Engineering Identities

Dr. Yiyi Wang, San Francisco State University
Dr. Xiaorong Zhang, San Francisco State University
Fatemeh Khalkhal,
Dr. Stephanie Claussen, San Francisco State University
Ana Karen Biviano,

Team dynamics and cultural competency in a first-year engineering classroom

Dr. Jutshi Agarwal, University of Cincinnati
Dr. P.K. Imbrie, University of Cincinnati

Revisiting Tuckman's Team Development Model in First-year Engineering Multicultural Teams

Mr. Siqing Wei, Purdue University at West Lafayette (COE)
Amirreza Mehrabi, Purdue University
Li Tan, Arizona State University
Dr. Matthew W. Ohland, Purdue University at West Lafayette (COE)

Using Directional Graphs to Explore the Engineering Co-curricular Navigation Profiles of Student Groups

Miss Bahar Memarian, University of Toronto
Dr. Andrew Olewnik, University at Buffalo, The State University of New York

W315 - Effective Teaching and Learning, and Post-Pandemic Classrooms

11:00 A.M. - 12:30 P.M., ROOM 325, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderator: Mary Yvonne Lanzerotti, United States Military Academy

Supporting Student Learning Before, During, and After Lecture in a Probability Course

Dr. Chao Chen, Purdue University Fort Wayne

Student Learning Outcomes in Two Fundamental ECE Courses with Multi-Modal Delivery During COVID Response

Prof. Olga Mironenko, University of Illinois Urbana-Champaign
Prof. Yuting W. Chen, University of Illinois Urbana-Champaign

Predicting Academic Performance for Pre/Post-Intervention on Action-State Orientation Surveys

Prof. Ismail Uysal, University of South Florida
Paul E. Spector,
Dr. Chris S. Ferekides, University of South Florida
Mehmet Bugrahan Ayanoglu,
Rania Elashmawy, University of South Florida

The CARE methodology: A new lens for introductory ECE course assessment based on student challenging and rewarding experiences

Aya Mouallem, Stanford University
Prof. Mark Horowitz, Stanford University
Dr. Sheri Sheppard, Stanford University

Assessing the Impact of Weekly In-class Pop Quizzes on Student Performance in a Fundamental ECE Course

Prof. Olga Mironenko, University of Illinois Urbana-Champaign
Juan Alvarez, University of Illinois Urbana-Champaign

Revisiting classroom environment and activities: Reexamination of mistakes and learning cycles

Wei Shen Theh, Iowa State University of Science and Technology
Rachel Shannon, University of California Los Angeles
Dr. Mani Mina, University of California Los Angeles

W316 - Panel: Sustainability in Energy and Environmental Education

11:00 A.M. - 12:30 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Energy Conversion, Conservation and Nuclear Engineering Division (ECCNE)

Speakers: Dr. Bala Maheswaran, Northeastern University; Dr. Veera Ganeswar Gude P.E., Mississippi State University; Dr. Tooran Emami Ph. D., United States Coast Guard Academy; Dr. Ramanitharan Kandiah P.E., Central State University

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WEDNESDAY, JUNE 28th SESSIONS

Panelists will discuss the importance of sustainability in energy and environmental engineering education, especially in preparing engineers for the changing planet. The session will cover:

- Energy system innovation and education in a classroom
- University-Industrial-Government partnerships in energy system innovation to prepare engineering students for the planet
- Impact of the Internet of Things (IoT) and Big Data in energy and environmental systems
- Environmental issues in innovative energy systems
- Envisioning resilient and sustainable energy systems for the future
- Project-Based Learning in Solar Energy

W321 - Engineering Libraries Division (ELD) Technical Session 4: Outreach & Collaboration

11:00 A.M. - 12:30 P.M., ROOM 317, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Angela Henshilwood, University of Toronto

Free ticketed event

Addressing Business Research Needs in the Engineering Curriculum

- Ms. Hyunjung Lee, Cornell University
- Sarah Lane, Cornell University
- Christina Sheley, Cornell University
- Ms. Jill H. Powell, Cornell University

Collaborations Beyond the Library: Bibliometric Analyses to Support Engineering Research, Innovation, and Diversity

- Dr. Sarah Over, Virginia Tech
- Ms. Connie Stovall, Virginia Tech

Connecting Students to Discipline Specific Research in Their First Year: A Collaboration between Engineering Faculty and Librarians

- Mr. Paul R. Hottinger, California State Polytechnic University, Pomona
- Dr. Jessica Ohanian Perez, California State Polytechnic University, Pomona

The Teaching Needs of Engineering Faculty Compared with Business Faculty: How the Library and Librarian Fit In

Ms. Erin Rowley, University at Buffalo, The State University of New York

W323 - Engineering Technology Division (ETD) Technical Session 6

11:00 A.M. - 12:30 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Oai Ha, University of Wisconsin - Stout

Engineering Technology related papers focused on teaching and student learning

Reinforcing Human-Technology Interaction Theory through a Virtual Reality Engineering Training Application

- Dr. Jenna Wong, San Francisco State University
- Shah Rukh Humayoun, San Francisco State University
- Khanh Nguyen,
- Yongjian Pan,

Research Problems: A Pathway to Introduce Industry 4.0 in Undergraduate Education

- Dr. Mahesh Kumar Pallikonda, Austin Peay State University
- Prof. Ravi C. Manimaran, Department Chair, Engineering Technology, Austin Peay State University

Robotics-empowered convergence engineering education

- Dr. He Shen, Northwestern Polytechnical University
- Aren Petrossian,
- Joseph Anthony Vizcarra,
- Eva Schiorring, StemEval
- Dr. Mark Tufenkjian, California State University, Los Angeles

Strategies for Continuous Improvement in ETAC of ABET Programs: A Novel Approach

- Prof. Ravi C. Manimaran, Department Chair, Engineering Technology, Austin Peay State University
- Dr. Md. Ali Haider, Austin Peay State University

W326 - Experimentation and Laboratory-Oriented Studies Division (ELOS) Technical Session 3: Best of ELOS

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WEDNESDAY, JUNE 28th SESSIONS

11:00 A.M. - 12:30 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Experimentation and Laboratory-Oriented Studies Division (DELOS)

Moderator: Robby Sanders, Tennessee Technological University

This session highlights the best papers and best diversity paper submitted to ELOS this year.

At-Home Drug Delivery Experiment: Teaching Mass Transfer Using Food Dyes, DIY Spectrometer

Dr. Gautom K. Das, University of Maryland Baltimore County

Exploring Diversity, Equity, and Inclusion in Remote Laboratories

Mr. Animesh Paul, University of Georgia

Marcos Jose Inonan Moran, University of Washington

Dr. Rania Hussein, University of Washington

Dr. Dominik May, University of Georgia

Hands-On Fluid Flow Trainer to Support Experimental Learning

Cmdr. Brian Christopher Earp, United States Naval Academy (Mechanical and Nuclear Engineering Department)

Kyle Ryan Parker, US Naval Academy - Submarine Officer

Learning through Escape: Developing Collaboration, Communication, and Confidence in a Biomedical Engineering Laboratory Escape Room

Dr. Rachel C. Childers, The Ohio State University

Sunny Kwok, The Ohio State University

Mobile Phone-Based Contact and Non-Contact Vibration Sensing for Structural Dynamics Teaching Laboratories

Dr. Charles Riley, Oregon Institute of Technology

W327 - First-Year Programs Division (FYP) - WIPS 3: Identity & Belonging

11:00 A.M. - 12:30 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Kathryn Schulte Grahame, Northeastern University

A work-in-progress session focused on the subject of identity and belonging. Expect a discussion-oriented session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

Work in Progress: Definitions of Success and Sense of Preparedness among Engineering and Mathematical Sciences Students in a College-wide First-Year Seminar Course

Dr. Courtney D. Giles, University of Vermont

Work in Progress: Developing a Foundational Engineering Course to Improve Students' Sense of Belonging and Increase Diversity

Dr. Timothy Frank, U.S. Air Force Academy

Daphne DePorres, U.S. Air Force Academy

Col. Joel Sloan, United States Air Force Academy

Work-In-Progress: Connections – First-Year Design, Students, and Life Beyond Engineering

Dr. Michael Rizk, Duke University

Work in Progress: Insight into the strengths and personality types of those involved in a first-year engineering program

Dr. Melissa M. Simonik, State University of New York, Binghamton

Mr. Koenraad E. Gieskes, State University of New York, Binghamton

WIP: Research Identity among First-Year Engineering Latina Students at a Research- Intensive Hispanic Serving Institution

Lizandra C. Godwin, University of New Mexico

WIP Striving towards Equitable Team Dynamics in First-Year Engineering Design

Dr. Evelyn Walters, Temple University

Cory Budischak, Temple University

WIP: How Empathy Education Changes Student's Perceptions of an "Engineer"

Mrs. Libby Flanagan, Clemson University

Ms. Madison Pollock, Clemson University

Dr. Elizabeth Anne Stephan, Clemson University

Dr. Karen A. High, Clemson University

Work in Progress: PEER LED COLLABORATIVE COURSES DEVELOP A SENSE OF BELONGING AND COMMUNITY FOR ALL UNDERGRADUATE ENGINEERING STUDENTS.

Ryan Sauve, Cornell University

Celia Evans Ph.D., Cornell University

Dr. Lisa Schneider-Bentley, Cornell University

W327B - First-Year Programs Division (FYP) - Technical Session 8: Skill Building

11:00 A.M. - 12:30 P.M., ROOM 343, BALTIMORE

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CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Jonathan Aurand, Dunwoody College of Technology

A full paper session on the subject of skill building, including technical and non-technical skills.

Reading participation and assessment of spreadsheet skills across multiple cohorts when using an interactive textbook

Samantha Yanosko,
Grant Valentine,
Prof. Matthew W. Liberatore, The University of Toledo

Exploration with ellipses helps students learn transferrable isometric drawing skills

Dr. Campbell R. Bego, University of Louisville
Dr. Angela Thompson, University of Louisville
Ryan J. Patrick,
Dr. Raymond Chastain,
Dr. Jeffrey Lloyd Hieb, University of Louisville
Linda Fuselier,
Dr. Marci S. Decaro, University of Louisville

Introducing First-year Students to the Engineering Design and Communication Skills Needed in Capstone

Dr. Matthew J. Haslam, Embry-Riddle Aeronautical University - Prescott
Dr. Jonathan M. Adams, Embry-Riddle Aeronautical University - Prescott
Prof. Robert Gerrick, Embry-Riddle Aeronautical University - Prescott

Integration of ethics in sustainability in a first-year design course

Dr. Benjamin B. Wheatley, Bucknell University
Prof. Katsuyuki Wakabayashi, Bucknell University
Dr. Kelly Salyards P.E., Bucknell University

W328 - Graduate Studies Division (GSD) Technical Session 7: Developing Graduate Students' Competencies and Identities

11:00 A.M. - 12:30 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Yiqi Liang, Iowa State University of Science and

Technology

Graduate student myths: interpreting the Ph.D. student experience through the lens of social media, memes, and stereotypes

Ms. Julie M. Rieland, University of Michigan
Shamalee Goonetilleke, University of Michigan
Ms. Sarah Jane Bork, University of Michigan
Dr. Aaron W. Johnson, University of Michigan

Applying User Experience (UX) Methods to Understand Identity Development in Doctoral Engineering Students

Dr. Kelli Cargile Cook, Texas Tech University
Fabiola Liliana Carrion-Anampa, Texas Tech University
Diego Alejandro Polanco-Lahoz, Texas Tech University
Dr. Jennifer A. Cross, Texas Tech University
Dr. Mario G. Beruvides P.E., Nanyang Technological University

Developing Engineer Systems Competencies with a Nexus of Engineering, Law, and Policy

Mrs. Sandra Allain, Pennsylvania State University
Dr. Robert J. Rabb P.E., Pennsylvania State University

An integrated systems thinking graduate course that prepares students to solve the complex problems of the food-energy-water nexus

Mrs. Mirit Shamir, Kansas State University
Prof. Matthew R. Sanderson,
Rebecca Cors, University of Wisconsin - Madison
Nathan P. Hendricks,
Dr. Stacy L. Hutchinson, Kansas State University
Dr. Prathap Parameswaran, Kansas State University
Dr. Melanie Derby, Kansas State University

Investigating Graduate Students' Perspectives of Influences on Interdisciplinary Scholar Identity Development: An Ecological Systems Theory Approach

Margaret E.B. Webb, Virginia Polytechnic Institute and State University
Dr. Marie C. Paretti, Virginia Polytechnic Institute and State University

W330 - Computing and Information Technology Division (CIT) Technical Session 7

11:00 A.M. - 12:30 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

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WEDNESDAY, JUNE 28th SESSIONS

Moderators: Joseph Benin, United States Coast Guard Academy; Stephanie Lunn, Florida International University

Creating a Blueprint for Success in First-Year Computing

Prof. Frank Kreimendahl, Wentworth Institute of Technology
Durga Suresh-Menon,

Developing the ITL framework and committing to inquiry as a method for reducing equity gaps in high-impact, computer science and engineering courses

Dr. Sagnik Nath, University of California, Santa Cruz
Jennifer Quynn, University of California, Santa Cruz
Jose Renau,

Key Observations of Enrollment Trends during the Pandemic in Early Programming Courses to Broaden Female Students' Participation in Computing

Prof. Jungsoo Lim, California State University, Los Angeles
Dr. Yilin Feng, California State University, Los Angeles
Prof. Eun-Young Kang, California State University, Los Angeles

Factors Affecting the Future Career Pathway Decisions of Lower-income Computing Students

Mrs. Nivedita Kumar, Florida International University
Bailey Bond-Trittipio, Florida International University
Maimuna Begum Kali, Florida International University
Dr. Stephen Secules, Florida International University
Angela Estacion, WestEd
Dr. Mark A Weiss, Florida International University
Dr. Michael Georgiopoulos, The University of Arizona
Dr. Ken Christensen P.E., University of South Florida
Mrs. Tiana Solis, Florida International University
Mrs. Jacqueline Faith Sullivan, University of Central Florida

Cultivating an Inclusive Environment in Computer Science: Validity Evidence for a New Scale

Dr. Mary E Lockhart, Texas A&M University
Dr. Karen E Rambo-Hernandez, Texas A&M University

W332 - International Division (INTL) Technical Session #5: Best Practices

11:00 A.M. - 12:30 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Gloria Kim, University of Florida

Characterizing Chemical Engineering Students' Decisions with the Push-Pull Model of Study Abroad Choice

Andrea Schuman, Virginia Polytechnic Institute and State University
Dr. Homero Murzi, Virginia Polytechnic Institute and State University
Miss Alaa Abdalla, Virginia Polytechnic Institute and State University

Assessing the efficacy of a pedagogy in an online mechanics of materials course with EFL students

Dr. Adrian Rodriguez, The University of Texas at Austin

Application of an Industry-inspired Mock Mine as a Pragmatic Platform in Support of future Skills Development for the South African Underground Hardrock Mining Industry

Dr. Shaniel Davrajh, University of Johannesburg
Hendrik Christoffel Ignatius Grobler,
Mr. Yolana Govindarajulu, University of Johannesburg

Toward Bidirectional Faculty Development: A Collaborative Model for Designing and Implementing Faculty Trainings on Evidence-Based Strategies for Supporting Student Learning in Low- and Middle-Income Countries

Mr. Steven Ghambi, Malawi University of Business and Applied Sciences
Dr. Ashley Rae Taylor, Rice 360 Institute for Global Health Technologies
Mr. Joseph Chikaphonya Phiri, Malawi polytechnic
Dr. Justin J. Henriques,
Joseph Towles, Stanford University

Developing and Scaling Engineering Communication (EC) for New

Engineering Education

Dr. Alyson Grace Eggleston, Pennsylvania State University
Dr. Robert J. Rabb P.E., Pennsylvania State University

W333 - Pre-College Engineering Education Division (PCEE) Technical Session 11: Summer Camps and more!

11:00 A.M. - 12:30 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Foad Hamidi, University of Maryland Baltimore County

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Evaluating the Impact of a One-Week Human-Centered Design Engineering Summer Camp on Pre-College Students' Learning Outcomes (RTP)

Miss Taylor Tucker, University of Illinois Urbana-Champaign
Dr. Saadeddine Shehab, University of Illinois at Urbana-Champaign

Energizing High School Students Toward Building Design: A Summer Camp Experience

Prof. Moses Ling P.E., Pennsylvania State University
Maureen Kelliher,
Jonathan Michael Broyles, Pennsylvania State University
Dr. Ryan L. Solnosky P.E., Pennsylvania State University
Heui Young Park,
Lily X. Li, Pennsylvania State University
Baraa J. Alkhatatbeh,
Lorine Awuor Ouma,

Evaluation of Summer Camp Recruitment Methods and Campers' Perceptions of Engineering (Evaluation, Diversity)

Dr. Gabriella Coloyan Fleming, University of Texas at Austin
Ms. Kiersten Elyse Fernandez,
Dr. Christine Julien, University of Texas at Austin
Mrs. Marialice Mastronardi, University of Texas at Austin

W333B - Pre-College Engineering Education Division (PCEE)

Technical Session 12: Resource Exchange

11:00 A.M. - 12:30 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderators: Elizabeth Parry, STEM Education Insights; Stacy Klein-Gardner, Vanderbilt University; Katey Shirey, EduKatey

Professional Learning Resource for Informal/PK-8 Educators in Understanding and Facilitating Development of Engineering Practices (Resource Exchange)

Dr. Rebecca D. Swanson, University of Nebraska - Lincoln
Dr. Meredith D. Portsmouth, Tufts University
Saundra Wever Frerichs, University of Nebraska - Lincoln
Ann O'Connor,

Keeping Cool with Qatar Cool: A Pre-College Education Program Emphasizing Corporate Regional Engineering with Hands-On STEM Learning (Resource Exchange)

Mr. G. Benjamin Cieslinski, Texas A&M University at Qatar
Tala Katbeh, Texas A&M University at Qatar
Prof. Hassan Said Bazzi, Texas A&M University at Qatar

Creation of a Mobile Science and Engineering Road Show for Texas A&M University at Qatar: Multicultural STEM Education and Entertainment (Resource Exchange)

Mr. G. Benjamin Cieslinski, Texas A&M University at Qatar
Tala Katbeh, Texas A&M University at Qatar
Hassan Said Bazzi, Texas A&M University at Qatar

Rock, Paper, Scissors, Code! Laying a Foundation for Writing Algorithms (Resource Exchange)

Rachelle Pedersen, Texas A&M University

NAME: (Resource Exchange)

Dr. Christine M. Cunningham, Pennsylvania State University
Dr. Darshita N. Shah, Massachusetts Institute of Technology

Cellular Agriculture: An activity guide to support an engineering ethics and impacts discussion in high school settings (Resource Exchange)

Dr. Merredith D. Portsmouth, Tufts University
Ms. Tyrine Jamella Pangan, Tufts University
Mr. David L. Kaplan, Tufts University
Brianna D. Starling, Tufts University

Playful Engineering-based Learning Constructopedia (Resource Exchange)

Dr. Merredith D Portsmouth, Tufts University
Lynne Ramsey Ramsey, Tufts University

Creating a Foundational STEM + Sustainability Curriculum for High Schools in Chicago (Resource Exchange)

Gabrielle Grace Hershey,
Gabriel Louis Anderson,
Savannah Svedman,
Grant Miller,
Samantha Lynn Lakin, Illinois State University
Jeritt Williams, Illinois State University
Dr. Jin Ho Jo,
Allison Antink-Meyer, Illinois State University
Dr. Matthew Aldeman, Illinois State University

Are You Up for the Challenge? A 3D Modeling Bootcamp for Early High School Students (Resource Exchange)

Tamecia R. Jones Ph.D., North Carolina State University at Raleigh
Mr. Erik Schettig, North Carolina State University at Raleigh
Steven Miller,

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Flying into Failure! An Introduction to Project Management (Resource Exchange)

Rachelle Pedersen, Texas A&M University
Alex J Sobotka, Texas A&M University
Ms. Ashley Renee Kersey,
Ali Mostafavi,

One of These Things Is Not Like the Others... Machines Can Learn to Classify Too (Resource Exchange)

Dr. Stephany Coffman-Wolph, Ohio Northern University
Dr. Marcia Pool, University of Illinois at Urbana - Champaign
Dr. Kimberlyn Gray, West Virginia University Institute of Technology
Dr. John T. Hird, West Virginia University Institute of Technology

Energizing the Engineering Pipeline through Agrivoltaics Citizen Science: Curriculum Share

Dr. Michelle Jordan, Arizona State University
Janet M. Ankrum,
Melany Coates,
Cheryl Carswell,
Andrew Centanni,
Ms. Mia Delarosa,
Rebekah Jongewaard, Arizona State University
Maryan Robledo,
Steven J. Zuiker, Arizona State University

Earning Daisy Girl Scout Robotics Badges with a Hands-on Soft Robot Gripper Design Activity (Resource Exchange)

Lucy Brizzolara,
Elizabeth Ann McNeela,
Thomas Tran,
Prof. Holly M. Golecki, University of Illinois at Urbana - Champaign

Break a [cardboard] leg!: Collaborative design of an integrated arts & engineering activity (Resource Exchange)

Mr. Cristian Eduardo Vargas-Ordóñez, Purdue University at West Lafayette (COE)
Dr. Morgan M. Hynes, Purdue University at West Lafayette (COE)

Parents Becoming Informal Engineering Educators: Workshop for Parents (Resource Exchange)

Dr. Hoda Ehsan, The Hill School
Dr. Abeera P. Rehmat, Georgia Institute of Technology
Samieh Askarian Khanamani,

Is this a good engineering activity? Helping K-12 teachers

implement quality activities in their classrooms

Dr. Stacy K. Firth,

W334 - Sociotechnical Systems in Practice

11:00 A.M. - 12:30 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Royce Francis, The George Washington University

Papers in this session consider professional practice and contexts as sites for sociotechnical thinking and as motivations for both curricular conversations and accreditation re-assessments.

Collaborating Alone: The Role of Technology Infrastructure in Scientific Problem-Solving Practices

Nandini Sharma, The University of Texas at Austin
Jeffrey W. Treem, University of Texas at Austin
Megan Kenny Feister, CSUCI

Addressing Engineering Reductionism by Reimagining ABET Outcomes

Marie Stettler Kleine, Colorado School of Mines
Dr. Aubrey Wigner, Colorado School of Mines
Dr. Dean Nieuwsma, Colorado School of Mines
Dr. Chelsea Salinas, Colorado School of Mines

Worker Safety in Offshore Wind as a Door for Sociotechnical Engineering Education

Dr. Desen Sevi Ozkan, Tufts University
Samantha Fried,
Beth J. Rosenberg,

Mediation and Maintenance in Engineering Professional Work Practices: Findings from a Utility Company

Russell Korte, The George Washington University
Dr. Cory Brozina, Youngstown State University
Dr. Aditya Johri, George Mason University
Prof. Brent K. Jesiek, Purdue University at West Lafayette (COE)

W335 - Manufacturing Division Business Meeting

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

11:00 A.M. - 12:30 P.M., KEY 5, HILTON BALTIMORE INNER HARBOR

Sponsor: Manufacturing Division (MFG)

Manufacturing Division Business Meeting

W338 - Mechanical Engineering Division (MECH) Technical Session 5: Preparing the Future Workforce

11:00 A.M. - 12:30 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Greses Perez, Stanford University

This session highlights various aspects of preparing undergraduate students, staff, and faculty for use of emerging technologies in the workforce.

Building High-Level Environmental Behavior into HBCU Engineering

Dr. John T. Solomon, Tuskegee University

Sadegh Poozesh, Tuskegee University

Hang Song, Auburn University

Dr. Karen S. McNeal, Auburn University

Dr. Lauren E. Beckingham, Auburn University

Dr. Kelly Lazar, Clemson University

Educating the Workforce of the 21st Century through Smart Manufacturing Systems in the Classrooms

Roya Salehzadeh, University of Alabama

Gustavo Galvani, University of Alabama

Anahita Zargarani, University of Alabama

Prof. Nader Jalili, University of Alabama

Dr. Daniel J. Fonseca, University of Alabama

Exploring Mechanical Engineering Students' Perceptions of Preparedness for Work

Nosakhare Iyobosa Idiaghe, University of Nebraska, Lincoln

Mr. Yashin Brijmohan, University of Nebraska, Lincoln

Ibukunoluwa Eunice Salami, University of Nebraska, Lincoln

Dr. Jessica Deters, University of Nebraska, Lincoln

Vertical Integration of Teamwork Skills from Sophomore to Senior and Beyond!

Dr. Mohammad Waqar Mohiuddin, Texas A&M University

Dr. Joanna Tsenn, Texas A&M University

Dr. Shadi Balawi, Texas A&M University

Dr. Carlos R. Corleto, Texas A&M University

Jonathan Weaver-Rosen,

W338B - Mechanical Engineering Division (MECH) Technical Session 8: Thermo-Fluids Theory and Computation

11:00 A.M. - 12:30 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: William Oakes, Purdue University at West Lafayette (COE)

This thermo-fluids related session highlights ideas ranging from basic derivations to incorporating computational fluid dynamics into the classroom.

Assessment of the Efficacy of a Recently Proposed Alternative Presentation of the Second Law of Thermodynamics

Dr. Indranil Brahma, Bucknell University

The Design of an Applied Computational Fluid Dynamics and Heat Transfer Course Facilitating the Cloud Computation Technology

Dr. Wenhai Li, Farmingdale State College

Dr. Foluso Ladeinde, Stony Brook University

Simulation Project to Promote Learner Autonomy in an Introductory Fluid Mechanics Course

Dr. Edward James Diehl P.E., University of Hartford

Teaching Fluid Mechanics through Photography

Azar Panah, Pennsylvania State University, Berks Campus

W339 - Mechanics Division Business Meeting

11:00 A.M. - 12:30 P.M., BLAKE , HILTON BALTIMORE INNER HARBOR

Sponsor: Mechanics Division (MECHS)

Moderators: Julian Davis, University of Southern Indiana; Phillip Cornwell, Rose-Hulman Institute of Technology

In this session, the executive team and committee chairs will offer reports about the division and new officers will be elected.

2023 ASEE ANNUAL CONFERENCE WEDNESDAY, JUNE 28th SESSIONS

W340A - Virtual Mentoring Program, Listening to Those That Matter, Moving Beyond Research, and Career Outcomes Tracking

11:00 A.M. - 12:30 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Lexy Arinze, ; Sarah Rodriguez, ; R. Downey,

A Narrative Analysis of Black, Latino/a/x, and Indigenous Students' Sense of Belonging in Engineering at a Predominantly White Institution

Gerard Dorvè-Lewis, University of Pittsburgh
Danielle Vegas Lewis, SUNY Fredonia
Maricela Bañuelos, University of California, Irvine
Prof. Natascha Trellinger Buswell, University of California, Irvine
Dr. Linda DeAngelo, University of Pittsburgh

Assessing the Effectiveness of the GradTrack Virtual Mentoring Program

Lexy C. Arinze, Purdue University
Dr. Janet M. Beagle,
Dr. Jacqueline E. McDermott,

Listening to Those That Matter: Deans' Responses to the Barriers that Latiné/x/a/o Contingent Faculty at HSI's Face

Dr. R. Jamaal Downey, University of Florida
Dr. Idalis Villanueva Alarcón, University of Florida
Jose A. Munoz,
Lisa Berdie,

Work in Progress: Moving Beyond Research: Supporting Engineering and Computing Identity Development for Latina Students

Dr. Sarah Rodriguez, Virginia Tech

W340B - External Factors, Shifting Identity Trajectories, Persistence Analysis of Cultural Models, and Exploring the Experiences of Black University Students

11:00 A.M. - 12:30 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Claude Brathwaite, City University of New York, City College; Jameka Wiggins, The Ohio State University

Career Outcomes Tracking New York City Louis Stokes Alliance for Minority Participation Research Scholars from 1993 to 2022

Dr. Claude Brathwaite, City University of New York, City College

Shifting Identity Trajectories within a Scholarship Program: Local Community Practices that Shape Computing Careers

Dr. Sarah Hug, Colorado Evaluation & Research Consulting

Research: Persistence Analysis of Cultural Models of Engineering Success Among Women and Racially/Ethnically Marginalized Engineering Undergraduates

John Skvoretz Jr.,
Dr. Gladis Kersaint, University of Connecticut
Dr. Chrystal Smith, University of Connecticut
Dr. Rebecca Campbell-Montalvo, University of Connecticut
Ellen Puccia, Beta Research Associates, Inc.
Hesborn Wao,
Dr. Julie P. Martin, The Ohio State University
Hannah Cooke, University of Connecticut

Why STEM? The External Factors Influencing International STEM Postdoctoral Scholars' Career Decision

Dr. Sylvia L. Mendez, University of Colorado, Colorado Springs
Ms. Kathryn Watson, University of Colorado, Colorado Springs

W341 - Multidisciplinary Engineering Division (MULTI) Technical Session 5

11:00 A.M. - 12:30 P.M., ROOM 307, BALTIMORE CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Duncan Davis, Northeastern University; Mary Realff, Georgia Institute of Technology; George Tan, Nanyang Technological University

Engineering and Engineering Technology Capstone Design Teams Lead to Successful Projects

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Dr. Kiana Karami, Pennsylvania State University, Harrisburg
Dr. Xinwei Niu, Pennsylvania State University, Harrisburg
Dr. Rafic Bachnak, Pennsylvania State University, Harrisburg

Using Science to Support and Develop Employees in the Tech Workforce – An Opportunity for Multidisciplinary Pursuits in Engineering Education

Marina Dias,
Dr. Sreyoshi Bhaduri, Amazon
Amulya Mysore,
Wanqun Zhao,
Amelia Rivera-Burnett,
Shahriar Sadighi,
Robert Pulvermacher,

Work in Progress: KLIQED, A Feedback Tool for Fostering Peer Engagement during Student Oral Presentations

Dr. Gbetonmasse B. Somasse, Worcester Polytechnic Institute
Dr. Melissa Wrobel, University of Michigan

A Comparison of ABET Assessment Instruments

Dr. Celeste Chavis, Morgan State University
Dr. Petronella A. James, Morgan State University
Dr. Kofi Nyarko, Morgan State University
Dr. Oludare Adegbola Owolabi, P.E., Morgan State University
Dr. Masud Salimian, Morgan State University

Student Perceptions of Online Learning Effectiveness during the COVID-19 Quarantine

Dr. Shannon L. Isovitsch Parks, P.E., University of Pittsburgh, Johnstown
Dr. Kurt Klavuhn, University of Pittsburgh, Johnstown
Dr. Tumkor Serdar, Wentworth Institute of Technology
Prof. Amy L. Miller, University of Pittsburgh, Johnstown
Laura M. Wieserman, University of Pittsburgh, Johnstown

W342 - Teaching Tools: Problem Solving and Hands-On Teaching (NEE)

11:00 A.M. - 12:30 P.M., ROOM 328, BALTIMORE CONVENTION CENTER

Sponsor: New Engineering Educators Division (NEE)

Moderator: Robert Schaffer, Mission College

This session contains works that explore creating multi-part problems with random parametrization on an LMS, using

individual lab kits to enhance hands-on learning, leveraging an existing curriculum to address gaps in sustainability skills, developing blended digital professional skills with a multidisciplinary hands-on course, use of a hands-on project to learn material selection and engineering design, and computer programming reinforcement through projects.

Create Multi-Part Problems with Random Parameterization on Blackboard and Canvas Similar to “Mastering” and “Connect”

Dr. Yanjun Yan, Western Carolina University

Use of Individual Lab Kits to Enhance Hands-on Learning in Electronic Circuits Courses

Dr. Andrew Ritenour, Western Carolina University
Dr. Yanjun Yan, Western Carolina University
Dr. Hugh Jack, P.E., Western Carolina University

Addressing the Sustainable Engineering Skills Gap through Engineering Curricula

Dr. Ashish D. Borgaonkar, New Jersey Institute of Technology
Dr. Samuel C. Lieber, P.E., New Jersey Institute of Technology
Dr. Mohsen Azizi, New Jersey Institute of Technology

Work-in-Progress: A Multidisciplinary Hands-on Course to Guide Engineering Students Toward Becoming Blended Digital Professionals

Dr. Jaskirat Sodhi, New Jersey Institute of Technology
Dr. Ashish D. Borgaonkar, New Jersey Institute of Technology
Teresa L. Keeler, New Jersey Institute of Technology

Learning Engineering Material Selection and Design Process Using an Engine Dissection

Dr. Craig Altmann, Virginia Military Institute

Reinforcement of Computer Programming through Projects

Dr. Craig Altmann, Virginia Military Institute
Dr. Jon-Michael Hardin, Virginia Military Institute

Instructor Profile in Global Shared Learning Classroom: Development of Competencies and Skills

Patricia Caratozzolo, Tecnológico de Monterrey, Mexico
Luis Alberto Mejía-Manzano, Tecnológico de Monterrey, Mexico
Rebeca Maria Garcia,
Maria Ileana Ruiz-Cantisani, Tecnológico de Monterrey, Mexico
Patricia Vázquez-Villegas, Tecnológico de Monterrey, Mexico
Vianney Lara-Prieto, Tecnológico de Monterrey, Mexico
Edgar Omar Lopez-Caudana,
Jorge Membrillo-Hernández, Tecnológico de Monterrey, Mexico

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

W343 - ASEE Awards Lunch

Sponsored by Dassault Systemes & The Boeing Company

11:00 A.M. - 12:30 P.M., BALLROOM 3 ,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Board of Directors

Ticketed event: \$50.00 advanced registration and \$60.00 on site registration

W347 - Student Division Business Meeting

11:00 A.M. - 12:30 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Student Division (STDT)

Student Division Business Meeting

W351 - Women in Engineering Division (WIED) Technical Session 1

11:00 A.M. - 12:30 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Amber Doiron, University of Vermont

This session focuses on career aspects of women in engineering.

The Effects of Jargon in STEM Job Advertisements on Genders

Ms. Krista Smith, Naval Surface Warfare Center (NSWC), Port Hueneme

Female Engineers in a Transitional Economy: Perceptual Facilitators for and Barriers to Studying in STEM Fields

Mr. Saiyn Kurmankulov, Nazarbayev University, Kazakhstan
Dinara Dikhanbayeva,
Asma Perveen,
Prof. Mariza Tsakalerou, Nazarbayev University, Kazakhstan

Sense of Belonging of Women in Construction: Insights from Focus Groups

Dr. Monica Quezada-Espinoza, Universidad Andres Bello, Santiago, Chile
Prof. Marcela Silva, Universidad Andres Bello, Santiago, Chile

Dr. Carolina Alvarado, California State University, Chico

Interplay of Gender and Nationality in the Early Careers of Finnish Engineering Doctoral Graduates

Dr. Johanna Naukkarinen, Lappeenranta-Lahti University of Technology LUT, Finland

Mrs. Susanna Maria Bairoh, Hanken School of Economics, Finland

W354 - SPONSOR TECH SESSION: Foundations for Successful Program Assessment, Presented by ABET

11:00 A.M. - 12:30 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: ABET Sponsored Sessions

This session provides an overview of the program assessment process, highlighting a few key elements of a successful and sustainable planning process. Learn components of, and how to organize, your assessment process to ensure efficient assessment and impactful results. Next, ask a question, listen, and learn alongside colleagues in an open discussion on best practices in program assessment.

Speaker: James Warnock, Professor and Founding Chair, School of Chemical, Materials, and Biomedical Engineering, University of Georgia, and Adjunct Director of Professional Offerings, ABET

W355 - Engineering Leadership Development Division Technical Session

11:00 A.M. - 12:30 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Leadership Development Division (LEAD)

Moderator: Meg Handley, Pennsylvania State University

Identity-based Engineering Leadership Instruction: a Reflexive Instruction Model and Its Impact

Dr. Brett Tallman, University of Texas at El Paso

Dr. Bryce E. Hughes, Montana State University - Bozeman

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

William J. Schell,

"We Did It!" Proud Moments as a Catalyst for Engineers' Situated Leadership Learning

Dr. Cindy Rottmann, University of Toronto
Dr. Emily Moore P.Eng., University of Toronto
Dr. Doug Reeve, University of Toronto
Dr. Andrea Chan, University of Toronto
Mr. Milan Maljkovic, University of Toronto
Ms. Emily Macdonald-Roach,

Using Escape Rooms to Apply Team Building and Leadership Skills in an Engineering Leadership Development Program: A Work in Progress

Dr. Elizabeth Michelle Melvin, Louisiana State University and A&M College
Mr. Boz Bowles, Louisiana State University
Adrienne Steele, Louisiana State University and A&M College

The John Lof Leadership Academy at the University of Connecticut-WIP

Aida Ghiaei, University of Connecticut
Alanna Marie Gado,
Francesco Rouhana,
Tasnim Zaman,
Mahjabeen Fatema Mitu,
Mayowa Festus Oladele,
Adaeze Maduako, University of Connecticut
Suman Kumari, University of Connecticut
Dr. Kazem Kazerounian, University of Connecticut
Dr. Leslie M. Shor, University of Connecticut

Board 92: Work in Progress: Developing a Leadership Community of Practice Toward a Healthy Educational Ecosystem

Christina Restrepo Nazar,
Dr. Lizabeth L. Thompson, California Polytechnic State University, San Luis Obispo
Dr. Corin L. Bowen, California State University, Los Angeles
Dr. Gustavo B. Menezes, California State University, Los Angeles

W357 - Meet the Authors and Editors: Handbook of STEM Faculty Development

11:00 A.M. - 12:30 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Speakers: Dr. Karen A High, Clemson University; Dr. Cindy M. Lee, Clemson University; Shannon K Stefl, Clemson University; Dr. Sandra Linder,

This session will examine holistic STEM faculty development through engagement with the Handbook of STEM Faculty Development, organized by the co-editors of the Handbook. Chapter authors will be available for discussion of implications of their work.

The handbook has three themes:

- 1) Inputs to STEM faculty development;
- 2) Mechanisms for STEM faculty development;
- 3) Outputs from STEM faculty development.

The handbook provides STEM stakeholders with an opportunity to share studies and/or experiences that explore STEM faculty development (FD) in higher-education settings. Faculty developers and researchers who want to understand more about STEM faculty development and develop strategies to integrate into their own institutions and research programs are invited to attend.

Facilitators and chapter authors will collaborate with participants to develop strategies for their universities.

W357B - Faculty Development Division (FDD) Technical Session 11

11:00 A.M. - 12:30 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: Michelle Soledad, Virginia Polytechnic Institute and State University

Instructor Experiences Teaching Model-Based Systems Engineering Online Modules to Professional Learners

Mr. Leonardo Pollettini Marcos, Purdue University, West Lafayette
Ms. Tiantian Li, Purdue University, West Lafayette
Kristin Bartlett,
Dr. Wanju Huang, Purdue University, West Lafayette
Dr. Kerrie A. Douglas, Purdue University, West Lafayette

Using Faculty Learning Communities to Create a Sustainable Community of Practice That Promotes Curricular and Instructional Change

Dr. Megan Morin, ASHLIN Management Group

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Dr. Richard Goldberg, University of North Carolina, Chapel Hill

Dr. Bryant Hutson, University of North Carolina, Chapel Hill

Rapid Change to Refined Teaching: Lessons Learned and Lasting Impacts the COVID-19 Pandemic Had on How We Teach Engineering

Ms. Boni Frances Yraguen, Georgia Institute of Technology

Adam Steinberg,

Dr. Carol Subiño Sullivan, Georgia Institute of Technology

Lance Matthew Crawford,

Instructional Development at a Time of Involuntary Changes: Implications for the Post-Pandemic Era

Dr. Qin Liu, University of Toronto, Canada

Dr. Greg Evans, University of Toronto, Canada

Milad Moghaddas, University of Toronto, Canada

Tamara Kecman, University of Toronto, Canada

W359 - Through the Looking Glass: How the engineering assets of young children and their families can reframe and reshape our conceptions of engineering

11:00 A.M. - 12:30 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsors: Equity, Culture & Social Justice in Education Division (EQUITY); Pre-College Engineering Education Division (PCEE); ASEE Commission on P12 Engineering Education

Moderators: Scott Pattison, ; Gina DUPE Svarovsky, University of Wisconsin - Madison

Speakers: Dr. Monica E. Cardella, Florida International University; Dr. Meredith D Portsmouth, Tufts University; Smirla Ramos-Montañez,

Recently, the National Academies (2022) released a report focused on enhancing the science and engineering learning experiences of young children from preschool through the elementary grades. While the report responds in a number of ways to the growing interest in early childhood science and

engineering education, the predominant focus on learning within formal classroom environments does not allow for a deep examination of out-of-school and informal learning contexts, which can be especially formative and powerful for young learners. Exploring settings such as libraries,

community programs, and the everyday experiences in the home not only can provide a wide range of new perspectives and insights that shed light on the extensive and emergent engineering assets that young children, their families, and their communities carry with them — but also potentially disrupt traditionally and widely held conceptions about “what counts” as engineering, what it means to engage in engineering practices, and who are exemplars in these fields.

This panel session will share about some of the projects led by the panelists and moderators that focus on engineering education for young learners, including those from traditionally marginalized communities, and how taking an asset-based approach to these studies has led to interrogating beliefs and conceptions about engineering over time.

The goals of the session are to:

a) Share perspectives from multiple researchers about what engineering engagement can look like for young children — and at times, their parents, caregivers, and families — in several learning contexts, spanning arenas such as the home, a museum, community programs, and classrooms.

b) Articulate the ways in which these studies, some of which have been conducted bilingually in Spanish and English, have challenged traditional definitions and accepted forms (and norms) of engineering, as well as potentially reframed the role of engineering in the lives of study participants.

c) Engage members of the Division in discussion and reflection, particularly about how applying an asset-based approach to how young learners engage in engineering — especially in spaces not

traditionally identified as contexts for engineering practice — can help us rethink engineering in pre-college, higher education, and professional practice spaces.

This session is timely and relevant for the Division because it has the potential to address each of the four ECSJ 2023 pillars. Panelists will share how theoretical perspectives such as family systems theory, funds of knowledge, community cultural wealth, ecological frameworks that focus on the whole child, and interest development pathways have helped anchor and inform their work, as well as how their programs and research methods centered equitable practice within engineering learning experiences. They will also provide examples of how they have examined the broader systems where their work was situated, and the ways in which their projects inspired action by project partners and participants.

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WEDNESDAY, JUNE 28th SESSIONS

W359B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 10

11:00 A.M. - 12:30 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Overrepresented ≠ Not-Marginalized: Unpacking the Racialization of Asians and Asian-Americans in Engineering Education

Mr. Jerry Austin Yang, Stanford University
Anthony Lising Antonio,
Dr. Sheri Sheppard, Stanford University

Influences on Displaced Engineering Student Professional Identity Development: A Scoping Literature Review Across Forced Migration Contexts

Margaret E.B. Webb, Virginia Tech
Dr. Marie C. Paretti, Virginia Tech

Talking Tech: How Language Variety in Engineering Curriculum Instruction Can Ease Delivery and Engage Students

Ingrid Scheel, Oregon State University
Dr. Rachael E. Cate, Oregon State University
Dr. Devlin Montfort, Oregon State University

The Identification of Alters That Influence Asian Women's Career Intentions in Civil Engineering

Dr. Hwangbo Bae, University of Florida
Dr. Denise Rutledge Simmons, P.E., University of Florida

Work-In-Progress: Intersectionality. (Re)Defined: A Scoping Review of Intersectionality in the Journal of Engineering Education

Jerry Austin Yang, Stanford University

Where Are We, and Where to Next? 'Neurodiversity' in Engineering Education Research

Theo Sorg, Purdue University

W369 - New Division and Section Officer Orientation

11:00 A.M. - 12:30 P.M., HOLIDAY 4, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Headquarters

New division and section officer orientation.

W381 - Safe Zone Ally Training — Level 3

11:00 A.M. - 12:30 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Prof. Anthony Butterfield, University of Utah; Dr. Bryce E. Hughes, Montana State University - Bozeman; Dr. Kyle F Trenshaw, University of Rochester

The Safe Zone Level 3 Trans Allyship workshop explores transgender-specific terms and concepts, the climate for trans individuals in society and in STEM and its broader implications, and action strategies for trans allies.

Safe Zone Workshops are interactive, research-informed workshops for students, faculty, and the professional community to build the knowledge and skills needed to create a more inclusive and affirming environment for LGBTQIA+ individuals in engineering. The workshops have been developed by a community of science and engineering professionals and students, specifically for a STEM audience. Faculty, students, administrators, staff, and other professionals are encouraged to participate in these workshops.

ASEE Safe Zone Ally Training workshops are supported by the National Science Foundation through grants EEC-1539140 and EEC-1748499. To learn more and access free ally resources, visit <https://lgbtq.asee.org>.

W394A - SPONSOR TECH SESSION: Engaging and Innovative Tools Help Engineering Students Succeed, Presented by McGraw Hill

11:00 A.M. - 12:30 P.M., ROOM 302 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Please RSVP and register today at: bit.ly/ASEE2023McGrawHillsessionRSVP

Lunch will be served!

Join McGraw Hill higher education and engineering faculty for an interactive demonstration to hear about best teaching

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

practices and learn how your peers utilize digital tools to engage students in learning engineering concepts.

You will learn about and explore tools to: 1) Ensure students come to class with a foundational knowledge of the topics being discussed that day; 2) Maximize efficiency and scalability with auto-scored homework; 3) Immerse your students in real-world scenarios connecting the concept to the application; and 4) Gain insight into student performance with detailed assignment reports.

Bring your laptop and you will have the opportunity to get hands-on.

W394B - SPONSOR TECH SESSION: Transforming Engineering Education through Experiential Learning Opportunities, Presented by Texas A&M Engineering

11:00 A.M. - 12:30 P.M., ROOM 303 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Preparing the next generation of engineering leaders requires collaboration among academia, industry, and the engineering education community. Texas A&M Engineering works with industry partners to create a variety of impactful programs that teach teamwork, leadership, innovation, and global competencies in addition to technical engineering and design skills. This session will discuss industry partnerships for capstones, Women in Engineering project competition teams, entrepreneurship activities, the Zachry Leadership Program, and Halliburton Engineering Global Programs including education abroad opportunities in partnership with Texas A&M University at Qatar.

Speakers:

Dr. César Malavé, Texas A and M University at Qatar; Dr. Harry A. Hogan, Texas A and M University, College of Engineering

W469 - Free Time

12:30 P.M. - 1:30 P.M., FREE TIME, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

W443A - 2023/2024 ASEE Board of Directors Meeting

1:00 P.M. - 3:00 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

Sponsor: ASEE Board of Directors

W403 - Unveiling the Biosystems Engineering Digital Library (BEDL)

1:30 P.M. - 3:00 P.M., ROOM 332, BALTIMORE CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Unveiling the Biosystems Engineering Digital Library (BEDL)

W404 - Biomedical Engineering Division (BED) Technical Session 3: Technology in Biomedical Engineering Education

1:30 P.M. - 3:00 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Biomedical Engineering Division (BED)

Moderators: Naji Hussein, North Carolina State University at Raleigh; Bryan Ranger,

This biomedical engineering technical session will include full-paper presentations from authors. Moderators may encourage small group discussions or other engaging activities with attendees related to the topic in the latter part of the session.

The Effect of In-Person versus Pre-recorded Final Presentations on Student Learning Outcomes and Engagement

Julie Leonard-Duke, University of Virginia

Dr. Shayn Peirce-Cottler, California State University, Channel Islands

Dr. Timothy E. Allen, University of Virginia

Introduction of a Virtual Reality Laboratory in a Tissue Engineering Course

Deborah Moyaki, University of Georgia

Dr. Dominik May, University of Wuppertal

Dr. Nathaniel Hunsu, University of Georgia

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Dr. Cheryl Gomillion, University of Georgia
Pravalika Irukulla, University of Georgia
Dr. Cheryl T. Gomillion, University of Georgia

A Tool for the Discovery of Academic Misconduct in Online Assessments Using Student Activity Logs

Dr. Paul David Gordon, University of Cincinnati
Mary Preston McDougall,

The Biomedical Engineering Education Community (BEEC) Share and Learn Virtual Community of Practice

Prof. Christine E. King, University of California, Irvine
Dr. Yanfen Li, University of Massachusetts, Lowell
Dr. Roza Vaez Ghaemi, University of British Columbia, Vancouver
Dr. Alexis Ortiz-Rosario, The Ohio State University

W405 - Chemical Engineering Division (ChED) Technical Session 9: Student Experiences in Laboratory Courses

1:30 P.M. - 3:00 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Laura Ford, The University of Tulsa; Carlos Landaverde Alvarado, University of Texas at Austin

Implementation of Undergraduate Coaches as a Student Resource in a Laboratory Course

Prof. Adam T. Melvin, Louisiana State University and A&M College

Open-Ended Experiential Learning Opportunities in the Chemical Engineering Unit Operations Laboratory: A Qualitative Research Study

Dr. Erick S. Vasquez, University of Dayton
Kelly Bohrer, University of Dayton
Dr. Matthew Dewitt, University of Dayton
Soubantika Palchoudhury,

Student Agency in Chemical Engineering Laboratory Courses across Two Institutions

Dr. Vanessa Svihla, University of New Mexico
Ms. Madalyn Wilson-Fetrow, University of Texas, Austin
Prof. Eva Chi, University of New Mexico
Dr. Jennifer R. Brown, Montana State University, Bozeman

Prof. Stephanie G. Wettstein, Montana State University, Bozeman
Ms. Catherine Anne Hubka, University of New Mexico
Dr. Ruben D. Lopez-Parra, University of New Mexico

Experimental Self-Efficacy and Troubleshooting Ability in a Chemical Engineering Laboratory

Caroline Crockett, University of Virginia
Dr. George Prpich, University of Virginia
Dr. Natasha Smith P.E., University of Virginia

Qualitative Analysis of Student Experience in a Chemical Engineering Laboratory

Dr. Heather Chenette, Rose-Hulman Institute of Technology
Dr. Gregory T. Neumann, Rose-Hulman Institute of Technology
Dr. Daniel Anastasio, Rose-Hulman Institute of Technology

Rubric Development for Technical Reports in Chemical Engineering Unit Operations Laboratory Courses

Dr. Jennifer R. Brown, Montana State University, Bozeman
Prof. Stephanie G. Wettstein, Montana State University, Bozeman
Dr. Douglas J. Hacker, University of Utah

W406 - Committee on Effective Teaching Presents: Evaluation, Assessment, & Performance

1:30 P.M. - 3:00 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderator: Andrea Welker, Villanova University

Presenters share new ideas related to the evaluation and assessment tools used in their classes, and comment on student performance.

Latest Improvements in Metacognitive-Informed, Dual-Submission Homework Methods

Dr. Timothy Aaron Wood, P.E., The Citadel
Stephanie Laughton, The Citadel

A Statistical Analysis Between Fundamentals of Engineering Examination Results, Grade Point Average, and Specific Course Performance

Thomas James Matarazzo, United State Military Academy, West Point
Dr. Brock E. Barry, P.E., United State Military Academy, West Point

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WEDNESDAY, JUNE 28th SESSIONS

Col. Jakob C Bruhl, P.E., United State Military Academy, West Point

Dr. Mark Evans, United State Military Academy, West Point
William Graves,

Dr. Talal Salem, United State Military Academy, West Point

Evaluating the Impact of Experiment-Centric Pedagogy on Civil Engineering Undergraduates' Motivation

Mr. Pelumi Olaitan Abiodun, Morgan State University

Dr. Oludare Adegbola Owolabi, P.E., Morgan State University

Dr. Steve Efe, Morgan State University

Dr. Mehdi Shokouhian, Morgan State University

Dr. James G. Hunter, Morgan State University

Oyinkansola Aladeokin,

Adebayo Iyanuoluwa Olude, Morgan State University

Neda Bazyar Shourabi, Pennsylvania State University, Berks Campus

Ms. Sotonye Ikiriko, Morgan State University

Dr. Krishna Bista, Morgan State University

Dr. Uttam Gaulec,

Frank Efe,

Dr. Md Mahmudur Rahman, Morgan State University

Hannah Abedoh, Morgan State University

Dr. Jumoke 'Kemi' Ladeji-Osias, Morgan State University

Implementation of a Retake Policy: Who Benefits?

Dr. Jacqueline M. Jenkins, Cleveland State University

Fred Hussein,

Refining Instructional Modules for Engineering Lab Writing Using a Community of Practice Approach

Dr. Charles Riley, Oregon Institute of Technology

Dr. Dave Kim, Washington State University, Vancouver

Dr. Ken Lulay, P.E., University of Portland

Dr. John D. Lynch, Washington State University, Vancouver

Dr. Sean St. Clair, P.E., Oregon Institute of Technology

W407 - College Industry Partnership Division

1:30 P.M. - 3:00 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: College Industry Partnerships Division (CIP)

Community and Industry Partnership Division

W408 - COED: Online and Remote Learning

1:30 P.M. - 3:00 P.M., ROOM 330, BALTIMORE CONVENTION CENTER

Sponsor: Computers in Education Division (COED)

Moderator: Mahnas Mohammadi-Aragh, Mississippi State University

This session focuses on topics relevant to online, distance, or remote education.

Assessment of the Utilization of Open Educational Resources during and after the Pandemic

Dr. Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research, Chennai, India

Dr. Shanmuganeethi Velu, P.E.,

Dr. P. Malliga,

Dr. Dinesh Kumar K.S.A.,

Application of Mastery Learning in an Online MATLAB Programming Course

Dr. James Edward Toney, The Ohio State University

Comparing Student Outcomes in Online vs. In-person Sections of an On-campus Computer Science Course

Rishi Sunny Gulati,

Prof. Matthew West, University of Illinois, Urbana-Champaign

Prof. Craig Zilles, University of Illinois, Urbana-Champaign

Prof. Mariana Silva, University of Illinois, Urbana-Champaign

Enabling Remote Student Learning of IoT Technologies

Dr. Lifford McLauchlan, Texas A&M University, Kingsville

Dr. David Hicks, Texas A&M University, Kingsville

Dr. Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

Hemanth Kumar Reddy Bhimavarapu, Texas A&M University, Kingsville

Pandemic or Profession? Factors Motivating Students to Pursue an Online Bachelor's Degree

Dr. Carolyn Kusbit Dunn, East Carolina University

Dr. David L. Batts, East Carolina University

W413 - Design in Engineering Education Division (DEED) Technical Session 2

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

1:30 P.M. - 3:00 P.M., ROOM 338, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Application of Education Frameworks

Preliminary Results of a Pilot Study of Students' Phenomenological and Psychophysiological Reactions in Engineering Design

Dr. Jennifer S. Atchison, Drexel University

Christine Chesebrough, Drexel University

Dr. Lutfi Agartan, Drexel University

Aaron Herbert Bernard,

Jen Katz-Buonincontro,

Evangelia G. Chrysikou, Drexel University

Design of self-regulated learning framework for professional development program through Learning Analytics

Dr. Shanmuganeethi Velu, National Institute of Technical Teachers Training and Research

Dr. Janardhanan Gangathulasi, National Institute of Technical Teachers Training and Research Chennai

Dr. Dinesh Kumar KSA, National Institute of Technical Teacher Training and Research Chennai

Muthuramalingam Sankayya,

Neurocognitive Examination of the Impact of Design Project Representation on Student Motivation and Performance

Corey James Kado, Florida Polytechnic University

Elisabeth Kames, Florida Polytechnic University

A comparison of shared mental model measurement techniques used in undergraduate engineering contexts: A systematic review

Mr. Gregory Litster, University of Toronto

Prof. Patricia K. Sheridan, University of Toronto

Dr. Emily Moore P.Eng., University of Toronto

W413B - Design in Engineering Education Division (DEED) Technical Session 14

1:30 P.M. - 3:00 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Technology in Design Education

A Qualitative Insight into User Experiences of an Intelligent Tutoring System to Learn Sketching Skills.

Ms. Donna Jaison, Texas A&M University

Dr. Hillary E. Merzdorf, Texas A&M University

Mr. Lance Leon Allen White, Texas A&M University

Dr. Kerrie A. Douglas, Cornell University

Dr. Karan Watson P.E., Texas A&M University

Dr. Tracy Anne Hammond, Texas A&M University

On the Successful Use of Gamification Techniques; Maintaining Professionalism and High-Quality Education While Incorporating Game Design Elements

Dr. Lucas Buccafusca, The Johns Hopkins University

Bridging the Knowledge Gap Between Design Requirements and CAD - A Joint Embedding Approach

Dr. Cheng Chen, University of Georgia

Mr. Siqing Wei, Purdue University

Dr. Beshoy Morkos, University of Georgia

The Impact of Prototyping Strategies on Computer-Aided Design Behavior

Dr. Alexander R. Murphy, University of Texas at Dallas

Abigail Susan Whittle,

Dr. Katherine Fu, Georgia Institute of Technology

Dr. Julie S. Linsey, Max Planck Institute for Intelligent Systems

Closed-loop mechanical engineering design teaching to electrical and computer engineering students using CAD, CAE, and 3D printing

Dr. Abdullah Umair Bajwa, Habib University

W414A - Pedagogy and Instructional Practices

1:30 P.M. - 3:00 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Alan Beckman, University of Illinois at Urbana - Champaign

Educational Research & Methods Division (ERM) Technical Session

Lexical Measurement of Teaching Qualities

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WEDNESDAY, JUNE 28th SESSIONS

Laura Biester,
Ian Stewart,
Dr. Laura Hirshfield, University of Michigan
Ian Stewart,
Rada Mihalcea,
Sara Pozzi,

Beliefs Matter: The Interplay and Influence of Engineering Faculty Beliefs on Instructional Practices

Dr. Rohini N. Abhyankar, Penn State University, State College
Dr. Sarah E. Zappe, Penn State University
Dr. Stephanie Cutler, Penn State University

Detecting Dimensions of Significant Learning in Syllabi Using a Course Change Typology

Dorian Bobbett, University of Nebraska - Lincoln
Grace Panther, University of Nebraska - Lincoln
Prof. Heidi A. Diefes-Dux, University of Nebraska - Lincoln

Gender-Related Effects on Learning with Hands-On Modules in Engineering Classrooms

Mr. Oluwafemi Johnson Ajeigbe, Washington State University
Dr. Prashanta Dutta, Washington State University
David B. Thiessen, Washington State University
Jacqueline Gartner Ph.D., Campbell University
Kitana Kaiphanliam, Washington State University
Dr. Olusola Adesope, Washington State University
Prof. Bernard J. Van Wie, Washington State University

Impact of the flipped classroom methodology on the development of argumentative skills and academic performance of engineering students

Prof. Nicolás Amado-Moranchel, Tecnológico de Monterrey (ITESM)
Dr. Gibrán Sayeg-Sánchez, Tecnológico de Monterrey (ITESM)

Understanding Pre-service Teachers Perspectives on STEM and Robotics in Early Childhood Classroom (ECE) Integration: A Critical Feminism Perspective

Yinqi (Anna) Zhang, Penn State University
Brian Belland, Penn State University

W414B - Disciplinary Engineering Education Research – Session 2

1:30 P.M. - 3:00 P.M., ROOM 319, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Hsien-Yuan Hsu, University of Massachusetts Lowell

Educational Research & Methods Division (ERM) Technical Session

Developing Power Engineering Education and Learning for Next-generation Smart Grid Workforce

Mrs. Nourhan E. Elatky, Rowan University
Jenny Nguyen Hoang,
Mason Elwell,
Ronan Connor Harkins,
Dr. Juan M. Cruz, Rowan University
Jie Li, Rowan University

Student Metacognitive Reflection on a Conceptual Statics Question

Dr. Lorena S. Grundy, Tufts University
Dr. Milo Koretsky, Tufts University

A Systematic Implementation of Four Versions of a Course-Based Intervention to Reduce Attrition Among Civil Engineering Students: Overall Study Design and Implementation of First Version

Dr. Beth (Ann Elizabeth) Wittig, City University of New York, City College of New York, Department of Civil Engineering

Getting to the Next Stop: Teaching Transportation Engineering through a Multilingual Board Game

G. R. Marvez, Tufts University Center for Engineering Education and Outreach
Greses Perez, Tufts University

Leveraging Social Media Analytics in Engineering Education Research

Ms. Sakshi Solanki, Utah State University
kiana kheiri,
Dr. Marissa A Tsugawa, Utah State University
Hamid Karimi, Utah State University

W414C - Student Performance and Learning & Open-ended problems

1:30 P.M. - 3:00 P.M., ROOM 322, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Brian McSkimming, University at Buffalo, The State University of New York

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WEDNESDAY, JUNE 28th SESSIONS

Educational Research & Methods Division (ERM) Technical Session

Intelligence Is Overrated: The Influence of Noncognitive and Affective Factors on Student Performance

Dr. John Chen, California Polytechnic State University, San Luis Obispo

Dr. James M. Widmann, California Polytechnic State University, San Luis Obispo

Dr. Brian P. Self, California Polytechnic State University, San Luis Obispo

From rote learning to deep learning: Filling the gap by enhancing engineering students' reasoning skills through explanatory learning activities

Dr. Huihui Qi, University of California San Diego

Minju Kim, University of California San Diego

Yu Li, University of California San Diego

Dr. Carolyn L. Sandoval, University of California, San Diego

Prof. Curt Schurgers, University of California San Diego

Marko V. Lubarda, University of California San Diego

Xuan Emily Gedney,

Dr. Saharnaz Baghdadchi, University of California San Diego

Dr. Alex Phan, University of California San Diego

THE Management of Learning Process in the Context of Modernization of Undergraduate Programs at Universidade do Vale do Rio dos Sinos (UNISINOS)'S Polytechnical School

Mr. Sérgio Klippel Filho, Universidade do Vale do Rio dos Sinos - UNISINOS

Amanda Goncales Kieling,

Janaína Becker,

Vanessa Oerle Kautzmann, Universidade do Vale do Rio dos Sinos - UNISINOS

Dr. Fernanda Pacheco, UNISINOS

Dr. Cristiane Maria Schnack, UNISINOS

Dr. Tatiana Louise Avila de Campos Rocha, UNISINOS

Dr. Uziel Cavalcanti de Medeiros Quinino ., Univeridade do Vale do Rio dos Sinos - UNISINOS.

Jeferson Ost Patzlaff,

Mauricio Mancio,

Cristina Kroeff Schmitz Gibk,

Exploring how Students Grapple with Agency in Open-Ended Engineering Problems

Dr. Corey T. Schimpf, University at Buffalo, SUNY

Esther Komolafe, University at Buffalo, SUNY

Dr. Jessica E. S. Swenson, University at Buffalo, SUNY

Open-ended Modeling Problems and Engineering Identity

Dr. Jessica E. S. Swenson, University at Buffalo, SUNY

Emma Treadway, Trinity University

Shea E. Lape,

Alison Casson,

W414D - Research to Practice: Answering the Call to Action

1:30 P.M. - 3:00 P.M., ROOM 316, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Speakers: Dr. Cassandra J McCall, Utah State University; Dr. James J. Pembridge, Embry-Riddle Aeronautical University - Daytona Beach; Dr. Nicole P. Pitterson, Virginia Polytechnic Institute & State University; Matilde Luz Sanchez-Pena, University at Buffalo, The State University of New York

ASEE declared 2021-2022 as the year of action on social justice and equity. One year later, ERM will continue to meet that call by collaborating with the Minorities in Engineering and Equity, Culture, and Social Justice in Education Divisions to offer a special session focused on promoting and translating the social justice and equity research presented at ASEE 2023 into actionable steps engineering educators and administrators can implement in their own classrooms and at their own academic institutions.

This special session will facilitate action through a structured workshop that highlights research focused on diversity, racial justice, and equity in engineering education presented at the 2023 Annual Conference. Participants will be asked to attend specified sessions throughout ASEE 2023 or read the corresponding papers with work focusing on diversity, social justice, equity, and inclusion. Within the session, we will summarize key calls to action presented in prior sessions and collectively identify specific, measurable, time-bound actions that participants can employ in their own institutional contexts.

The goals of the session are to:

1. Translate calls for action on diversity, equity, inclusion, and justice into measurable action in multiple engineering programs
2. Raise the profile of thought and action leaders who focus on diversity, equity, justice, and inclusion in engineering education

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WEDNESDAY, JUNE 28th SESSIONS

W415 - Digital Circuits, Architecture, Embedded Systems

1:30 P.M. - 3:00 P.M., ROOM 331, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Yang Shao, University of Illinois at Urbana - Champaign; Anu Aggarwal, University of Illinois at Urbana - Champaign

Integration of VHDL Simulations and Written Reflections to Improve Student Understanding of Sequential Logic Circuits

Ben Arie Tanay, Purdue Engineering Education
Dr. Renee M. Clark, University of Pittsburgh
Gaoxiang Zhou,
Dr. Samuel J. Dickerson, University of Pittsburgh

Building systems Using Microcontroller-Controlled I/O

Dr. Anu Aggarwal, University of Illinois at Urbana - Champaign

New Course Development for Internet of Things

Dr. Yanxiao . Zhao, Virginia Commonwealth University
Dr. Shaobo Huang, University of Saskatchewan
Dr. Carl Elks, Virginia Commonwealth University
Prof. Umit Ozgur, Virginia Commonwealth University
Dr. Vitaliy Avrutin, Virginia Commonwealth University

Reimagining the digital lab with \$30 FPGAs

Steven Bell, Tufts University

Enhancing Teaching Effectiveness and Learning Experience of Digital Circuit Design using Multiple Tools

Dr. Guodong Wang, Massachusetts College of Liberal Arts
Dr. Yanxiao . Zhao, Virginia Commonwealth University

W421 - Engineering Libraries Division (ELD) Technical Session 5: Collections & Spaces

1:30 P.M. - 3:00 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Kari Kozak, The University of Iowa

A Scoping Review of Engineering Textbooks to Quantify the

Teaching of Uncertainty

Katelyn Vo, Franklin W. Olin College of Engineering
A.J. Evans, Franklin W. Olin College of Engineering
Shreenithi Madan, Franklin W. Olin College of Engineering
Prof. Zachary Riggins del Rosario, Franklin W. Olin College of Engineering

Research in Progress: Engineering Research for Indigenous Engineering Techniques

Ms. Jeanette M. Mueller-Alexander, Arizona State University Library
Alexander Soto, Labriola National American Indian Data Center
Bethany Maureen Leonardi,

University Library Makerspaces: Create, Connect, Collaborate!

Paula C Johnson, University of Arizona

W427 - First-Year Programs Division (FYP) - WIPS 4: Projects

1:30 P.M. - 3:00 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Randy Brooks, Texas A&M University

A work-in-progress session on the subject of projects. Expect a discussion-oriented session with lots of opportunity to ask questions and for authors to solicit input on their work in progress.

Work in Progress: Enhancing Respectful, Equitable Teamwork in a First-Year Design Course

Dr. Michael Rizk, Duke University
William Ross Denton,
Roxana Haas,

Work in Progress: Integrating Engineering Design Projects into Early Curricular Courses at a Hispanic-serving Institution

Dr. David Hicks, Texas A&M University-Kingsville
Dr. Michael Preuss, Exquiri Consulting, LLC
Dr. Matthew Lucian Alexander P.E., Texas A&M University - Kingsville
Mr. Rajashekar Reddy Mogiligidda, Texas A&M University - Kingsville
Dr. Mahesh Hosur,
James Jack Glusing,
Dr. Mahesh V. Hosur, Tuskegee University

Work in Progress: Project-Based Service Learning Shapes the

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WEDNESDAY, JUNE 28th SESSIONS

Morals of First-Year Engineering Students

Dr. Fayekah Assanah, University of Connecticut
Kristina Wagstrom,
Dr. Daniel D. Burkey, University of Connecticut
Marina Creed,

WIP: Utilizing MATLAB in Combination with Lego Mindstorm EV3 Kits for a First-year Engineering Course

Mr. Christopher Daniel Winfrey, Middle Tennessee State University
Dr. Lei Miao, Middle Tennessee State University

Work in Progress: Engaging First-year Engineering Students through Makerspace Project-based Pedagogy

Dr. Gisele Ragusa, University of Southern California
Dr. Erik A. Johnson, University of Southern California

Work in Progress: A Case Study on Large-Course First-Year Engineering Design Projects

Dr. Mark Jeunette, University of Auckland
Enrique del Rey Castillo,

W427B - First-Year Programs Division (FYP) - Technical Session 9: Identity & Belonging 1

1:30 P.M. - 3:00 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Haritha Malladi, University of Delaware

The first in a two-session sequence of full papers focused on identity and belonging.

Redefining first-year engineering education through the lens of belonging and peer leadership

Anna Newsome Holcomb, Georgia Institute of Technology
Jacqueline Rohde, Georgia Institute of Technology
Lakshmi Raju,

Social Engagement of First-time Freshmen and Transfer Students One and Two Years Post-COVID

Mrs. Olivia Reynolds, Washington State University
Ms. Sandra Brabb, Washington State University
Eleanor Dizon, Washington State University

First-year Engineering Students' Sense of Belonging: Impact of COVID-19 and Efficacy as a Predictor of Graduation

Breanna Graven, University of Louisville

Dr. Patricia A. Ralston, University of Louisville

Dr. Thomas Tretter, University of Louisville

"I haven't really made those connections that maybe most would their first year": A qualitative study of the COVID-19 pandemic and student social capital among 3 Cohorts of first-year engineering majors.

Dr. Patricia Wonch Hill, University of Nebraska - Lincoln

Dr. Lance C. Pérez, University of Nebraska - Lincoln

Dr. Sohrab Asgarpoor, University of Nebraska - Lincoln

Dr. David Jones, University of Nebraska - Lincoln

Mr. Zachary George Short, University of Nebraska-Lincoln

Dr. Jennifer N. Rutt, University of Nebraska - Lincoln

There Is No House Like the House of Belonging: Identifying Constructs of Belonging That Are Important to First-Year Engineering Students

Diego Reyes, Arizona State University

W428 - Graduate Studies Division (GSD) Technical Session 8: Professional Development for Graduate Students

1:30 P.M. - 3:00 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Tiffany Mathews, Pennsylvania State University

Engineering Graduate Leadership Fellows - Mentored Projects to Build Community

Ms. Sandy Christlieb,

Dr. Katy Luchini-Colbry, Michigan State University

Assessment and Support of Advisor-Student Mentoring for Graduate Engineering Students at a Land-Grant Institution

Rachel Elisabeth Gehr, Purdue University

Miss Emily Garcia, Purdue University

Suzanne Swaine,

Stephen McBride, Purdue University

Joseph Vincent Rispoli, Purdue University

Christopher Greg Brinton,

Better together: Co-design and co-teaching as professional development

Lynn Mandeltort, University of Virginia

Dr. Priya Date, University of Virginia

Dr. Amy M. Clobes, University of Virginia

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WEDNESDAY, JUNE 28th SESSIONS

Attributes of Research Mindset for Early Career Engineering Researchers

Mr. Sanjeev M Kavale, Arizona State University
Dr. Adam R. Carberry, Arizona State University

Preparing Women in STEM for Faculty Careers through a Job Search Workshop Series

Dr. Rebecca Marie Reck, University of Illinois at Urbana - Champaign
Dr. Yanfen Li, University of Massachusetts Lowell
Shanna Rose Thompson, University of Massachusetts Lowell
Nicole Danielle Jackson, Sandia National Laboratories
Shweta Dabetwar,

W430 - Computing and Information Technology Division (CIT) Technical Session 8

1:30 P.M. - 3:00 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Afsaneh Minaie, Utah Valley University (Department of Computer Science); Reza Sanati-Mehrizi, Utah Valley University (Department of Computer Science)

Software Guild: A Workshop to Introduce Women and Non-Binary Undergraduate Students from other Majors to Computing

Nimmi Arunachalam, Florida International University
Dr. Mark A. Weiss, Florida International University
Jason Liu, Florida International University
Alina Melissa Perez, Florida International University
Prof. Giri Narasimhan, Florida International University
Stephanie Jill Lunn, Florida International University

Degree Attainment in Computing: Intersectional Switching Trends

Jia Zhu, Florida International University
Stephanie Jill Lunn, Florida International University
Dr. George D. Ricco, University of Indianapolis

Analysis of the COVID-19 Impact on Students' Enrollment, Performance, and Retention

Dr. Elena Filatova, CUNY, New York City College of Technology
Dr. Yu-Wen Chen, New York City College of Technology
Dr. Hong Li, New York City College of Technology

Analysis of Covid-19 Impact on Minority Students in Higher Education.

Dr. Awatif Amin, Johnson C. Smith University
Suryadip Chakraborty,

A network analysis of the Twitter-Rxiv ecosystem for purveyors of science misinformation in preprints on the COVID-19 pandemic

David C. Brown, University of North Carolina at Charlotte
Mr. Erfan Al-Hossami, University of North Carolina at Charlotte
Zhuo Cheng,
Alyssa Lasmarias Alameda,
Tia Nicole Johnson,
Dr. Mesbah Uddin, University of North Carolina at Charlotte
Daniel Andrew Janies,

W432 - International Division (INTL) Technical Session #6: World-class STEM Leader

1:30 P.M. - 3:00 P.M., ROOM 339, BALTIMORE CONVENTION CENTER

Sponsor: International Division (INTL)

Moderator: Yanjun Yan, Western Carolina University

Workshop on Global Engineering Design for Low-Resource Settings

Lauren Mottel,
Lauren Shipp,
Menansili Abraham Mejooli,
Ghodeejah Higgins,
Maleshigo Mabye,
Hannah Christine Watkins,
Dr. Kimberly L. Bothi,
Kathryn Alexa Jackson,
Dr. Julie Carol Karand, University of Delaware

Innovating Engineering Curriculum Design Toward Future: A Pilot Case Study of the School of Future Technology (SFT) in China

Dr. Lina Zheng, Beihang University
Yu Han,
Ruilin WU,
Jianglong Zhang,
Ye Jinxin,
Zijiao Jiang,

The NASA Rover Challenge: Revolutionizing Student Learning through Hands-on Design and Implementing 3-D Technology

Dr. Saeed D. Foroudastan, Middle Tennessee State University

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

W433 - Pre-College Engineering Education Division (PCEE) Technical Session 13: Attitudes & Perspectives of Teachers

1:30 P.M. - 3:00 P.M., ROOM 345, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Moderator: Manuel Figueroa, The College of New Jersey

The Role of K-12 Teachers as Agents for Change (RTP)

Mrs. Christina Anlynette Alston, Rice University
Faiza Zafar, Rice University
Scott Currier,
Krystle Dunn,
Milton Johnson,
Selene Verhofstad,
Carolyn Nichol, Rice University

Centering K-8 CS Teachers' Experiences During a Day of Dialogue for Teachers and Researchers (RTP)

Dr. Adrienne Decker, University at Buffalo, The State University of New York
Dr. Monica McGill, CSEdResearch.org

A Physical Computing Professional Development Study: Examining Differences in Male and Female Teachers' Attitudes Toward Computing (Evaluation, Diversity)

Dr. Tyler S. Love, University of Maryland Eastern Shore
Dr. Andrew John Hughes, California State University, San Bernardino

A Case Study Investigating High School Teachers' Implementation of an Engineering-focused Biologically Inspired Design Curriculum (Fundamental Research)

Dr. Abeera P. Rehmat, Georgia Institute of Technology
Alexandra A. Towner, Georgia Institute of Technology
Dr. Meltem Alemdar, Georgia Institute of Technology
Dr. Michael Helms, Georgia Institute of Technology
Dyanne Baptiste Porter, Georgia Institute of Technology
Roxanne Moore, Georgia Institute of Technology
Mr. Jeffrey H. Rosen, Georgia Institute of Technology
Dr. Marc Weissburg,

W433B - Pre-College Engineering Education Division (PCEE) Technical Session 14: Robotics and Careers

1:30 P.M. - 3:00 P.M., ROOM 350, BALTIMORE CONVENTION CENTER

Sponsor: Pre-College Engineering Education Division (PCEE)

Promoting STEM Education through the Preparation of Multicultural National Robotics Teams in Qatar (Evaluation)

Tala Katbeh, Texas A&M University at Qatar
Mr. G. Benjamin Cieslinski, Texas A&M University at Qatar
Hassan Bazzi ,

Pre-College Robotics: Best Practices for Adapting Research to Outreach

David Ricardo Medina, Golecki Group
Jaylynn Kim, University of Illinois at Urbana - Champaign
Katelynn Ohk,
Dominique Kisantear,
Jorge Jimenez,
Gavin Tian,
Prof. Conor Walsh P.E., Harvard University
Prof. Holly M Golecki, University of Illinois at Urbana - Champaign

ENGage LSU 2.0: Transitioning a Field Trip Experience to a Virtual Format and Its Impact on Middle School Students (Evaluation)

Adrienne Steele, Louisiana State University and A&M College
Prof. Adam T. Melvin, Louisiana State University and A&M College

W434 - Interdisciplinary Integration and Sociotechnical Thinking: The Big Picture

1:30 P.M. - 3:00 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Jenn Rossmann, Lafayette College

Papers in this session consider big questions in sociotechnical systems thinking and interdisciplinary integration,

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including historical calls for change and speculative futures of engineering education

Work in progress: Coloring Outside the Lines - Exploring the Potential for Integrating Creative Evaluation in Engineering Education

Dr. Cherie D. Edwards, Virginia Commonwealth University
Dr. Bryanne Peterson,
Dr. Sreyoshi Bhaduri, ThatStatsGirl
Dr. Cassandra J. McCall, Utah State University
Desen Sevi Özkan, Tufts University

Sociotechnical Integration: What Is It? Why Do We Need It? How Do We Do It?

Marie Stettler Kleine, Colorado School of Mines
Dr. Elizabeth A. Reddy, Colorado School of Mines
Matt Parsons, Colorado School of Mines
Dr. Dean Nieuwsma, Colorado School of Mines

The Person behind the Mann Report: Charles Riborg Mann as an Influential but Elusive Figure in Engineering Education

Dr. Kathryn A. Neeley, University of Virginia

Transdisciplinary Approaches in Canadian Engineering Education: Convergences and Challenges

Dr. Kari Zacharias, University of Manitoba
Dr. Jillian Seniuk Cicek, University of Manitoba
Ms. Lydia Wilkinson, University of Toronto
Chantal Rodier,
Dr. Laura M. Patterson, University of British Columbia, Okanagan campus
Mr. Renato B. Rodrigues, University of Manitoba
Prof. Ken Tallman, University of Toronto

Work-In-Progress: Re-Engineering Engineering: A Collaborative Inquiry Toward a Solidarity Engineering-Focused Future

Dr. Stephen Fernandez, UMass Amherst
Sarah Aileen Brownell, Rochester Institute of Technology (COE)
Ankita Kumar,
Bailey Bond-Trittipo, Florida International University
Zoi Arrianna Henry,
Dr. Corin L. Bowen, California State University, Los Angeles

W435 - Design Experiences in Manufacturing Education

1:30 P.M. - 3:00 P.M., ROOM 335, BALTIMORE

CONVENTION CENTER

Sponsor: Manufacturing Division (MFG)

Moderators: Zhenhua Wu, Virginia State University; Sheng-Jen Hsieh, Texas A&M University

A New Course in Defense Manufacturing – An Introduction to Shipbuilding

Dr. Alley C. Butler, University of Texas Rio Grande Valley

Design and Evaluation of Modules to Teach PLC Interfacing Concepts

Dr. Sheng-Jen Hsieh, Texas A&M University
Dr. Susan Pedersen, Texas A&M University

Development of a Product Pipeline System to Teach Industrial Manufacturing Automation

Mr. Mina Morcos, Vaughn College of Aeronautics and Technology
Dr. Shouling He, Vaughn College of Aeronautics and Technology
Mr. Mohamed M. Youssef, Vaughn College of Aeronautics and Technology

W436 - Materials Division (MATS) Technical Session 3

1:30 P.M. - 3:00 P.M., ROOM 347, BALTIMORE CONVENTION CENTER

Sponsor: Materials Division (MATS)

Moderator: Lessa Grunenfelder, University of Southern California

This session is focused on improvements in instructional methods in the materials education space.

A New Paradigm for Learning the Fundamentals of Materials Science & Engineering

Dr. William D. Callister Jr., University of Utah
Dr. David G. Rethwisch, The University of Iowa

An Undergraduate Research Project in Material Science for Improved Rapid Prototyping

Dr. Stephen Andrew Wilkerson P.E., York College of Pennsylvania
Dr. Stephen N. Kuchnicki, York College of Pennsylvania
Aidan T. McFall,

Exploring how Different Instructional Methods Compare to Improve Student Performance and Satisfaction in an Online Environment.

Mr. Michael Roberts, University of Florida

Making Learning Fun: Implementing a Gamified Approach to

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Materials Science and Engineering Education

Dr. Bosco Yu PhD, P.Eng, McMaster University, University of Victoria
Ms. Liza-Anastasia DiCecco, McMaster University
Ms. Dakota M. Binkley,
Mr. Andrew Lucentini,
Dr. Gerald Tembrevilla, Mount Saint Vincent University
Ms. Shayna Earle, McMaster University
Muhammad Arshad,

Faculty-Led Videos of Real-World Industrial and Research Applications in a Materials Science Course

Dr. Carlos R. Corleto, Texas A&M University
Matt Pharr, Texas A&M University
Bruce A Conway, Texas A&M University
Dr. Shadi Balawi, Texas A&M University
Prof. Bruce L. Tai, Texas A&M University

W438 - Mechanical Engineering Division (MECH) Technical Session 6: Dynamics and Kinematics

1:30 P.M. - 3:00 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Alexander De Rosa, University of Delaware

This session focuses on the teaching and learning of rigid body dynamics.

Design and Development of a Teaching Apparatus for Undergraduate Vibration Education through Capstone Design Project

Dr. Wooram Park, University of Texas at Dallas

Learning Engineering Concepts through Teaching It

Prof. Alireza Ebadi, Worcester Polytechnic Institute
Prof. Ahmet Can Sabuncu, Worcester Polytechnic Institute

The ScorBot Toolbox for MATLAB: An Open-Source Hardware Interaction and Simulation Library for the Intelitek SCORBOT-ER 4u Educational Robot

Prof. Michael Dennis Mays Kutzer, United States Naval Academy
Dr. John S Donnal,
Dr. Carl E. Wick Sr., United States Naval Academy

W438B - Mechanical Engineering Division (MECH) Technical Session 15: Automation and Machine Learning

1:30 P.M. - 3:00 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Anne Spence, Baylor University

This session highlights a broad range of topics related to automated processes to include use of data and machine learning.

Infusing Data Science into Mechanical Engineering Curriculum with Course-Specific Machine Learning Modules

Prof. Yuhao Xu, Prairie View A&M University
Bo Zhao,
Prof. Steve Tung, University of Arkansas
Prof. Han Hu, University of Arkansas

Machine-Learning Driven Robot-Motion Design: Introducing a Web-Based Mechanism Design Software

Prof. Anurag Purwar, Stony Brook University

Scaffolding Training on Digital Manufacturing: Prepare for the Workforce 4.0

Dr. Rui Li, New York University
Ms. Victoria Bill, New York University
Dr. Jack Bringardner, New York University

Work in Progress: Integrating Hands-on Exploration into an Undergraduate Robotics and Automation Class

Ms. Juliana Danesi Ruiz, The University of Iowa
Prof. Rachel Vitali, The University of Iowa
Prof. Phillip Deierling,

W439 - Miscellaneous Mechanics: Covid and Free Body Diagrams

1:30 P.M. - 3:00 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Mechanics Division (MECHS)

Moderators: Hadas Ritz, Cornell University; Jordan Jarrett, Colorado State University

Two topics for the price of one! Papers in the first topic explore student performance during and following the COVID pandemic. Papers in the second topic examine

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teaching free body diagrams and equilibrium concepts.

Effects of Covid-19 Pandemic and Response on Student Performance in Large Foundational Mechanics Courses

Dr. James Lord, Virginia Tech

Dr. Michael K. Thompson, Virginia Tech

Did the COVID-19 Pandemic Affect Student Performance on Exams in a Dynamics Course?

Dr. Julian Ly Davis, University of Southern Indiana

Dr. Andrew Jason Hill, University of Southern Indiana

Teaching the Concept of Tipping in Statics: Pedagogy, Practical Examples, and Potential Activities

Dr. Sridhar S. Condoor, Saint Louis University

Bryan MacGavin, Saint Louis University

Dr. Raja Shekar P. V.,

Free-Body Diagram Performance with Problem Depictions at Different Levels of Abstraction

Dr. Andrew R. Sloboda, Bucknell University

W440A - Promoting Social Sustainability, Cultural Assets, and Assessing Equity and Diversity Index

1:30 P.M. - 3:00 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Yan Li, Dartmouth College; Mohamed Elzomor, Florida International University; Karen Hicklin,

Engineering While Black: Exploring the Experiences of Black University of Florida Undergraduate Engineering Students Using Photovoice

Dennis R. Parnell Jr., University of Florida

Jabari Wilson, University of Florida

Dr. Karen Theodora Hicklin,

Dr. Jeremy A. Magruder Waisome, University of Florida

Promoting Social Sustainability for Minority Populations through Understanding their Challenges in Professional Engineering Certification

Ms. Erika Judith Rivera, Florida International University

Mr. Mohamed Elzomor, P.E., Florida International University

Mr. Piyush Pradhananga, Florida International University

Surveying the Cultural Assets of Engineering Students: An Exploratory Quantitative Study

Collette Patricia Higgins,

Emily Joanna Kamp,

Dr. Kenneth Stewart,

Dr. Azadeh Bolhari, P.E., University of Colorado, Boulder

Dr. Daniel Ivan Castaneda, James Madison University

Work in Progress: A Data-Gathering Effort on STEM Faculty Startup Packages for Assessing Equity in Recruitment

Dr. Leigh S. McCue, George Mason University

Dr. Girum Urgessa, P.E., George Mason University

Tehama Lopez Bunyasi, George Mason University

Patrick Willette Healey, George Mason University

Patricia Wonch Hill, University of Nebraska, Lincoln

Dr. Jaime Lester, George Mason University

Milagros Rivera, George Mason University

W440B - Diversity Trainings, Inclusive Learning, and Distance Learning

1:30 P.M. - 3:00 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Sujit Varadhan, University of Illinois at Urbana - Champaign; Joaquin Rodriguez, University of Pittsburgh

Diversity Index: A New Perspective on Engineering Capstone Projects

Dr. Joaquin Rodriguez, University of Pittsburgh

Dr. April Dukes, University of Pittsburgh

John Andrew Keith, University of Pittsburgh

Dr. David V.P. Sanchez, University of Pittsburgh

Do Short-Term Diversity Trainings Have Lasting Effects?

Dr. Laura J. Bottomley, North Carolina State University, Raleigh

Ms. Angelitha Daniel, North Carolina State University, Raleigh

Kimberly Pender,

Opportunities and Barriers to UDL-Based Course Designs for Inclusive Learning in Undergraduate Engineering and other STEM Courses

Sujit Varadhan, University of Illinois, Urbana-Champaign

Xiuhaio Ding, University of Illinois, Urbana-Champaign

Delu Louis Zhao,

Ananya Agarwal, University of Illinois, Urbana-Champaign

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David Dalpiaz, University of Illinois, Urbana-Champaign

Dr. Chrysafis Vogiatzis, University of Illinois,
Urbana-Champaign

Prof. Yun Huang,

Dr. Lawrence Angrave, University of Illinois,
Urbana-Champaign

Dr. Hongye Liu, University of Illinois, Urbana-Champaign

W441 - Multidisciplinary Engineering Division (MULTI) Technical Session 6

1:30 P.M. - 3:00 P.M., ROOM 344, BALTIMORE
CONVENTION CENTER

**Sponsor: Multidisciplinary Engineering Division
(MULTI)**

**Moderators: Karl Schubert, University of Arkansas; Duncan
Davis, Northeastern University; Shantel Romer, University
of Arkansas**

**Lessons Learned While Managing "Raise Your Hand," a
Multidisciplinary Collaboration between Engineering and the
Arts**

Mary Ann Weitnauer,

Dr. Jacqueline Rohde, Georgia Institute of Technology

Thomas Martin, Georgia Institute of Technology

**A Self-Study of Faculty Methods, Attitudes, and Perceptions of
Oral Engineering Exams**

Dr. Darcie Christensen, Minnesota State University, Mankato

Dr. Lauren Singelmann, Minnesota State University, Mankato

Mr. Rob Sleezer, Virginia Tech

Dr. Emilie A. Siverling, Minnesota State University, Mankato

**Expanding, Improving, and Completing a Multi-College
Interdisciplinary B.S. Data Science Program with
Concentrations**

Dr. Karl D. Schubert, University of Arkansas

Lee Shoultz,

Shantel Romer, University of Arkansas

**Experiential Learning for Interdisciplinary Education on
Vestibular System Models**

Dr. Masoumeh Farhadi Nia, University of Massachusetts,
Lowell

Grace E. Callen,

Gayatri Aroskar, University of Massachusetts, Lowell

Justin An, University of the District of Columbia

Prof. Kavitha Chandra, University of Massachusetts, Lowell

Prof. Charles Thompson, Ph.D., University of Massachusetts,
Lowell

Prof. Kelilah Wolkowicz, University of Massachusetts, Lowell

Max Denis, University of the District of Columbia

W443B - Generative AI Roundtable

1:30 P.M. - 3:00 P.M., BALLROOM 3,
BALTIMORE CONVENTION CENTER

Sponsor: ASEE Board of Directors

**Moderators: Yannis Yortsos, University of Southern
California; John-David Yoder, Ohio Northern University**

This roundtable is organized in response to many engineering programs' reactions to Generative Artificial Intelligence (e.g. ChatGPT). Some background context and responses from a number of participants will be provided. This interactive session will be focused on a discussion of ways ASEE can lead in helping engineering education programs navigate and address this rapidly-changing field.

W443C - DEI Roundtables

1:30 P.M. - 3:00 P.M., ROOM 314, BALTIMORE
CONVENTION CENTER

Sponsor: ASEE Board of Directors

DEI Roundtables

W444 - Ocean & Marine Engineering Division Technical Session 2

1:30 P.M. - 3:00 P.M., ROOM 336, BALTIMORE
CONVENTION CENTER

Sponsor: Ocean and Marine Division (OMED)

Ocean & Marine Engineering Division Technical
Session 2

**Assessment and Experience of Boatbuilding-Based PBL in
Two Naval Architecture Programs**

Mr. Daniel Brahan, US Coast Guard Academy

Dr. Thomas W. Denucci, United States Coast Guard Academy

Dr. Jaye Falls, United States Naval Academy

Dr. Paul H. Miller, P.E., United States Coast Guard Academy

Peter A. Sousa, United States Coast Guard Academy

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Strengthening Undergraduates' Appreciation of Engineering Ethics through a Simulated Stakeholder Meeting on Offshore Wind Energy Development

Dr. Maija A. Benitz, Roger Williams University

Tuning the Parameters: A Maritime-Tuned Machine Learning Course

Mr. Vincenzo Antonio Ventricelli, SUNY Maritime College

Dr. Paul M. Kump, SUNY Maritime College

Van-Hai Bui,

W445 - Trends and Topics Related to ABET Accreditation

1:30 P.M. - 3:00 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Physics and Physics Division (EP2D)

Moderator: Bala Maheswaran, Northeastern University

Speakers: Dr. Paul Benjamin Crilly, United States Coast Guard Academy; Dr. Harold T. Evensen, University of Wisconsin - Platteville; Dr. Baha Jassemnejad, ASRC Federal System Solutions, Federal Aviation Administration

An expert panel will discuss current topic and trends in ABET accreditation.

W451 - Women in Engineering Division (WIED) Technical Session 4

1:30 P.M. - 3:00 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Kristi Shryock, Texas A&M University

This session focuses on the experiences of international women in engineering and STEM.

Characterization of leadership styles, with a gender approach: a study with final-year students from an Engineering School in Chile

Prof. Camila Zapata, Universidad Andres Bello, Santiago, Chile

Miss Yunia Valentina Recaman, Universidad Andres Bello, Santiago, Chile

Prof. Maria Elena Truyol, Universidad Andres Bello, Santiago, Chile

What Challenges Affect Arab Women's Engagement in STEM Fields, Particularly Engineering: A Systematized Literature Review

Nadah Al Theeb, Purdue Engineering Education

Why engineering needs women—insights of female and nonbinary Finnish upper secondary schoolers

Dr. Johanna Naukkarinen, Lappeenranta-Lahti University of Technology, Finland

Leaving Behind A Legacy For Women In Engineering

Ms. Maham A Godil, Purdue University, West Lafayette

W457 - Guidelines for Equitable Faculty Hiring Based on Research and Practice

1:30 P.M. - 3:00 P.M., LATROBE, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Moderator: Homero Murzi, Virginia Polytechnic Institute and State University

Speakers: Dr. Elizabeth Cosgriff-Hernandez, Texas A&M University; Dr. Gabriella Coloyan Fleming,

This session will provide a research- and practice-informed approach to equitable faculty hiring that will be of value to faculty search committee members, chairs, department and institutional leadership, and any faculty who engage in the search process.

Conference attendees who are interested in learning about the (often mysterious) tenure-track faculty search process (e.g., graduate students, postdocs) can benefit.

Learning outcomes include:

1. Understand how the equitable hiring roadmap can help search committees reduce bias and enable a fairer search.
2. Identify attendees' institutional values and faculty hiring processes.
3. Provide a framework for attendees to evaluate their own institutional values and faculty hiring processes to identify opportunities for or barriers to equitable hiring.
4. Create a plan for attendees to enact change in their institutions' and departments' faculty hiring processes based on best practices and research.

W457B - Faculty Development Division (FDD) Technical Session 12

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1:30 P.M. - 3:00 P.M., ROOM 324, BALTIMORE CONVENTION CENTER

Sponsor: Faculty Development Division (FDD)

Moderator: W. Vincent Wilding, Brigham Young University

Work in Progress: Examining the Impact of a Faculty Development Program in Engineering Instructors' Teaching Practices and Perceptions on Active Learning Methodologies

Gianina Morales, University of Pittsburgh and Universidad de Valparaiso, Chile

Ms. Rene Alejandro Noel, Universidad de Valparaiso, Chile

Learning in Transition: Developing and Employing Pedagogical Supports to Enhance Student Learning in Engineering Education

Dr. Eleazar Marquez, The University of Texas, Rio Grande Valley

Dr. Samuel Garcia Jr., Texas State University

Are All 'EBIPs' Created Equal? An Exploration of Engineering Faculty Adoption of Nine Evidence-Based Instructional Practices

Dr. Amy L Brooks, Oregon State University

Jeff Knowles,

Elliott Clement, Oregon State University

Dr. Prateek Shekhar, New Jersey Institute of Technology

Dr. Shane A. Brown, P.E., Oregon State University

Commonality of Failure Modes in New Engineering Program Development

Prof. David Robert Bruce, University of Ottawa, Canada

Dr. James Borrelli, Stevenson University

Gennifer Smith, University of San Francisco

Dr. Michael G. Lerner, Earlham College

Dr. Anne Raich, DePaul University

Work in Progress: Teaching Evaluation Demonstration Project

Dr. Vicki V. May, P.E., Dartmouth College

Prof. Petra Bonfert-Taylor, Dartmouth College

Eugene Korsunskiy,

W459 - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session II

1:30 P.M. - 3:00 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in

Education Division (EQUITY)

It's No Mystery, So It Must Be Intentional: How Institutions Fail to Support Black STEM Doctoral Students' Mental Health

Dr. Brooke Charae Coley, Massachusetts Institute of Technology

Dr. Jennifer M. Bekki, Arizona State University, Polytechnic Campus

Dr. Kerrie G. Wilkins-Yel, University of Massachusetts, Boston

Miss Fantasi Nicole, Arizona State University, Polytechnic Campus

Debalina Maitra, Massachusetts Institute of Technology

Juan David Gutierrez,

Motahareh Darvishpour Ahandani,

Michelle Campbell,

Strategies Promoting Undergraduate Retention (SPUR): Identifying Strategies to Help Students Reach Graduation through a Student-Driven Approach

Arielle Marie Rainey, Colorado School of Mines

Heather Renee Houlton, Colorado School of Mines

Dr. Amy E. Landis, Colorado School of Mines

Changing the Way We Educate to Prioritize Minority Students' Mental Health and Enhance Their Well-Being

Ms. Claudia Calle Müller, Florida International University

Mais Kayyali, Florida International University

Mr. Mohamed Elzomor P.E., Florida International University

Work in Progress: Culture of Productivity—Multipositional Impacts on STEM Graduate Students

Dr. D. C. Beardmore, University of Colorado, Boulder

Dr. Angela R. Bielefeldt, University of Colorado, Boulder

Improving Gender Equity in Engineering—Perspectives from Academia and Literature

Brianna N. Griffith, University of Arkansas

Dr. Eric Specking, University of Arkansas

Dr. Jena Shafai Asgarpoor, University of Nebraska, Lincoln

Dr. Stephanie G. Adams, University of Texas, Dallas

Dr. Meagan C. Pollock, Engineer Inclusion

Dr. Adrienne Minerick, Michigan Technological University

Patrice Nicole Storey,

Improving Video-Conference Workshops through an Intersectionality Lens

Dr. Carol Elizabeth Marchetti, Rochester Institute of Technology

Prof. Margaret B. Bailey, P.E., Rochester Institute of Technology

Caroline Solomon,

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Dr. Elizabeth Litzler, University of Washington
Dr. Sara Schley Schley, Rochester Institute of Technology
Iris V. Rivero,
Gloria L. Blackwell,

W459B - Equity, Culture & Social Justice in Education Division (EQUITY) Technical Session 12

1:30 P.M. - 3:00 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

A Case Study: Making Facilitates an Engineering Student's (Re) Negotiation with Her Disciplinary Relationships

Ms. Yume Menghe Xu, Tufts University
Mr. Brian Gravel, Tufts University

Latinx Undergraduate Students: Finding a Place of Belonging in Engineering

Nicole Delgado, New Mexico State University
Hilda Cecilia Contreras Aguirre, New Mexico State University
Luis Rodolfo Garcia Carrillo,

Narratives of Identity Coherence and Separation in the Figured Worlds of Undergraduate Engineering Education

Gabriel Van Dyke, Utah State University
Dr. Cassandra McCall, Utah State University
Maimuna Begum Kali, Florida International University
Dr. Stephen Secules, Florida International University

Literature Survey of How Students with Visual Impairments Interact with Engineering Course Materials

Dr. Adrian Rodriguez, zyBooks, a Wiley brand
Lauren Fogg, zyBooks, a Wiley Brand
Dr. Alicia Clark, zyBooks, A Wiley Brand
Jennifer L. Welter,
Dr. Gergely Sirokman, zyBooks, A Wiley Brand
Dr. Ryan Barlow, zyBooks, A Wiley Brand

Ethiopian Women Students' Recommendations for Enhancing Their Sense of Belonging in Engineering Education

Mr. Jemal Bedane Halkiyo, Arizona State University, Polytechnic Campus
Madeleine Jennings, Massachusetts Institute of Technology
Sultan Bedane Halkiyu, Bule Hora University, Ethiopia
Dr. Nadia N. Kellam, Arizona State University, Polytechnic Campus

Counterspaces: Underrepresented Students Find Community and Supportive Learning Spaces During a Global Pandemic

Dr. Janet Y. Tsai, University of Colorado, Boulder
Dr. Daniel Knight, University of Colorado, Boulder

W481 - Best DEI Paper Award Finalists

1:30 P.M. - 3:00 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Moderators: Katey Shirey, EduKatey; Karin Jensen, University of Michigan

Meet and celebrate the finalists for this year's Diversity, Equity, and Inclusion Best Paper Award.

W494A - SPONSOR TECH SESSION: Creating Community Within Online Programs, Presented by Johns Hopkins University

1:30 P.M. - 3:00 P.M., ROOM 301 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

Johns Hopkins Whiting School of Engineering's online graduate program includes more than 6,000 learners and 600 faculty in 22+ disciplines. In this session, participants will learn about a strategic approach to increase a sense of community (SoC) within such a large group. The approach was developed over two years in response to five years of annual survey data where students indicated that they did not feel a SoC.

Improving a SoC for students is associated with other focus areas for the school, including increased retention and degree completion (Ehrenberg & Zhang, 2005; Jacoby, 2006; Jaeger & Eagan, 2011), greater commitment to the organization (Milliman et al., 2003), decreased work stress (Royal & Rossi, 1996), and increased collaboration, knowledge sharing, and communication (Andersen et al., 2013; Rovai, 2002). Early data and outcomes suggest that higher education administrators can implement specific

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strategies to increase a SoC for learners and teachers, facilitating engagement with the school, academic programs, and peers despite being geographically dispersed.

Speakers:

Paul Hockett is the assistant dean of learning design and innovation and a lecturer at the Johns Hopkins Whiting School of Engineering. As assistant dean, Hockett leads curriculum and course development for new and existing programs, faculty development and teaching support, and learning assessment. As a lecturer, Hockett teaches the course titled “Strategic Communications in Technical Organizations” in the Engineering Management program within the Whiting School of Engineering. Additionally, Hockett has developed and taught two Coursera MOOCs: Inclusive Online Teaching and Excellence in Online Teaching.

Nathan Graham is the assistant dean for media and technology at the Whiting School of Engineering. He received an M.F.A. in poetry from New Mexico State University and is a Ph.D. candidate in information science at Rutgers University. His teaching and research interests include instructional technology, immersive media, history of electronic publishing, and cross-media adaptation.

Heather Stewart has more than 15 years of experience in higher education and has held a variety of roles in graduate programming and administration. She is currently the director of academic affairs for Engineering for Professionals at Johns Hopkins University. In this position, she provides academic oversight to existing master’s degree and certificate programs, manages academic policy issues, student retention efforts, and other administrative functions. Heather has a B.A. in history and religious studies from the University of Virginia as well as an M.A. in international relations and an M.H.R. from the University of Oklahoma.

W494B - SPONSOR TECH SESSION: Presented by Gradescope

1:30 P.M. - 3:00 P.M., ROOM 302 - SPONSOR TECH SESSION ROOM, BALTIMORE CONVENTION CENTER

Sponsor: Sponsor Technical Sessions

W503 - Biological & Agricultural Division Technical Session

3:15 P.M. - 4:45 P.M., ROOM 336, BALTIMORE CONVENTION CENTER

Sponsor: Biological and Agricultural Engineering Division (BAE)

Biological & Agricultural Division technical session

Community Building through Technology in a Biological Systems Engineering Course

Heydi Han, University of Nebraska, Lincoln

Hector Palala, University of Nebraska, Lincoln

Dr. Jennifer Keshwani, University of Nebraska, Lincoln

Dr. Deepak R. Keshwani, University of Nebraska, Lincoln

Carbon Emissions Reduction From Our Daily Lives: Introduction of Bioreactors into Large Structures

Mr. Daniel Kelly Green, Salt Lake Community College

Dr. Nick M. Safai, Salt Lake Community College

Mr. Cyrus Safai,

Peanut Trials on Raised Beds with Indoor and Outdoor FarmBot Setups

Dr. Abhijit Nagchaudhuri, University of Maryland, Eastern Shore

Dr. Madhumi Mitra, Ph.D., University of Maryland, Eastern Shore

Mr. Jesu Raj Pandya, University of Maryland, Eastern Shore

W505 - Chemical Engineering Division (ChED) Technical Session 10: Teaming and Professional Skills

3:15 P.M. - 4:45 P.M., ROOM 320, BALTIMORE CONVENTION CENTER

Sponsor: Chemical Engineering Division (ChED)

Moderators: Deesha Chadha, ; Adam Melvin, Louisiana State University and A&M College

Using Senior Peer Mentoring for Experiential Learning of Core Chemical Engineering Topics

Dr. Mariajose Castellanos, University of Maryland, Baltimore County

Dr. Neha B. Raikar, University of Maryland, Baltimore County

Student Perceptions of the Place, Mode, and Teacher Contribution to Teamwork within Undergraduate Chemical Engineering

Abishek Sekhar,

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Dr. Peter Neal, The University of New South Wales, Sydney, Australia

Dr. Sarah Grundy, The University of New South Wales, Sydney, Australia

Team Building Games to Reinforce the Training of Chemical Engineering Students in Team Skills Based on Collaboration Leadership

Dr. Joaquin Rodriguez, University of Pittsburgh

Hseen Baled,

Michael McMahon,

Preparing Engineering Students to Find the Best Job Fit: Starting Early with the Career Development Process

Dr. Cheryl Carrico, P.E., E4S, LLC

Dr. Holly M. Matusovich, Virginia Tech

Dr. Sreyoshi Bhaduri, ThatStatsGirl

W506 - Committee on Educational Policy Presents: Pillars of Student Development

3:15 P.M. - 4:45 P.M., ROOM 326, BALTIMORE CONVENTION CENTER

Sponsor: Civil Engineering Division (CIVIL)

Moderators: Anthony Battistini, Angelo State University; James Hanson, Ross Hulman

Diverse topics related to developing students as learners and young professionals.

Teaching Students Skills to Foster Psychological Safety in a Team Environment

Dr. Michelle Marincel Payne, Rose-Hulman Institute of Technology

Prof. James H. Hanson, P.E., Rose-Hulman Institute of Technology

Navigating Intersectional Identities in Civil Engineering Education and Practice

Elliott Clement, Oregon State University

Dr. Renee M. Desing, The Ohio State University

The Impact of Short Mindfulness Practices on Student Attention and Focus in Upper-Level Civil Engineering Design Class

Dr. Priyantha Wijesinghe, University of Vermont

Dr. Holly Ann Buckland Parker, University of Vermont

Integration of Public Policy into Civil Engineering Undergraduate Curricula: Review of Civil Engineering Body of Knowledge and Course Application

Dr. Michelle Oswald Beiler, Bucknell University

W513 - Design in Engineering Education Division (DEED) Technical Session 4

3:15 P.M. - 4:45 P.M., ROOM 337, BALTIMORE CONVENTION CENTER

Sponsor: Design in Engineering Education Division (DEED)

Design Process and Supports

Making Spaces to Supporting Formal, Informal, and Nonformal Learning Spanning a University's Design and Makerspace Learning Ecology

Sever Thomas Gilbertson,

Dr. Micah Lande, South Dakota School of Mines and Technology

Developing Design Strategies to Support a Solution-First Design Process by Examining Experienced Engineers' Approaches

Dr. Jin Woo Lee, California State University, Fullerton

Scott Louie,

Reflection on Design Teaching Before, During and After Pandemic

Dr. Reem Roufail, University of Waterloo

Lisa Lachuta,

Dr. Christine Moresoli, University of Toronto

Dr. Rania Al-Hammoud, University of Waterloo

Merging Human-Centered Design with Engineering Design: Synthesizing a Human-Centered Engineering Design Framework

Miss Taylor Tucker, University of Illinois at Urbana - Champaign

Mr. Alexander Pagano, University of Illinois at Urbana - Champaign

Mr. Saadeddine Shehab, University of Illinois at Urbana - Champaign

Bio-Inspired Engineering Design: The Impact of Information Representation on Access to Inspiration from Outside One's Discipline

Hadear Ibrahim Hassan, Texas A&M University

Luis Angel Rodriguez,

Abheek Chatterjee,

Dr. Astrid Layton, Texas A&M University

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WEDNESDAY, JUNE 28th SESSIONS

W514A - Student Assessments and Tests

3:15 P.M. - 4:45 P.M., ROOM 349, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

Moderator: Sindia Rivera-Jiménez, University of Florida

Educational Research & Methods Division (ERM)
Technical Session

Second-Chance Testing as a Means of Reducing Students' Test Anxiety and Improving Outcomes

Mr. Chinedu Alexander Emeka,
Prof. Craig Zilles, University of Illinois at Urbana-Champaign
Prof. Matthew West, University of Illinois at Urbana-Champaign
Dr. Geoffrey L. Herman, University of Illinois at Urbana-Champaign
Prof. Timothy Bretl, University of Illinois at Urbana-Champaign

Determining the Best Policies for Second-Chance Tests for STEM Students

Mr. Chinedu Alexander Emeka, University of Illinois at Urbana-Champaign
David H. Smith IV, University of Illinois at Urbana-Champaign
Prof. Craig Zilles, University of Illinois at Urbana-Champaign
Prof. Matthew West, University of Illinois at Urbana-Champaign
Dr. Geoffrey L. Herman, University of Illinois at Urbana - Champaign
Prof. Timothy Bretl, University of Illinois at Urbana-Champaign

Offering Partial Credits in Exams Created Using Blackboard Quiz Pools in Mechanical Engineering Courses

Dr. Ziliang Zhou, California Baptist University
Dr. Keith Hekman, California Baptist University

Exploring the Alignment of Instructor's Intent and Students' Perception of Using Self-Assessment in an Engineering Undergraduate Course

Mr. Viyon Dansu, Florida International University
Mr. Yashin Brijmohan, University of Nebraska Lincoln
Dr. Nathaniel Hunsu, University of Georgia

Illuminating Contexts that Influence Test Usage Beliefs and Behaviors among Instructors of Fundamental Engineering Courses

Kai Jun Chew, Embry-Riddle Aeronautical University
Dr. Holly M. Matusovich, Virginia Polytechnic Institute and State University

Impact of Perceived Stress during Oral Examination on Student Performance Outcomes

Dr. Alex Phan, University of California, San Diego
Dr. Minju Kim, University of California, San Diego
Marko V. Lubarda, University of California, San Diego
Prof. Curt Schurgers, University of California, San Diego
Dr. Huihui Qi, University of California, San Diego

W514B - Educational Research and Methods Division (ERM) Technical Session 10

3:15 P.M. - 4:45 P.M., ROOM 310, BALTIMORE CONVENTION CENTER

Sponsor: Educational Research and Methods Division (ERM)

W515 - Broadening Participation through Access, Equity, Inclusion in ECE

3:15 P.M. - 4:45 P.M., ROOM 343, BALTIMORE CONVENTION CENTER

Sponsor: Electrical and Computer Engineering Division (ECE)

Moderators: Olga Mironenko, University of Illinois at Urbana - Champaign; Yu-Fang Jin, The University of Texas at San Antonio

Teaching Computer Architecture with Spatial Ability Considerations

Dr. Geoffrey L. Herman, University of Illinois at Urbana - Champaign
Mr. Muahmmad Suleman Mahmood,

RHL-BEADLE: Bringing Equitable Access to Digital Logic Design in Engineering Education

Prof. Rania Hussein, University of Washington
Riley Connor Maloney, University of Washington
Luis Rodriguez-Gil,
Jon Ander Beroz,
Pablo Orduna, LabsLand

Identify Challenges of Inclusive Practices at the Course Level

Dr. Yufang Jin, The University of Texas at San Antonio
Dr. Yanxia Jia, Arcadia University

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WEDNESDAY, JUNE 28th SESSIONS

Cate Wengelnik, The University of Texas at San Antonio
Dr. Frances Matos, University of Texas at San Antonio
Mason Cole Conkel, University of Texas at San Antonio
Dr. Yan Tang, Embry-Riddle Aeronautical University - Daytona Beach
Jessica Gonzales, The University of Texas at San Antonio

Engineering Gateway Course Redesign for Equity through Critical-Paths

Dr. Praveen Meduri, California State University, Sacramento
Mohammed Eltayeb, California State University, Sacramento
Dr. Milica Markovic, California State University, Sacramento
Catherine Ishikawa, California State University, Sacramento

Broadening participation in engineering and STEM workforce development through unconventional community partnerships

Dr. Rosalind M. Wynne, Villanova University
Jared Halsey,

W518 - Engineering Design Graphics Division (EDGD) Technical Session 1

3:15 P.M. - 4:45 P.M., ROOM 311, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Design Graphics Division (EDGD)

Moderator: Sepehr Khorshid,

Crafting An Approach to Cultivate Engineering Competencies for Undergraduate Students in Construction Engineering with Minecraft

Raissa Seichi Marchiori, University of Alabama
Dr. Siyuan Song, The University of Alabama
Jewoong Moon, University of Alabama
Sepehr Khorshid, University of Alabama

Entrepreneurial Mindset and 3D-Modeling: Three Mini-Projects

Dr. Joshua Gargac, Ohio Northern University

Comparing Exam Scores in Engineering Graphics Courses Using Fully Online Theory Exams vs Exams That Incorporate Hand Sketching

Dr. Nancy E. Study, Pennsylvania State University, Behrend College
Dr. Steven Nozaki, Pennsylvania State University, Behrend College

Exploring the role of Spatial Visualization in Creativity of Engineering Design Solutions

Mr. Gibin Raju, University of Cincinnati
Dr. Sheryl A. Sorby, University of Cincinnati
Dr. Clodagh Reid, Technological University of the Shannon: Midlands Midwest

W521 - Engineering Libraries Division Extended Executive Committee Meeting

3:15 P.M. - 4:45 P.M., ROOM 318, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Libraries Division (ELD)

Moderator: Lisa Ngo, University of California, Berkeley

W523 - Engineering Technology Division (ETD) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 306, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Eric Anderson, State University of New York, College of Technology at Farmingdale

Engineering Technology related papers focused on teaching and student learning

Student Self-Assessment of Knowledge to Encourage Individual Understanding of Strengths

Dr. Megan Prygoski, Purdue University at West Lafayette (Polytechnic)

Supplementing Engineering Technology Curriculum through Space Grants

Dr. Ahmad Fayed, Southeastern Louisiana University

Sustainability in the Plastics Curriculum: Training for Improving Plastics Circularity

Prof. Greg Murray, Pittsburg State University

Jeanne H. Norton,

Dan Spielbusch,

Prof. Paul M. Herring, Pittsburg State University

Teaching Vibration and Modal Analysis Concepts in Traditional Subtractive Machining to Mechanical Engineering Technology Students

Dr. David Michael Labyak, Michigan Technological University

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WEDNESDAY, JUNE 28th SESSIONS

The Role of Hands-On Engineering Technology Summer Camps in Attracting Underrepresented High School Students to STEM Majors

- Dr. Mohamed Khalafalla, Florida A&M University - Florida State University
- Dr. Tejal Udhan Mulay, Florida A&M University - Florida State University
- Dr. Doreen Kobelo, Florida A&M University - Florida State University
- Dr. Behnam Shadravan, Florida A&M University - Florida State University
- Mr. David Akinsanya, Florida A&M University - Florida State University
- Prof. Leon I. Prosper, Florida A&M University - Florida State University

W523B - Engineering Technology Division (ETD) Technical Session 7

3:15 P.M. - 4:45 P.M., ROOM 305, BALTIMORE CONVENTION CENTER

Sponsor: Engineering Technology Division (ETD)

Moderator: Alok Verma, Texas A&M University at Galveston

Engineering Technology related papers focused on teaching and student learning

Toward Real-time Energy Efficiency Analysis of a Hydraulic System

- Dr. Alamgir A. Choudhury, Western Michigan University
- Dr. Jorge Rodriguez, Western Michigan University
- Montasir Mamun Mithu, Western Michigan University

Using Capstone PBL to Demonstrate Achievement of ABET Outcomes

- Dr. Maher Shehadi, Purdue University at West Lafayette (PPI)

VEX College-Level Robotic Competition Senior Capstone Project

- Dr. Robert Arredondo, University of New Hampshire

Virtual Reality: A Learning Tool for Promoting Learners' Engagement in Engineering Technology

- Ms. Israa Azzam, Purdue University
- Dr. Farid Breidi, Purdue University at West Lafayette (PPI)
- Peter Soudah,

Work in Progress: Applying a First-Year Engineering Model to Introduction to Engineering Technology

- Troy Curtis Tonner, Purdue University Fort Wayne

W525 - Environmental Engineering Division (ENVIRON) Technical Session 3

3:15 P.M. - 4:45 P.M., ROOM 312, BALTIMORE CONVENTION CENTER

Sponsor: Environmental Engineering Division (ENVIRON)

Moderator: Victoria Matthew, VentureWell

Designing Local Food Systems: Results from a Three-Year Pilot

- Dr. Daniel B. Oerther, Missouri University of Science and Technology
- Sarah Hultine Massengale, University of Missouri - St. Louis
- Sarah Oerther, Saint Louis University

Implementing Integrated Project-Based Learning Outcomes in a 21st-Century Environmental Engineering Curriculum

- Susan Gallagher, Montana State University - Bozeman
- Adrienne Phillips, Montana State University - Bozeman
- Ellen Lauchnor, Montana State University - Bozeman
- Amanda Hohner,
- Dr. Otto R. Stein, Montana State University - Bozeman
- Dr. Craig R. Woolard, Montana State University - Bozeman
- Catherine M. Kirkland,
- Dr. Kathryn Plymessenger P.E., Montana State University - Bozeman

Workshop Result: Environmental Engineering Faculty Learning Boyer's Model of Scholarship

- Dr. Daniel B Oerther P.E., Missouri University of Science and Technology

Influence of Group Learning in Environmental Engineering: A Curriculum and Course-level Assessment

- Matthew Baideme P.E., United States Military Academy
- Kathryn Blair Newhart,
- Cristian Robbins,
- Dr. Michael A. Butkus P.E., United States Military Academy
- Lt. Col. Andrew Ross Pfluger P.E., United States Military Academy

Accredited Undergraduate Environmental Engineering Education at PUIs

- Dr. Stephanie Laughton, The Citadel

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WEDNESDAY, JUNE 28th SESSIONS

W527 - First-Year Programs Division (FYP) - Technical Session 10: Identity & Belonging 2

3:15 P.M. - 4:45 P.M., ROOM 342, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Doris Espiritu, Wilbur Wright College- One of the City Colleges of Chicago

The second in a two-session sequence of full papers focused on identity and belonging.

Engineering Identity through Litter Pickup as Service Learning

Dr. Jordyn M. Wolfand, University of Portland
Dr. Kathleen Bieryla, University of Portland
Christina Ivler,

The Grand Challenges Scholars Program Research Experience: A Great Opportunity to Cultivate Belonging in a Community of Practice

Dr. Olga Bassam Qaqish, North Carolina State University at Raleigh
Chloe Grace Hincer, North Carolina State University
Ton Nguyen,
Nicholas Goodwin,

Examining first-year engineering programs' impacts on sense of belonging across gender

Dr. Joseph Arthur Brobst, Old Dominion University
Prof. Jill Davishahl, Western Washington University
Dr. Elizabeth Litzler, University of Washington
Prof. Andrew G Klein, Western Washington University
Dr. Sura Alqudah, Western Washington University

How much does readiness matter? An examination of student persistence, intentions, and engineering identity

Mr. Syahrul Amin, Texas A&M University
Miriam Marie Sanders, Texas A&M University
Aaron E. Kidd, Texas A&M University
Dr. Karen E. Rambo-Hernandez, Texas A&M University

Preliminary Analysis of Implementation of the "Design Your Process of Becoming a World-Class Engineering Student" Project in Introduction to Engineering Course

Dr. Uri Feldman, Wentworth Institute
Dr. George D. Ricco, University of Indianapolis

W527B - First-Year Programs

Division (FYP) - Technical Session 11: Projects

3:15 P.M. - 4:45 P.M., ROOM 344, BALTIMORE CONVENTION CENTER

Sponsor: First-Year Programs Division (FYP)

Moderator: Jaskirat Sodhi, New Jersey Institute of Technology

A full paper session on the subject of projects in first-year engineering.

"Mmm... Donuts!" Using Real-World Scenarios in a First-Year Programming Course

Dr. John K. Estell, Ohio Northern University
Dr. Stephany Coffman-Wolph, Ohio Northern University
Ian Meyer Kropp,

The Impact of Documenting Design Thinking, the Engineering Design Process Canvas, and Project Communication on Design Self-Efficacy of First-Year Students

Dr. Jack Bringardner, New York University
Elizabeth Castroverde,
Paige Charette, New York University
Miss Salma Moutasim Salaheldin Abuelgasim, New York University Abu Dhabi
McKenna Yoshinobu,
Prof. Rui Li, New York University
Ms. Victoria Bill, New York University
Ingrid Paredes, New York University

Inspiration Station for First-Year Engineering Projects

Dr. Fethiye Ozis, Carnegie Mellon University
Dr. Kelly Salyards P.E., Bucknell University
Dr. David A. Saftner, University of Minnesota Duluth
Dr. Tanya Kunberger, Florida Gulf Coast University

Using an Entrepreneurial Mindset and Biomimicry-Based Design to Better Engage First-Year Engineering Students

Mr. Randy Hugh Brooks, Texas A&M University
Prof. Shana Shaw, Texas A&M University

First-Year Students in Experiential Learning in Engineering Education: A Systematic Literature Review

Dr. Gerald Tembrevilla, Mount Saint Vincent University
Prof. Andre Phillion, Mount Saint Vincent University

W528 - Graduate Studies Division (GSD) Technical Session

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WEDNESDAY, JUNE 28th SESSIONS

9: Lessons Learned from Engineering Graduate Programs

3:15 P.M. - 4:45 P.M., ROOM 323, BALTIMORE CONVENTION CENTER

Sponsor: Graduate Studies Division (GSD)

Moderator: Jeffrey Fergus, Auburn University

Lessons Learned in Adopting a New, Patent-Based Doctoral Pathway Model

- Dr. Audrey Rorrer, University of North Carolina, Charlotte
- Dr. David K. Pugalee, University of North Carolina, Charlotte
- Praveen Ramaprabhu,
- Dr. Mesbah Uddin, University of North Carolina, Charlotte
- Prof. Terry Xu, University of North Carolina, Charlotte
- Dr. H. P. Cherukuri, University of North Carolina, Charlotte

What If They Choose: Surfacing Insights Associated with a Pedagogy for Doctoral Education

- Dr. Jennifer A. Turns, University of Washington
- Mr. Ahmer Arif,

Conceptualizing Program Quality in Engineering Education Ph.D. Programs

- Dr. Le Shorn Benjamin, University of Houston
- Dr. Jerrod A. Henderson, University of Houston

Evaluating the Implementation of Project Management Skills Training within STEM Graduate Education

- Dr. Ann M. Gansemer-Topf,
- Prof. Shan Jiang, Iowa State University of Science and Technology
- Dr. Qing Li,
- Yiqi Liang, Iowa State University of Science and Technology
- Dr. Gül E. Okudan Kremer, Iowa State University of Science and Technology
- Prof. Nigel Forest Reuel, Iowa State University of Science and Technology
- Dong Chen, The University of Arizona

The Impact of a 16-Week Preparation Course on the Technological Pedagogical Content Knowledge of Graduate Teaching Assistants in Engineering

- Dr. Saadeddine Shehab, University of Illinois, Urbana-Champaign
- Mr. Joshua E Katz, University of Illinois, Urbana-Champaign
- Emma Kirby, University of Illinois, Urbana-Champaign
- Dr. Marcia Pool, University of Illinois, Urbana-Champaign
- Prof. Yuting W. Chen, University of Illinois, Urbana-Champaign

Prof. Blake Everett Johnson, University of Illinois, Urbana-Champaign

W530 - Computing and Information Technology Division (CIT) Technical Session 9

3:15 P.M. - 4:45 P.M., ROOM 333, BALTIMORE CONVENTION CENTER

Sponsor: Computing and Information Technology Division (CIT)

Moderators: Jia Zhu, Florida International University; David Zabner-Ignore-Old, Tufts University

Integrating Microlearning Instructional Approach into an Introductory Data-management Course

Dr. Shamima Mithun, Indiana University - Purdue University Indianapolis

Rajagopal Sankaranarayanan, University of Texas at Austin

Plickers and Peer Instruction in a Software Design Course

Dr. Drew Alex Clinkenbeard, California State University Monterey Bay

Joshua B. Gross, California State University Monterey Bay

WPA3 Personal and Enterprise Wireless Security Algorithm Labs for Undergraduate Level

Dr. Emil H. Salib, James Madison University

W534A - Interdisciplinary Integration at the Course Level

3:15 P.M. - 4:45 P.M., ROOM 341, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: John Brocato, University of Georgia

Papers in this session address interdisciplinary and sociotechnical instructional innovations at the course level, investigating the role of the instructor as well as their impact on students.

Instructor Goals and Practices Related to Sociotechnical Thinking in the Teaching of Undergraduate Engineering Students

Dr. Lisa Romkey, University of Toronto

Addressing Engineers and Stakeholders Social and Institutional Power in an Human-Centered Design Capstone Course

Dr. Corey T Schimpf, University at Buffalo, The State

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University of New York

Dr. Jessica E S Swenson, University at Buffalo, The State University of New York

Courtney Burris,

Learning the Impact of Diversity, Equity, and Inclusion Modules in an Undergraduate Electrical Engineering Classroom

Dr. Nina Kamath Telang, University of Texas, Austin

Mr. Ramakrishna Sai Annaluru, University of Texas, Austin

Dr. Christine Julien, University of Texas, Austin

Pedro Enrique Santacruz, University of Texas, Austin

Introducing Engineering through the Sociotechnical Histories of Everyday Technologies

Dr. Sarvnaz Lotfi, Loyola University, Maryland

Dr. Raenita A. Fenner, Loyola University, Maryland

Three-Year Capstone Design: An Innovative Interdisciplinary Preparation for Authentic Engineering Practice

Dr. Mary K. Pilotte, Purdue University, West Lafayette

Prof. Rich Dionne, Purdue University, West Lafayette

W534B - Interdisciplinary Integration at the Program Level

3:15 P.M. - 4:45 P.M., ROOM 309, BALTIMORE CONVENTION CENTER

Sponsor: Liberal Education/Engineering & Society Division (LEES)

Moderator: Lynne Molter, Swarthmore College

Papers in this session describe new programs that bridge engineering and liberal arts disciplines, both major and minor curricula, and ways to cultivate bridge-building faculty with interdisciplinary ideas

Experiences from the First Cohort of Engineering Students at a Liberal Arts University

Alice Huang,

Nava Bozorgmehri,

Alexander Broome,

Peyton Elise Carter,

Hayoung Cho,

Jaxen Farrell,

Jane Ginley,

William Kaeul Gotanda,

Margaret Hynes,

Charles Patrick Neill,

Owen Pett,

Will Purnell,

Eliana Jean Razzino,

Olivia Lane Remcho,

Vanessa Rigoglioso,

Cyrus Rosen,

Ellen Ryan,

Mary Katherine Serpe,

William Sweeney,

Dr. Avneet Hira, Boston College

Gabriella Maria Bachiochi,

Engineering Physics at a Small Liberal Arts College: Accomplishments and Challenges

Dr. James T. McLeskey Jr., Randolph-Macon College

Dr. Deonna Woolard,

Applying STS to Engineering Education: A Comparative Study of STS Minors

Prof. MC Forelle, University of Virginia

Mr. Kent A. Wayland, University of Virginia

Dr. Bryn Elizabeth Seabrook, University of Virginia

Pedagogical Workshops for Interdisciplinary Trading Zones with Faculty and Students: Insights from an Engineering-focused University

Dr. Elizabeth A. Reddy, Colorado School of Mines

Courtney Van Kirk,

Marie Stettler Kleine, Colorado School of Mines

Emily York, James Madison University

Dr. Shannon Conley,

Dr. David Tomblin, University of Maryland, College Park

Dr. Nicole Farkas Mogul, University of Maryland, College Park

Dr. Megan Halpern,

Marisa Renee Brandt, Michigan State University

Kathryn Peck,

Efficacy of Humanities-Driven Science, Technology, Engineering, and Mathematics Curriculum on Integrating Empathy into Technology Design

Dr. John Carrell, Texas Tech University

Dr. Joshua M. Cruz,

Dr. Andrew Mark Herbert,

Iris V. Rivero,

Emily Lazarus,

Erika Nuñez, Texas Tech University

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WEDNESDAY, JUNE 28th SESSIONS

Nafisha Tabassum,
Xueni Fan, Texas Tech University

W536 - Materials Division Business Meeting

3:15 P.M. - 4:45 P.M., ROOM 334, BALTIMORE CONVENTION CENTER

Sponsor: Materials Division (MATS)

Materials Division Business Meeting

W538 - Mechanical Engineering Division (MECH) Technical Session 7: Student Evaluation and Grading

3:15 P.M. - 4:45 P.M., ROOM 348, BALTIMORE CONVENTION CENTER

Sponsor: Mechanical Engineering Division (MECH)

Moderator: Sudeshna Pal, The University of Arizona

This session addresses various aspects of how grades are assigned to students for assignments and/or course performance.

Academic Success and Retention Pathway for Mechanical Engineering Major

Dr. Paul Akangah, North Carolina Agricultural and Technical State University (NCAT)

Henry Ivuawuogu,

Adeola Morawo,

Dr. Andrea Nana Ofori-Boadu, North Carolina Agricultural and Technical State University (NCAT)

Student Success in 4-D (SS4D): Toward a Holistic Understanding of Engineering Student Success in Motivation, Curricular Attainment and Experiential Opportunities across Educational Stages

Samantha Splendido, Pennsylvania State University, University Park

Dr. Andrea Gregg, Pennsylvania State University

Catherine G. P. Berdanier, Pennsylvania State University

Work in Progress: Specifications Grading in a System Modeling Course

Dr. Scott F. Kiefer, York College of Pennsylvania

Dr. Ashley J Earle, York College of Pennsylvania

W540A - COVID-19, Next Generation of STEM Professionals, and Racialized Organizations

3:15 P.M. - 4:45 P.M., ROOM 321, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division (MIND)

Moderators: Jessye Talley, ; Eleazar Marquez, The University of Texas Rio Grande Valley

Effects of Distance Learning on African-American Students in Engineering Technology Courses During COVID-19 Pandemic

Dr. Tejal Mulay, Florida A&M University - Florida State University

Mohamed Khalafalla, Florida A&M University - Florida State University

Dr. Chao Li, P.E., Florida A&M University - Florida State University

Dr. Doreen Kobelo, Florida A&M University - Florida State University

Dr. Behnam Shadravan, Florida A&M University - Florida State University

Facing a Double Pandemic: Viewpoints of African American Engineering Students during COVID-19 and Racial Unrest in the United States

Dr. Racheida S Lewis, University of Georgia

Dr. Trina L. Fletcher, Florida International University

Ms. Zaniyah Victoria Sealey, University of Georgia

Animesh Paul, University of Georgia

Bend and Not Break: Examining Hispanic Engineering Students' Academic Challenges During Covid-19

Dr. Eleazar Marquez, The University of Texas, Rio Grande Valley

Dr. Samuel Garcia, Texas State University

Using an Agricultural Supply Chain to Train the Next Generation of STEM Professionals

Dr. Jessye Talley, Morgan State University

Dr. Lealon L. Martin,

Veronica J. Oates, Tennessee State University

Dr. Sandra Johnson Austin, Charis Consulting Group, LLC

Jiangnan Peng,

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WEDNESDAY, JUNE 28th SESSIONS

W540B - Towards a Participatory Action, Retention of Black Students, and Exploring Black Engineering Student Success

3:15 P.M. - 4:45 P.M., ROOM 329, BALTIMORE CONVENTION CENTER

Sponsor: Minorities in Engineering Division(MIND)

Moderators: Elliot Douglas, University of Florida; Kelly-Ann Dixon Hamil,

Engineering Firms as Racialized Organizations: The Experiences of Black Male Engineers

Dr. Elliot P. Douglas, University of Florida
Erica D. McCray, University of Florida
Gretchen Dietz, University of Florida
Randy Dorian Brown, University of Florida
Paul G Richardson,

Work in Progress: Towards a Participatory Action Research Approach to Improve Representation of Black Ph.D.s in Engineering

Dr. Idalis Villanueva Alarcon, University of Florida
Dr. Denise Rutledge Simmons P.E., University of Florida
Jasmine McNealy, University of Florida

Improving the Experiences and Retention of Black Students in STEM Education

Dr. Hermine Vedogbeton, Worcester Polytechnic Institute
Crystal Brown,
Dr. Gbetonmasse B Somasse, Worcester Polytechnic Institute
Dr. Robert Krueger, Worcester Polytechnic Institute
Alexander Smith, Worcester Polytechnic Institute

Quantitative Methodological Approaches to Understand the Impact of Interventions: Exploring Black Engineering Student Success

Dr. Kelly-Ann Dixon Hamil, The University of the West Indies, Mona
Tasha Zephirin, Purdue University, West Lafayette
Dr. Darryl Dickerson, Florida International University

W541 - Multidisciplinary Engineering Division (MULTI) Technical Session 4

3:15 P.M. - 4:45 P.M., ROOM 347, BALTIMORE

CONVENTION CENTER

Sponsor: Multidisciplinary Engineering Division (MULTI)

Moderators: Cynthia Barnicki, Milwaukee School of Engineering; Ginger Scarbrough, New Mexico State University

Kickstarting an Engineering Success Center at a Hispanic Serving Institute

Dr. Jenna Wong, P.E., San Francisco State University
Dr. Zhaoshuo Jiang, San Francisco State University
Dr. Robert Petruilis,
Dr. Wenshen Pong, P.E., San Francisco State University
Dr. Xiaorong Zhang, San Francisco State University
Dr. David Quintero, San Francisco State University
Fatemeh Khalkhal,
Dr. Yiyi Wang, San Francisco State University

Leveraging Job Shadowing as a Technique to Increase Doctorate Student Enrollment

Sarah Reynolds, Embry-Riddle Aeronautical University
Dr. Omar Ochoa, Embry-Riddle Aeronautical University

Roles for Take-Home Exams from the Perspective of Engineering Students and Instructors

Dr. Micah Lande, South Dakota School of Mines and Technology

The Role of Feedback in Enhancing Students' Learning Experience: An Evaluation of Student Perspectives and Attitudes

Dr. Rania Al-Hammoud, University of Waterloo
Dr. Ona Egbue, University of South Carolina, Upstate

[Work-in-Progress] Broadening Engineering Formation: Lessons Learned from Multidisciplinary Engineering (MDE) Degree at The University of Connecticut

Dr. Daniel D. Burkey, University of Connecticut
Dr. Jorge Paricio Garcia, University of Connecticut
Dr. Davis Chacon-Hurtado, University of Connecticut
Edward Paul Weingart,
Shareen Hertel, University of Connecticut
Shoshana Armington,
Kathryn Libal, University of Connecticut

W543 - ASEE Nominating Committee Meeting

3:30 P.M. - 5:00 P.M., HOLIDAY 6, HILTON BALTIMORE INNER HARBOR

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

Sponsor: ASEE Board of Directors

ASEE Nominating Committee Meeting

W544 - Ocean and Marine Engineering Division Business Meeting

3:15 P.M. - 4:45 P.M., CALLOWAY, HILTON BALTIMORE INNER HARBOR

Sponsor: Ocean and Marine Division (OMED)

Moderators: Lynn Albers, Hofstra University; Robert Kidd, State University of New York Maritime College

Business Meeting for OMED

W546 - Software Engineering Division Technical Session II

3:15 P.M. - 4:45 P.M., ROOM 313, BALTIMORE CONVENTION CENTER

Sponsor: Software Engineering Division (SWED)

Moderators: Afsaneh Minaie, Utah Valley University (Department of Computer Science); Reza Sanati-Mehrizi, Utah Valley University (Department of Computer Science)

Matilda: A Machine Learning Software Application to Virtually Assist with Skincare for Visually Acute and Impaired—A Capstone Design Project

Miss Yu Tong (Rayni) Li, University of Toronto, Canada
Miss Abby Cheung, University of Toronto, Canada
Yongjie Li,
Carmen Hsieh,
Dr. Hamid S. Timorabadi, P.E., University of Toronto, Canada

Proposing a Response Hierarchy Model to Explain How CS Faculty Adopt Teaching Interventions in Higher Education

Dr. Elise Deitrick, Codio
Mr. Joshua Ball, Codio
Megan McHugh, Codio

The State of the Practice Integrating Security in ABET Accredited Software Engineering Programs

Dr. Walter W. Schilling Jr., Milwaukee School of Engineering

Session 8

3:15 P.M. - 4:45 P.M., ROOM 346, BALTIMORE CONVENTION CENTER

Sponsor: Women in Engineering Division (WIED)

Moderator: Jordan Jarrett, Colorado State University

This session primarily addresses women's experiences in the computing fields.

Measuring the Impact of Budding Support Programs for Women Undergraduates in Computing Degrees

Dr. Ilknur Aydin, State University of New York, College of Technology at Farmingdale

Dr. Mary V. Villani, State University of New York, College of Technology at Farmingdale

Dr. Lisa Cullington, National University

Analyzing the Impact of Attending a Women in Computing Conference on Undergraduate Computing Students

Dr. Mary V. Villani, State University of New York, College of Technology at Farmingdale

Dr. Ilknur Aydin, State University of New York, College of Technology at Farmingdale

Lisa Cullington, National University

Impact of an Emerging Scholars/Peer-Led Team Learning Program on the Recruitment of Undergraduate Women and Underrepresented Minorities into Computer Science and Mathematics

Dr. Rita Manco Powell, University of Pennsylvania

Dr. Henry Towsner, University of Pennsylvania

Dr. Brett Frankel, University of Pennsylvania

Work In Progress: Multiple Mentor Model for Cross-Institutional Collaboration and Undergraduate Research

Dr. Karen Watkins-Lewis, Morgan State University

Dr. Heather Dillon, University of Washington

Dr. Rebecca N. Sliger, Tacoma Community College

Bonnie J. Becker,

Erica Cline,

Cheryl Greengrove,

Dr. Petronella A. James, Morgan State University

Angela Edes Kitali,

Adrienne Scarcella,

W551 - Women in Engineering Division (WIED) Technical

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

W557 - Supporting Engineering Student Mental Health and Wellness

3:15 P.M. - 4:45 P.M., RUTH, HILTON BALTIMORE INNER HARBOR

Sponsor: Faculty Development Division (FDD)

Speakers: Dr. Karin Jensen, University of Michigan; Dr. Sarah A Wilson, University of Kentucky

While mental health concerns are not unique to engineering students, national data show that engineers are less likely to seek help, which can lead to escalation of symptoms. By promoting mental health and wellness in the classroom, faculty can help normalize discussions about mental health and promote a culture of wellness in engineering.

This session will help attendees:

- 1) Define the current state of research on mental health in engineering.
- 2) Recognize and respond to students who are in mental health distress.
- 3) Implement research-based strategies for integrating mental health into the classroom.

It will include a summary of the literature on mental health in engineering and how it was impacted by the Covid-19 pandemic.

To create an environment that is more supportive of student wellness, participants will receive tangible ideas for how they can integrate mental health and wellness into the classroom.

This session will motivate faculty to take steps toward developing classroom environments that promote mental health and wellness as a priority, which will shift the needle from a culture of stress to a culture of well-being in engineering.

W559 - ECSJ

3:15 P.M. - 4:45 P.M., ROOM 314, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

W559B - Equity, Culture & Social Justice in Education Division

(EQUITY) Technical Session 13

3:15 P.M. - 4:45 P.M., ROOM 304, BALTIMORE CONVENTION CENTER

Sponsor: Equity, Culture & Social Justice in Education Division (EQUITY)

Examining Professional Engineering Societies' Systemic Inclusion of Transgender, Nonbinary, and Sexual Minoritized Undergraduates

Dr. Rebecca Campbell-Montalvo, University of Connecticut
Mrs. Hannah Cooke, University of Connecticut
Dr. Chrystal Smith, National Science Foundation
Dr. Ellen Puccia, Beta Research Associates, Inc.
Dr. Michelle Hughes Miller, University of South Florida
John Skvoretz, University of South Florida
Hesborn Wao,

Students' Complex Perspectives on Diversity—A Mixed Methods Pilot Study

Dr. Sarah Hug, Colorado Evaluation & Research Consulting
Dr. Wendy Chi, University of Colorado, Boulder

Impact and Lessons Learned: Student Day at ETSU Equity and Inclusion Conference

Dr. Mohammad Moin Uddin, P.E., East Tennessee State University
Dr. Keith V. Johnson, East Tennessee State University
Dr. M. Leah Adinolfi, East Tennessee State University
Deidra A. Rogers, East Tennessee State University

A Critical Examination of ASEE's Diversity Recognition Program to Promote Changed Practices at PostSecondary Institutions

Prof. Amy Slaton, Drexel University
Mrs. Kayla R. Maxey, Purdue University, West Lafayette
Dr. Monica McGill, CSEdResearch.org
Jordan Williamson,

Changing the Landscape of the Digital Workforce and DEI: A Call to Action for Engineering Education

Dr. Janis P. Terpenney, George Mason University
Dr. Tracee Gilbert, System Innovation

Student Definitions of DEI in First-Year Engineering and Capstone Design

Dr. Bridget M. Smyser, Northeastern University
Dr. Susan F. Freeman, Northeastern University

2023 ASEE ANNUAL CONFERENCE

WEDNESDAY, JUNE 28th SESSIONS

W569 - ASEE New Program Chairs Orientation - Will Be Held Virtually After the Conference

3:15 P.M. - 4:45 P.M., OFFSITE, WILL BE HELD VIRTUALLY AFTER THE MEETING

Sponsor: ASEE Headquarters

W577 - ETC Annual Business Meeting

3:15 P.M. - 4:45 P.M., CARROLL, HILTON BALTIMORE INNER HARBOR

Sponsor: Engineering Technology Council (ETC)

W581 - Equity Audits for Institutional Change: What They Are and Why They Are Important

3:15 P.M. - 4:45 P.M., ROOM 315, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Commission on Diversity, Equity & Inclusion (CDEI)

Speakers: Dr. Margaret Pinnell, University of Dayton; Dr. Sindia M. Rivera-Jiménez, University of Florida; Dr. Meagan C Pollock, Engineer Inclusion; Dr. Kenya Crosson, University of Dayton; Dr. Rebecca A Atadero P.E., Colorado State University

This roundtable discussion will present information about best practices in equity audits and how they can be used to advance institutional diversity, equity, and inclusion (DEI) efforts.

W669 - 2023 Program Chair & Co-Chair Appreciation Celebration

5:00 P.M. - 6:00 P.M., CONVENTION CENTER GARDEN - 2ND FLOOR, BALTIMORE CONVENTION CENTER

Sponsor: ASEE Headquarters

ASEE invites all 2023 Chairs and Co-Chairs to this appreciation celebration.

W743 - ASEE President's Farewell Reception Sponsored by NCEES

6:00 P.M. - 7:30 P.M., BALLROOM 1 & 2 , BALTIMORE CONVENTION CENTER

Sponsor: ASEE Board of Directors

Join your friends and colleagues as we say farewell to President Jenna Carpenter and welcome President-Elect Doug Tougaw.



Meet your McGraw Hill Higher Ed and Professional teams at booth #500

- One-on-One Consultations
- Live Demonstrations
- Exciting Giveaways



Join McGraw Hill Higher Education and Engineering faculty for an interactive demonstration on best practices. Learn how your peers utilize digital tools to engage students in learning engineering concepts.

You will learn and explore tools to:

- Ensure students come to class each day with foundational knowledge of the topics
- Maximize efficiency and scalability with auto scored homework
- Immerse your students in real-world scenarios by connecting concept to application
- Gain insight into student performance with detailed assignment reports

Bring your laptop to get a hands-on experience.

McGraw Hill Connect® Engineering Faculty Workshop

Wednesday, June 28th

11:00 am – 12:30 pm

Room 302, Baltimore Convention Center



Scan code to register:
bit.ly/ASEE2023McGrawHillsessionRSVP

Space is limited.
Lunch will be served.

*McGraw Hill has a long history with ASEE and is proud to continue sponsorship of two prominent awards: **The James H. McGraw Award**, and the **ASEE Mechanics Division Beer & Johnston New Educators Award** recognizing outstanding service in Engineering Technology education.*

Congratulations to all past recipients!

We look forward to honoring this year's recipients.



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Come to booth #500 to see what is new at McGraw Hill and meet the team. We look forward to seeing you.

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2023 IEEE ASEE Frontiers in Education Conference

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